

Overview of Sampling Programs

Department of Toxic Substances Control
Peter Ruttan, P.G.
Lead Project Manager
Clean-up

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OVERVIEW OF SAMPLING PROGRAMS

INITIAL ASSESSMENT AREA

The Initial Assessment Area consists of 219 Residential Properties located beyond the large commercial and industrial areas that surround the Exide Vernon Facility. The Initial Assessment Area is currently where DTSC is overseeing the clean-up.

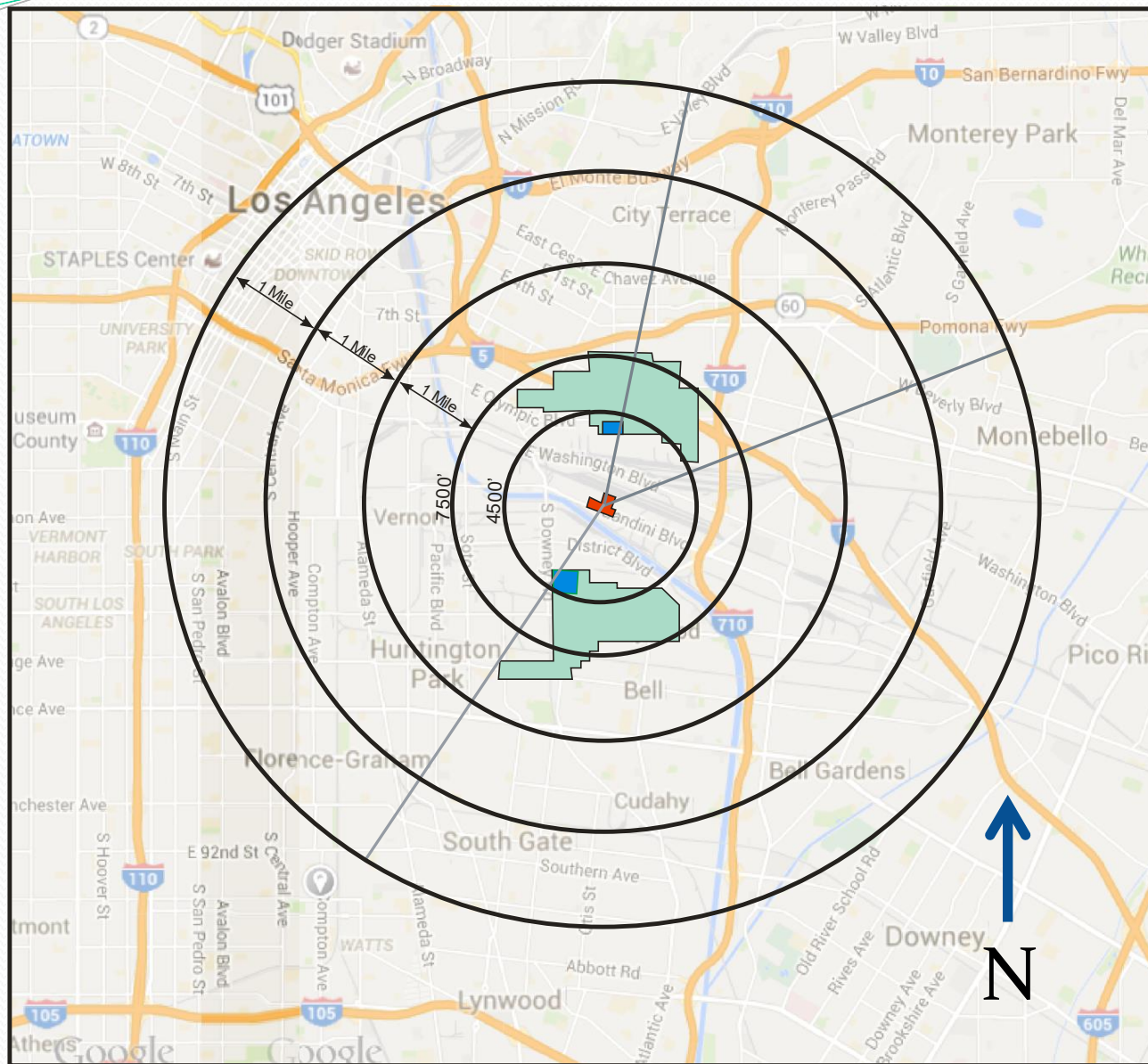
EXPANDED ASSESSMENT AREA

The Expanded Area sampling consisted of sampling a representative number of residential properties within a much larger area north and south of the Exide Facility. The sampling included 146 properties that were located on or near a sampling grid designed to help us understand the extent of deposition of lead from the Exide facility.

OFF-SITE NON-RESIDENTIAL SOIL SAMPLING

The Off-Site Non-Residential soil sampling consists of sampling soils from common areas such medians and tree wells. The sampling began by collecting samples within a concentric radial pattern to 7,500 feet, then along dominant wind transects to approximately 4.5 miles from the Exide Facility.

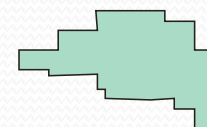
OVERVIEW OF SAMPLING PROGRAMS



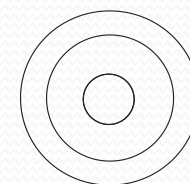
Initial Assessment
Area Soils (Residential)



Expanded Area
Soils (Residential)



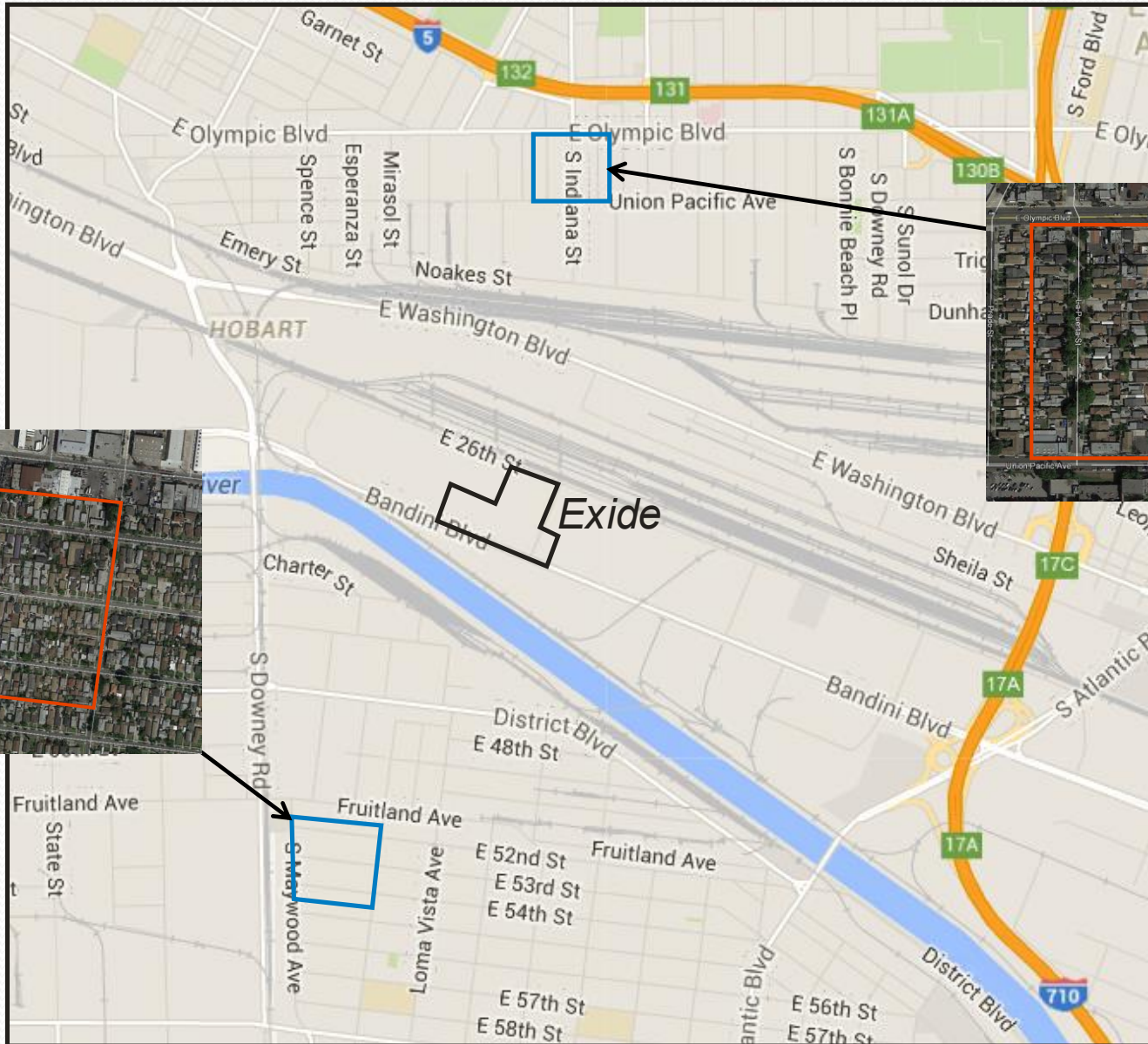
Off-Site
Non-Residential Soil
Sampling ~4.5 Miles



Sampling Transects
Dominant Wind
Directions



Initial Assessment Area: Phase 1



NORTHERN ASSESSMENT AREA

SOUTHERN ASSESSMENT AREA

19 Properties Sampled

20 Properties Sampled

Initial Assessment Area Sampling & Action Summary

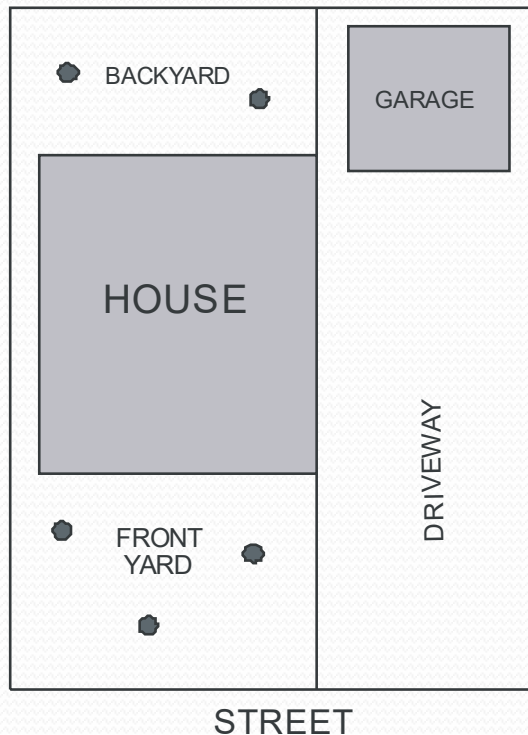
- **January 2013** – AB2588 Heath Risk Assessment Report; Identified Maximum Exposed Individual Receptors (MEIR)
- **May 2013** – Draft Soil Sampling Work Plan was submitted to DTSC that proposed sampling two properties; one in the North Assessment Area, one in the South Assessment Area, and two schools
- **October 2013** – DTSC issued a Stipulation & Order requiring the soil sampling of 39 residential properties in the Initial Assessment Area, two schools (Salazar Head Start School and San Antonio Elementary School)
- **November 2013** – DTSC approved the Work Plan for the soil sampling that included sampling five locations each on of the 39 properties (19 North, 20 South), lab compositing of the soil samples, and analyzing for the metals Arsenic, Lead, Antimony, Cadmium, and Total Chromium. The approved Work Plan also included sampling of the two schools

Initial Assessment Area Sampling – Phase 1 (November 2013)

Phase 1 of Initial Assessment Area began with –

- Sampling of the 39 properties and the two schools
- Sampling targeted exposed soils and open grassy areas at five locations on each of the properties and the school properties where children could come into contact with the soils

EXAMPLE PROPERTY



- Samples were collected from three depth intervals in each of the five sampling locations. These intervals included 0-1", 1-3", and 3-6" inches below the ground surface
- Each individual sample was placed in a 16 oz. jar. The jars were put on ice in a cooler for transport to a third-party California certified laboratory
- DTSC provided oversight for these efforts.

Initial Assessment Area Sampling Summary of Results (February 2014)

The results presented in Soil Sampling Report submitted to DTSC showed:

- Lead was present in nearly all composite samples above the California Human Health Screening Level (CHHSL) of 80 parts-per-million (ppm).
- The median lead concentrations of lead in soils were:
 - 162 ppm for the Northern Assessment Area, and
 - 134 ppm for the Southern Assessment Area
- Salazar Head Start and San Antonio Elementary School did not have lead or any other metals requiring clean-up.
- Arsenic in all samples was below DTSC's Los Angeles Regional action level for clean-up of 12 ppm.
- All other metals in soils were below CHHSLs

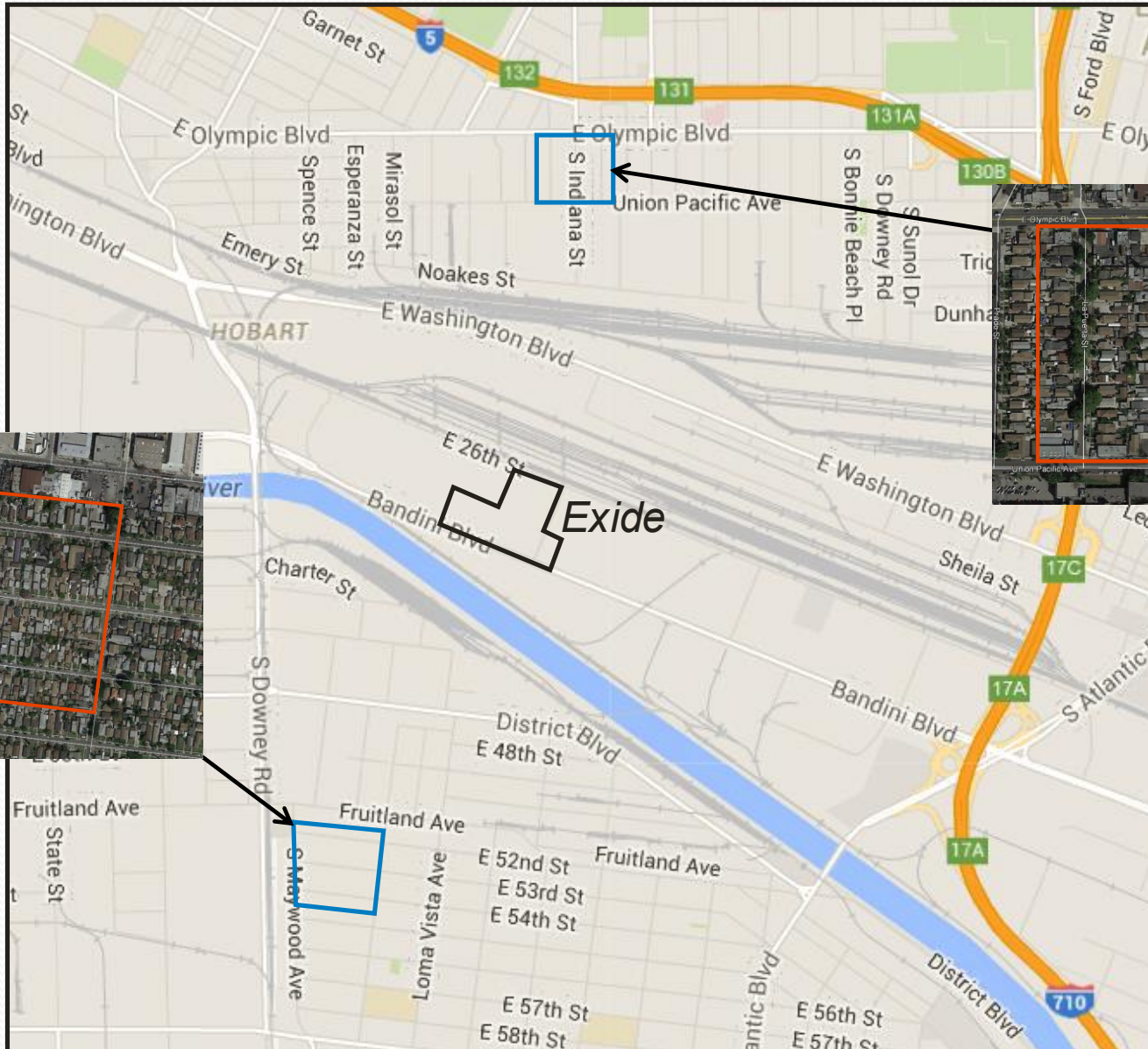
Initial Assessment Area Actions – Phase 2

Based on the sampling results, in March 2014 DTSC ordered Exide to:

- 1) Retest the soils at the 39 residential properties, and test all other properties in Initial Assessment Area
- 2) Prepare a Clean-up Work Plan for the Initial Assessment Area
- 3) Delineate lead in soils beyond the Initial Assessment Area
(This area would later be referred to as the Expanded Area)

In August 2014, DTSC approved the Soil Sampling Plan. This plan includes the sampling activities necessary for both the Initial Assessment Area and Expanded Area.

Initial Assessment Area – Phase 2

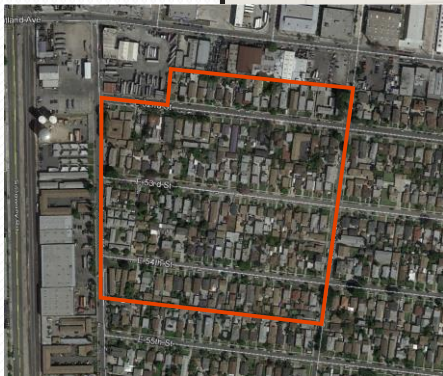


**NORTHERN
ASSESSMENT
AREA**



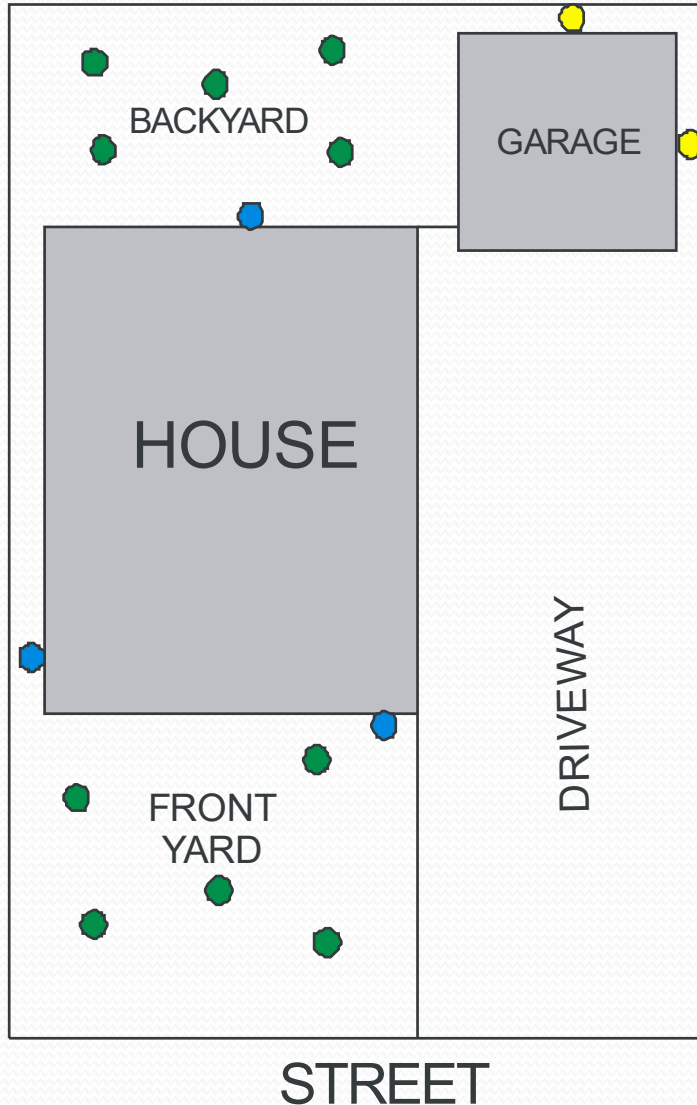
**94
Properties**

**SOUTHERN
ASSESSMENT
AREA**



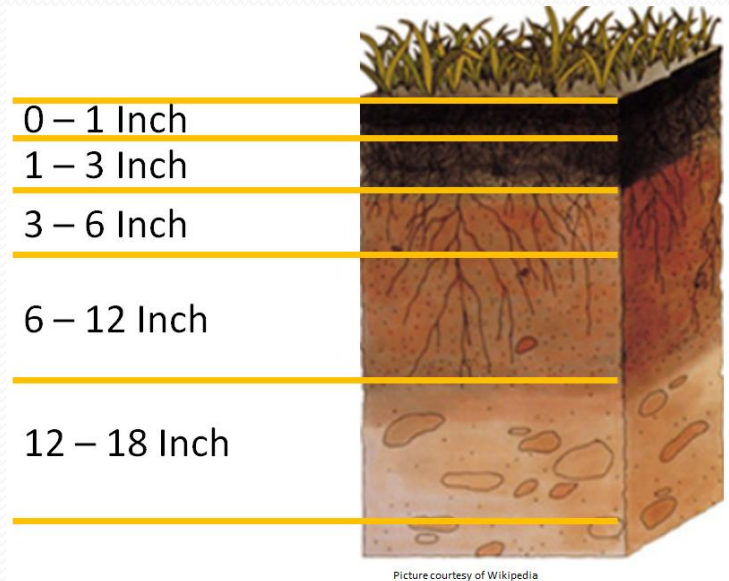
**125
Properties**

Initial Assessment and Expanded Area Sampling Design



Typical Sampling Locations

- Yard Area
- Drip Zone or Downspout
- Exclusion Zone



Quality Assurance/Quality Control (QA/QC) Fieldwork

FIELD DUPLICATE SAMPLES – Duplicate samples were collected to allow for the determination of sampling precision of the sampler and to determine the accuracy of analytical laboratory. The duplicate samples were collected and prepared in the same manner as other samples.

EQUIPMENT BLANKS – Sampling equipment was decontaminated between sample locations. Equipment blank samples were prepared to ensure that decontamination procedures of sampling equipment between sampling locations was adequate for cleaning of the equipment.

DTSC OVERSIGHT - DTSC staff accompanied the contractor and performed frequent and random visual oversight of sampling activities to ensure proper sampling protocol was employed. DTSC also collected random split samples for comparison; these were analyzed by separate laboratory contracted by DTSC.

Chain-of-Custody

All samples were handled following proper chain-of-custody procedures as outlined in the USEPA Guidance below.

Definition: United States Environmental Protection Agency has defined custody as follows:

- Sample is in the actual custody, possession or view of the assigned responsible person,
- Sample is in a secure area or locked in a secure area. (Secure areas shall be accessible only to authorized personnel)

Chain-of-Custody (CoC) Practices:

1. Relinquishing control of the sample with Signature on the CoC form
2. Physically transfer samples to the individual accepting custody.
3. Receiver must also sign the CoC in presence of person relinquishing control
4. Modifications to the CoC form are prohibited after the custody step has been executed and the samples have changed hands unless the change is made in the presence of both parties and documented on the CoC

All accredited laboratory staff are trained in these procedures

Quality Assurance/Quality Control Chain-of-Custody

Chain-of-Custody (CoC) also provides other information such as:

1. Sample identification – unique for each sample collected
2. Sampler name
3. Sampling date and
4. Sample collection time
5. Type of sample container/bottle
6. Number of containers/ bottles for each sample
7. Preservation of Sample
8. Analytical method requested

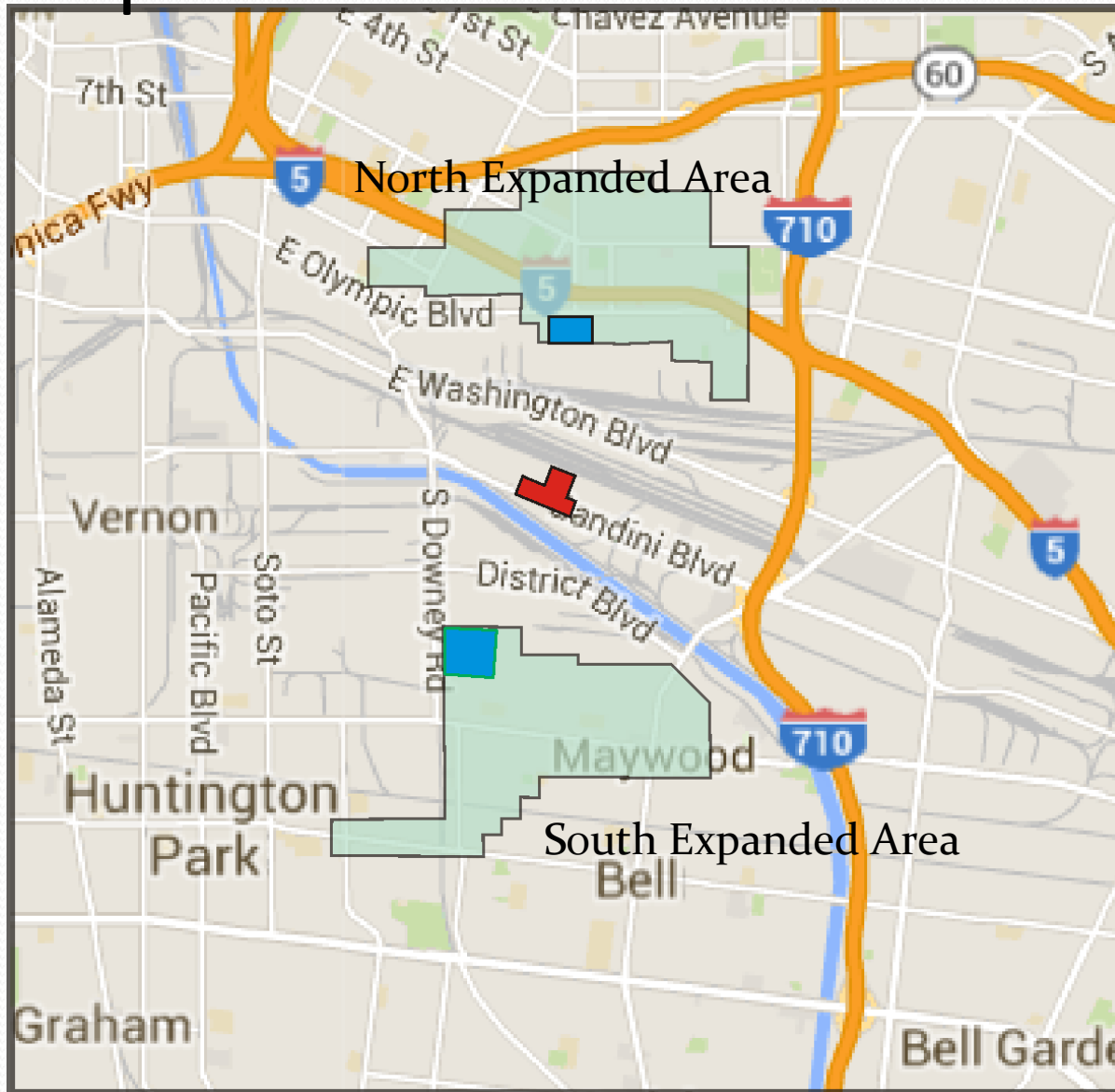
QA/QC – Laboratory

- All samples were sent to a third-party laboratory accredited by the State Water Resources Control Board. The accreditation is called ELAP, which stands for Environmental Accredited Lab Program. ELAP ensures the quality of analytical data used for regulatory purposes meets the requirements of the State's hazardous waste programs.
- Samples were prepared using the federally approved US EPA Method 3050B - Acid Digestion of Soils. It is a very strong acid digestion of the soil that separates the metals of concern from the soil so they can be analyzed.
- Samples were analyzed using the federally approved US EPA Method 6010B – “Inductively Coupled Plasma-Atomic Emission Spectrometry” or the federally approved EPA Method 6020A- “Inductively Coupled Plasma-Mass Spectrometry to quantify the presence of metal. Both methods are appropriate for metals analyses.

QA/QC - Laboratory

- **Method Blank (MB)** - is an analyte-free sample (water or soil) that is processed in exactly the same manner as the samples. The main function of the MB is to document if there is any contamination resulting from the analytical process. MB also assures that the reported values found in field samples are “real” and not the result of laboratory contamination.
- **Laboratory Control Samples and Sample Duplicates (LCS/LCSD)** – these are samples prepared in the laboratory that contain the analyte of interest (i.e lead). Known concentrations of analyte are added to either deionized water or sand and are processed in the same manner as the field samples. The results are used to demonstrate that the laboratory is in control of the processes involved in the preparation and analysis of specific tests.
- **Matrix Spike/Matrix Spike duplicates (MS/MSD)** – are randomly chosen field samples. Known concentrations of the analyte of interest (i.e. lead) gets added to a field sample prior to sample preparation and analysis. They are processed along with the same un-spiked sample. The purpose of MS/MSD is to document the accuracy and precision of the method for that specific sample.

Expanded Assessment Areas



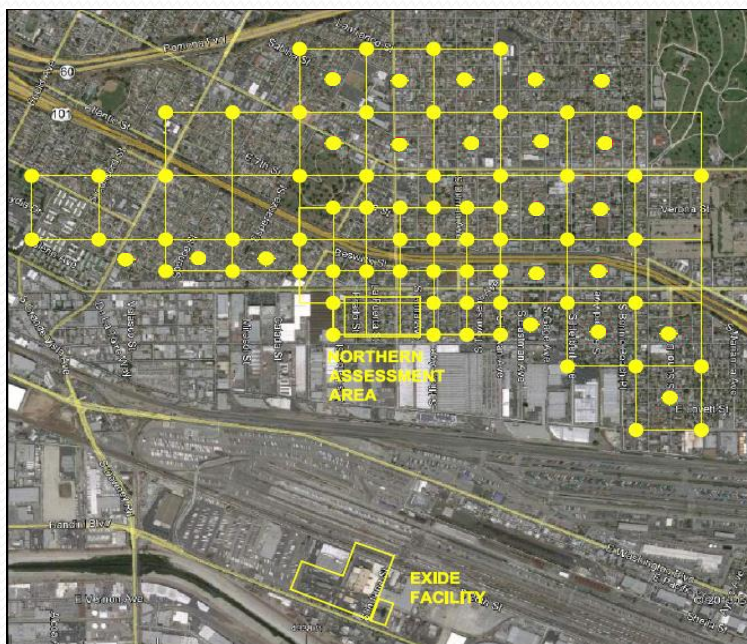
Expanded Area Sampling

August 2014: DTSC approves the Soil Sampling Plan. This is the same document that included the sampling of the Initial Assessment Area.

The Sampling effort included:

- Going door to door to secure access for sampling.
- Sampling discrete soil samples in the same manner as the Initial Assessment Area on all 146 properties.
- The same fieldwork and laboratory QA/QC procedures discussed earlier were used.

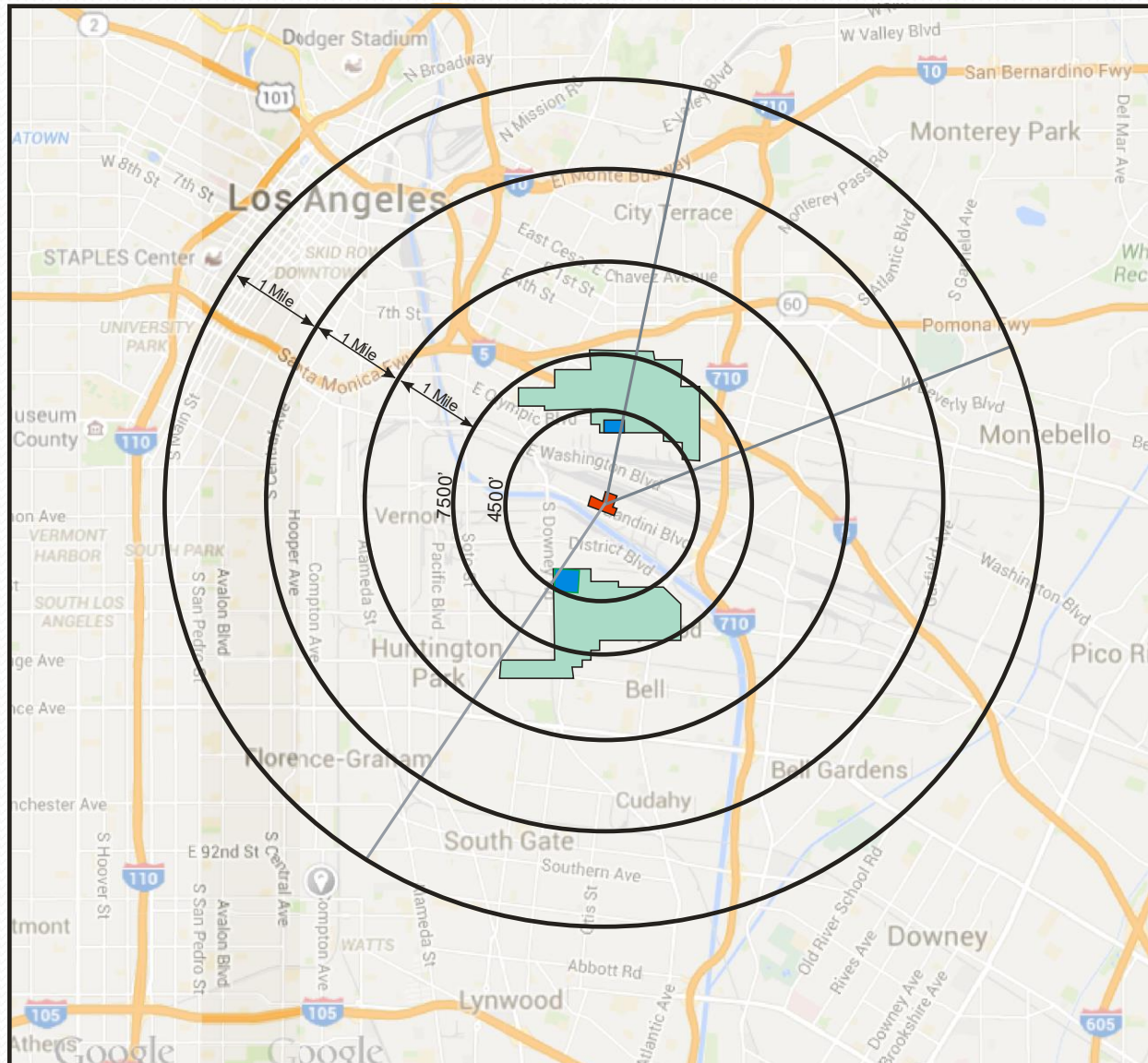
Northern Expanded Area – 84 Properties



Southern Expanded Area - 62 Properties



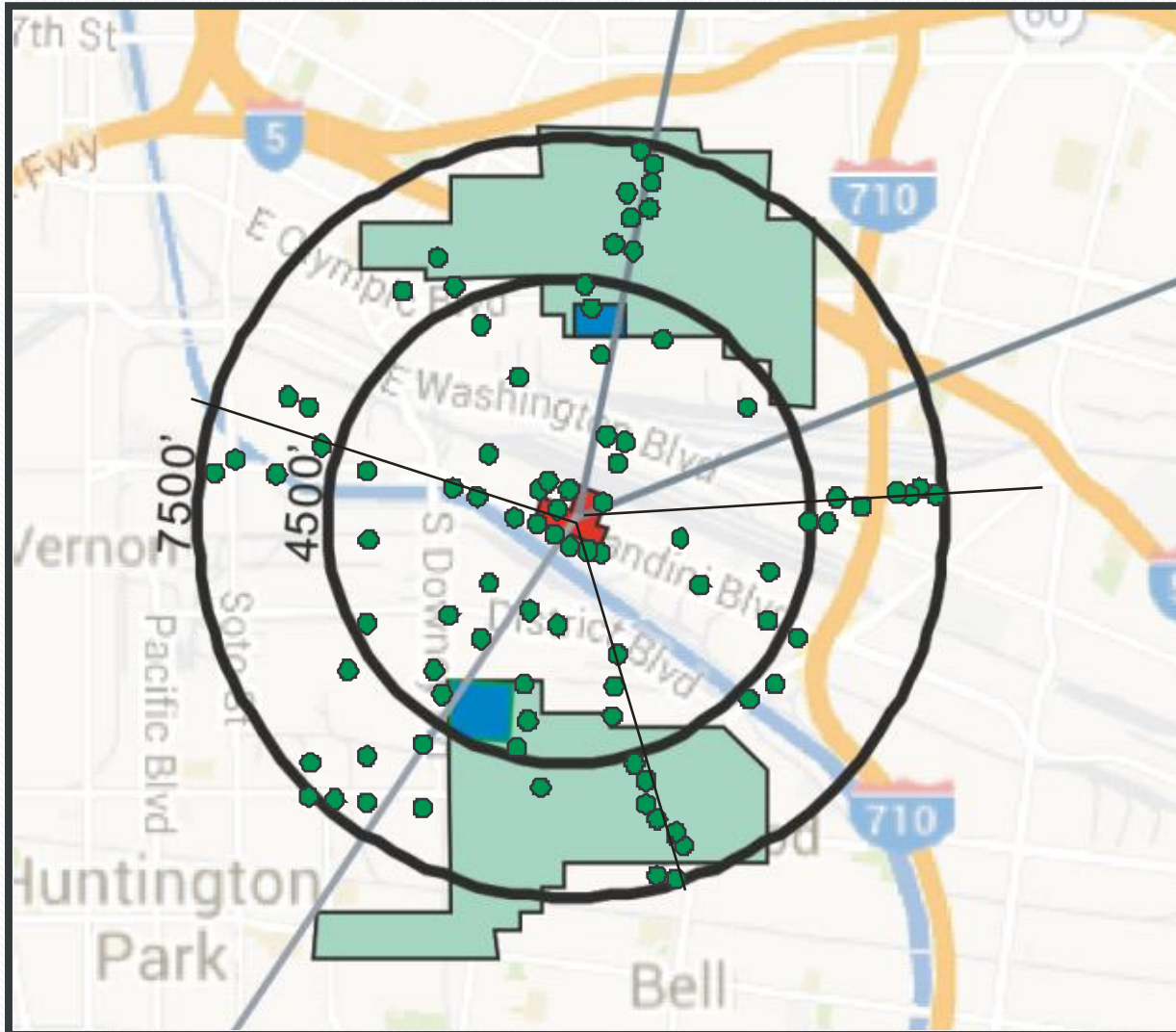
Off-Site Non-Residential Sampling



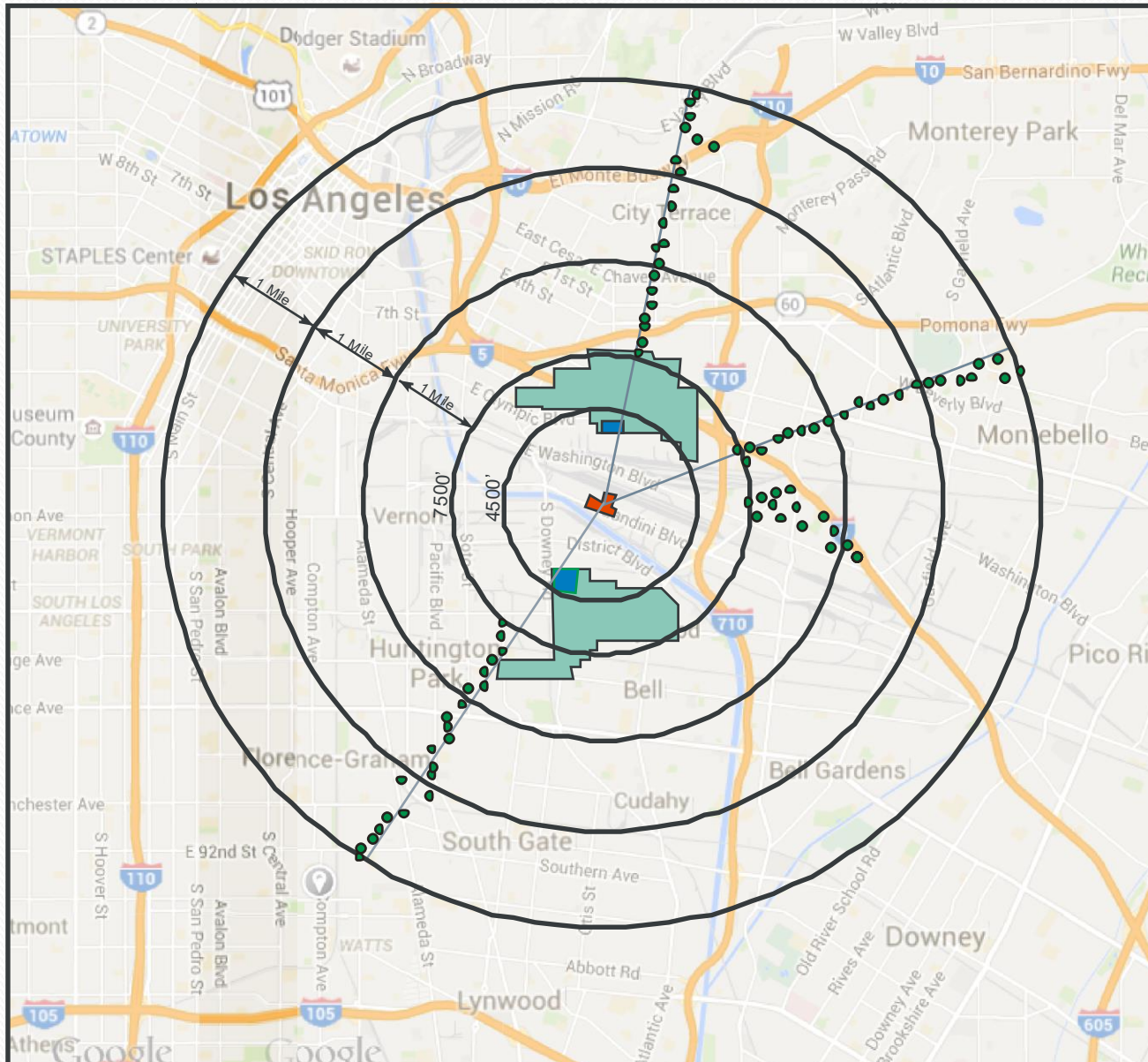
Off-Site Non-Residential Sampling

- The purpose of the Non-Residential Soil Sampling was to initially determine the extent of Exide's impacts near the facility and beyond to 4,500 feet. The sampling occurred in street medians and tree wells. This sampling only targeted the upper six inches of soil. Sample depths included the 0-1", 1-3" and 3-6".
- Based on the results of the Initial Sampling DTSC ordered Exide to expand the testing beyond 4,500 feet to 7,500 feet.
- The results of the 7,500 foot sampling show elevated lead levels. Based on this, DTSC ordered Exide to continue sampling beyond 7,500 feet. This sampling Program targeted areas along the dominant wind transects and also focused on a residential area to the east (City of Commerce).
- Based on the results of sampling to 4.5 miles, DTSC is requiring Exide to perform additional sampling east of Exide (City of Commerce).

Off-Site Non-Residential Sampling



Off-Site Non-Residential Sampling



In Summary

INITIAL ASSESSMENT AREA

- Samples from total of 184 out of 219 Properties were used for the Evaluation
- Total Number of Samples Locations = 2,286
- Total Number of Samples = 10,848

EXPANDED ASSESSMENT AREA

- Samples from 146 Properties were used for the Evaluation
- Total Number of Samples Locations = 1,742
- Total Number of Samples = 8,695

OFF-SITE NON-RESIDENTIAL SOIL SAMPLING

- Samples from 146 Properties were used for the Evaluation
- Total Number of Samples Locations = 116
- Total Number of Samples = 351

Total Number of Samples Locations – 4144

Total Number of Samples - 19,894