FORM GEN. 160 (Rev. 8-12)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

DATE: October 1, 2015

TO: Honorable City Council Members
Los Angeles City Council

FROM: Enrique C. Zaldivar, Director
LA Sanitation

SUBJECT: **LOS ANGELES SANITATION WET WEATHER PREPAREDNESS AND RESPONSE FOR FY 15-16 RAINY SEASON (CF 15-0887 & 15-0887-S1)**

This report is in response to Council Motions Nos. 15-0887(Bonin) & 15-0887-S1(Koretz/Ryu) introduced on July 28, 2015 and August 19, 2015 respectively. In the referenced motions, the Bureau of Sanitation (LASAN) is instructed to report relative to the City's efforts to prepare the City's storm drains, gutters, debris basins and other critical infrastructure for potential El Niño events.

LASAN remains committed to performing all necessary maintenance, enacting the procedures to protect public health and the environment, and preventing flooding to the greatest extent possible during storm events for the protection of property and public safety. All critical elements of the storm drainage system have been inspected and maintained in anticipation of this rainy season. Areas prone to flooding will be inspected during rains to ensure proper operation. Nevertheless, localized flooding would be expected in some areas of the City during especially heavy downpours exceeding the capacity of the system.

BACKGROUND

Since the early 1990's, LA Sanitation (LASAN) has prepared an annual Wet Weather Preparedness and Operations Plan for the wet weather season. This plan reviews, updates and documents LASAN's operational procedures that are necessary to protect public health, the environment, property, public safety, and LASAN's wastewater and stormwater facilities during storm events that threaten normal operations.

Los Angeles has separate systems for the collection, conveyance and treatment of wastewater (sewage) and stormwater (runoff from rain events). Both systems are under the responsibility of LASAN. The City's sewage collection system consists of more than 6,700 miles of interceptor and mainline sewers, 140,000 maintenance holes, 46 sewer pumping plants and various other support facilities (diversion structures, siphons, etc.). The wastewater is being treated at the City's four treatment plants: the Donald C. Tillman Water Reclamation Plant, the Los Angeles Glendale Water Reclamation Plant, the Hyperion Water Reclamation Plant, and the Terminal Island Water Reclamation Plant. Approximately 5,600 miles (84%) of the sewage collection system are smaller local sewers, which range in size from 8 to 15 inches. In addition, out of the 6,700 miles of sewers, 180 miles are interceptors (typically 6' or wider) that collect and convey

wastewater flow across the City. The age of the City's sewer system ranges from new to more than 100 years old and approximately 50 percent of the pipes are more than 50 years old, which is beyond the midpoint of its useful life expectancy.

The primary objective of the storm drain system (or flood protection system) is to prevent flooding and convey stormwater to Santa Monica Bay or San Pedro Bay. In residential neighborhoods, stormwater conveyance begins at the street level where street gutters convey stormwater to approximately 79,000 catch basins citywide. In addition to the catch basins, the City's storm drain system contains over 1,265 miles of storm drains (the pipes that connect the catch basins to channels or receiving waters), 270 miles of open flood control channels (including Los Angeles River, Ballona Creek, Centinela Creek, and the Pico Kenter Drain), nine stormwater pumping plants, eight low-flow diversions, 63 debris basins, and three spreading grounds. This storm drain system is operated by LASAN in coordination with the County of Los Angeles Flood Control District and federal agencies. The majority of this system was built during the 1930's and 1940's, with the last portions built in the 1960's and 70's.

In effect, the flood control system in Southern California can be categorized as being operated by three different levels of jurisdictions:

- Large regional infrastructure is operated by the US Army Corps of Engineers (e.g., Sepulveda Basin, Hansen Dam, LA River).
- Regional infrastructure is operated by the Los Angeles County Flood Control District (e.g., Tujunga Wash, Ballona Creek, large storm drains).
- Local infrastructure is being operated by the City of Los Angeles LASAN (e.g., smaller storm drains, catch basins). We have a total of about 79,000 catch basins throughout the City. About 38,000 of these are owned and operated by LASAN. The other 41,000 catch basins are owned and operated by the Los Angeles County Flood Control District. We make every effort to ensure that this does not cause any confusion for the residents.

A key map with the major flood control facilities is included as an attachment to this response.

The major cause of flooding in Los Angeles is short-duration high-intensity storms. Los Angeles is highly developed and stormwater peak flow rates have increased as the soil surface has become covered by new buildings and pavement added since the 1970's. This has created a stress on the flood protection capacity of the storm drain system. The City's streets are part of the drainage system they would normally carry runoff during heavy downpours that exceed the capacity of the storm drains. The majority of storm drains are designed to carry a storm intensity of a maximum of a 10-year return frequency (i.e., a storm that happens once every ten years). The City has records of over 400 chronic flood locations that are in need of drainage enhancements. These are prioritized based on severity and scheduled for improvements when funding becomes available.

In dealing with increased runoff, efforts are underway to capture, infiltrate and use more runoff upstream in the watersheds through the use of green stormwater infrastructure and low impact development tools such as cisterns, grassy swales, bioswales, porous pavement, rain gardens, drywells, constructed wetlands and many other best management practices. The Enhanced Watershed Management Programs (EWMPs) exemplify this effort by capture, infiltration and/or beneficial use of the runoff of the 85th percentile storm event (For most parts of the City, this equates to a storm event with 0.75-1.5 inches of rain over 24 hours. Looking back over the past 25 years, 85% of the storms in our City produce less rain).

In addition, severe storms may increase the groundwater level and cause groundwater to flow or infiltrate into the sanitary sewers. This "inflow and infiltration" burdens the capacity of the sewer system and it increases the potential for sewer system overflows during major storm events.

STORMWATER SYSTEM MAINTENANCE

The City has successfully implemented many proactive and effective operation, maintenance and management programs to enhance the overall performance of the City's stormwater system. These include the implementation of increased catch basin cleaning with focus on high trash generation areas. This program schedules cleaning of all structures, except storm drains, at least once during the dry weather season (May 1 through September 30) in preparation for wet weather events. In addition, all catch basins, culverts and low flow structures are cleaned again during the wet weather season (October 1 through April 30). During the cleaning process staff will record the amount of debris removed from each structure. This valuable data is utilized to determine which catch basins have a greater tendency to accumulate large amounts of debris, which is defined as greater than fifty percent full at the time of cleaning. These catch basins are designated as "High Priority" and they are cleaned a minimum of two additional times during the wet weather season. About 4,500 high priority catch basins are scheduled to be cleaned an additional two times while all other catch basins will be cleaned one time. Maps with all cleaned catch basins by council district are attached to this response.

In the foothills, the City operates 63 debris basins that capture debris, sediments and mud, and then drains the remaining runoff to the storm drains. Proper operation of the debris basins is very critical, especially after fires that bare the foothill slopes of vegetation, thereby exposing the earth to erosion. All debris basins have been inspected and cleaned.

The following table summarizes the maintenance frequency for the stormwater system elements:

Stormwater Structure Type	Type of Maintenance	Frequency	Status
Catch Basins (All)	Cleaning	1. Minimum of one time during dry season prior to rain. 2. Minimum of one time during rainy season	1. All cleaning during dry season prior to rainy season have been completed 2. Cleaning during rainy season is underway
High Priority Catch Basins	Cleaning	Minimum of two times during rainy season for a total of four cleanings in year	Cleaning during rainy season is underway
Storm Drains, Channels, and Culverts	Inspection and cleaning	As needed during the dry season	Completed
Pumping Plants	1. Inspection, maintenance and testing of power backup 2. Cleaning of wet well	1. Monthly 2. Semiannual or quarterly based on location	Ongoing
Debris Basins	Inspection and as needed dredging	Prior to rainy season	All completed

WET WEATHER PREPAREDNESS AND RESPONSE

LASAN's Wet Weather Preparedness and Operations Plan provides the protocols for the sewer and stormwater systems to follow during storm events. The main focus of the plan is to protect public health and safety, ensure the readiness and operation of LASAN's facilities including primary and backup components, maximize and optimize the use of our facilities, maintain stable operations, and minimize, monitor, and coordinate any adverse impacts on the public and the environment due to emergencies, unavoidable sewage overflows and street flooding.

LASAN staff monitors the weather reports issued by the National Weather Service and local media throughout the year. If a severe storm is forecasted (i.e., a storm that threatens normal operations), LASAN issues a wet weather alert putting all facilities on alert in anticipation of the upcoming storm(s). LASAN has designated Storm Commanders that coordinate all storm-related activities in LASAN on behalf of the general manager. The Storm Commander tracks a storm as it progresses over Los

Angeles, is the central point of communication, coordinates and ensures that all LASAN divisions follow the procedures of the Wet Weather Preparedness and Operations Plan, and coordinates responses to emergency situations.

Many of LASAN's preparedness activities take place in the dry season. This includes: preventive maintenance, inspections and necessary repairs to maximize availability of equipment during wet weather operations; inspection of backup equipment and standby emergency generators; training of staff for wet weather operations; stockpiling of sandbags, materials, chemicals and other necessary equipment for emergencies; and ensuring that contracts for emergency responses and heavy equipment rental are in force and have sufficient funds. LASAN also inspects and cleans all catch basins, debris basins and flood control channels before the beginning of the wet season.

LASAN conducts hydraulic modeling and analysis of its outfall sewers for wet weather conditions to identify the problem areas. During a storm event, staff monitors the real time flow levels at various locations across the City. Also, field crews are deployed to monitor the water level at pre-identified hot spot locations and to direct flows to sewers with available capacity, if feasible. The goal of the water reclamation plants is to take in the maximum amount of flow from the sewage collection system, process it through the wastewater treatment plants and discharge the effluent through the plant effluent outfalls. The plants are to prevent and/or minimize any sewage overflows, even at the expense of the high plant flows that may result in possible exceedances of NPDES Permit standards. The Storm Commander coordinates these activities with staff from the treatment plants, the collection systems, and outside entities. Extra staff is placed on standby and/or mobilized to operate LASAN facilities in a rain storm. Crews patrol the City to monitor the sewer and storm drain systems and respond to and mitigate any problems, including unavoidable overflows and localized street flooding. Standard emergency operations for containment and clean-up are in place in order to minimize impacts.

Emergency preparedness for the rainy season also requires participation by the general public. Property owners need to make sure that their drains and gutters are cleared of debris and in good working order, and clean up any debris or litter on their property that might get washed away in a storm and plug up the storm drain inlets. LASAN is working with the Public Affairs Office (PAO) and the Los Angeles County Flood Control District to issue public messages to notify the public before and during storms. In addition, public notifications will be sent to the public to secure loose materials in their yards and to remove any waste and trash that may otherwise be carried away by runoff and block storm drains. The public will also be reminded not to water their yards during and after the storm, to help minimize runoff generation and conserve water, and to minimize wastewater generation inside their houses during major rain storm.

Solid Resources Collection

On a weekly basis LASAN provides solid resources collection and recycling services for over 750,000 residential customers. During episodes of heavy and continuous downpour, operation may experience multiple challenges including:

- Closure of disposal and recycling facilities: LASAN's contingency plan includes diverting material to other processing facilities.
- Driving Hazards: Continuous heavy downpours will cause driving hazards not only to the public but also to our collection trucks. In these instances, management has given approval to drivers to cease collection and pull over their collection vehicles to avoid accidents. Drivers will assess the situation to determine if the downpour will subside or get further instructions from their supervisors, perhaps delaying collections for one day.
- Limited road access: Due to flooding, mud slides, visibility and the large size of collection vehicles, this could make it difficult for drivers to safely operate. As a result, those difficult areas will have a delay in service until conditions are safe.
- Heavy traffic: Management may terminate collection services on days with heavy downpours and flooding. This will prevent having our trucks on the roads during the heavy downpours to protect the public and the workers and will minimize the containers from being turned over and carried by the runoff, risking blocking of drains that could cause flooding or traffic accidents caused by obstacles in the roads. Residents will be notified through our Customer Care Center not to place their containers at the curb with instructions on when their service will resume.
- Bulky Items: LASAN provides collection of unlimited bulky household items, such as mattresses, couches, and other furniture from all residents serviced by the City. Bulky items pick up service requests are normally fulfilled at the resident's next scheduled collection service. To prevent the potential of these large materials from being carried by the heavy runoff and risking blocking of drains, our Customer Care representative will notify the resident on steps to undertake at the time the request is made if heavy downpour is in the forecast and delay the pick-up accordingly.

LASAN operates a Customer Care Center (CCC) that is operational 24 hours a day (starting October 19, 2015). During rain storms, the CCC will refer service requests to the appropriate LASAN operations staff. Also starting October 19, 2015, the CCC will be capable of sending messages to customers about collection changes and flood warnings.

CHALLENGES AND ISSUES

Stormwater System

The following are some of the challenges and issues facing the stormwater system:

- Localized flooding: Since many of the storm drains are designed to handle average storms of 10-year intensity, heavy downpours with higher intensity can flood low lying areas. The street, including the gutter area, is designed as part of the storm drain system to handle and convey runoff.
- Under-capacity drainage system: There are over 400 identified locations that have an undersized drainage system in need of upgrade.
- Need for increased upstream capture, infiltration and use of stormwater.
- Construction sites in the City are required by the General Construction Permit to use sand bags and other practices in order to prevent sediment from construction activities entering the catch basins and storm drain system. While this benefits the quality of the City's waters, it may sometimes also reduce the capacity of our catch basins to take in stormwater.

The storm drain system is designed to handle a ten-year storm event. The streets, curbs and gutters function as a major addition to the storm drain system. They collect runoff from homes and businesses, protecting them from flood damage as the runoff flow down the street to a storm drain inlet. In very heavy rain storms the streets store runoff inside the curbs and gutters until it can drain into the storm drains, protecting adjacent private property from flood damage. This is an integral part of the storm drain system so it is not unusual to find many streets with a lot of water on them in heavy rain events. More intense storm events, and in particular those storms that occur during an El Niño year, have the potential to exceed the design capacity of the City's streets, curbs and gutters for conveyance, cause water levels in the curbs and gutters to rise until they exceed the curb height and flow into adjacent properties.

With the completion of the storm drain system in the 1970's and the continued urbanization and paving over of formerly open areas in the City since then, the storm drains in certain areas of the City no longer meet the 10-year storm design criteria and are now undersized. Continued urbanization results in more impervious areas and less infiltration of stormwater. From an engineering point of view, this means that the size of the 10-year design storm and the associated runoff volume has increased since the 1970's when the City was less urbanized and more pervious.

While LASAN has the protocols and procedures in place for the upcoming winter season, parts of the Los Angeles will likely experience flooding and sewer system overflows during storm events. The likelihood of flooding is even greater during El Niño years when precipitation levels are higher as the result of more frequent and higher-intensity storms. With the existing infrastructure, flooding may occur because of the capacity limitations of the City's storm drain and sewer systems.

LASAN and BOE have identified over 400 flood control projects to alleviate local flooding in low-lying areas in the City where flooding often occurs. These areas need

capital investments to increase the capacity of the local storm drain system in order to reduce the risk of flooding during storm events.
Investments for specific flood protection projects and the redesign/reconstruction of the City's streets would be very significant but can be leveraged through the implementation of the City's Enhanced Watershed Management Programs (EWMPs). Developed by LASAN for each of the City's four watersheds, these plans provide a multi-benefit approach to compliance with the NPDES Permit for the Municipal Separate Storm Sewer System and other water quality regulations. The EWMPs detail a water compliance strategy through the implementation of distributed (Green Street) and regional stormwater capture and infiltration projects. By increasing the permeability of the City's surfaces, thereby allowing more natural infiltration of stormwater to occur, there will be less stormwater to be conveyed through the storm drain system and extensive investments to increase system capacity may be avoided or offset.

In partnership with sister agencies, the City has aggressively implemented stormwater capture projects that have increased the average annual groundwater recharge throughout the City by ~11,000 acre-feet per year (AFY), enough to supply 27,500 households. Currently identified future planned projects have the potential to capture and recharge an additional 33,000 AFY, enough to supply 82,500 households. In addition, the City's turf replacement program has seen very high participation levels, which further increases the City's potential for capturing stormwater.

Currently, on average, we are capturing about 93,500 AFY with a potential additional recharge of 75,000 AFY with the implementation of the Enhanced Watershed Management Programs and the Stormwater Capture Master Plan.

Wastewater System

The following are some of the challenges and issues facing the wastewater system:

- Heavy downpours with high intensity can increase wastewater flows and increase risk of overflows when these flows approach the maximum capacity of the sewer system. However, efforts are underway to maximize flow in our upstream treatment plants to minimize downstream flows and the risk of overflows.
- Some of our facilities are undergoing upgrades or rehabilitation during the rainy season. LASAN is coordinating with BOE to ensure that all critical systems are returned back to operation prior to the rain season.

The City's wastewater system has gone through extensive upgrades, renewals and expansions for the past ten years. However, there are still areas with possible wet weather sewer system overflows (SSOs) in the City, in particular in the areas downstream of the Donald C. Tillman Water Reclamation Plant (DCTWRP) and Los Angeles Glendale Water Reclamation Plant (LAGWRP) where there are choke points in the sewer system. One area is near the intersection of Colfax Avenue and Chiquita

Street and the other is downstream of LAGWRP. Both locations are located along the 90-year old North Outfall Sewer. Large wet weather storage tanks have been built at DCTWRP to protect the Colfax and Chiquita location, and the LAGWRP will maximize flow intake to prevent/reduce the risk of overflows in its downstream area.

LASAN has standard wet weather operational protocols in place that can handle the anticipated El Niño conditions for the four treatments plants. This protocol dictates plant managers to take in as much water as their plant capacities would allow, even though the intake may exceed the treatment capacity of the plants for satisfying the permit effluent limits. This is done to reduce the likelihood of SSOs and flooding as the highest priority during major storm events.

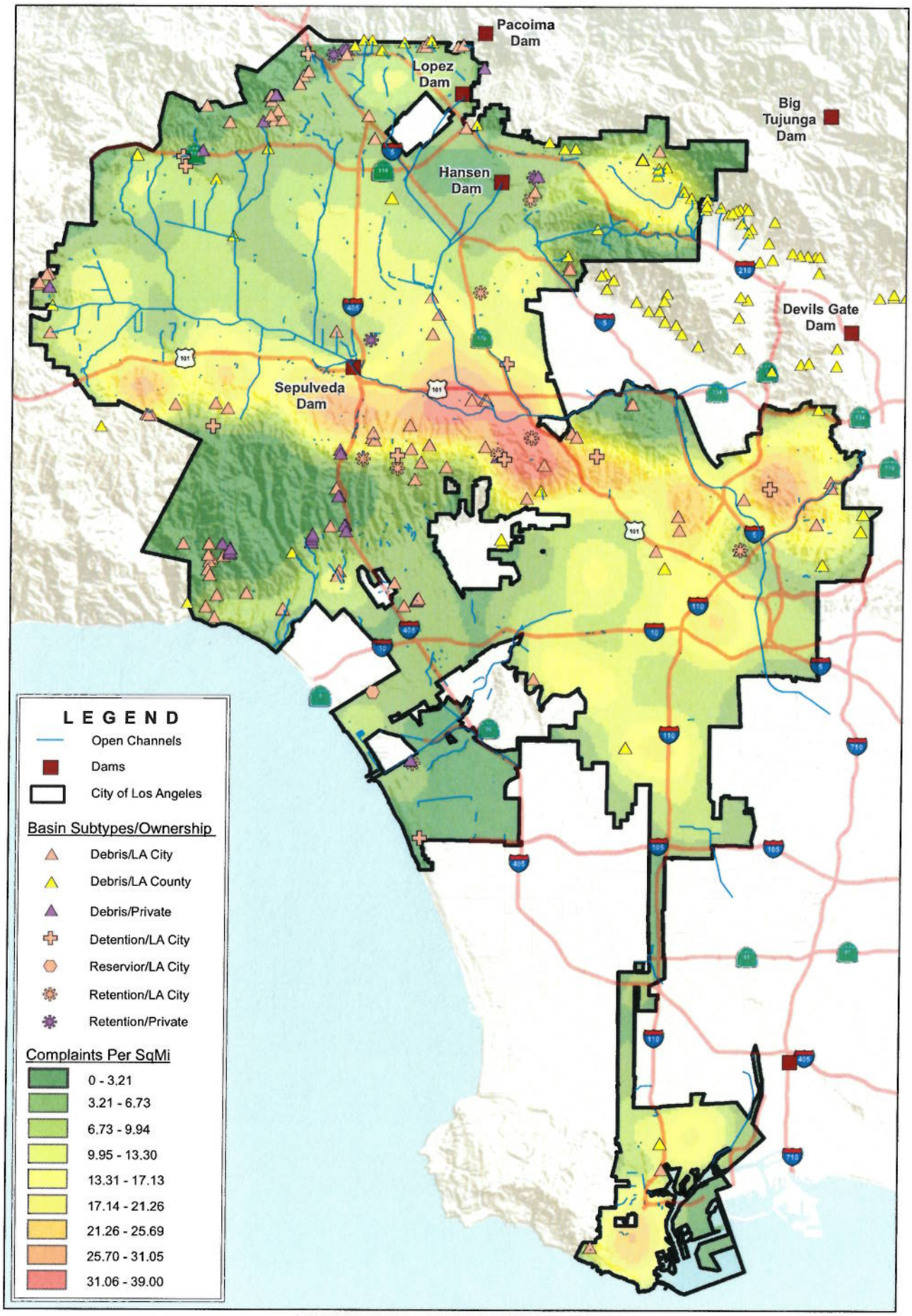
Global warming may amplify El Niño impacts, which is a concern for future years. As part of the City's ongoing long-term facilities planning efforts through One Water LA, climate change impacts to LASAN facilities will be thoroughly analyzed. Recommendations for near- and long-term projects will incorporate climate change adaptation and mitigation to ensure that wastewater and stormwater facilities are protected in extreme climate change events including: increased temperatures, intense rainfall events, and sea water level rise and infrastructure damage.

In summary, LASAN is prepared for the upcoming El Niño season by conducting the necessary preparations during the dry season, by responding to emergency situations during storm events to protect property and public safety, and by coordinating the recovery from any damages resulting from severe storm events. However, local flooding during severe storm events would be expected because of capacity limitations of the existing infrastructure for stormwater and wastewater. LASAN will do the maximum feasible to minimize the impact on our residents and it will keep cost record of its activities by establishing specific work orders dedicated to specific storm events.

RECOMMENDATIONS

1. LASAN will track its expenses for overtime necessary for staff to respond to emergency responses and prepare an update to City Council. A request for additional appropriations for overtime may be submitted if overtime use would exceed our current appropriations.
2. Likewise, LASAN will track its use of contractual services for emergency repairs during severe storm events and prepare an update to City Council for additional appropriation.
3. LASAN will evaluate the impacts of the upcoming El Niño season on the existing flood protection infrastructure, identify capital needs for infrastructure improvements and repairs, and will request additional appropriation to protect the public health and safety.

ECZ/SK:tn
Enclosure: Flood Control Facilities Map



EL NINO PREP FOR STORMWATER SYSTEM
Flood Control Facilities

0 1 2 Miles

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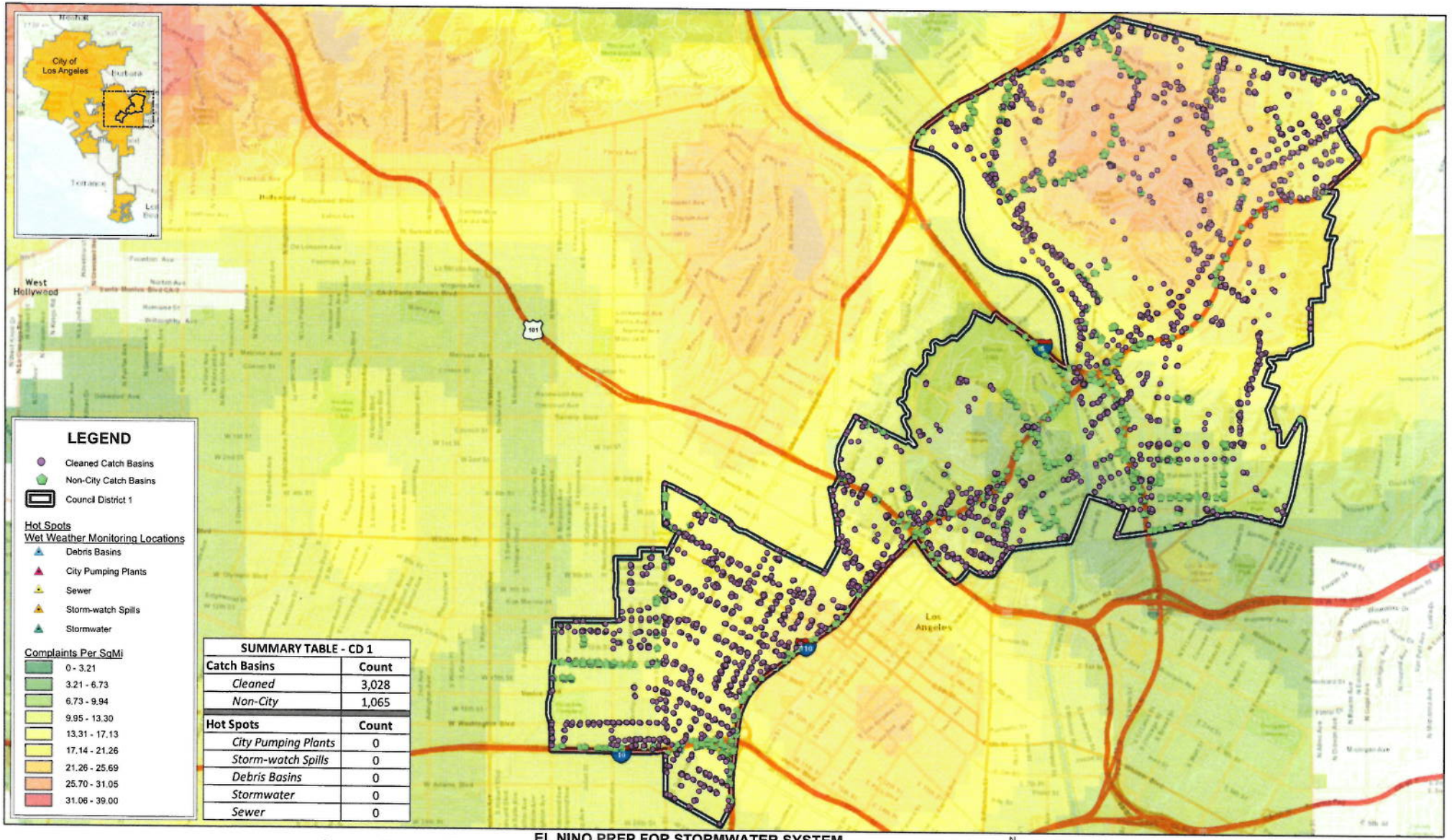

SUMMARY TABLE - CD 1	
Catch Basins	**Count**
Cleaned	3,028
Non-City	1,065
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	0

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 1

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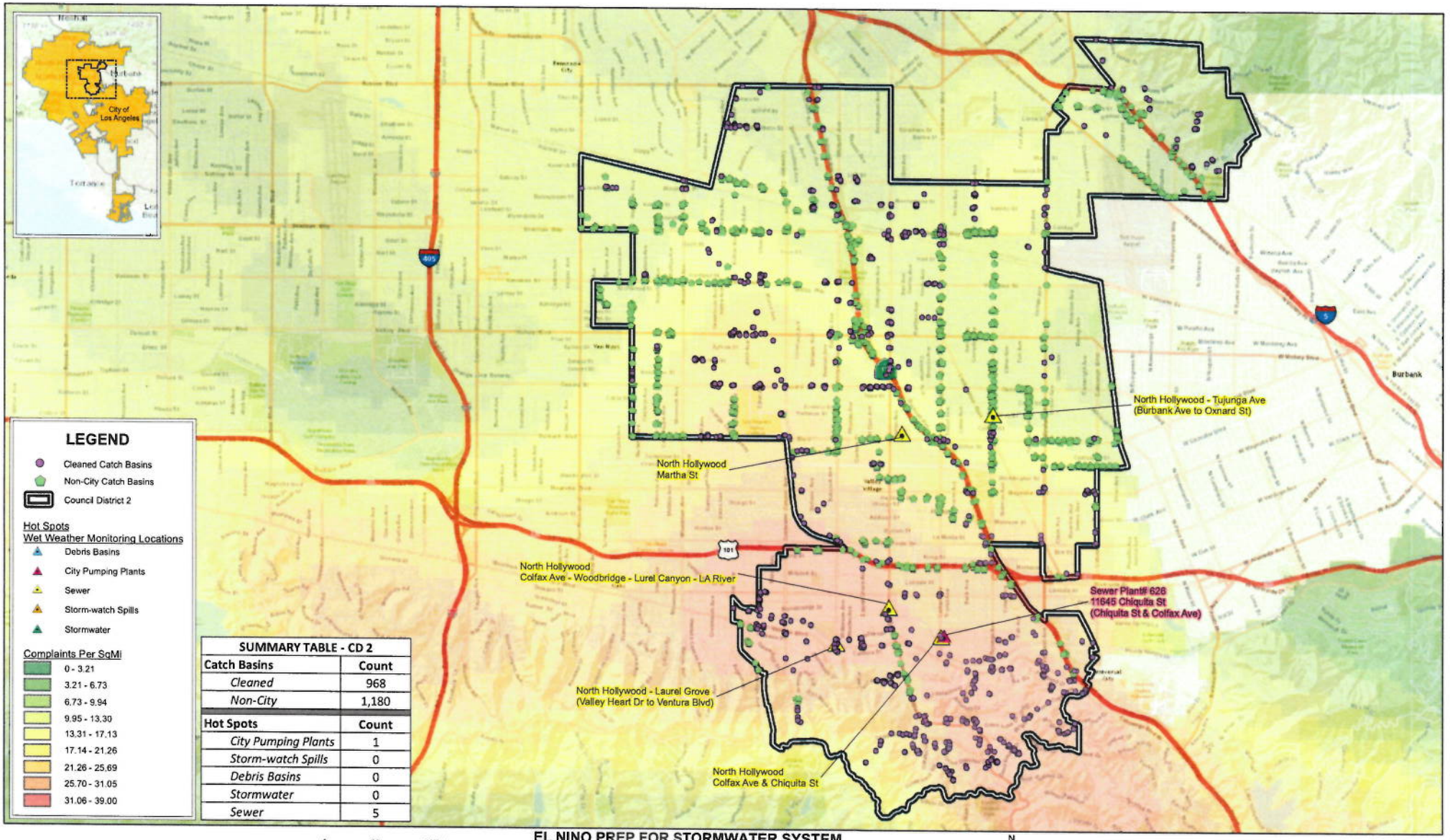

SUMMARY TABLE - CD 2	
Catch Basins	**Count**
Cleaned	968
Non-City	1,180
Hot Spots	**Count**
City Pumping Plants	1
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	5

EL NINO PREP FOR STORMWATER SYSTEM
Council District 2

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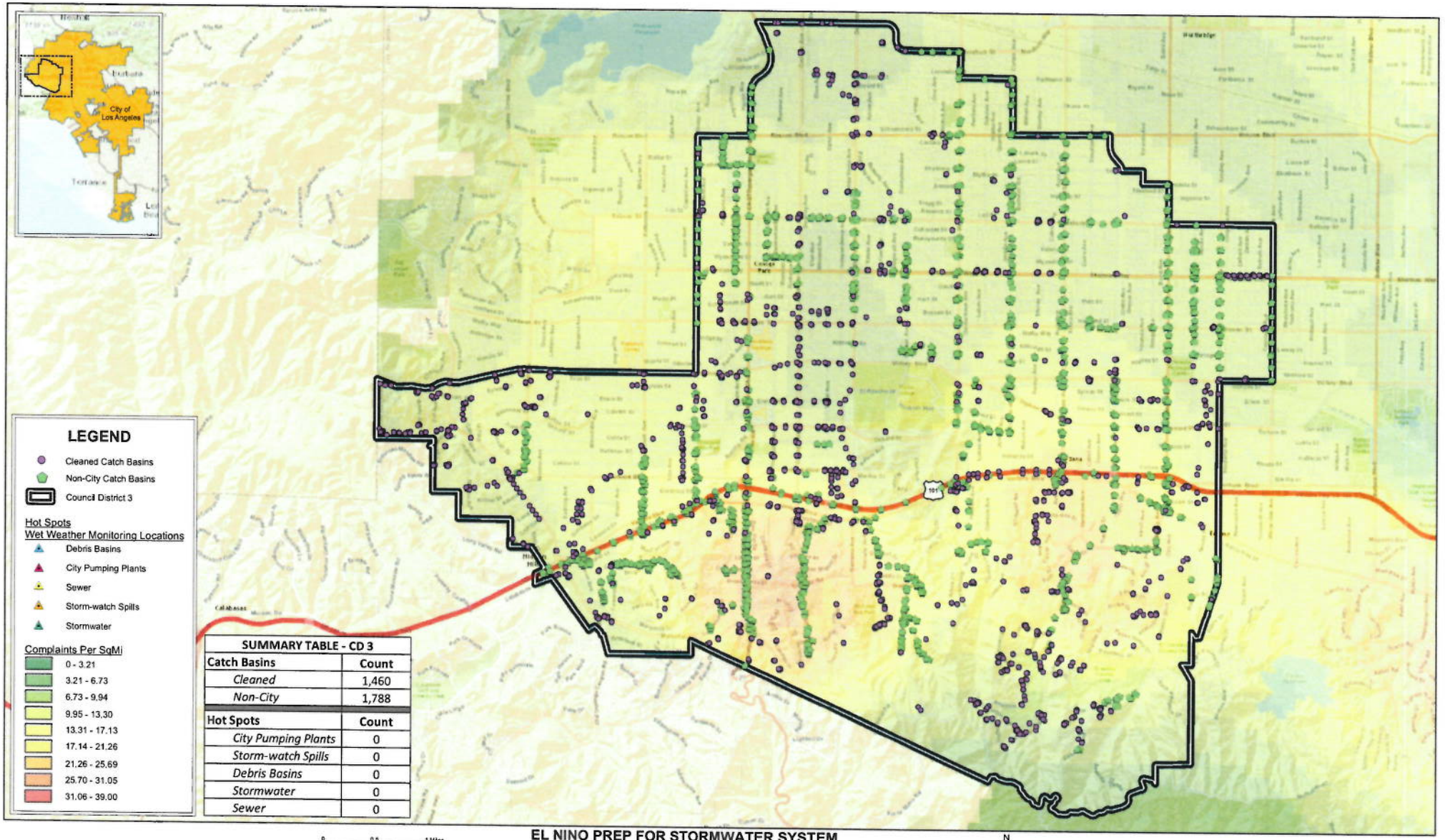
LASANITATION
WATERSHED PROTECTION


City of Los Angeles
Burbank
Torrance
LEGEND
Cleaned Catch Basins
Non-City Catch Basins
Council District 3
Hot Spots
Wet Weather Monitoring Locations
Debris Basins
City Pumping Plants
Sewer
Storm-watch Spills
Stormwater
Complaints Per SqMi
0 - 3.21
3.21 - 6.73
6.73 - 9.94
9.95 - 13.30
13.31 - 17.13
17.14 - 21.26
21.26 - 25.69
25.70 - 31.05
31.06 - 39.00
SUMMARY TABLE - CD 3
Catch Basins | Count
Cleaned | 1,460
Non-City | 1,788
Hot Spots | Count
City Pumping Plants | 0
Storm-watch Spills | 0
Debris Basins | 0
Stormwater | 0
Sewer | 0
0 0.5 1 Miles
EL NINO PREP FOR STORMWATER SYSTEM
Council District 3
N
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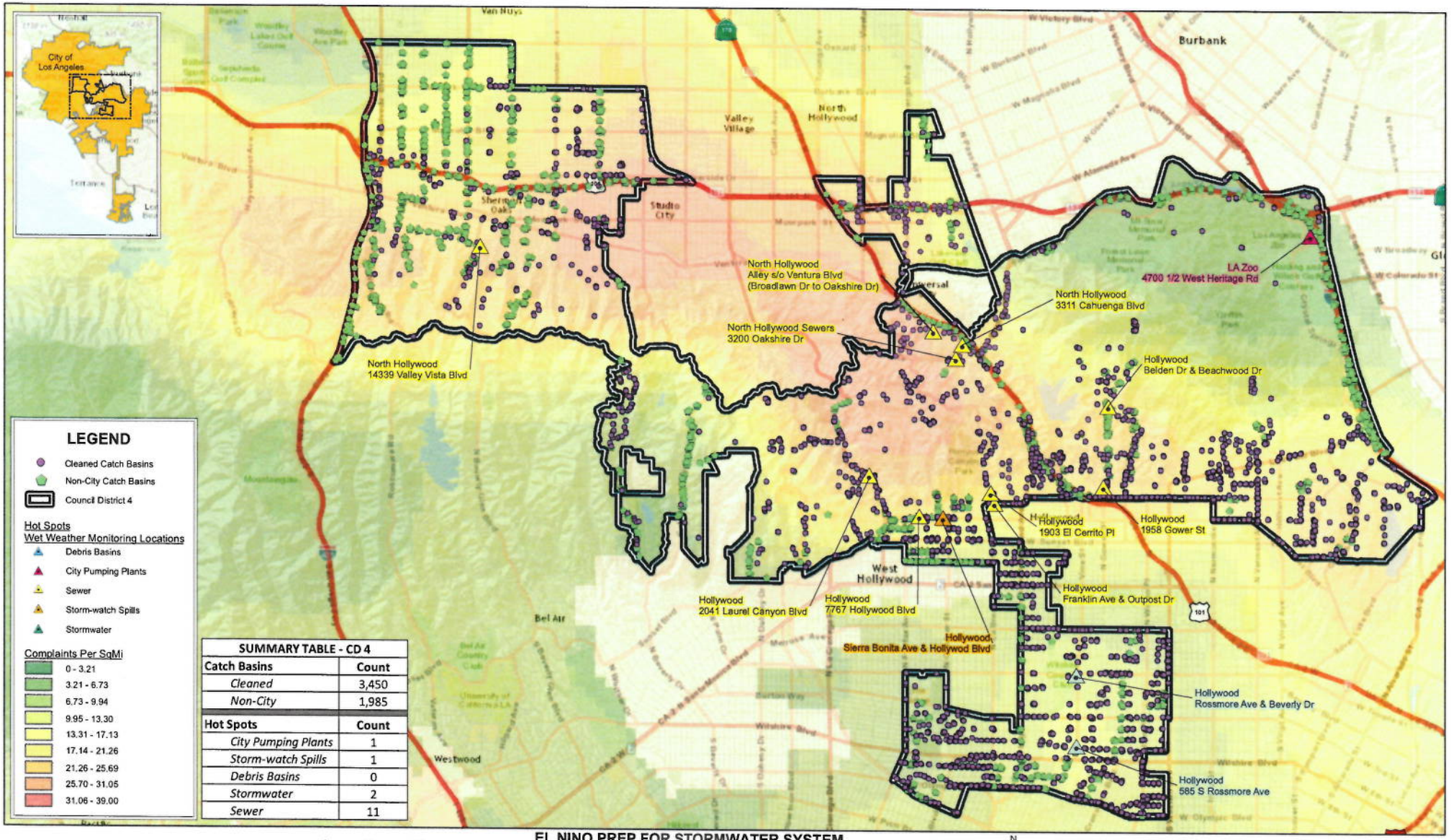
WATERSHED PROTECTION



SUMMARY TABLE - CD 4	
Catch Basins	**Count**
Cleaned	3,450
Non-City	1,985
Hot Spots	**Count**
City Pumping Plants	1
Storm-watch Spills	1
Debris Basins	0
Stormwater	2
Sewer	11

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM

Council District 4

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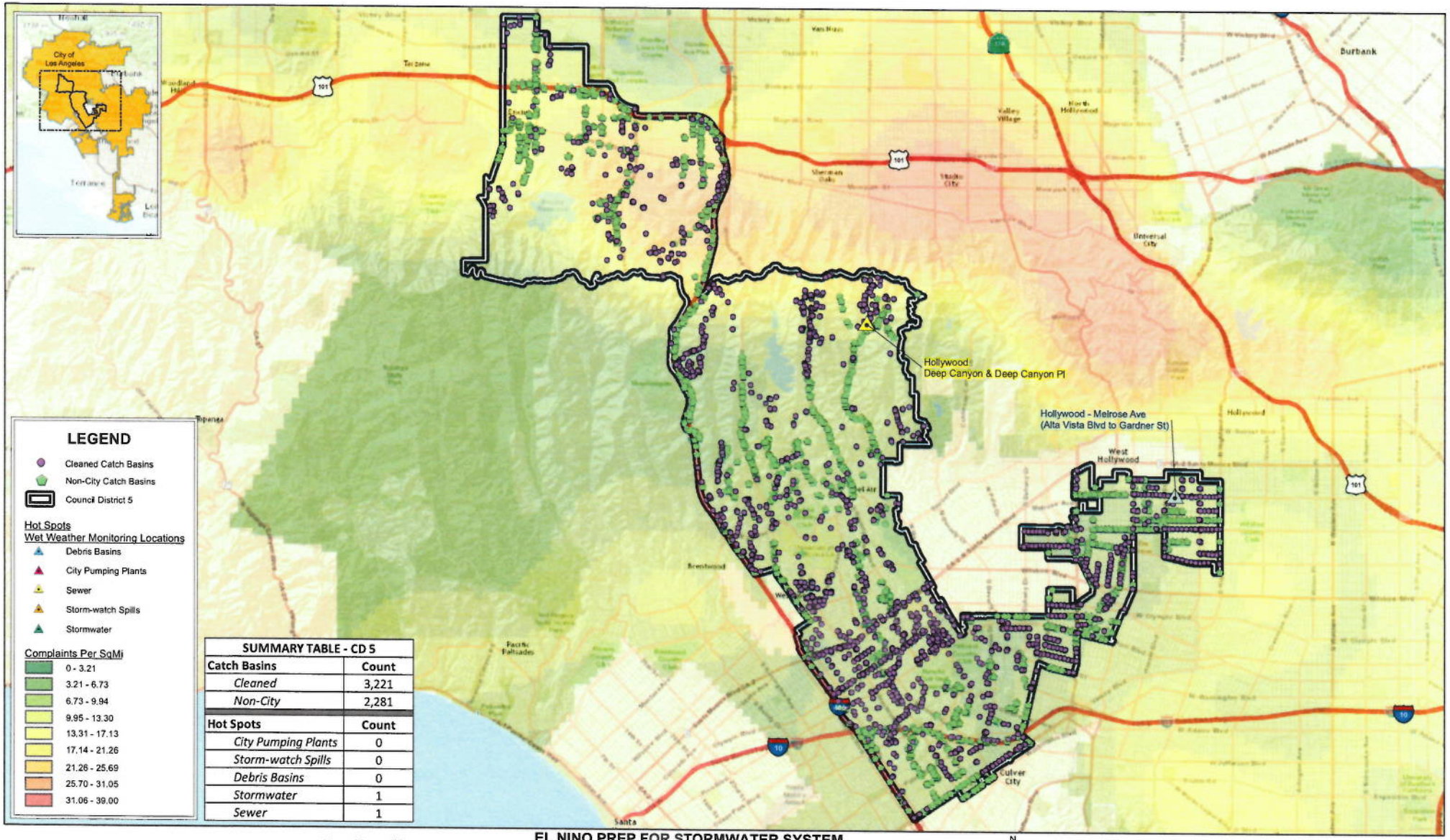

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 5

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 5	
Catch Basins	**Count**
Cleaned	3,221
Non-City	2,281
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	1
Sewer	1

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 5

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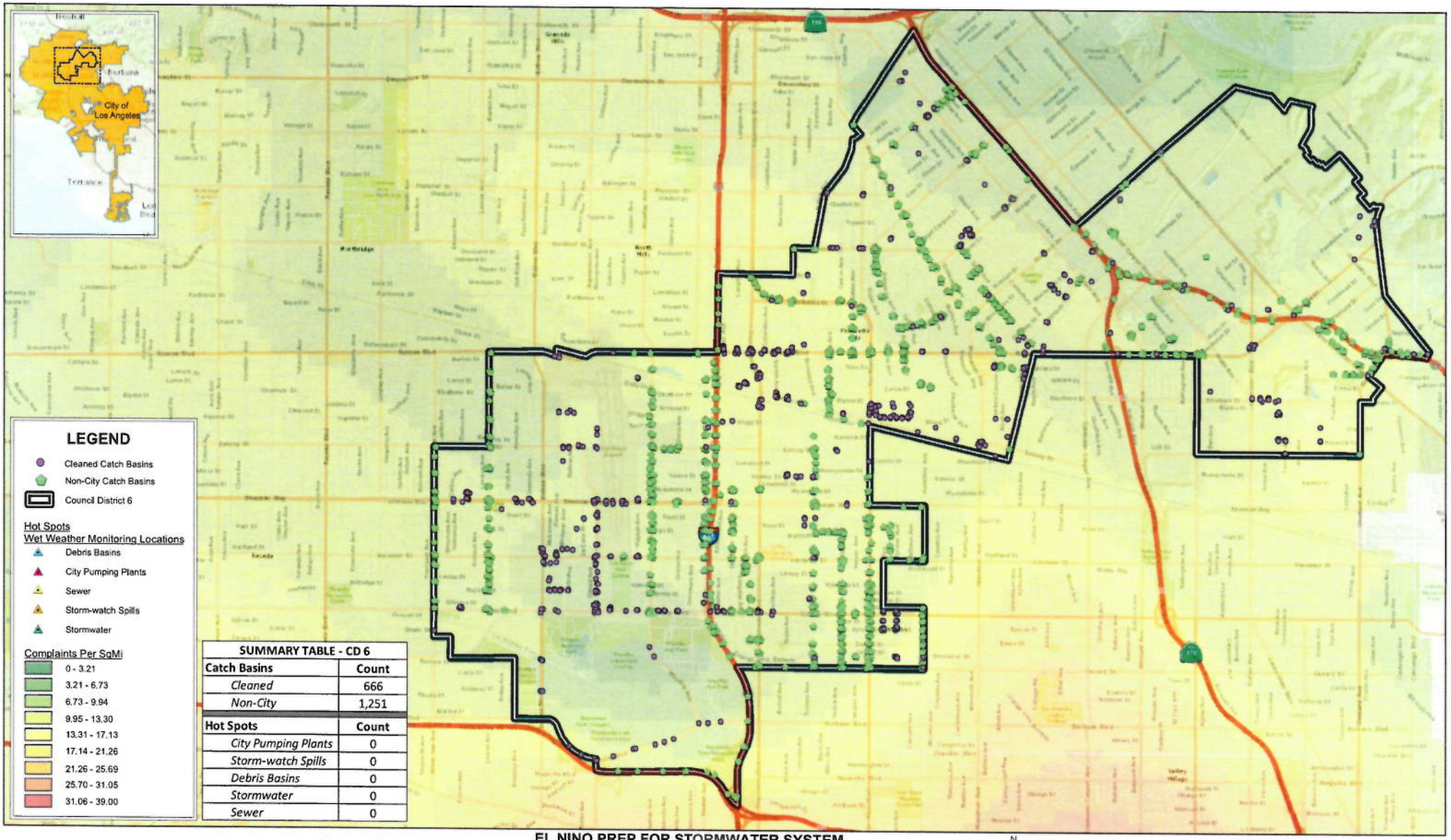

EL NINO PREP FOR STORMWATER SYSTEM
Council District 6

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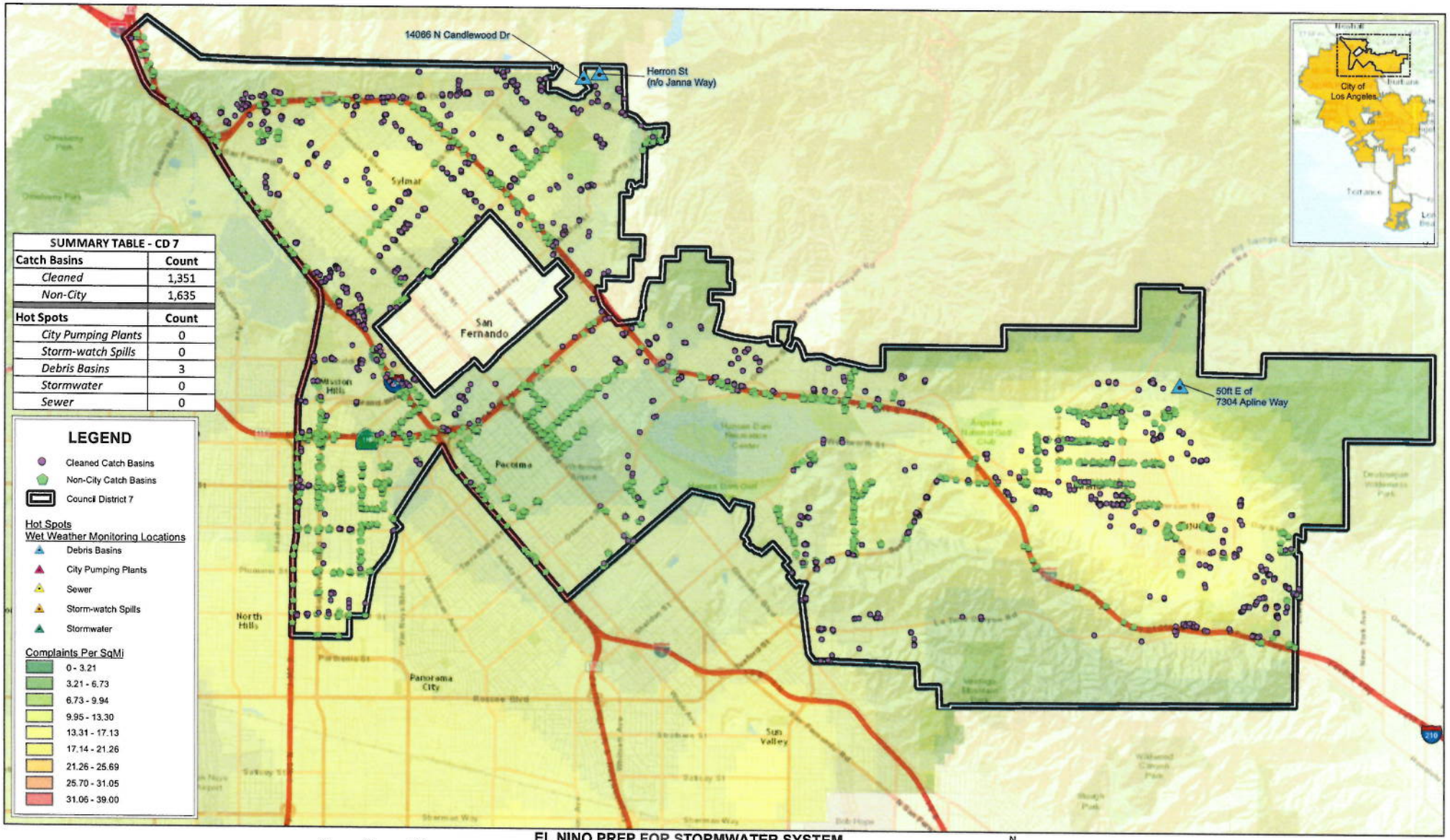

EL NINO PREP FOR STORMWATER SYSTEM

Council District 7

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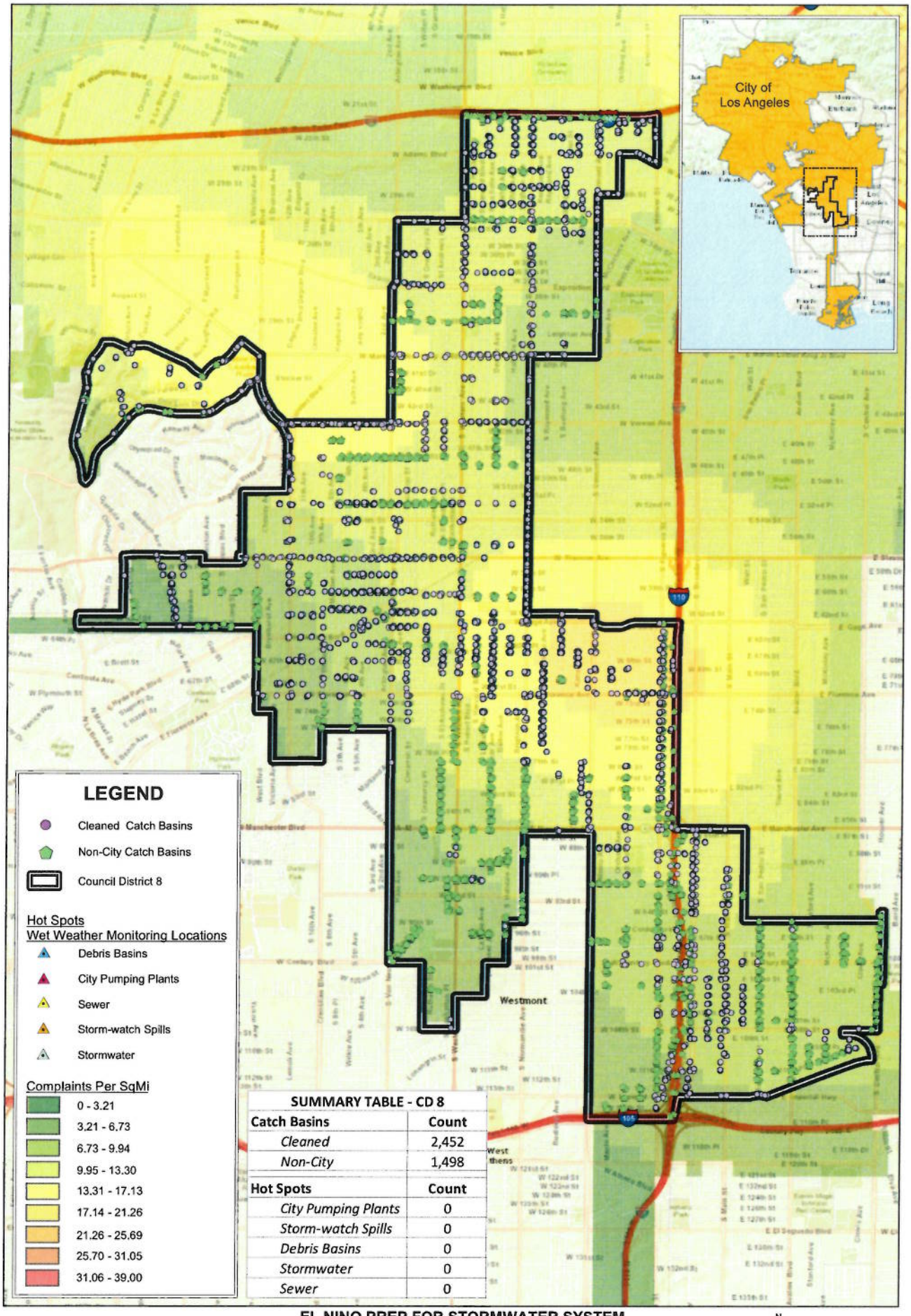

SUMMARY TABLE - CD 8	
Catch Basins	**Count**
Cleaned	2,452
Non-City	1,498
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	0

0 0.25 0.5 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 8

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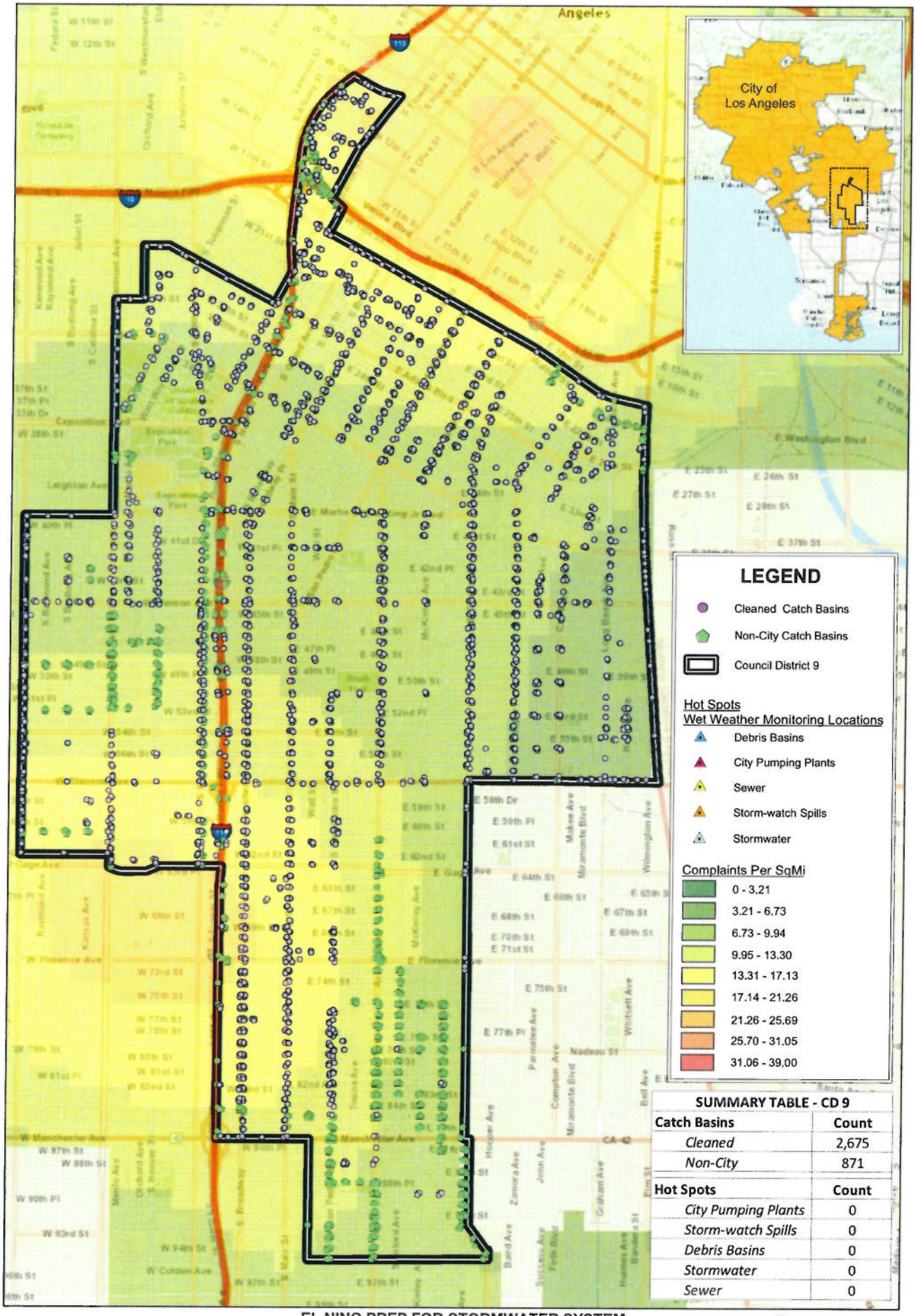

SUMMARY TABLE - CD 9	
Catch Basins	**Count**
Cleaned	2,675
Non-City	871
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	0

0 0.25 0.5 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 9

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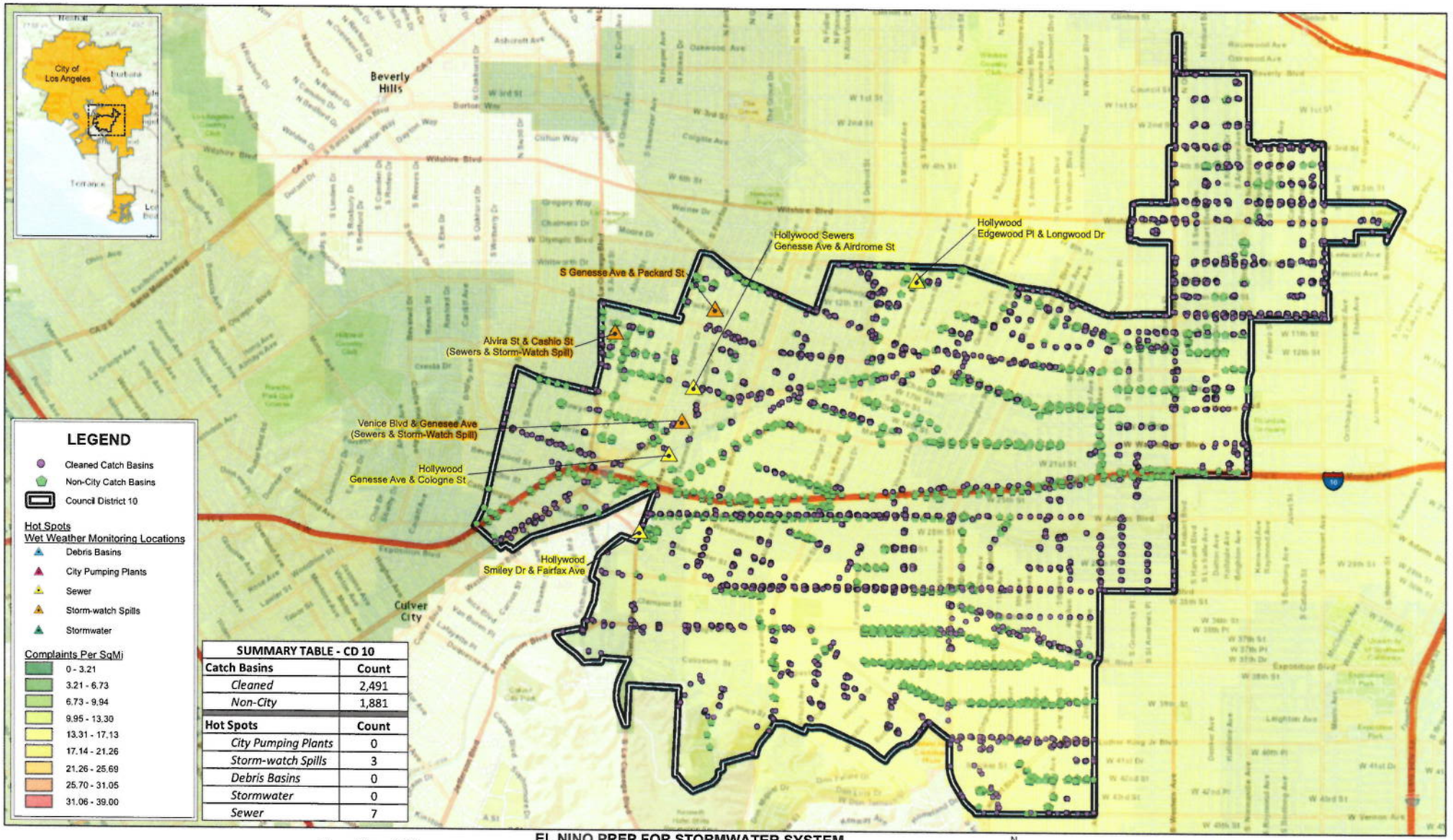

SUMMARY TABLE - CD 10	
Catch Basins	**Count**
Cleaned	2,491
Non-City	1,881
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	3
Debris Basins	0
Stormwater	0
Sewer	7

0 0.25 0.5 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 10

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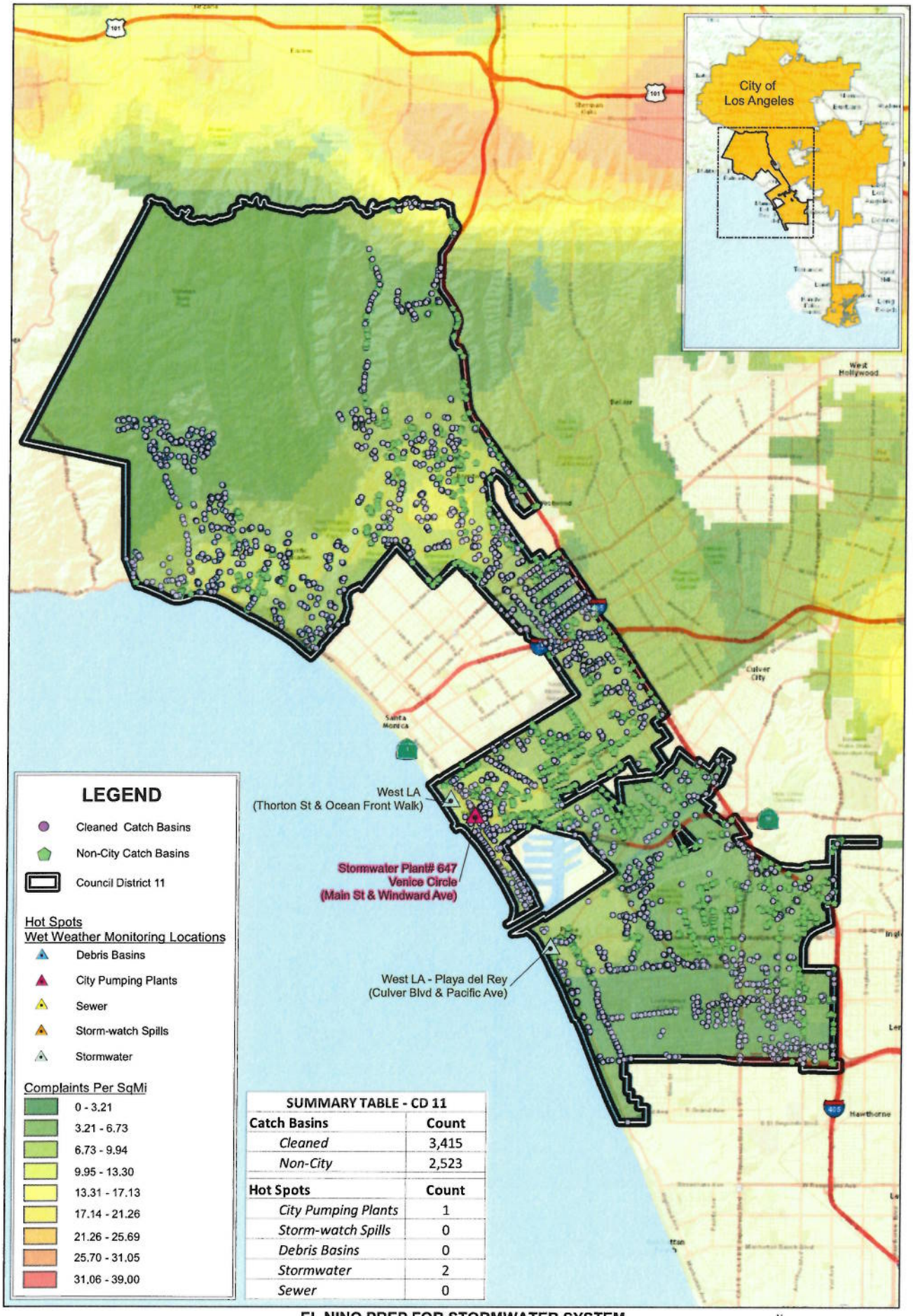

SUMMARY TABLE - CD 11	
Catch Basins	**Count**
Cleaned	3,415
Non-City	2,523
Hot Spots	**Count**
City Pumping Plants	1
Storm-watch Spills	0
Debris Basins	0
Stormwater	2
Sewer	0

EL NINO PREP FOR STORMWATER SYSTEM
Council District 11

0 0.5 1 Miles

N

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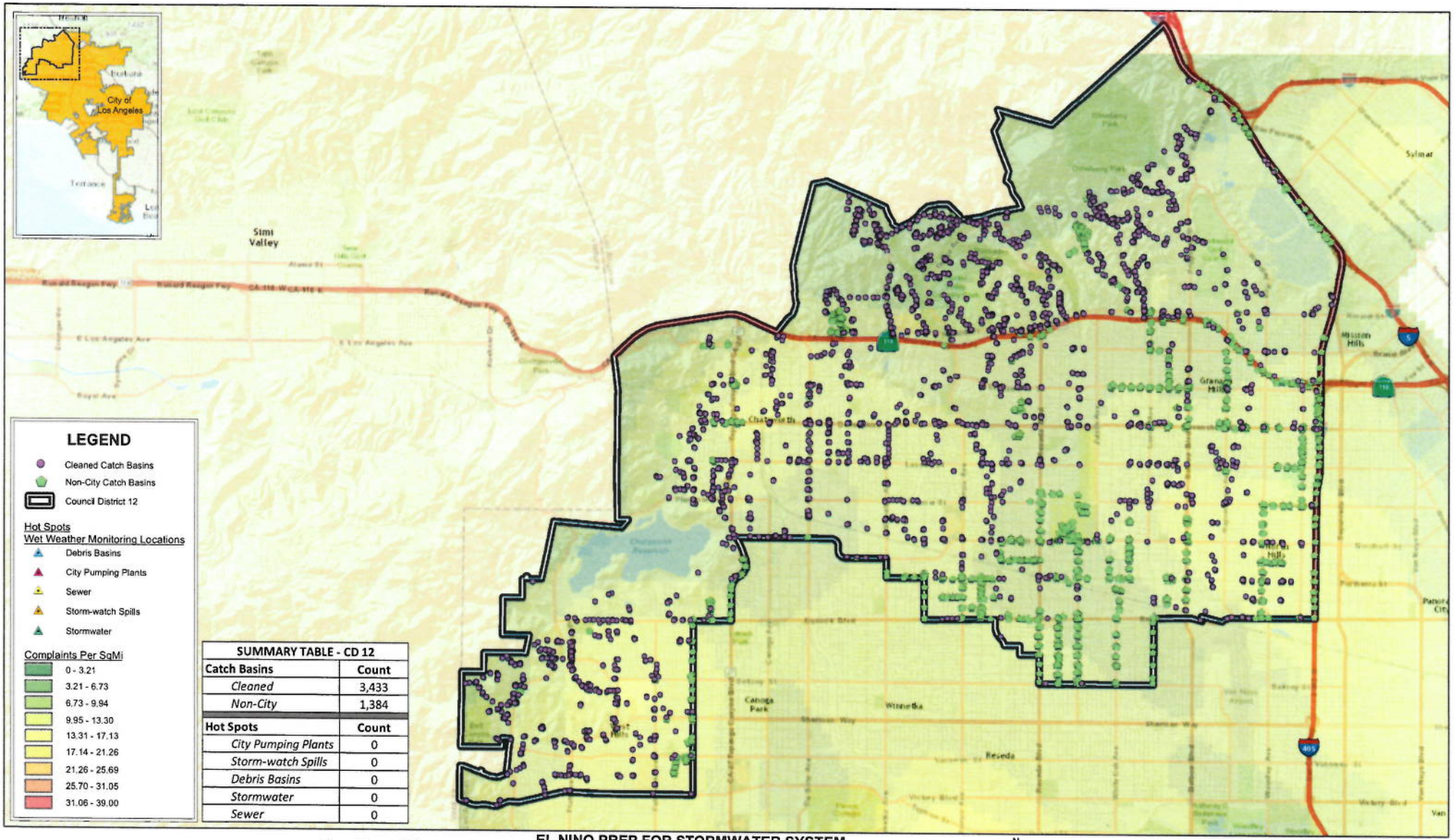

SUMMARY TABLE - CD 12	
Catch Basins	**Count**
Cleaned	3,433
Non-City	1,384
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	0

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM

Council District 12

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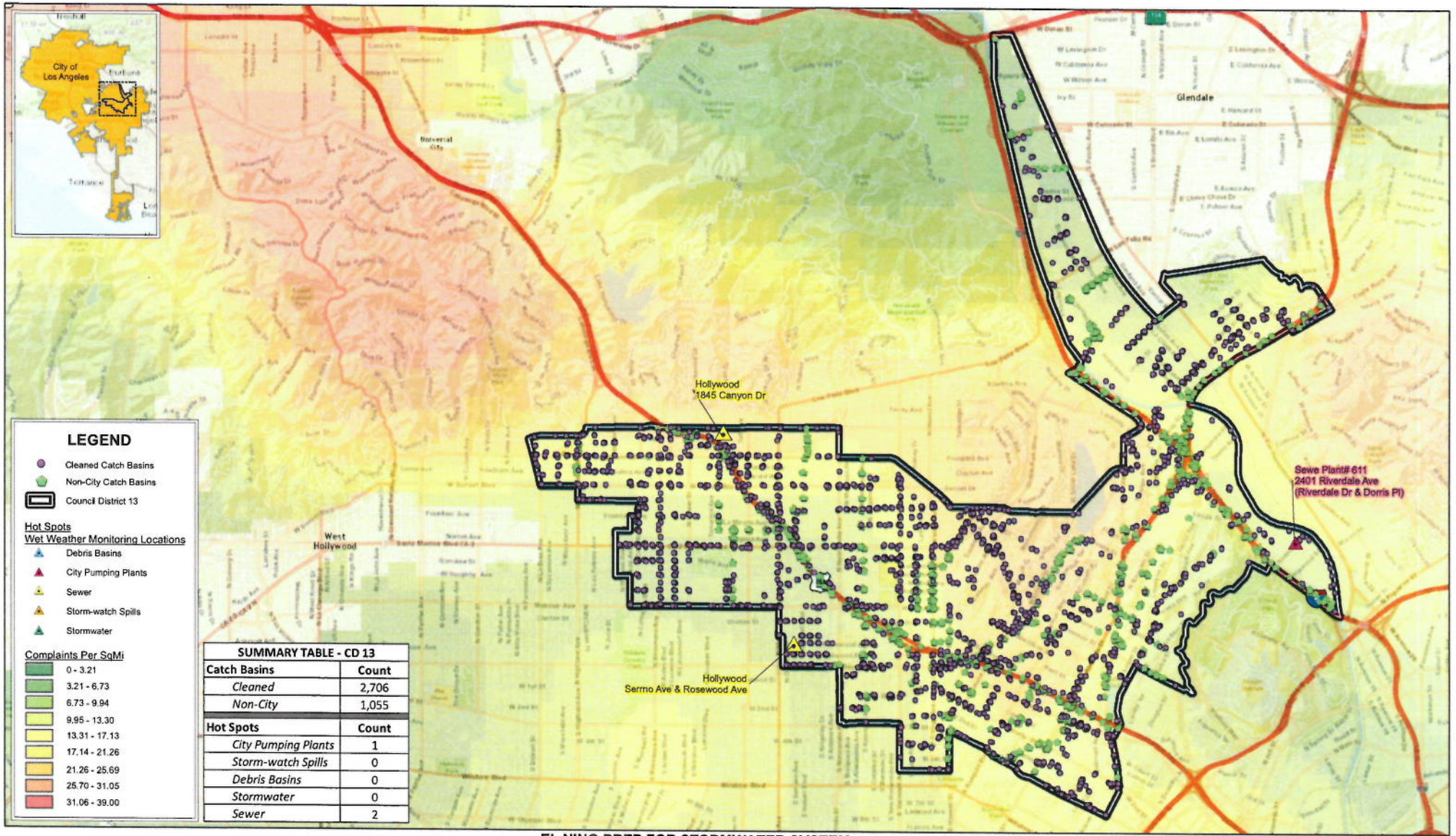

SUMMARY TABLE - CD 13	
Catch Basins	**Count**
Cleaned	2,706
Non-City	1,055
Hot Spots	**Count**
City Pumping Plants	1
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	2

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 13

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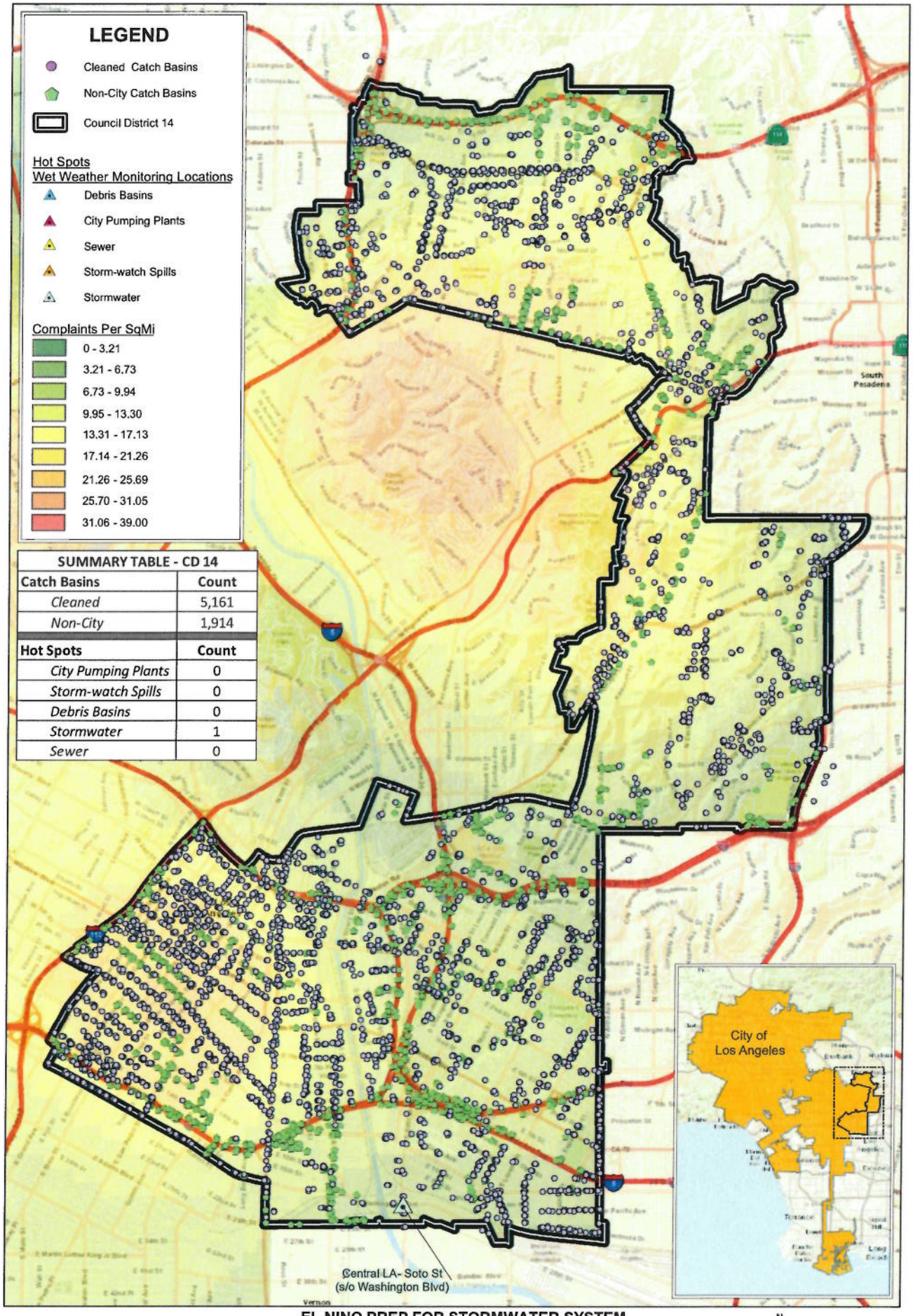

SUMMARY TABLE - CD 14	
Catch Basins	**Count**
Cleaned	5,161
Non-City	1,914
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	1
Sewer	0

0 0.25 0.5 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 14

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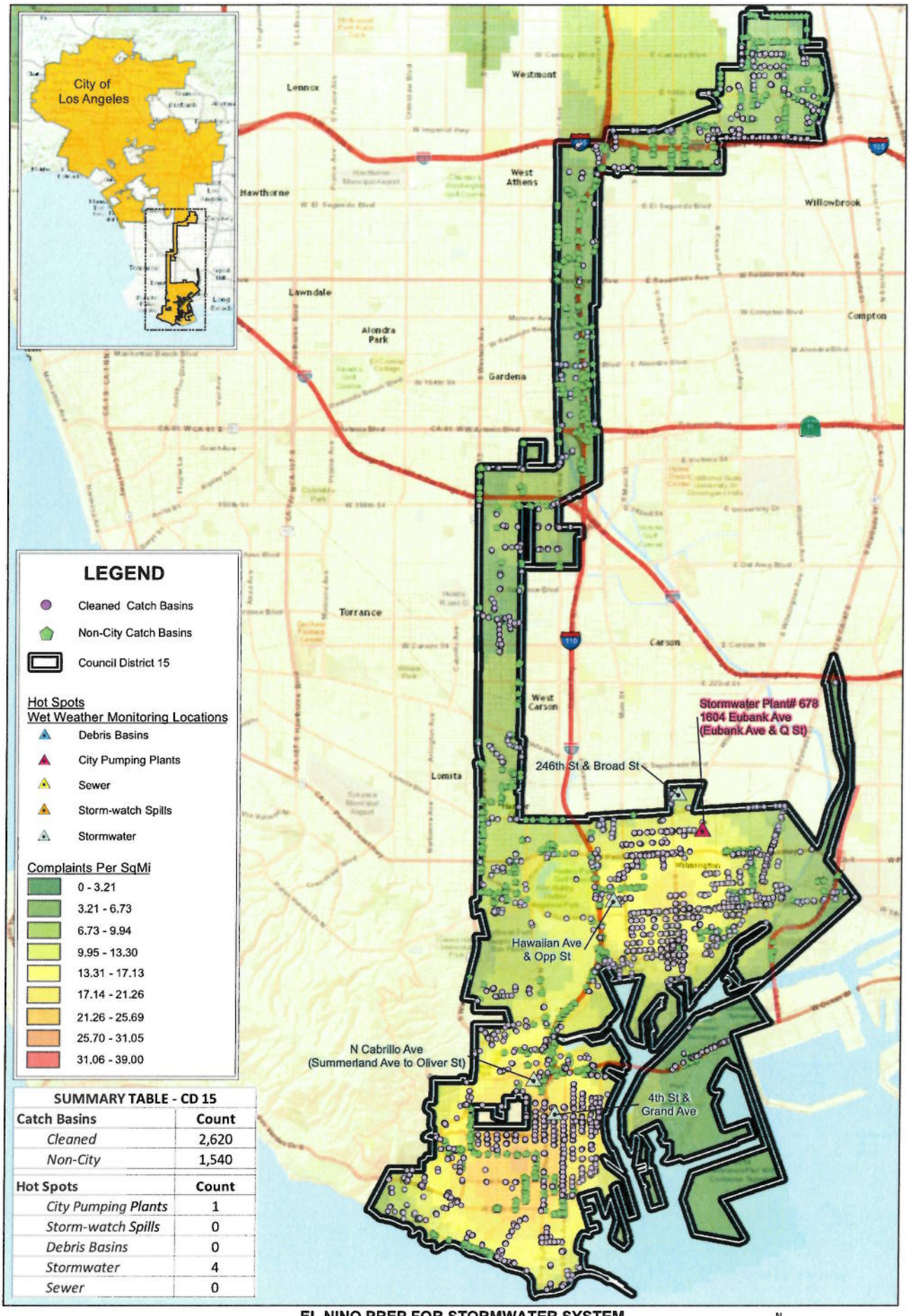

SUMMARY TABLE - CD 15	
Catch Basins	**Count**
Cleaned	2,620
Non-City	1,540
Hot Spots	**Count**
City Pumping Plants	1
Storm-watch Spills	0
Debris Basins	0
Stormwater	4
Sewer	0

EL NINO PREP FOR STORMWATER SYSTEM
Council District 15

0 0.5 1 Miles

N

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LASAN Wet Weather Preparedness

Council Motions 15-0887 and 15-0887-S1

October 5, 2015

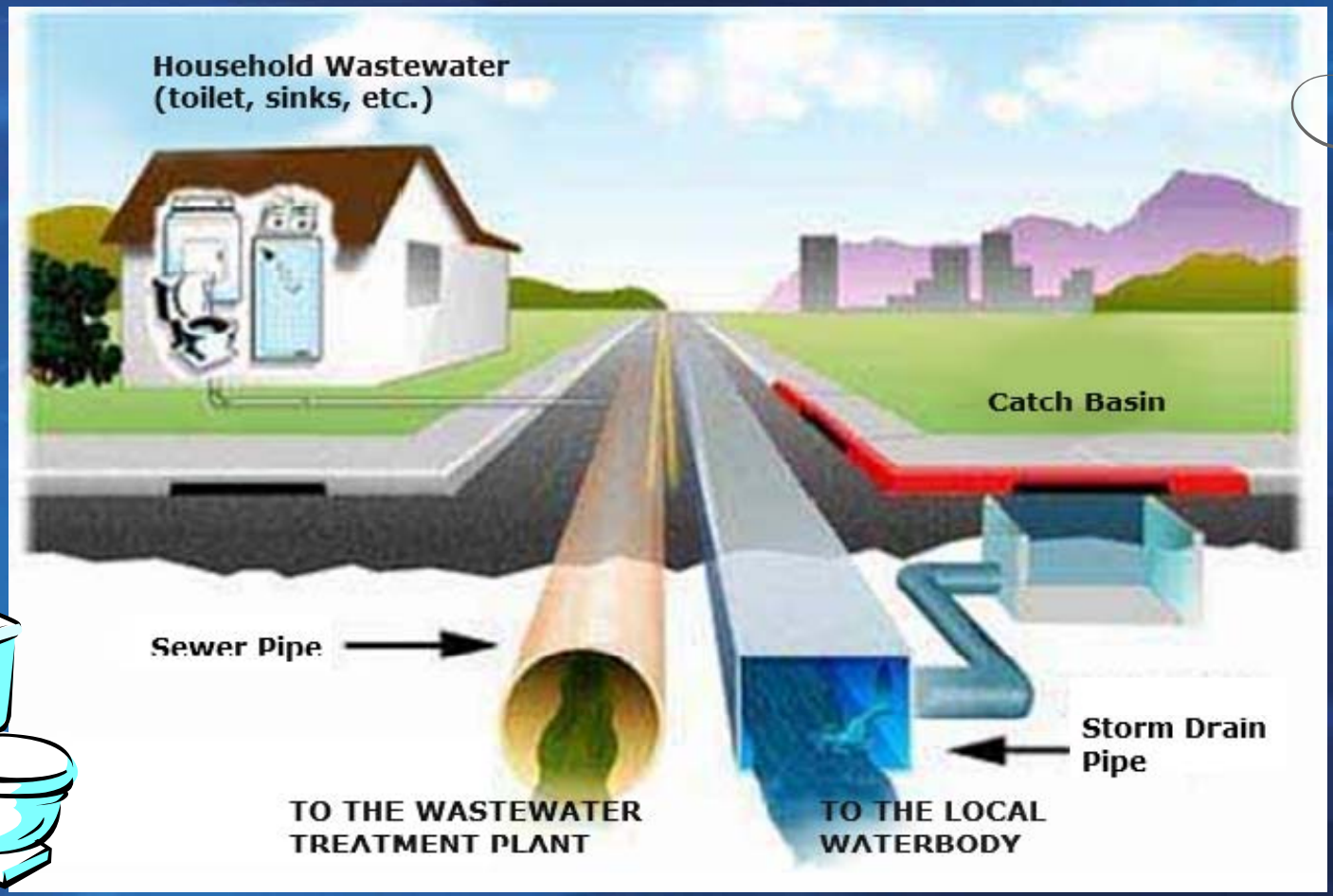
environment LASANITATION
CITY OF LOS ANGELES

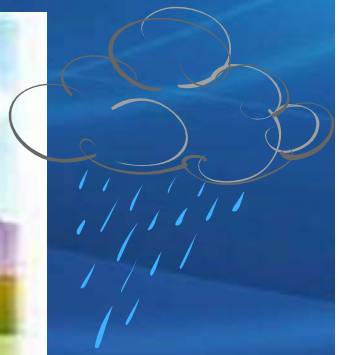
Outline

- ✓ Existing stormwater and wastewater infrastructure
- ✓ Jurisdictional responsibilities
- ✓ LASAN preparedness
- ✓ Challenges
- ✓ Conclusions

environment LASANITATION CITY OF LOS ANGELES

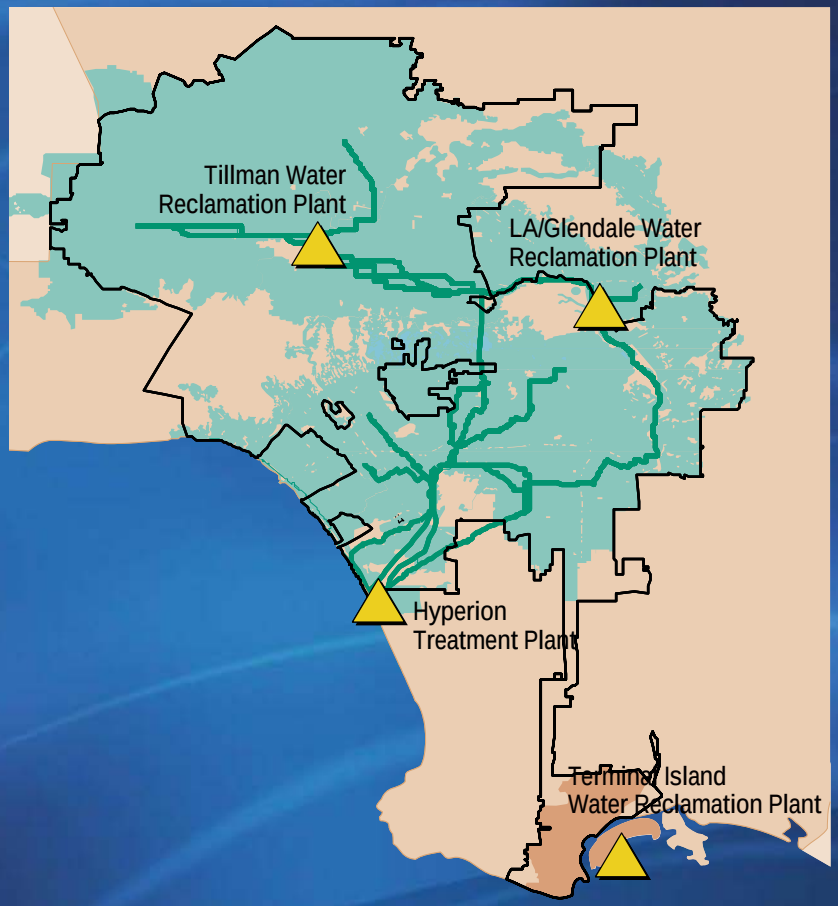
Wastewater vs. stormwater system





environment LA SANITATION
CITY OF LOS ANGELES

Wastewater infrastructure



- ✓ 6,700 miles of sewers
- ✓ 140,000 maintenance holes
- ✓ 46 sewer pumping plants
- ✓ 4 wastewater treatment plants

environment LA SANITATION
CITY OF LOS ANGELES

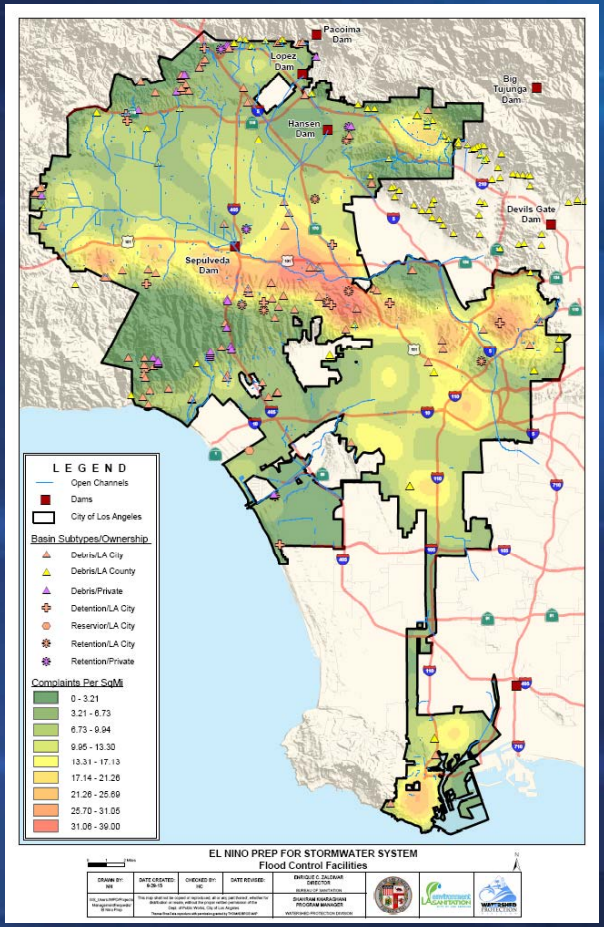
Stormwater infrastructure

- ✓ 1,265 miles of stormdrains
- ✓ 270 miles of open channels
- ✓ 79,000 catch basins (38,000 city-owned)
- ✓ 9 stormwater pumping plants
- ✓ 8 low-flow diversions
- ✓ 9 pumping plants
- ✓ 3 spreading grounds

environment LA SANITATION
CITY OF LOS ANGELES

Jurisdictional responsibilities

- ✓ Army Corps of Engineers: large regional infrastructure
- ✓ Flood Control District: regional infrastructure
- ✓ City of Los Angeles: local infrastructure



environment LA SANITATION
CITY OF LOS ANGELES

LASAN Preparedness

Preparation in dry season

Stormwater

- ✓ Catch basin and debris basin cleaning
- ✓ Maintenance of pumping plants
- ✓ Inspection & cleaning of storm drains & channels

Wastewater

- ✓ Inspection of backup equipment & emergency generators
- ✓ Stockpiling sandbags & other equipment for emergencies
- ✓ Operator training
- ✓ Emergency contracts

environment LA SANITATION
CITY OF LOS ANGELES

Emergency response during El Niño

- ✓ Storm Commander coordinates all stormwater and wastewater activities, and is central point of communication
- ✓ Increase flow intake of treatment plants as feasible
- ✓ Extra staff on standby for plant operations
- ✓ Crews patrol high risk areas and respond to flood emergencies in City
- ✓ Emergency operations for containment and clean-up in place
- ✓ Customer Care Center operational 24/7 starting Oct. 19, 2015
- ✓ Refuse collection: delay collection if needed to protect road safety during heavy downpours or if flooding and mud slides prevent collection
- ✓ Bulky items collection: adjust pickup schedule as necessary thru Customer Care Center

environment LA SANITATION
CITY OF LOS ANGELES

Post-storm activities

- ✓ Collect data and perform analyses
- ✓ Conduct post-storm meetings as necessary
- ✓ Generate Storm Summary Event reports
- ✓ Prepare Incident/Regulatory reports as necessary
- ✓ Evaluate and perform repairs

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CITY OF LOS ANGELES

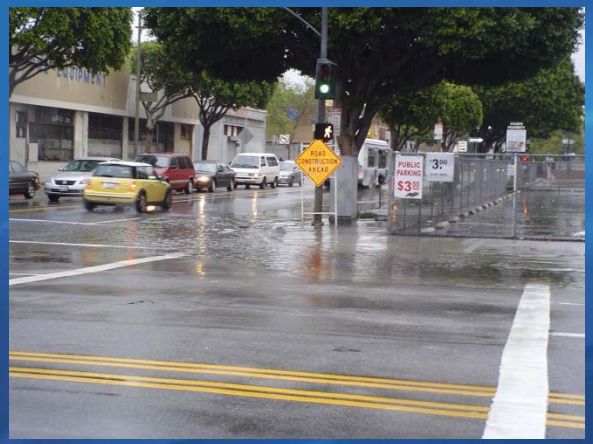
Challenges

- ✓ El Niño may generate short-duration high intensity storms
- ✓ Streets and gutters are part of the stormwater conveyance system: ponding in streets is to be expected
- ✓ The stormwater conveyance system is overburdened, partly as result of continued urbanization and creation of impervious surfaces
- ✓ LASAN has about 400 flood control protection projects, but no funding
- ✓ Sewer system overflows may occur when flows exceed the capacity of sewer system and treatment plants
- ✓ Sewer system has several choke points
- ✓ Climate change may compound future flooding challenges

environment LASANITATION CITY OF LOS ANGELES

Conclusions

- ✓ Within the limitations of the current stormwater and wastewater infrastructure, LASAN is prepared for the 2015/16 El Niño season
- ✓ Structural improvements to the stormwater and wastewater systems are needed for sustainable flood protection
- ✓ Implementation of green-blue infrastructure will increase stormwater capture and infiltration, and reduce the amount of stormwater to be dealt with



environment LASANITATION
CITY OF LOS ANGELES

Recommendations

1. LASAN will track overtime expenses for emergency responses. Additional appropriations may be requested.
2. LASAN will track use of contractual services for emergency repairs during storm events. Additional appropriations may be requested.
3. LASAN will evaluate impacts of the upcoming El Niño season, prepare recommendations, and identify capital needs for a resilient stormwater and wastewater infrastructure with minimum flood risks

Wet Weather Preparedness
Outreach and Communications Plan

Goals

The primary goal is to prepare Los Angeles businesses and residents for the upcoming wet weather season, which may potentially cause higher than normal flooding because of El Niño. Secondary goal is to educate residents that El Nino is not a drought-buster and that they should continue to conserve water. The secondary goal will be served by utilizing LADWP and Save the Drop LA messaging. Additionally, if collection service is postponed due to severe storms, residents will need to know details about service delays and re-starts.

Advertising Mediums

- Social media – Facebook, Twitter, Instagram
- Newsletters & blogs
- Wet Weather Prep page on lacitysan.org website, including toolkit
- Postcard
- LASAN truck signs
- Press release
- News article
- Audio PSA (in conjunction with Save the Drop LA)

Distribution

- Council Districts – postcards and social media messaging, article for newsletter
- Business Improvement Districts – postcards and social media messaging, article for newsletter
- Neighborhood Councils and alliances – postcards and social media messaging, article for newsletter
- City Departments – outreach to PIOs and social media messaging
- Chambers of Commerce – social media messaging, article for newsletter
- Enviros – social media messaging, article for newsletter
- LAUSD – social media messaging, article for newsletter
- Apartment/landlord associations – distribute postcards at 10/21 event, social media messaging, article for newsletter

Branding

#wetweatherprepLA
Green border
Blue umbrella
LASAN logo

Collaboration

LASAN will stay in close communication with Mayor's Office, LADWP, LAPD, LAFD, Emergency Management Department, LA County, and other city/regional organizations to ensure consistent messaging and to share messaging for wider repeat distribution. LASAN will repost their messages as well.

Toolkit

Posted on the LASAN website for all to utilize, the toolkit will include key messages, social media text and graphics, an article for newsletter distribution, and a Save the Drop audio PSA.

Wet Weather Preparedness
Outreach and Communications Plan

Messaging

Fast facts

- Rainy season is officially Oct. 15-Apr. 15 but heaviest rains are expected December to February.
- This year's El Nino event is not a drought-buster … we ask that you please continue to conserve water, even when it's raining.
- We have 6700 miles of sewer pipes in LA, and we conduct proactive maintenance year-round to prevent clogs, flooding, and pests. There are 67 pumping stations to move sewage through the pipes to the plants.
- We have 4 water reclamation plants. Our largest can treat up to 600 million gallons per day.
- Streets are designed for water to flow to the edges of the streets in heavy rains – this could flood sidewalks.
- Catch basin screens will automatically open when it rains – during dry periods the screens are there to catch trash and other debris.

LA Sanitation's preparations to minimize flooding

- We've cleaned 39,000 catch basins to remove debris that could clog them and we will clean them again during the season.
- We've cleaned almost all of our 70 debris basins – many of these will get 2 more cleanings during the wet season to remove debris and keep stormwater flowing.
- Hard and soft bottom channels have been cleared as well to allow stormwater to flow properly.
- We are in close communication with City departments and LA County to coordinate preparation efforts and push out collaborative messages as needed.
- There is a high probability of flooding during heavy rains, and we are doing our best to prepare for it.

What can you do?

- Check your catch basins and either remove debris or call us to remove debris.
- Ensure building drainage is clear of debris, including rain gutters.
- If you have sprinklers, turn them off during rain.
- Please reduce water consumption during rain to reduce flows at water reclamation plants.
- Secure any loose palm fronds, tarps, loose items that may be carried away by rain or be blown away.
- Please alert us of any flooding you see.
- For safety purposes, avoid water bodies like the LA River, creeks, and flood channels when it's raining.
- During significant wet weather, please hold non-emergency service calls until the weather has passed, which allows us to focus on flood-related calls.

Sample Social Media Graphics

Fact Sheet: LASAN WET WEATHER PREPAREDNESS

1. What are the challenges?

The prediction is that we may have an El Niño this winter season. El Niño storms can generate short-duration high-intensity storms, which increase the risk of flooding and potential impacts to public safety and properties. While ponding on our streets is a normal phenomenom during storms, heavy downpours can cause:

- Flooding in certain low-lying areas of the City
- Mudslides in the hillside areas of the City
- Sewer system overflows at certain choke points in the system

2. LASAN preparedness

Sustainable, long-term flood protection requires upgrades to the existing infrastructure for stormwater and wastewater conveyance to increase the capacity of both systems and improve their resilience. These upgrades will require long-term planning and investments. For the upcoming winter season, LASAN has taken several early actions to protect public safety and properties:

- Cleaning of all catch basins and debris basins
- Inspection and cleaning of stormdrains and channels
- Inspection and maintenance of stormwater and sewage pumping plants
- Stockpiling of sandbags, inspection of backup equipment and emergency generators
- Updated emergency contracts for immediate responses

During severe storm events, LASAN's Storm Commander coordinates all activities and is the central point of communication. The following activities are in place when a severe storm hits our area:

- Wastewater treatment plants will increase their flow intakes as needed to minimize upstream sewer system overflows
- Extra staff will be on standby to assist with LASAN's operations
- Crews will patrol high risk areas and respond to flood emergency in the City
- Emergency operations for containment and clean-up are in place
- During heavy downpours, refuse collection may be delayed to prevent having large trucks on City streets or in areas with mudslides
- Bulky item pickup schedules may be adjusted to avoid this items from being carried by heavy runoff (Customer Care representative will coordinate at the time of request)
- As of October 15, 2015, the Customer Call Center will be operational 24/7 to refer service requests and to disseminate messages about refuse collection changes and flood warnings.

3. In case of an emergency?

The phone numbers to report emergency situations are:

- LASAN's Customer Care Center: 311
- LASAN's Wastewater Collection Services Division: 213-485-7575

Pacoima Dam
Lopez Dam
Big Tujunga Dam
Hansen Dam
Devils Gate Dam
Sepulveda Dam

LEGEND

- Open Channels
- Dams
- City of Los Angeles

Basin Subtypes/Ownership

- Debris/LA City
- Debris/LA County
- Debris/Private
- Detention/LA City
- Reservior/LA City
- Retention/LA City
- Retention/Private

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

0 1 2 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Flood Control Facilities

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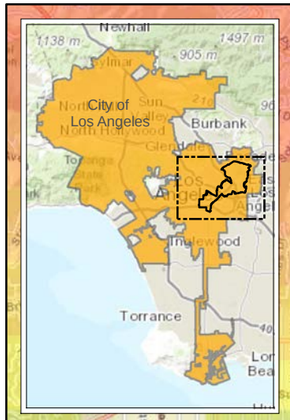

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 1

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 1	
Catch Basins	**Count**
Cleaned	3,028
Non-City	1,065
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	0

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 1

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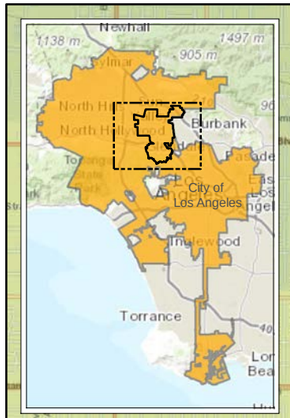

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 2

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 2	
Catch Basins	**Count**
Cleaned	968
Non-City	1,180
Hot Spots	**Count**
City Pumping Plants	1
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	5

North Hollywood - Tujunga Ave
(Burbank Ave to Oxnard St)

North Hollywood
Martha St

North Hollywood
Colfax Ave - Woodbridge - Lurel Canyon - LA River

Sewer Plant# 626
11645 Chiquita St
(Chiquita St & Colfax Ave)

North Hollywood - Laurel Grove
(Valley Heart Dr to Ventura Blvd)

North Hollywood
Colfax Ave & Chiquita St

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 2

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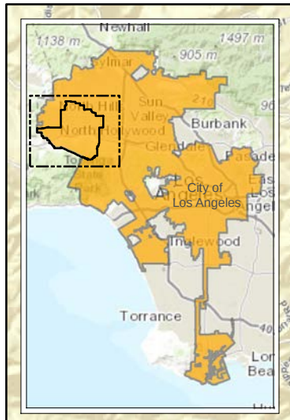

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 3

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 3	
Catch Basins	**Count**
Cleaned	1,460
Non-City	1,788
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	0

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 3

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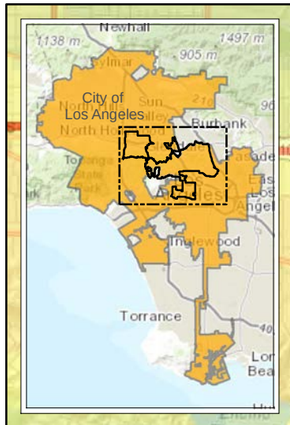

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 4

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 4	
Catch Basins	**Count**
Cleaned	3,450
Non-City	1,985
Hot Spots	**Count**
City Pumping Plants	1
Storm-watch Spills	1
Debris Basins	0
Stormwater	2
Sewer	11

North Hollywood
14339 Valley Vista Blvd

North Hollywood
Alley s/o Ventura Blvd
(Broadlawn Dr to Oakshire Dr)

North Hollywood Sewers
3200 Oakshire Dr

North Hollywood
3311 Cahuenga Blvd

LA Zoo
4700 1/2 West Heritage Rd

Hollywood
Belden Dr & Beachwood Dr

Hollywood
1903 El Cerrito Pl

Hollywood
1958 Gower St

Hollywood
Franklin Ave & Outpost Dr

Hollywood
2041 Laurel Canyon Blvd

Hollywood
7767 Hollywood Blvd

Hollywood
Sierra Bonita Ave & Hollywood Blvd

Hollywood
Rossmore Ave & Beverly Dr

Hollywood
585 S Rossmore Ave

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 4

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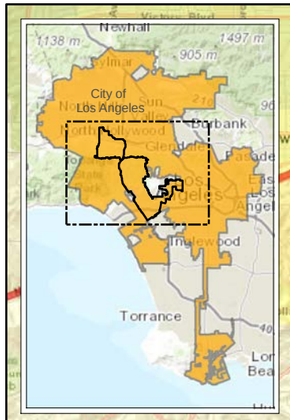

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 5

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 5	
Catch Basins	**Count**
Cleaned	3,221
Non-City	2,281
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	1
Sewer	1

Hollywood
Deep Canyon & Deep Canyon Pl

Hollywood - Melrose Ave
(Alta Vista Blvd to Gardner St)

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 5

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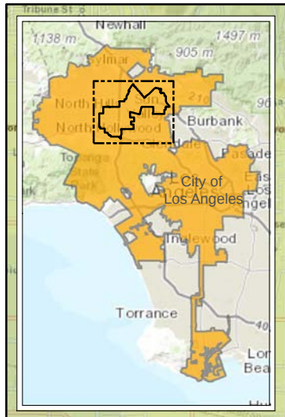

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 6

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 6	
Catch Basins	**Count**
Cleaned	666
Non-City	1,251
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	0

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 6

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14066 N Candlewood Dr

Herron St
(n/o Janna Way)

50ft E of
7304 Apline Way

SUMMARY TABLE - CD 7	
Catch Basins	**Count**
Cleaned	1,351
Non-City	1,635
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	3
Stormwater	0
Sewer	0

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 7

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 7

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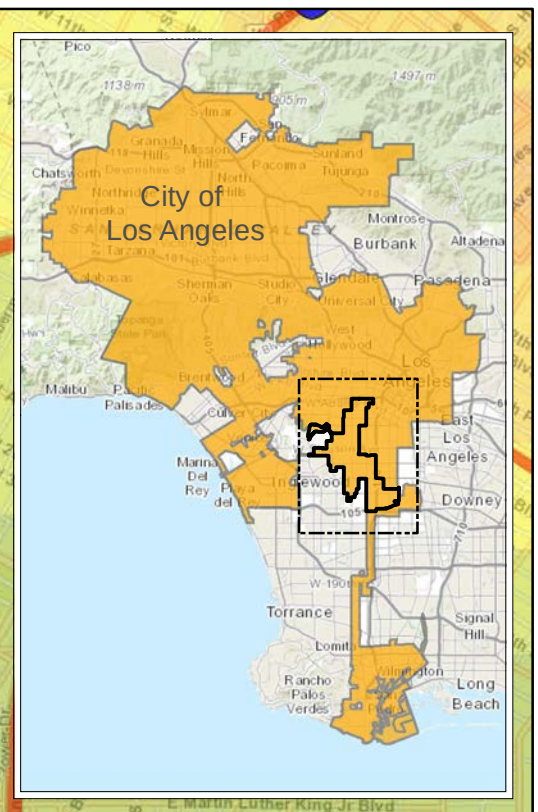

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 8

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 8	
Catch Basins	**Count**
Cleaned	2,452
Non-City	1,498
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	0

0 0.25 0.5 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 8

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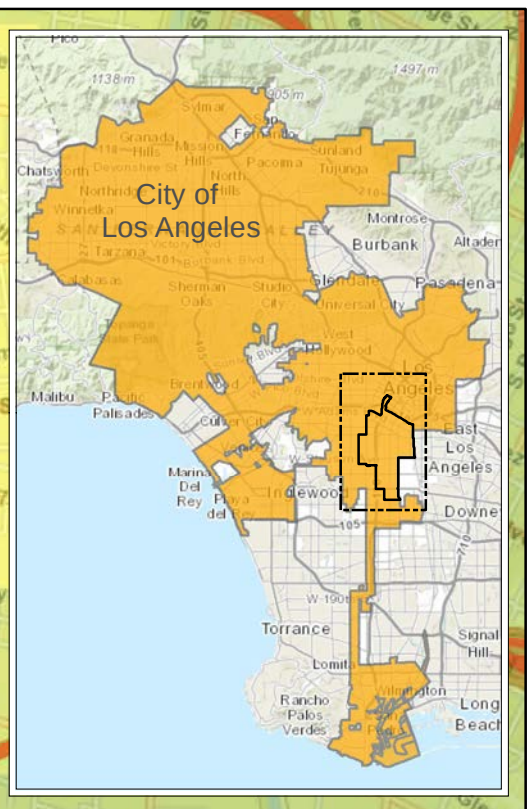

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 9

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 9

Catch Basins	Count
Cleaned	2,675
Non-City	871
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	0

0 0.25 0.5 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 9

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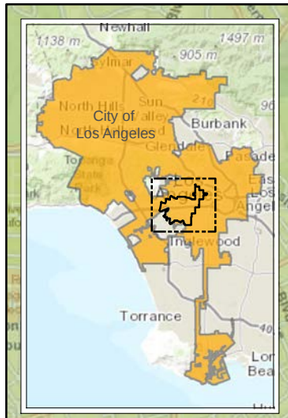

Hollywood Sewers
Genesse Ave & Airdrome St

Hollywood
Edgewood Pl & Longwood Dr

S Genesse Ave & Packard St

Alvira St & Cashio St
(Sewers & Storm-Watch Spill)

Venice Blvd & Genesee Ave
(Sewers & Storm-Watch Spill)

Hollywood
Genesse Ave & Cologne St

Hollywood
Smiley Dr & Fairfax Ave

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 10

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 10	
Catch Basins	**Count**
Cleaned	2,491
Non-City	1,881
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	3
Debris Basins	0
Stormwater	0
Sewer	7

0 0.25 0.5 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 10

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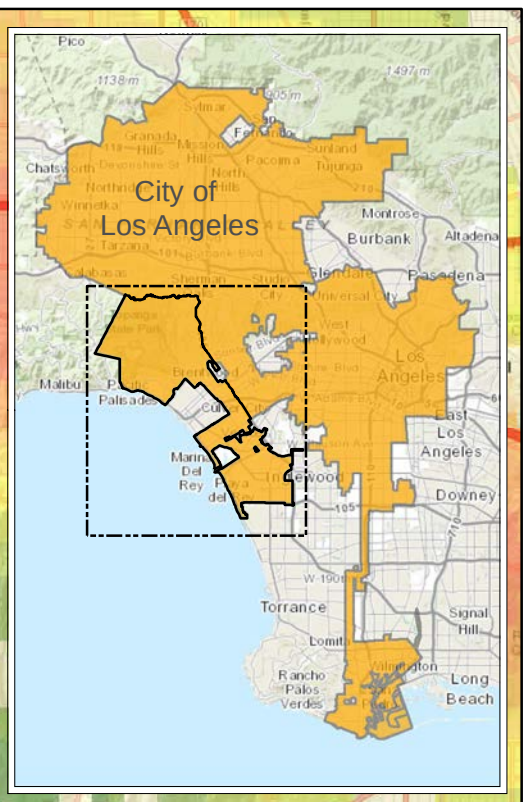

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 11

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

West LA
(Thorton St & Ocean Front Walk)

Stormwater Plant# 647
Venice Circle
(Main St & Windward Ave)

West LA - Playa del Rey
(Culver Blvd & Pacific Ave)

SUMMARY TABLE - CD 11	
Catch Basins	**Count**
Cleaned	3,415
Non-City	2,523
Hot Spots	**Count**
City Pumping Plants	1
Storm-watch Spills	0
Debris Basins	0
Stormwater	2
Sewer	0

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 11

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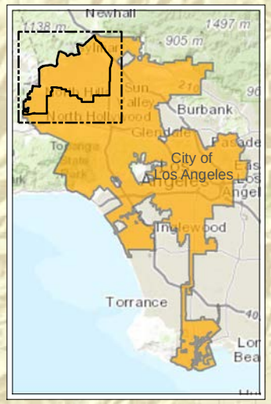

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 12

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 12	
Catch Basins	**Count**
Cleaned	3,433
Non-City	1,384
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	0

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 12

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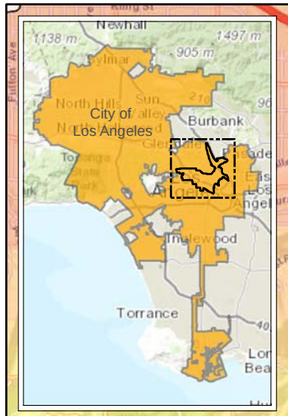

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 13

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 13	
Catch Basins	**Count**
Cleaned	2,706
Non-City	1,055
Hot Spots	**Count**
City Pumping Plants	1
Storm-watch Spills	0
Debris Basins	0
Stormwater	0
Sewer	2

Hollywood
1845 Canyon Dr

Hollywood
Serrno Ave & Rosewood Ave

Sewe Plant# 611
2401 Riverdale Ave
(Riverdale Dr & Dorris Pl)

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 13

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LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 14

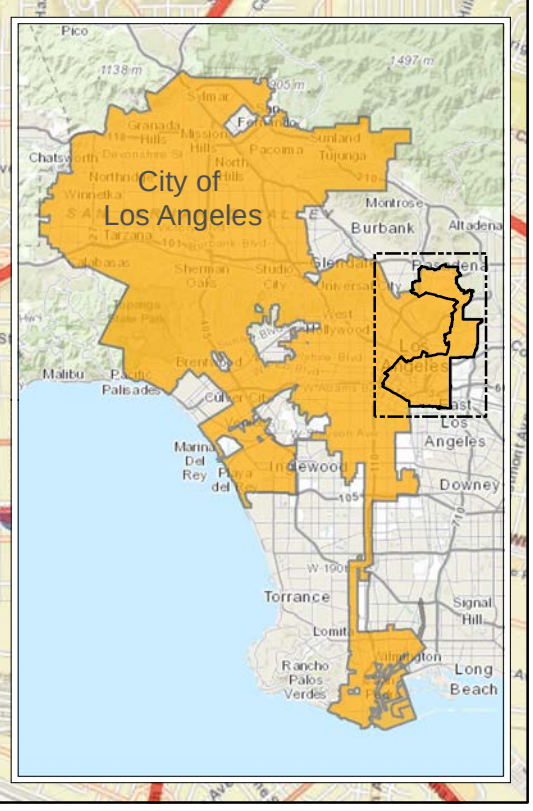
Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 14	
Catch Basins	**Count**
Cleaned	5,161
Non-City	1,914
Hot Spots	**Count**
City Pumping Plants	0
Storm-watch Spills	0
Debris Basins	0
Stormwater	1
Sewer	0



Central LA- Soto St
(s/o Washington Blvd)

EL NINO PREP FOR STORMWATER SYSTEM
Council District 14

0 0.25 0.5 Miles

N

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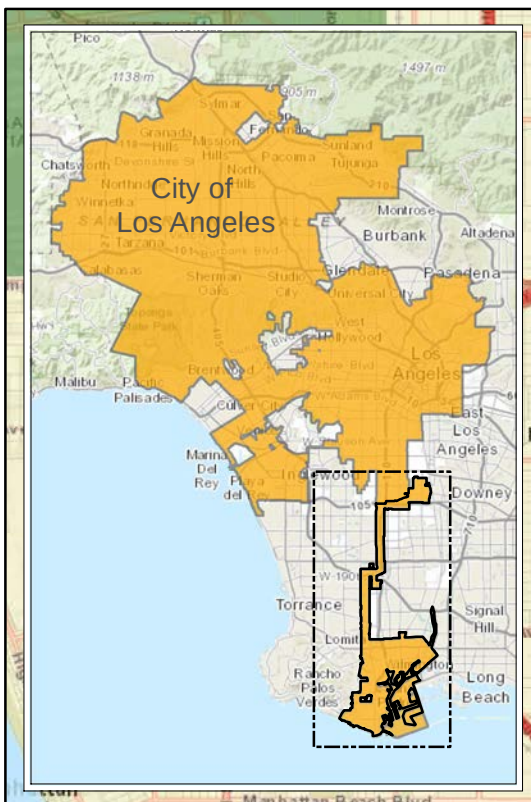

LEGEND

- Cleaned Catch Basins
- Non-City Catch Basins
- Council District 15

Hot Spots
Wet Weather Monitoring Locations

- Debris Basins
- City Pumping Plants
- Sewer
- Storm-watch Spills
- Stormwater

Complaints Per SqMi

- 0 - 3.21
- 3.21 - 6.73
- 6.73 - 9.94
- 9.95 - 13.30
- 13.31 - 17.13
- 17.14 - 21.26
- 21.26 - 25.69
- 25.70 - 31.05
- 31.06 - 39.00

SUMMARY TABLE - CD 15	
Catch Basins	**Count**
Cleaned	2,620
Non-City	1,540
Hot Spots	**Count**
City Pumping Plants	1
Storm-watch Spills	0
Debris Basins	0
Stormwater	4
Sewer	0

Stormwater Plant# 678
1604 Eubank Ave
(Eubank Ave & Q St)

246th St & Broad St

Hawaiian Ave
& Opp St

N Cabrillo Ave
(Summerland Ave to Oliver St)

4th St &
Grand Ave

0 0.5 1 Miles

N

EL NINO PREP FOR STORMWATER SYSTEM
Council District 15

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