



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105

JUN 28 2019

**MEMORANDUM**

**DATE:** 27 June 2019

**SUBJECT:** Approval and Funding for a Time-Critical Removal Action at the  
Factory Street Lead Site, Honolulu, HI

**FROM:** Amanda Pease, On-Scene Coordinator  
Emergency Response Section II

**TO:** Enrique Manzanilla, Director  
Superfund and Emergency Management Division

**THRU:** *BP* Peter Guria, Chief *DAM*  
Emergency Response Section II

Dan Meer, Assistant Director *DAM*  
Emergency Response, Preparedness and Prevention Branch

**I. PURPOSE**

The purpose of this Action Memorandum is to request, and document approval of the selected removal action described herein for the Factory Street Lead Site (Site) located in the City and County of Honolulu, island of Oahu, Hawaii (HI) and to incur direct extramural costs of up to \$1,297,000. The proposed time-critical removal action would mitigate threats to human health and the environment posed by high concentrations of lead in surface soils in a degrading and abandoned street, located in a densely populated residential and industrial area. If no action is taken, the likelihood and severity of lead exposures to the public will increase as the street continues to degrade.

Conditions presently exist at the Site that, if not addressed by the response action documented in this memorandum, may result in continued exposure of the public to lead contamination in surface soils. As discussed in this memorandum, this hazardous substance, if unaddressed, may pose an imminent and substantial endangerment to the public health or welfare or the environment.

The proposed response to the hazardous substance at the Site is consistent with removal activities authorized pursuant to Section 104(a) of the Comprehensive

Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. 21 9604(a), and Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415.

## **II. SITE CONDITIONS AND BACKGROUND**

Site Status: Non-NPL  
Category of Removal: Time-Critical  
SEMS ID: HI0000049775  
SITE ID: 09BJ

### **A. Site Description**

#### **1. Physical Location**

The Site is located on Factory Street, between North King Street and Waterhouse Street, in the Kalihi subdivision of Honolulu, island of Oahu, HI. Historically the Site has been associated with the address 2003 North King Street, Honolulu, HI, 96819, at the intersection of Factory Street and North King Street. The geographic coordinates of 2003 North King Street are latitude 21.3324690 and longitude -157.8787416. Site location and vicinity maps are provided as Figures 1 and 2 in Appendix A. The proposed project area is approximately 32 feet by 200 feet, or 6400 square feet.

Factory Street is a busy side street in a dense, urban neighborhood and serves as a major corridor to North King Street, both for pedestrians and cars. The On-Scene Coordinator witnessed heavy foot and car traffic during various Site visits in April and May 2019. Almost 2,000 residents live within a 0.1-mile radius of the Site (or within 0.04 square miles), which corresponds to a population density of almost 42,000 people per square mile. EPA identified schools and parks within a 0.5-mile radius of the Site, in an effort to understand high levels of foot and car traffic in the area. EPA found seven schools, including five elementary schools, in addition to the Kamehameha Community Park, Kalakaua District Park, and parts of Kalihi Stream.

The Site is surrounded by an underserved, overburdened community faced with many environmental justice issues. The mostly minority neighborhood is comprised of a population reporting 87% Asian, 4% Pacific Islander, 3% White, and 5% of people reporting two or more races. Compared to the rest of Hawaii, this neighborhood is in the top 2% of most linguistically isolated communities, and top 3% for adults with less than high school education. Residents in this neighborhood may be particularly vulnerable or sensitive to hazardous substances due to a variety of other environmental stressors in the area. An environmental justice analysis is included in Appendix B.

## 2. Site Characteristics

The general area is zoned as Mixed Industrial Use, and includes an apartment complex, other residential housing, and small businesses. The street naming in the area (e.g. Factory Street and Industrial Road) indicates previous heavy industrial use. However, aerial imagery suggests the area has been primarily occupied by residential units and small businesses since at least 1952. Since the Site is within a 0.5-mile radius of the planned Kalihi rail station, traffic is likely to increase in the future.

The last listed owner of Factory Street (including neighboring lots) is the Kalihi Taro and Land Company, Limited. The neighboring lots were sold to private owners, but the street was not. The Kalihi Taro and Land Company was dissolved in 1926, leaving Factory Street ownerless and abandoned. Under Hawaii state law, the property does not automatically escheat to any state or local authority. No private or public entity has taken title to the street or taken action to condemn it or seize it. Therefore, the only legal owner of the Site is a defunct corporation.

Based on various assessments that have been completed at the Site (described below), the source of lead contamination appears to be discrete, rather than associated with a more widespread urban source. The following commercial businesses, formerly located at either corner of the Factory Street and North King Street intersection, have been noted in prior investigations as potential sources of discrete lead contamination:

- Dental office
- Sign painting shop
- Kalihi Fishing Supply
- Battery rebuilder

In 1993, a citizen who grew up in the area identified the “Kalihi Pawn Shop” (currently located at 2003 North King Street) as having once been the site of a fishing supply store. He reported that from about 1955 to 1966 the “Kalihi Fishing Supply” dumped lead ash from the manufacture of fishing weights on the ground at the Site. As a child, he would rummage through the ash to get big pieces of lead in order to make his own fishing weights. He believed that the lead was derived from discarded automobile batteries.

The fishing supply store was located close to the area with highest levels of current lead contamination, and both EPA and the Hawaii Department of Health (HDOH) identified this as the most likely source of lead contamination. EPA contractors also noted the presence of discarded batteries scattered throughout the neighborhood during previous investigations. EPA was unable to make recent contact with this resident.

### **3. Removal Site Evaluation**

Recent evaluations have been conducted on Factory Street and the adjacent private parcels at the intersection of Factory Street and North King Street. These assessments determined the average concentrations of lead, as well as additional metals of potential concern. EPA believes these recent evaluations provide enough information to warrant a time-critical removal action at the Site.

#### Hawaii Department of Health Site Assessment

The HDOH Hazard Evaluation and Emergency Response (HEER) office had been aware of elevated lead concentrations at the Site from assessments conducted in the 1990's (described in the Previous Actions section, below). In 2016, HEER reopened the Site after a Site visit determined that the Factory Street pavement was degrading, exposing surface soils that were likely contaminated with lead. In 2017, HEER assessed contamination in Factory Street soils between North King Street and Waterhouse Street.

The HEER site assessment separated Factory Street into six decision units (DU's) between North King Street and Waterhouse Street. Those DU's were further divided vertically into 6 depth profiles: 0 to 0.5 feet, 0.5 to 1 feet, 1 to 2 feet, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet. HEER used multi-increment (MI) sampling methods at the Site, in which 30 soil increments from each depth profile of each DU were combined into a single MI sample, which was then sent for laboratory analysis. This sampling method estimates mean concentrations over a DU to better understand average potential exposure. In heterogeneous soil, MI sample results can differ significantly from discrete samples. Due to multiple utilities in the street shoulder areas, the HEER site assessment concentrated on the travel way portion of Factory Street. Previous assessments had shown some of the highest lead concentrations in street shoulder areas.

The HEER site assessment found lead concentrations in MI samples ranging from 7 to over 24,000 mg/kg (see Figure 5 in Appendix A and Table 1 in Appendix C). Many of the results greatly exceed EPA's Residential Screening Level (RSL) of 400 mg/kg and HDOH's Environmental Action Level (EAL) for unrestricted land use of 200 mg/kg. The highest lead concentrations were detected in shallow soils close to the intersection of Factory Street and North King Street, which is consistent with prior assessment work at the Site.

#### Private Assessment of Adjacent Parcels

In 2017, HEER directed the owners of the private parcels adjacent to the areas of highest lead contamination to conduct site assessments in order to determine whether lead contamination existed on their property. The owners responded by completing a joint assessment on the two parcels adjacent to Factory Street. In this assessment, the paved driveway at 2003 North King Street was treated as one DU and the paved parking lot at 1955 North King Street was treated

as 4 DU's. The DU's were divided into the same depth profiles, and the assessment followed the same MI sampling scheme, as the HEER site assessment of Factory Street.

Results of this assessment are shown in Figure 5 in Appendix A and Table 2 in Appendix C. None of the MI samples exceeded the EPA RSL of 400 mg/kg. Two samples exceeded the HDOH EAL of 200 mg/kg. Both slightly elevated samples were deeper than 2 feet below the paved parking lot at 1955 North King Street. No further action was taken following this assessment, as no current human exposure to contaminated soil exists on these parcels.

### City and County of Honolulu Water Meter and Valve Box Soil Assessment and Removal

In 2017, the City and County of Honolulu Board of Water Supply (BWS) conducted an assessment of soil lead concentrations in water meter and valve boxes in the larger Factory Street area. The purpose of this assessment was to evaluate potential worker safety hazards from lead exposure and to remove soil found to exceed the HDOH Construction/Trench Worker EAL of 800 mg/kg.

BWS collected discrete soil samples from 99 water meters and valve boxes in an area centered on the intersection of Factory Street and North King Street (see Figure 6 in Appendix A). Of the samples taken, 19 had soil lead concentrations that equaled or exceeded the Construction/Trench Worker EAL. Contaminated soil was removed from those water meters and valve boxes and replaced with clean material. The highest discrete lead concentration found during this assessment was 4000 mg/kg. Highest lead concentrations were generally located on Factory Street and on North King Street near the intersection with Factory Street.

### EPA Conclusions from Recent Assessments of Factory Street

HDOH contacted EPA in 2019 to request assistance with addressing lead contamination on Factory Street. After reviewing the various recent assessments, EPA determined that current lead concentrations are extremely elevated in the shallow surface soils of Factory Street. The highest lead levels are located adjacent to the 2003 North King Street parcel, with concentrations decreasing dramatically towards Waterhouse Street, suggesting discrete sources of lead that have experienced limited migration over time. It also appears that elevated lead levels are limited to Factory street and shoulder areas, and do not continue onto the private parcels immediately adjacent to the most elevated areas.

It appears that elevated lead levels may also exist in surface soils under the pavement on North King Street near the intersection with Factory Street. However, North King Street is a major thoroughfare that is administered by the City and County of Honolulu, and the pavement is maintained in excellent condition. As a

result, there is no current human exposure to lead from surface soils on North King Street.

Factory Street, in contrast, is an abandoned street containing numerous potholes, crumbling asphalt, and exposed soil. EPA broadly mapped the current condition of Factory Street (see Figure 7 in Appendix A) and has found generally that the areas of highest lead contamination correspond with the most degraded sections of the street. Because the abandoned street is not being maintained, if no action is taken the limited asphalt cover will continue to degrade, exposing more highly contaminated surface soil.

HEER sent all MI samples that exceeded 100 mg/kg lead to the laboratory for analysis of toxicity using the Toxicity Characteristic Leaching Procedure (TCLP). The results show the surface soil (0 to 0.5 feet) in the DU adjacent to 2003 North King Street exceeds the TCLP limit of 5 mg/L, the regulatory level set out at 40 CFR §261.24. Soil from this DU will need to be disposed of as hazardous waste at an appropriate facility with RCRA Waste Code D008. Soil from all other DU's passed TCLP and can be disposed of at a municipal landfill.

While results associated with other metals are not presented here, the above-described recent assessments point to lead as the primary contaminant of concern and driver of the required action.

#### **4. Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant or Contaminant**

Lead is a CERCLA hazardous substance as defined at 40 CFR §302.4(a). Lead contaminated soils are present at the Site at levels that far exceed both EPA and State of Hawaii standards. Based on the assessment results described above, approximately 6,400 square feet of Factory Street has soil concentrations above EPA standards in the top 12 inches. This is likely due to the disposal of waste materials from lead smelting activities at a historical fishing supply store.

The surface soil contamination is present in an area of an abandoned street characterized by potholes, crumbling asphalt, and exposed soil. The Site is located in a densely populated, mixed use urban area characterized by heavy foot and car traffic. If no action is taken the abandoned street will continue to degrade, exposing more areas of highly contaminated surface soil to community members. The possibility of migration of lead contaminated soil during high precipitation events will also increase if the street continues to degrade.

#### **5. National Priorities List ("NPL") Status**

The Site is not currently on, or proposed for, the NPL.

## **6. Maps, Pictures, and other Graphic Representations**

Figures (Appendix A) depicting the Site are attached.

### **B. Other Actions to Date**

#### **1. Previous actions**

##### **State Emergency Action (2017)**

In October 2017, in response to recent soil sampling on Factory Street, HEER conducted an emergency action to patch potholes in the shoulder areas of contaminated portions of the street. The State On-Scene Coordinator assessed the Site to determine where potential exposure to lead contaminated soils existed. A temporary patch was applied to these sections of the street to prevent exposure of residents to lead in the surface soil. HEER considered this action temporary. EPA noted signs of degradation in these areas while mapping the current condition of the street (see Figure 7 in Appendix A).

##### **Prior Investigations and Response Action in the 1990's**

In 1993, HEER conducted a lead study inside and outside of buildings on Factory Street. This was in response to elevated blood lead levels (up to 33 µg/dL) found in multiple children from a family living on Factory Street. Soil samples were taken in the Factory Street area, including four areas of exposed soil near an apartment complex on Factory Street. Lead concentrations from surface soils directly in front of the apartment complex ranged from 41,000 mg/kg to 342,000 mg/kg lead (see Figures 3 and 4 in Appendix A, showing the highest sample results at each sample location).

The family was relocated. HEER issued an Emergency Response Order to the owner of the apartment complex to stabilize and control the hazardous substance. The landowner submitted a workplan to remove 6 to 12 inches of soil in contaminated areas and to pave those areas with asphaltic concrete. The landowner did not submit documentation of the soil volume removed from the Site or post-removal confirmation sample results. HDOH provided the landowner with a letter documenting that his interim response action was acceptable, and that no further action was required at that time.

HEER conducted additional downgradient sampling in 1993, and submitted a Preliminary Assessment to EPA in 1994 recommending further evaluation of the Site. EPA determined that further investigation was necessary to evaluate the site and completed a Site Assessment in 1995. The assessment showed continued lead contamination at the Site, with lead concentrations up to 117,000 mg/kg. EPA found that the highest levels of contamination were between the street and the buildings located at 2003 North King Street as well as 1955 North King Street (see Figures 3 and 4 of Appendix A).

Although elevated levels of lead continued to exist on Site, all areas of high lead concentration were paved. Both the EPA Site Assessment in 1995 and the subsequent HDOH Site Inspection in 1996 recommended No Further Action, as there was no current risk of exposure to residents.

## **2. Current actions**

HEER has completed an Environmental Hazard Management Plan (EHMP) to inform government and private companies and their contractors about their responsibilities for safe management of lead contaminated soils at the Site. The document specifies requirements, procedures, and guidelines intended to prevent potential exposures during any planned subsurface construction activities.

Other than the EHMP, which seeks to limit exposure during construction activities, there are no current actions ongoing at the Site.

## **C. State and Local Authorities' Roles**

### **1. State and Local Actions to Date**

HEER completed assessment and removal actions on Site in both the 1990's and in 2017, as described above. In 2019, HEER requested EPA assistance after continued degradation of the street and temporary patches, as more permanent removal of lead contamination is beyond their current capacity. HEER first requested EPA assistance during a series of conference calls and site walks in early 2019, before submitting a formal request for federal assistance on June 10, 2019.

### **2. Potential for Continued State/Local Response**

HEER is partnering with EPA on this removal action. HEER is assisting EPA with outreach to affected residents and businesses and coordination with appropriate state and local officials. There are no current plans for a State response outside of assisting EPA's federal response to the Site.

## **III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES**

Conditions at the Site represent a release, and potential threat of release, of CERCLA hazardous substances threatening the public health, welfare, or the environment based on the factors set forth in the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 CFR § 300.415(b)(2). EPA has determined that the following 40 CFR § 300.415(b)(2) factors apply at the Site:

(i) *Actual or potential exposure to nearby populations, animals or the food chain from hazardous substances or pollutants or contaminants;*

Extremely elevated concentrations of lead have been documented in surface and near-surface soils on Factory Street and its shoulders in a densely populated, community with other environmental justice concerns. EPA has documented the degradation of pavement on the street and shoulders in the areas of highest contamination (see Site Figures in Appendix A). Lead concentrations at the site far exceed both the EPA RSL of 400 mg/kg and the HDOH EAL for unrestricted land use of 200 mg/kg.

Very high blood lead levels were seen in children living on Factory Street in the 1990's. HEER also provided EPA with information about elevated blood lead levels in children living on Factory Street from 2003 to 2019. HEER identified a child living at 915 Factory Street with blood lead levels of 9 µg/dL in 2016 and 6.8 µg/dL in 2017. These blood lead levels are in excess of the current Centers for Disease Control (CDC) blood lead reference value of 5 µg/dL. The child's younger sibling's blood lead level was 4.8 µg/dL in 2018. Highest blood lead levels in the Factory Street area in this database were found to have occurred between 2016 and 2018. While Factory Street contamination has not been determined to be the source of lead exposure for these children, possible exposure to contamination in the street has generally increased over time as the street has continued to degrade. Also, based on the database results, HEER suspected that there was a lack of recent blood lead testing for individuals in the area.

EPA believes that children and adults who regularly travel or play on Factory Street have a continued risk of exposure to high levels of lead. Children playing on the street shoulders in degraded areas receive probable exposures through ingestion, including mouthing contaminated toys or soil itself. In addition, children and adults may be exposed by inhalation of wind-blown dust through such activities as driving, parking, walking, or biking on degraded shoulder and street areas. Nearby animal populations, including pets, could be similarly exposed. If no action is taken, the likelihood and severity of these exposures will continue to increase as the street continues to degrade.

Lead is regulated in RCRA and the State of Hawaii as a hazardous waste. According to the Agency for Toxic Substances and Disease Registry (ATSDR), lead is a toxic heavy metal that bio-accumulates in human tissues. Short-term exposure to large amounts of lead can cause harmful effects on the nervous system, gastrointestinal system, kidneys, and circulatory system. Long-term exposure to low levels can cause irreversible damage to the central nervous system, kidneys, blood, gastrointestinal tract, and gingival tissues. Children are particularly sensitive to the chronic effects of lead, with slowed cognitive development, reduced growth and other effects.

*(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate;*

High levels of lead in surface and near surface soils have been documented at the Site in areas where the street is degrading (see Site Figures and Tables in Appendices A and C). Past EPA assessments have noted that lead contaminated soils are high in clay, likely inhibiting the migration of contamination via surface water. While some limited migration has likely already taken place at the Site, the possibility of migration during high precipitation events will continue to increase as the street continues to degrade.

The Board of Water Supply assessment notes that elevated levels of lead in water meter and valve boxes are likely related to nearby surface soil contamination. There are no surface stormwater drainage systems, gutters, or curbs in the BWS assessment area, with the exception of North King Street. Therefore, BWS suspects that contamination is due to stormwater runoff sheetflow passing over the crumbling asphalt, potholes, and exposed soil on the degrading streets in the area before depositing into the water meter and valve boxes.

*(vii) Availability of other appropriate federal or state response mechanisms to respond to the release.*

The street is abandoned and is not currently being maintained by any entity. No other local, state or federal agency has the resources to independently implement a timely, effective response action to address the ongoing threats presented by the Site. On June 10, 2019 HEER formally requested assistance from EPA to take a response action at the Site.

#### **IV. ENDANGERMENT DETERMINATION**

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

#### **V. PROPOSED ACTIONS AND ESTIMATED COSTS**

##### **A. Proposed Actions**

##### **1. Proposed Action Description**

EPA will remove and properly dispose of lead contaminated soil and repave excavated portions of Factory Street. EPA will generally maintain the current street elevation of repaved areas.

EPA will excavate contaminated soil to a depth of 12 inches or more when the associated DU exceeds the EPA RSL of 400 mg/kg lead. Excavated soil will be transported to an appropriate landfill based on results of TCLP analysis, and in accordance with the off-site rule (40 CFR §300.440). EPA will backfill the street with clean and appropriate base course material and pave excavated portions of Factory Street, consulting the City and County of Honolulu Department of Planning and Permitting structural design requirements for new asphalt concrete pavements. Pavement may be extended a short distance onto neighboring parcels where a more natural paving end point (such as a residential building) is located. Excavating contaminated soil and paving the street based on City and County requirements will mitigate the public health threat on Site.

Based on the 2017 HEER assessment, it is anticipated that limited to no soil will remain on Site after excavation that exceeds the EPA RSL of 400 mg/kg lead, with the exception of contamination in the 3 to 4 feet horizon of the DU adjacent to the 2003 North King Street parcel. EPA will sample the excavation floor during the removal action and work with HEER to determine whether an indicator layer will be required on Site to demarcate any areas where contaminated soil is left buried in place at the limit of EPA excavation. HEER will continue to use their EHMP to coordinate with government and private companies that may be excavating deeper contaminated soils near 2003 North King Street.

EPA will not stockpile any excavated soil on Site during removal activities, due to the presence of children in this densely populated neighborhood. EPA will use air monitoring, engineering controls, and best management practices to minimize dust and other community impacts. Work will be carried out with appropriate care, as underground utilities are present in the street shoulders where the highest levels of contamination and street degradation are located. Excavation of contaminated soils on Factory Street will require traffic and parking diversion and will be coordinated with appropriate local officials.

## **2. Contribution to Remedial Performance**

By conducting the actions described in this Action Memorandum, this removal action will reduce the threat of exposure to hazardous substances at the Site. No further action will be required if the proposed removal action is implemented.

## **3. Engineering Evaluation / Cost Analysis**

An EE/CA is not required for a Time-Critical Removal Action.

## **4. Applicable or Relevant and Appropriate Requirements (ARARs)**

Section 300.415(j) of the NCP provides that CERCLA removal actions shall, to the extent practicable considering the exigencies of the situation, attain ARARs

under federal environmental or state environmental facility siting laws. The following ARARs have been identified for the proposed response action:

Federal ARARs:

- 42 U.S.C. 9601, et seq., CERCLA
- 42 U.S.C. 6901, et seq., RCRA including:
  - 40 C.F.R. 258, et seq., Subtitle D
  - 40 C.F.R. 260, et seq., Subtitle C
  - 40 C.F.R. 261, et seq., identification and listing of hazardous waste
- 42 U.S.C. 6941, et seq., state or regional solid waste plans
- 49 CFR Parts 171-173, U.S. Department of Transportation, Hazardous Materials Regulations

State ARARs:

In response to EPA's request to identify ARARs, the State of Hawaii, via the Hawaii Department of Health, replied that the following state guidance is relevant and appropriate, but has not been promulgated. EPA is including these as guidances as To Be Considered for the Site:

- Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan
- State of Hawaii Environmental Action Levels (EALs)

HDOH communicated to EPA that EPA lead action levels would be considered acceptable for the removal action, as the State's priority is to clean the extremely elevated levels of lead near the intersection of Factory Street and North King Street. Based on the State's 2017 assessment results, use of the HDOH's EAL for unrestricted use would result in a 50% expansion of the area to be excavated (from four DU's to six DU's), with an expected similar increase in cost and project schedule. EPA, in consultation with HDOH, determined that the EPA RSL of 400 mg/kg lead was appropriate to expedite mitigation of the risks posed by the contaminated surface soils in the four DU's closer to the intersection with North King Street. Residual surface soils in the remaining DU's are very close to the HDOH EAL and are considered lower priority by the State.

## **5. Project schedule**

Preparations for the removal action are anticipated to start after approval as indicated by the signature on this memorandum. Initial actions to prepare for excavation and appropriate paving of the street will begin immediately. EPA will seek legal access to the abandoned street for the removal action, which may require

seeking a Federal warrant. EPA will also conduct extensive outreach to affected residents and businesses related to the upcoming removal action.

It is anticipated that the excavation and backfill process will begin in September and will take 3 or more weeks. The paving process, while relatively short in duration, may be separated some weeks from the excavation process depending on the availability of acceptable paving contractors. In this case, EPA will take appropriate actions to maintain backfill material. Disposal of the single DU that failed TCLP will require transportation to an appropriate facility on the US Mainland.

## **B. Estimated Costs**

### Extramural Costs:

#### Regional Removal Allowance Costs:

Total Cleanup Contractor Costs (ERRS)	\$780,000
Total START Contractor Costs	\$160,000
Contractor Cost contingency (15%)	\$141,000
 Subtotal Extramural Costs	 \$1,081,000
 Extramural Costs Contingency (20% of Subtotal, Extramural Costs rounded to the nearest thousand)	 \$216,000
 TOTAL REMOVAL ACTION PROJECT CEILING	 \$1,297,000

## **VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

A delay in action or no action at this Site would perpetuate the current exposure of potentially sensitive community members to high levels of lead contamination. Factory Street would also continue to degrade, exposing additional areas of high lead contamination to residents and increasing the possibility of downgradient migration. Lead is known to cause irreversible neurological impacts on children.

## **VII. OUTSTANDING POLICY ISSUES**

None.

## VIII. ENFORCEMENT

Please see the attached Confidential Enforcement Addendum for a discussion regarding potentially responsible parties and enforcement. No viable potentially responsible parties have been identified for the Site.

In addition to any extramural costs estimated for the proposed action, a cost recovery enforcement action also may recover the following intramural costs:

### Intramural Costs<sup>1</sup>

U.S. EPA Direct Costs	\$75,000
U.S. EPA Indirect Costs (50.65% of Spending \$1,297,000+ \$75,000)	<u>\$ 694,918</u>
TOTAL Intramural Costs	\$ 769,918

The total EPA extramural and intramural costs for this removal action, based on full-cost accounting practices that will be eligible for cost recovery, are estimated to be \$2,066,918. Of this, an estimated spending of \$1,297,000 comes from the Regional removal allowance.

**\*The EPA direct and indirect costs, although cost recoverable, do not count toward the Removal Ceiling for this removal action. Liable parties may be held financially responsible for costs incurred by the EPA as set forth in Section 107 of CERCLA.**

## IX. RECOMMENDATION

This decision document represents the selected removal action for the Factory Street Lead Site in the City and County of Honolulu, island of Oahu, Hawaii developed in accordance with CERCLA, as amended, and it is not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site meet the NCP section 300.415(b) criteria for a removal and I recommend your approval of the proposed removal action. The total project

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<sup>1</sup> Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

ceiling, if approved, will be \$2,066,918. Of this, as much as \$1,297,000 comes from the Regional removal allowance. If you approve of this action, please indicate your decision by signing below.

Approve:  6/28/2019  
Enrique Manzanilla, Director Date  
Superfund Division

Disapprove: \_\_\_\_\_  
Enrique Manzanilla, Director Date  
Superfund Division

cc: Stephanie Wenning, OEM, HQ  
Iris van der Zander, HDOH

Attachments

Enforcement Confidential Addendum  
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Appendices

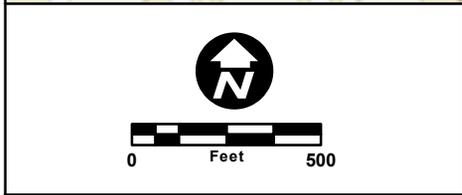
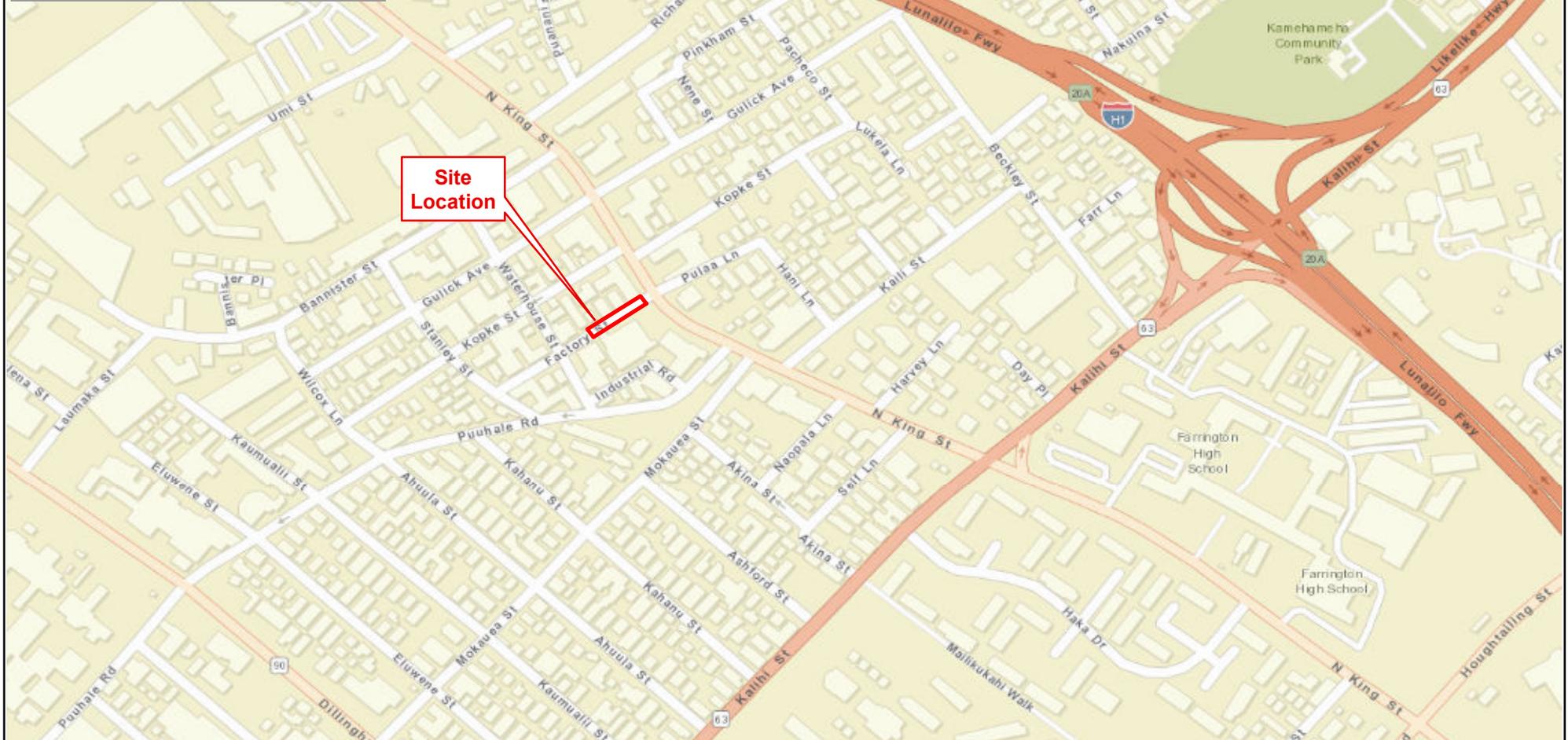
A – Site Figures  
B – Site Environmental Justice Analysis  
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bcc: Site File  
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3. Hawaii Department of Health Site Inspection, April 23, 1996
4. Superfund Lead-Contaminated Residential Sites Handbook, OSWER 9285.7-50, August 2003
5. Letter Requesting and Approving Discontinued Maintenance of Factory Street, from the City and County of Honolulu to the Hawaii Department of Transportation, August 2017
6. Hawaii Department of Health Release Notification, September 26, 2017
7. Hawaii Department of Health Environmental Hazard Evaluation/Environmental Hazard Management Plan, February 2018
8. Letter from the Hawaii Department of Health to Factory Street Residents and Owners Regarding Emergency Patchwork and Road Maintenance, March 12, 2018
9. City and County of Honolulu Board of Water Supply Water Meter and Valve Boxes Soil Assessment and Removal Report, March 2018
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Appendix A:  
Factory Street Lead Site Figures



**PREPARED BY:**  
 Region 9, START  
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**FIGURE 1**  
**SITE LOCATION MAP**  
 Factory Street Site  
 Honolulu, Oahu, Hawaii



**Legend**

- Parcel Boundaries
- Proposed Project Area

Aerial Source: USGS EarthExplorer 5/2019  
Aerial Date: 5/2010



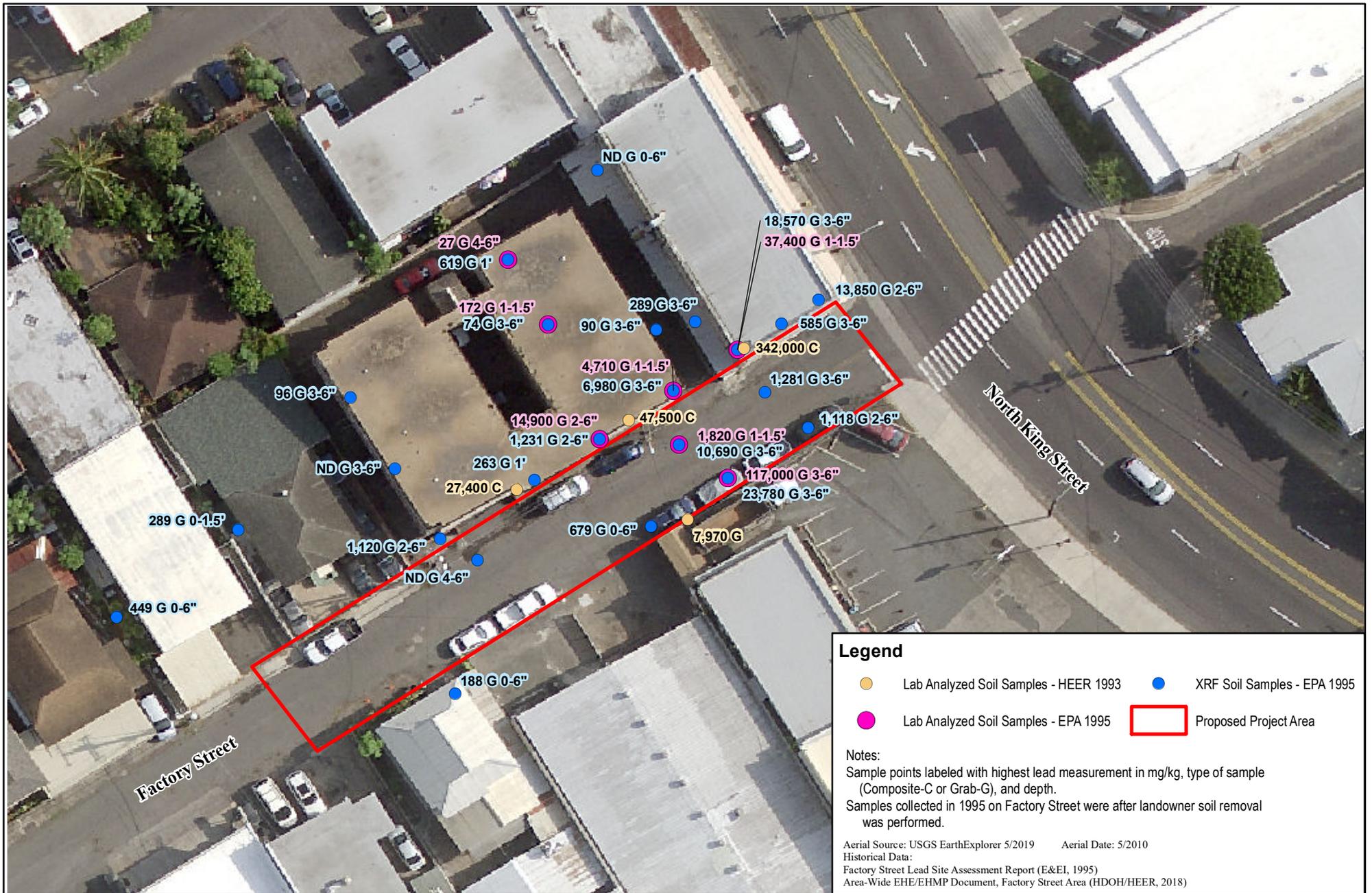
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**FIGURE 2**  
**SITE VICINITY MAP**  
 Factory Street Site  
 Honolulu, Oahu, Hawaii



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**FIGURE 3**  
**SITE SAMPLING MAP (1990s)**  
 Factory Street Site  
 Honolulu, Oahu, Hawaii

**Legend**

- Lab Analyzed Soil Samples - HEER 1993
- XRF Soil Samples - EPA 1995
- Lab Analyzed Soil Samples - EPA 1995
- Proposed Project Area

Notes:  
 Sample points labeled with highest lead measurement in mg/kg, type of sample (Composite-C or Grab-G), and depth.  
 Samples collected in 1995 on Factory Street were after landowner soil removal was performed.

Aerial Source: USGS EarthExplorer 5/2019    Aerial Date: 5/2010  
 Historical Data:  
 Factory Street Lead Site Assessment Report (E&EI, 1995)  
 Area-Wide EHE/EHMP Document, Factory Street Area (HDOH/HEER, 2018)



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**FIGURE 4**  
**SITE VICINITY SAMPLING MAP (1990s)**  
 Factory Street Site  
 Honolulu, Oahu, Hawaii



**Legend**

- <400 mg/kg (0 to 1 feet bgs)
- >400 mg/kg (0 to 1 feet bgs)
- 2017 EHE/EHMP Decision Unit
- 2017 Private Assessment Decision Unit
- Proposed Project Area

Notes:  
 EPA Residential Screening Level for Lead: 400 mg/kg.

Aerial Source: USGS EarthExplorer 5/2019    Aerial Date: 5/2010

Historical Data:  
 Area-Wide EHE/EHMP Document, Factory Street Area (HDOH/HEER, 2018)  
 Site Investigation Report, Factory Street Properties (ES&TC, 2018)



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**FIGURE 5**  
**SITE SAMPLE RESULTS (RECENT)**  
 Factory Street Site  
 Honolulu, Oahu, Hawaii

### Legend

Water Meter/Valve Box Lab Analyzed Samples (BWS 2017)

● > 800 mg/kg

● < 800 mg/kg

▭ Proposed Project Area

Note:  
Sample points labeled with highest lead measurement in mg/kg.

Screening Level: HDOH Construction/Trench Worker Environmental Action Level = 800 mg/kg.

Aerial Source: USGS EarthExplorer 5/2019 Aerial Date: 5/2010

Historical Data:  
Water Meter and Valve Boxes Soil Assessment and Removal Report (EA, 2018)



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**FIGURE 6**  
**WATER METER/VALVE BOX**  
**SOIL SAMPLING RESULTS**  
Factory Street Site  
Honolulu, Oahu, Hawaii



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**FIGURE 7**  
**EXPOSED SOIL AND**  
**PAVEMENT REPAIR AREAS**  
 Factory Street Site  
 Honolulu, Oahu, Hawaii

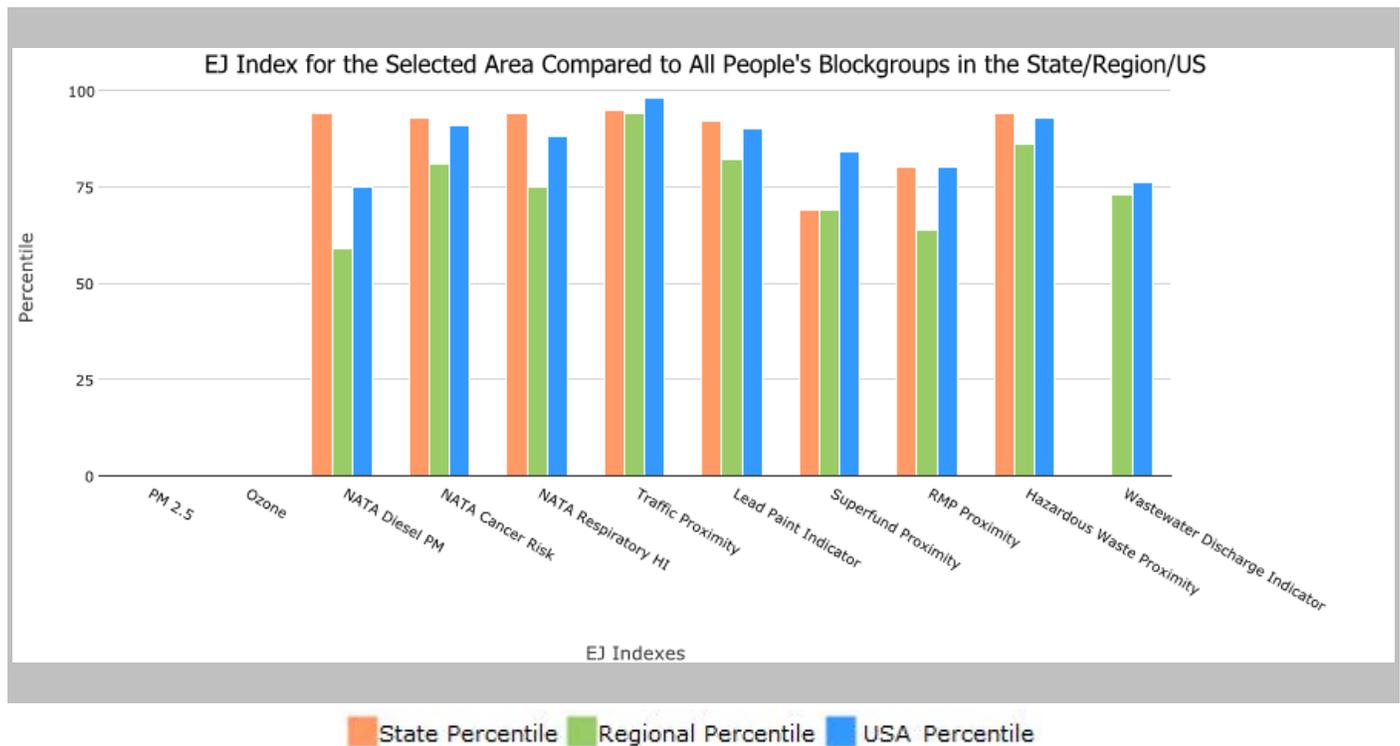
Appendix B:  
Factory Street Lead Site  
Environmental Justice Analysis

## 0.10 mile Ring around the Corridor, HAWAII, EPA Region 9

Approximate Population: 1,967

Input Area (sq. miles): 0.04

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
<b>EJ Indexes</b>			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	94	59	75
EJ Index for NATA* Air Toxics Cancer Risk	93	81	91
EJ Index for NATA* Respiratory Hazard Index	94	75	88
EJ Index for Traffic Proximity and Volume	95	94	98
EJ Index for Lead Paint Indicator	92	82	90
EJ Index for Superfund Proximity	69	69	84
EJ Index for RMP Proximity	80	64	80
EJ Index for Hazardous Waste Proximity	94	86	93
EJ Index for Wastewater Discharge Indicator	N/A	73	76

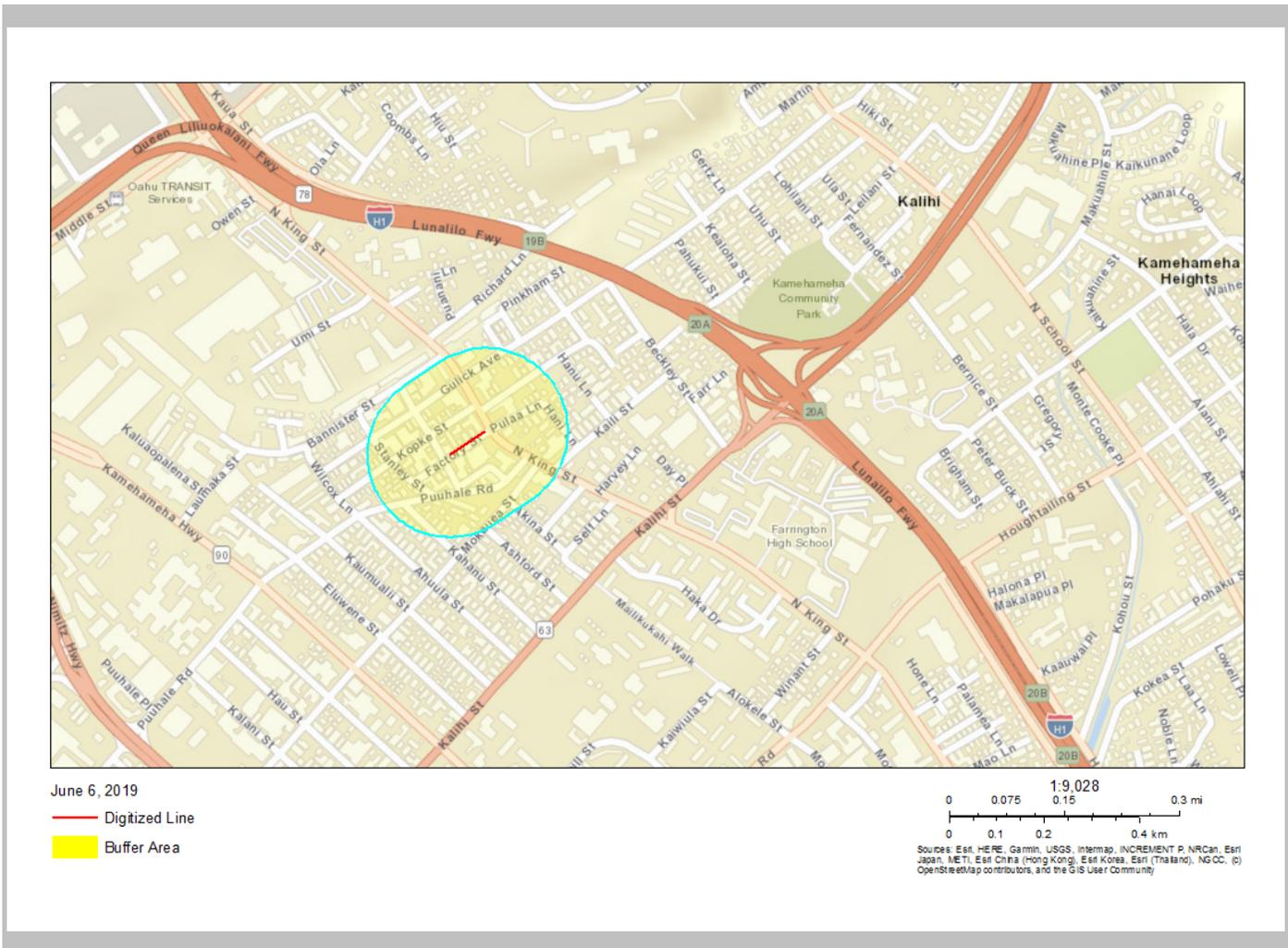


This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

0.10 mile Ring around the Corridor, HAWAII, EPA Region 9

Approximate Population: 1,967

Input Area (sq. miles): 0.04



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

## EJSCREEN Report (Version 2018)



**0.10 mile Ring around the Corridor, HAWAII, EPA Region 9**

**Approximate Population: 1,967**

**Input Area (sq. miles): 0.04**

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
<b>Environmental Indicators</b>							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$ )	N/A	N/A	N/A	10.1	N/A	9.53	N/A
Ozone (ppb)	N/A	N/A	N/A	48.3	N/A	42.5	N/A
NATA* Diesel PM ( $\mu\text{g}/\text{m}^3$ )	0.37	0.15	91	0.978	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	55	34	96	43	80-90th	40	90-95th
NATA* Respiratory Hazard Index	2	1	94	2	50-60th	1.8	60-70th
Traffic Proximity and Volume (daily traffic count/distance to road)	4300	1000	93	1100	92	600	97
Lead Paint Indicator (% Pre-1960 Housing)	0.34	0.16	80	0.24	67	0.29	65
Superfund Proximity (site count/km distance)	0.056	0.096	53	0.14	47	0.12	54
RMP Proximity (facility count/km distance)	0.3	0.37	65	0.97	40	0.72	49
Hazardous Waste Proximity (facility count/km distance)	4.5	1.4	87	2.8	79	4.3	89
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0	0.04	N/A	12	59	30	40
<b>Demographic Indicators</b>							
Demographic Index	58%	51%	71	47%	67	36%	80
Minority Population	97%	78%	93	59%	94	38%	96
Low Income Population	19%	25%	40	35%	28	34%	28
Linguistically Isolated Population	37%	6%	98	8%	97	4%	98
Population With Less Than High School Education	27%	9%	97	17%	75	13%	87
Population Under 5 years of age	7%	6%	64	6%	60	6%	64
Population over 64 years of age	11%	16%	28	13%	49	14%	39

\* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: [www.epa.gov/environmentaljustice](http://www.epa.gov/environmentaljustice)

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

Appendix C:  
Factory Street Lead Site  
Soil Sample Results from 2017 Assessments

**Table 1 – 2017 Multi-incremental Lead in Soil Sampling Results with Concentrations Exceeding 100 mg/kg – HDOH HEER**

<b>USEPA Residential Screening Level for Lead = 400 mg/kg</b>						
<b>Sample ID</b>	<b>Location</b>		<b>Substance</b>	<b>Result (mg/kg)</b>		<b>Standard (mg/kg)</b>
	<b>Decision Unit</b>	<b>Depth (bgs)</b>		<b>Lab Analyzed</b>	<b>XRF Averages</b>	
DU1-A	DU1	0-6 inches	Lead	228	129	400
DU2-A	DU2	0-6 inches	Lead	291	102	400
DU3-A	DU3	0-6 inches	Lead	<b>704</b>	296	400
DU3-B	DU3	6-12 inches	Lead	<b>1,010</b>	67	400
DU3-C	DU3	12-24 inches	Lead	125	52	400
DU4-A	DU4	0-6 inches	Lead	<b>4,660</b>	<b>622</b>	400
DU4-B	DU4	6-12 inches	Lead	<b>472</b>	175	400
DU4-C	DU4	12-24 inches	Lead	223	60	400
DU5-A	DU5	0-6 inches	Lead	<b>8,450</b>	<b>838</b>	400
DU5-B	DU5	6-12 inches	Lead	<b>429</b>	133	400
DU5-C	DU5	12-24 inches	Lead	124	43	400
DU6-A-T1	DU6	0-6 inches	Lead	<b>14,300</b>	<b>4,451</b>	400
DU6-B-T1	DU6	6-12 inches	Lead	264	390	400
DU6-C-T1	DU6	12-24 inches	Lead	239	111	400
DU6-E-T1	DU6	36-48 inches	Lead	<b>2,440</b>	29	400
DU6-A-T2	DU6	0-6 inches	Lead	<b>24,800</b>	<b>3,737</b>	400
DU6-B-T2	DU6	6-12 inches	Lead	<b>634</b>	257	400
DU6-C-T2	DU6	12-24 inches	Lead	239	293	400
DU6-D-T2	DU6	24-36 inches	Lead	125	74	400
DU6-A-T3	DU6	0-6 inches	Lead	<b>13,400</b>	<b>1,730</b>	400
DU6-B-T3	DU6	6-12 inches	Lead	<b>840</b>	<b>673</b>	400
DU6-C-T3	DU6	12-24 inches	Lead	<b>497</b>	89	400
DU6-D-T3	DU6	24-36 inches	Lead	141	23	400
DU6-F-T3	DU6	48-60 inches	Lead	129	13	400

# Table 1 – 2017 Multi-incremental Lead in Soil Sampling Results with Concentrations Exceeding 100 mg/kg – HDOH HEER

<p>Notes: USEPA = United States Environmental Protection Agency mg/kg = milligrams per kilogram ID = Identification bgs = below ground surface multi-incremental soil samples consisted of 30 increments</p>	<p><b>PREPARED BY:</b> Region 9 START Weston Solutions, Inc. 2300 Clayton Road, Suite 900 Concord, CA, 94520</p> 	<p><b>PREPARED FOR:</b> EPA Region 9 Emergency Response Section</p> 
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**Table 2 – 2017 Multi-incremental Lead in Soil Sampling Results with Concentrations Exceeding 100 mg/kg – Private Assessment**

<b>USEPA Residential Screening Level for Lead = 400 mg/kg</b>					
<b>Sample ID</b>	<b>Location</b>		<b>Substance</b>	<b>Result (mg/kg)</b>	<b>Standard (mg/kg)</b>
	<b>Decision Unit</b>	<b>Depth (bgs)</b>			
2003.DU1.B	DU1	6-12 inches	Lead	120	400
1955.DU2.A	DU2	0-6 inches	Lead	140	400
1955.DU2.D	DU2	24-36 inches	Lead	290	400
1955.DU2.E	DU2	36-48 inches	Lead	110	400
1955.DU4.F	DU4	48-60 inches	Lead	190	400
1955.DU5.F	DU5	48-60 inches	Lead	260	400
2005.DU1.G	DU1	0-6 inches	Lead	140	400
2005.DU1.H	DU1	6-12 inches	Lead	150	400
1955.DU2.G	DU2	0-6 inches	Lead	140	400
<b>Notes:</b> USEPA = United States Environmental Protection Agency ID = Identification bgs = below ground surface mg/kg = milligrams per kilogram multi-incremental soil samples consisted of 30 increments			<b>PREPARED BY:</b> Region 9 START Weston Solutions, Inc. 2300 Clayton Road, Suite 900 Concord, CA, 94520 		<b>PREPARED FOR:</b> EPA Region 9 Emergency Response Section 