

4.8 Hazards and Hazardous Materials

This section summarizes the level of risk associated with hazardous materials, hazardous waste, and/or contamination within and near the Geary corridor that could potentially affect proposed construction activities. An Initial Site Assessment (ISA) was conducted for the Geary corridor in August 2013 in accordance with American Society for Testing and Materials (ASTM) E-1527 guidelines. The ISA is included as Appendix F and is on file with the San Francisco County Transportation Authority (SFCTA). The ISA included an Environmental Data Resources (EDR) records search with federal, state, tribal, and local queries pertaining to past and present hazardous materials use, storage, generation, disposal, and release on properties near the Geary corridor. Additionally, the ISA included a site reconnaissance report to visually evaluate potential evidence of hazardous material leaks. Accordingly, this section identifies recognized environmental conditions (RECs) and other potential concerns near the Geary corridor.

4.8.1 | Regulatory Setting

4.8.1.1 | FEDERAL REGULATIONS

4.8.1.1.1 RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

RCRA governs the disposal of solid and hazardous waste. Congress passed RCRA in 1976 as an amendment to the Solid Waste Disposal Act of 1965. RCRA was intended to address the growing volume of municipal and industrial waste and set national goals for protecting human health and the environment from the potential hazards of waste disposal. RCRA sets forth measures to conserve energy and natural resources. RCRA Subtitle C establishes a hazardous waste program intended to regulate such wastes from their creation to their disposal – a framework sometimes called “cradle to grave.” RCRA Subtitle I sets forth an underground storage tank (UST) program to regulate such storage of hazardous substances, including petroleum products. The Environmental Protection Agency (EPA) has primary responsibility for implementing RCRA, but some states, including California, have received authorization to implement RCRA and issue permits.

4.8.1.1.2 COMPREHENSIVE ENVIRONMENTAL RESPONSE AND LIABILITY ACT (CERCLA)

CERCLA, also known as Superfund, was enacted in December 1980 and amended significantly in 1986. CERCLA provides a basis for taxing chemical and petroleum manufacturers and provides federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA sets forth requirements concerning closed and/or abandoned hazardous waste sites, determines liability of the persons responsible for releases of hazardous waste at these sites, and administers a trust fund using collected taxes to provide for cleanup when no responsible party can be identified.

RESOURCES

For more information on federal laws pertaining to hazardous wastes/materials, please see:

RCRA:

<http://www.epa.gov/solid-waste/inforesources/online/index.htm>

CERCLA:

<http://epa.gov/superfund/policy/cercla.htm>

ACRONYMNS

RCRA: Resource Conservation and Recovery Act

CERCLA: Comprehensive Environmental Response and Liability Act

OSHA: Occupational, Safety and Health Administration

CCR: California Code of Regulations

4.8.1.1.3 OCCUPATIONAL SAFETY AND HEALTH STANDARDS

Title 29 under the Code of Federal Regulations focuses on worker health and safety as it relates to worker exposure to hazards. The Occupational, Safety, and Health Administration (OSHA), born out of the Occupational Safety and Health Act of 1970, is the primary agency responsible for setting and enforcing standards to assure safe and healthful working conditions for working men and women and provide training, outreach, education, and assistance.

4.8.1.2 | STATE REGULATIONS

4.8.1.2.1 CALIFORNIA HEALTH AND SAFETY CODE

Hazardous waste management in California is regulated under the authority of the California Health and Safety Code. The Health and Safety Code ensures employment of proper technology and management practices, safe handling, treatment, recycling, and destruction of hazardous waste. The California Department of Toxic Substances Control (DTSC) carries out many related programs and measures to protect the public health and environment from potential threats of hazardous substances and wastes.

The California State Fire Marshal (CSFM) participates in the Certified Unified Program Agency (CUPA), which consolidates and coordinates activities and programs related to hazardous wastes generators and treatments, storage tanks, hazardous material releases, and hazardous material management plans required by chapter 6.11 of the California Health and Safety Code. The CSFM provides regulatory oversight, CUPA certifications, evaluations of the approved CUPAs, and training and education.

According to Title 22 Section 66261.20 of the California Code of Regulations (CCR), waste is considered hazardous if it includes one of the following four characteristics; 1) ignitability, 2) corrosivity, 3) reactivity, and 4) toxicity. CCR Title 22, Division 4.5 contains environmental health standards for the management of hazardous waste. Title 22 requires hazardous waste to be managed according to applicable regulations with regard to handling, transport, exposure requirements, and disposal requirements under a uniform hazardous waste manifest, with the specific procedures identified in Title 8 of the California Code of Regulations.

4.8.1.3 | LOCAL REGULATIONS

4.8.1.3.1 SAN FRANCISCO HEALTH CODE (MAHER ORDINANCE)

Article 22A of the San Francisco Health Code (the Maher Ordinance) applies to projects that result in the excavation of more than 50 cubic yards of soil where the project site meets one or more of the criteria below. Also see Figure 4.8-3 below.

- Land that has been filled;
- Areas zoned or used for industrial occupancy, currently or historically;
- Current or former presence of hazardous substances or underground storage tanks (USTs);
- Located within 100 feet of USTs; and
- Located within 150 feet of elevated freeways.

4.8.1.3.2 SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH (SFDPH) LOCAL OVERSIGHT PROGRAM

Pursuant to Title 23 of the California Code of Regulations (Chapter 16), SFDPH provides oversight for UST release sites. Local Oversight Program (LOP) staff review, comment, and approve of hydro-geological reports, feasibility studies, and work plans for soil and groundwater characterization and remedial action. Staff also review the effectiveness of remedial strategies, certify cleanup sites, and provide regulatory guidance to consultants, contractors, property owners, etc.

4.8.1.3.3 SAN FRANCISCO PUBLIC WORKS CODE ARTICLE 2.4; EXCAVATION IN THE PUBLIC RIGHT-OF-WAY

Article 2.4 of the San Francisco Public Works code sets forth a number of requirements concerning excavation activities in public right-of-way areas. Section 2.4.53 imposes a number of physical requirements on such excavation, including requirements to protect/cover open excavation, exercise good housekeeping practices, and regulations on storage of materials and equipment.

4.8.1.3.4 SAN FRANCISCO GENERAL PLAN

Policies 1.23 and 1.24 of the San Francisco General Plan promote the education and enforcement of regulations that reduce risks associated with hazardous materials, particularly when associated with earthquakes.

Policy 1.23: Enforce state and local codes that regulate the use, storage and transportation of hazardous materials in order to prevent, contain and effectively respond to accidental releases.

Policy 1.24: Educate public about hazardous materials procedures, including transport, storage, and disposal.

4.8.1.3.5 BAY AREA AIR QUALITY MANAGEMENT DISTRICT

The Bay Area Air Quality Management District (BAAQMD) regulates the demolition and renovation of buildings and structures which may contain asbestos, or milling and manufacturing of specific materials which are known to contain asbestos. The provisions that cover these operations are found in District Regulation 11, Rule 2.

BAAQMD Regulation 11-2-401.3 requires that for every renovation involving the removal of 100 square feet/linear feet or greater of Regulated Asbestos Containing Material (or RACM), and for every demolition (even when no asbestos is present), a notification must be made to the BAAQMD at least 10 working days (except in special circumstances) prior to commencement of demolition/renovation. When removing any RACM, BAAQMD regulations must always be followed.

BAAQMD also enforces the California Airborne Toxic Control Measure (ATCM) which regulates emissions from Naturally-Occurring Asbestos (NOA) that may occur during such activities as grading, quarrying, and mining.¹

¹ California Code of Regulations Section 93015.

RESOURCE

The San Francisco General Plan is available at http://www.sf-planning.org/ftp/General_Plan/index.htm

4.8.2 | Affected Environment

4.8.2.1 | HISTORICAL LAND USES

San Francisco's diverse physical landscapes and land uses have contributed to defining districts that still exist today. The City has had mostly developed and urban land uses over the past 100 years. According to historical aerial photographs, land use patterns after 1938 showed commercial development intensifying near Presidio Avenue and Van Ness Avenue, replacing residential buildings.

The most significant land use changes occurred in the portion of the Geary corridor South of Market Street. During the 1950s, highway structures for the Embarcadero Freeway and San Francisco-Oakland Bay Bridge were constructed in this area. After 1974, industrial uses south of Market Street gradually changed to commercial and office uses. By 1993, portions of the Embarcadero Freeway were removed following damage from the 1989 Loma Prieta earthquake. According to the San Francisco Downtown Area Plan, numerous factors have contributed to rapid growth of office development in the South of Market area from the late 1990s to the present.

4.8.2.2 | PHYSICAL SETTING

DEFINITION

Hydrogeology:

Hydrogeology is the area of geology that deals with the distribution and movement of groundwater in the soil and rocks of the earth's crust

The Geary corridor has a wide range of hydrogeological conditions as it extends east-west across moderately hilly terrain near the north end of San Francisco. The direction that groundwater flows directly relates to the hydrogeological conditions of an area; thus, such conditions provide insight as to how potentially hazardous materials might travel in the event of a release. Elevations along the majority of the corridor typically vary from 125 feet to 275 feet above mean sea level (amsl) with an average elevation of 200 feet amsl. The highest elevations are near the west end (about 43rd Avenue) and near the central portion (near the intersection of Masonic Avenue and Geary Boulevard). Each area is approximately 270 feet amsl. The east terminus of the Geary corridor descends to slightly above sea level east of Market Street near the Transbay Transit Center.

The eastern half of the Geary corridor is in the Downtown groundwater basin. Based on topography, both surface and groundwater in this half would be expected to flow east toward San Francisco Bay. The western half of the Geary corridor is in the Lobos and Westside groundwater basins. Surface and groundwater in this area would be expected to flow west toward the Pacific Ocean.

The depth of the groundwater basin varies with topography. In the central portion of the Geary corridor, near Geary Boulevard and Arguello Boulevard, depth to groundwater is approximately 19 to 46 feet below ground surface (bgs). Depth to groundwater at the Transbay Transit Center area is approximately 12 feet bgs.

4.8.2.3 | SITE RECONNAISSANCE

The Geary corridor contains several types of business establishments that are typically associated with possible hazardous materials.

- **Corrosive material storage area.** One currently vacant storage area had a hazardous materials placard indicating the storage of corrosive materials.
- **Dry cleaners.** 17 clothing dry cleaners were identified in building frontages along portions of the Geary corridor. These businesses often use and dispose of industrial solvents used for dry cleaning, primarily tetrachloroethylene.
- **Gasoline stations.** Seven gasoline stations with USTs were identified along the Geary Street/Geary Boulevard portion of the Geary corridor.
- **Transportation facilities.** The San Francisco Municipal Transportation Agency (SFMTA) Presidio Division Bus Yard and the Transbay Temporary Terminal buildings were identified along the Geary corridor. These sites may potentially include vehicle fueling and maintenance areas which could use, store, and dispose of fuels, lubricants, and other hazardous materials.
- **Vehicle repair shops.** 18 vehicle repair shops were identified in building frontages along portions of the Geary corridor. These facilities typically use, store, and dispose of fuels, lubricants, solvents, and paints.



Land use types - Transbay Temporary Terminal, Beale Street & Howard Street



Land use types - Auto Body Experts 720 O'Farrell Street

4.8.2.4 | HAZARDOUS RELEASE RECORDS SEARCH

Regulated entities that generate hazardous waste are subject to waste accumulation, manifesting, and recordkeeping standards. Facilities that treat, store, or dispose of hazardous waste must comply with emergency procedures and must conduct remediation efforts to clean up the site in the event of a hazardous waste release. Known or potential sources of hazardous materials releases are described below relative to the Geary corridor.

4.8.2.4.1 HAZARDOUS MATERIALS STORAGE AND DISPOSAL

Underground and Aboveground Storage Tanks. Hazardous materials storage and disposal sites can be above or below ground and are registered with the SFDPH LOP, to store hundreds or thousands of gallons of petroleum products. The environmental database search identified 470 registered UST sites and 12 registered aboveground storage tank (AST) sites within one-eighth mile of the Geary corridor. The majority of these sites were listed as inactive, indicating that the storage tanks have been removed or were closed in-place.

Registered hazardous waste generators and handlers. These sites are registered under the federal RCRA to generate or handle hazardous wastes. Only those sites with significant, on-going hazardous waste generation (generating more than 100 kilograms [kg] of hazardous waste or more than one kg of acutely hazardous waste per month) are required to register under RCRA. The environmental database search identified 147 RCRA-registered hazardous waste facilities within one-eighth mile of the Geary corridor. Of these, 118 were small-quantity generators, registered to generate between 100 and 1,000 kg per month of non-acutely hazardous waste, and 18 sites were large-quantity generators (greater than 1,000 kg/month of hazardous waste, or more than one kg/month of acutely hazardous waste). The remaining 11 sites were registered hazardous materials handlers or transporters. These are businesses that do not generate hazardous waste but may transport or temporarily store such wastes.

4.8.2.4.2 FEDERAL HAZARDOUS MATERIALS SITES

These sites are overseen by US EPA and include National Priority List (NPL) sites, commonly referred to as Superfund sites, and Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) sites, which include sites evaluated by the US EPA for potential inclusion on the NPL. No sites within one-eighth mile of the Geary corridor were listed on the US EPA NPL list. However, one site was listed in the CERCLIS database. This site was screened in 2000, but no further action was required as no releases have been identified.

4.8.2.4.3 STATE HAZARDOUS MATERIALS SITES

These sites are listed on the State Department of Toxic Substances Control (DTSC) ENVIROSTOR database. ENVIROSTOR includes sites from a variety of State hazardous materials cleanup programs, as well as hazardous waste treatment facilities. Two sites were identified on the State ENVIROSTOR database within one mile of the Geary corridor, but are considered “case-closed” and no further action proposed by DTSC is required.

4.8.2.4.4 HAZARDOUS MATERIALS INCIDENT SITES

These sites have reported a one-time release of hazardous materials, generally due to an accident or equipment failure. A total of 48 sites within or in close proximity to the Geary corridor appear on the California Hazardous Materials Incident Reporting System (CHMIRS) and/or the federal Emergency Response Notification System. Most of these incidents involved small quantities of hazardous materials that were noticed and cleaned up immediately after reporting. None of the releases resulted in follow-up investigation or regulatory oversight.

4.8.2.4.5 RECOGNIZED ENVIRONMENTAL CONDITIONS (RECS)**DEFINITION****Recognized Environmental Conditions (RECs):**

The presence or likely presence of hazardous substances or petroleum products on a property under conditions that indicate an existing release, past release, or a material threat of a release of hazardous substances on the property or into the ground, groundwater, or surface water of the property

An REC is the likely presence of any hazardous substances or petroleum products in, on, or at a property. The following factors determine whether a site could pose an REC: type of hazardous material, whether groundwater or soil was impacted, date of remedial actions, distance from project, topographic gradient, and groundwater depth. Three reported releases of hazardous materials have affected groundwater at/or near the Geary corridor. Of the three releases, two are from a leaking underground storage tank (LUST) site; one is from a spills, leaks, investigations, and cleanup (Spills, Leaks Investigation, and Cleanup [SLIC]) site.

A release of gasoline was reported at the Chevron Station 9-0535 site at 3675 Geary Boulevard (Figure 4.8-1). The release was discovered in January 1987 when all existing USTs and product piping were removed and replaced. Groundwater monitoring has been performed since that time. During three months from November 2009 to January 2010, groundwater batch extraction was used to remediate the site. Approximately 4,900 gallons of groundwater were extracted from the wells, which appears to have reduced the concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline and benzene in groundwater. Monitoring is ongoing to evaluate the effectiveness of the remedial action. The most recent groundwater monitoring event, from March 2013, identified concentrations of TPH as gasoline at up to 41 mg/L and benzene at up to 13 mg/L, which were significantly elevated over the concentrations reported immediately after the remedial action. This suggests that additional remedial action may be required at this site. Groundwater from this site is flowing toward the northwest, toward the

adjacent intersection of Geary Boulevard and Arguello Boulevard. Accordingly, contaminants from this site may have migrated with the groundwater and affected the Geary corridor's subsurface conditions.

A release of diesel was reported at the World Communications, Inc. site at 450 Mission Street (Figure 4.8-2) in January 2013. A 2,000-gallon UST was removed from the site at this time, and although it was located in a concrete and brick vault, oily groundwater was discovered during the removal. After the oily water was removed, additional oily groundwater re-entered the vault. The oily water contained 11 mg/L of TPH as diesel and 13 mg/L of TPH as motor oil (SFDPH, 2013). The source of the contamination is not yet known. In April 2013, SFDPH LOP submitted a letter requesting an environmental investigation be performed at the site. No groundwater flow direction has been determined, so it is not known if contaminated groundwater at this site may have migrated and affected subsurface conditions within the Geary corridor.

Tetrachloroethylene (PCE) and related compounds have been identified in groundwater beneath a Kaiser Permanente Geary medical center, located at 2130 O'Farrell Street. This is believed to be a result of dry-cleaning operations conducted at the site from 1929 until 1951. The release was discovered in 1987, and interim groundwater extraction and treatment began in 1988. When a new parking structure was constructed at this location in 1991, a new groundwater extraction and monitoring system was installed.

4.8.2.4.6 OTHER ENVIRONMENTAL CONCERNS

The following other environmental concerns are sources of hazardous materials that could potentially pose a risk associated with implementation of the project alternatives.

Aerially-Deposited Lead. Lead alkyl compounds were first added to gasoline in the 1920s. Beginning in 1973, the US EPA ordered a gradual phase out of lead from gasoline that significantly reduced the prevalence of leaded gasoline by the mid-1980s. Prior to the 1970s, the US EPA estimated that vehicles emitted approximately 75 percent of the lead consumed in leaded gasoline as particulate matter in the exhaust. As a result, shallow soils within approximately 30 feet of the edge of pavement in roadway corridors have the potential to be contaminated with aerially deposited lead (ADL) from historical car emissions prior to the elimination of lead in gasoline.

Based on a review of historical aerial photographs, Geary Boulevard has been a major roadway since at least 1931, long before the phase-out of lead in gasoline. Therefore, exposed shallow soils, within and adjacent to the Geary corridor (approximately 30 feet of the edge of paved areas) could be contaminated with ADL.

DEFINITION

Other Environmental Concerns include aerially deposited lead, historical fill, lead-based paint, asbestos, etc.

DEFINITION

Polynuclear aromatic hydrocarbons (PAH) are natural and man-made pollutants that are created during incomplete combustion of coal, oil, or gas. Fumes from vehicle exhaust, for example, can produce PAHs

Lead and asbestos are state-recognized carcinogens, and lead is considered particularly harmful to reproductive functions



Yellow Striping - Arguello and Geary Boulevard

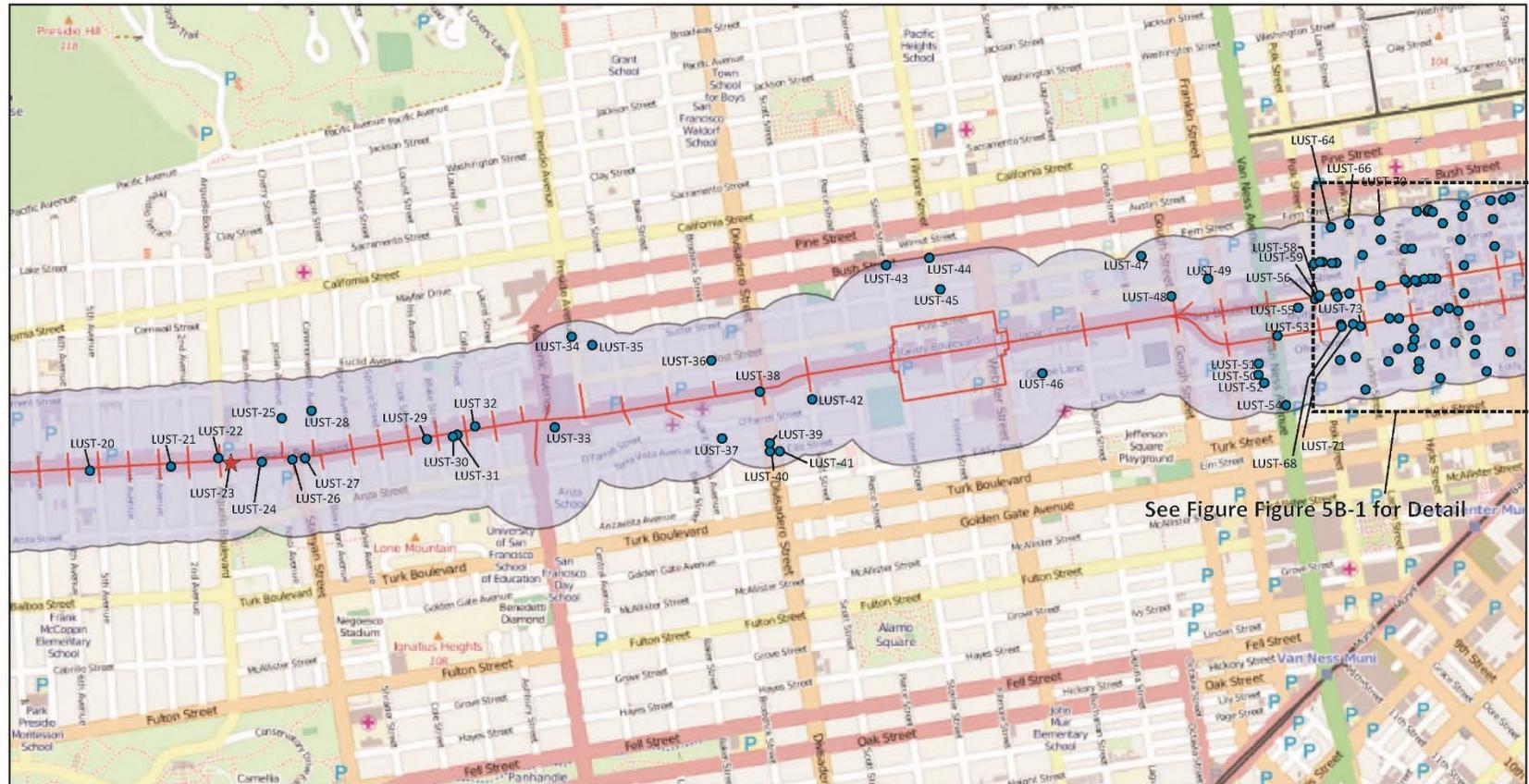
Historical Fill Material/Maher Ordinance. Much of the area near the eastern San Francisco waterfront was filled during the late 1800s and early 1900s with material of unknown origin. Some of this fill material has been found to contain elevated concentrations of contaminants such as metals and polynuclear aromatic hydrocarbons (PAH). As illustrated in Figure 4.8-3, there are several areas subject to the Maher Ordinance along the Geary corridor. The Maher Ordinance would require the preparation of a site history report for the Geary corridor, soil sampling and analysis, a soil analysis report, a site mitigation report (if needed), and certification that the measures recommended in the site mitigation report were implemented.

Lead-Based Paint and Asbestos in Structures. Structures in the Geary corridor that may be affected by the implementation of the build alternatives, such as bus shelters and the Fillmore Street pump station, are unlikely to be coated with lead-based paint and/or asbestos-containing materials. The use of lead paint and asbestos-containing materials in the United States began to be phased out in the 1970s and 1980s, and all bus shelters in the Geary corridor were replaced between 2009 and 2015. Some lead paint and asbestos-containing materials continue to be used for specialized uses, such as lead chromate used in traffic paints and asbestos fibers used to strengthen specialized concrete components. The risk of exposure to lead-based paint and/or asbestos-containing materials during demolition or renovation of structures is considered to be low.

Naturally-Occurring Asbestos. Geologic mapping from the United States Geological Survey (USGS) shows that serpentinite bedrock underlies a portion of the Geary corridor between Masonic Avenue to the west and Broderick Street to the East. Serpentinite is a metamorphic rock that often contains naturally-occurring asbestos. Therefore, excavation in this area could encounter asbestos.

Yellow Traffic Striping and Pavement Markings. Until 2004, yellow thermoplastic and yellow paint for traffic striping and pavement marking contained lead and hexavalent chromium. The residue that may be produced from the yellow thermoplastic and yellow paint during road improvement activities may contain lead and hexavalent chromium concentrations that could produce toxic fumes when heated. If concentrations of lead or hexavalent chromium exceed hazardous waste thresholds, debris including removed striping/paint may need to be disposed of as a California and/or federal hazardous waste.

Figure 4.8-1 Leaking Underground Storage Tanks - 5th Avenue to Van Ness



Legend

LUST 20 ● Closed leaking underground storage tank site

☀ Active leaking underground storage tank site

■ One-Eighth Mile Radius

■ Study Area

See Table 2 for site names and addresses.

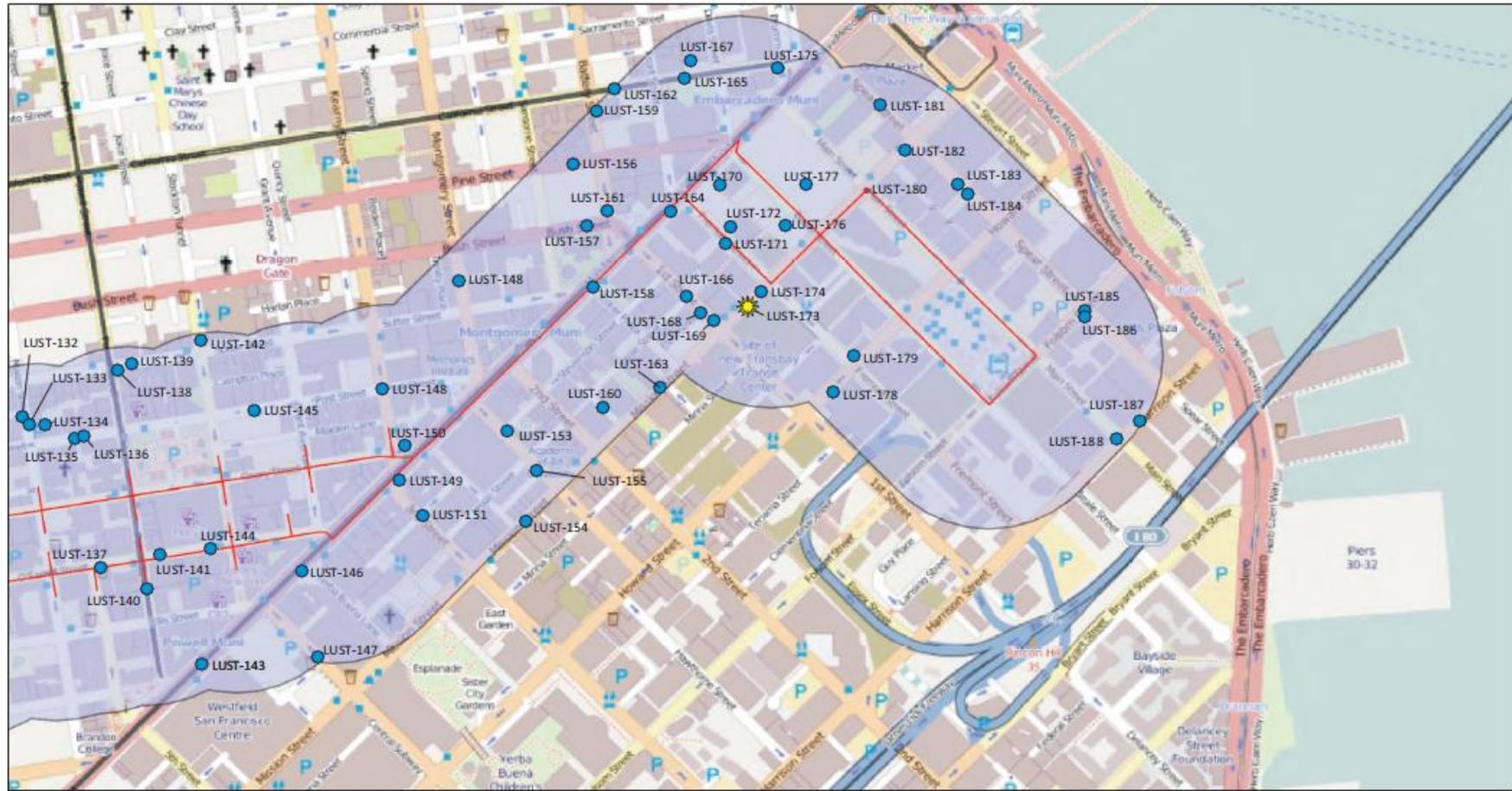
Source: EDR, 2013.



Geary Corridor Bus Rapid Transit Project
San Francisco, California

Y8363-00.Figure 6B.1.cdr 8/26/13

Figure 4.8-2 Leaking Underground Storage Tanks - Van Ness to Spear Street



Legend
 LUST 20 ● Closed leaking underground storage tank site
 ☀ Active leaking underground storage tank site
Geary Corridor Bus Rapid Transit Project

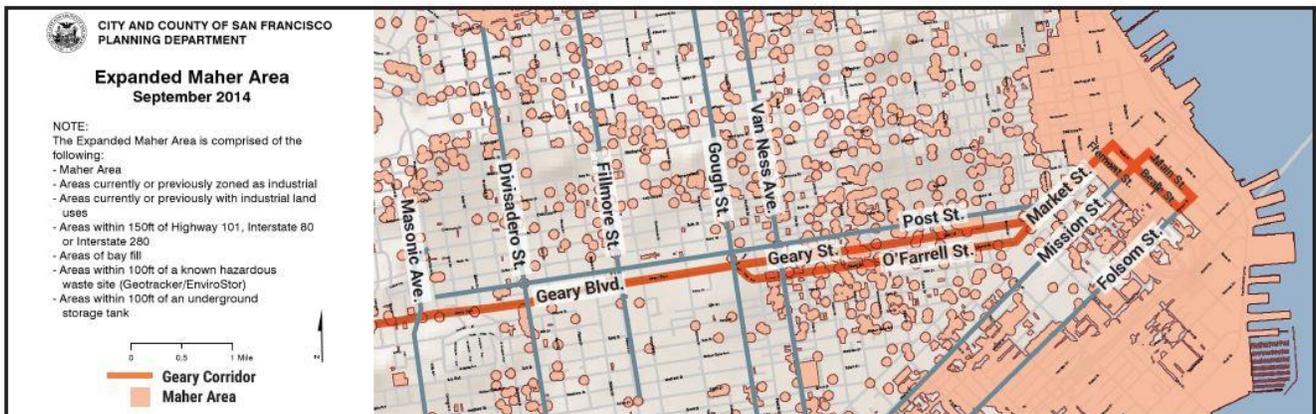
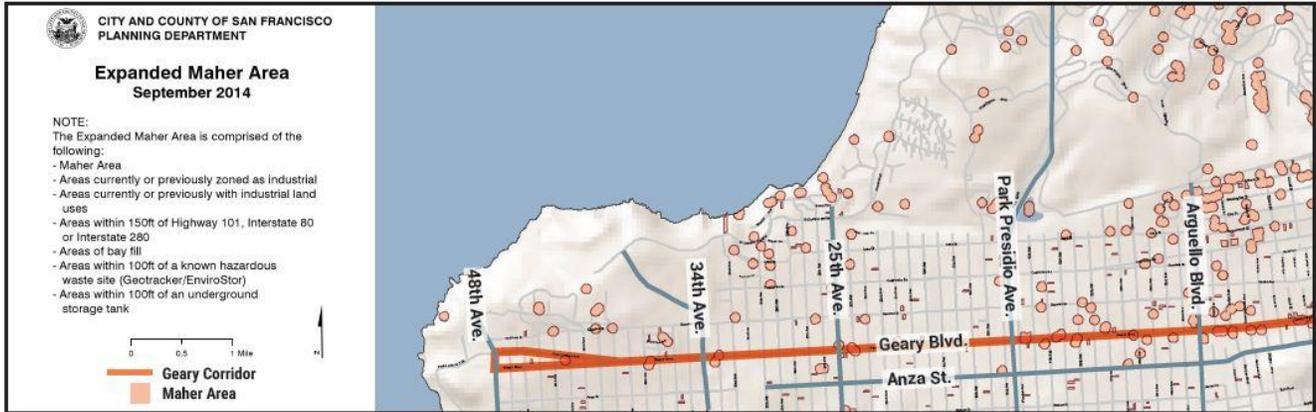
— One-Eighth Mile Radius
 — Study Area

See Table 2 for site names and addresses.

Source: EDR, 2013.



Figure 4.8-3 San Francisco Maher Map



4.8.3 | Methodology

Current land uses of the Geary corridor were assessed from a site reconnaissance performed on August 6, 2013. Also in 2013, a hazardous release records search (or ISA) was conducted for the project. The ISA included a review of standard environmental database listings of federal and state regulatory agencies that are responsible for recording release incidents of spills, soil, and other groundwater contamination. The ISA also identified transfer, storage, or disposal facilities that handle hazardous materials within the Geary corridor. Additionally, the ISA identified known or potential sources of hazardous materials releases that could potentially affect soils and/or groundwater beneath the Geary corridor. 2013 is therefore used as the environmental baseline for purposes of hazardous material evaluation.

The alternatives have the potential to result in construction period effects as noted below.

Construction-Related Effects

- Ground disturbing activities.
- Importing dirt and fill.

Operational Effects

The identified hazards and hazardous materials along the Geary corridor exist for all of the alternatives. Proposed construction earthwork activities are common to all of the alternatives and influence the level of exposure risks to such materials. However, each alternative would have varying levels of risk based on the anticipated construction areas and excavation depths as described below.

4.8.4 | Environmental Consequences

Overall, Table 4.8-1 summarizes the associated risk-level reported for the types of hazardous material releases and/or contamination within the Geary corridor, as determined by the Initial Site Assessment. In general, “high” risk land uses or conditions have potential for major remedial requirements (such as a pesticide manufacturing plant), “medium” risk land uses or conditions are those where contamination is likely but the level of contamination and remedial requirements are fairly well defined (such as gas stations or aerially deposited lead), and “low” risk land uses or conditions are the most routine or least likely hazardous materials conditions.²

Due to the long history of heavy vehicular activity along the Geary corridor, the soil in the medians may likely be contaminated with ADL from the exhaust of cars burning leaded gasoline. Additionally, due to the age of existing structures and urban history of the Geary corridor, lead-based paint may have been used on streetscape features. All bus shelters in the Geary corridor were replaced between 2009 and 2015, and therefore bus shelters are unlikely to contain lead-based paint or coatings, and the risk of exposure to lead paint during construction is considered to be low.

² Caltrans Environmental Handbook. Chapter 10. Available at: http://www.dot.ca.gov/ser/vol1/sec3/physical/ch10haz/chap10.htm#laws_reg_guidance.

This section describes potential impacts and benefits to hazards and hazardous materials. The analysis compares each build alternative relative to the No Build Alternative.

As set forth in Section 4.8.4.1, the modifications to the Hybrid Alternative/LPA since publication of the Draft EIS/EIR do not change the conclusions regarding impacts to hazards and hazardous materials in the Draft EIS/EIR.

Table 4.8-1 Associated Risk Levels within the Geary Corridor

TYPE OF HAZARDOUS MATERIAL	LOW RISK	MEDIUM RISK	HIGH RISK
Reported hazardous material releases		X	
Aerially-deposited lead		X	
Contaminants in historic fill materials	X		
Naturally-occurring asbestos from bedrock		X	
Lead-based paint and asbestos containing materials on structures	X		
Lead and hexavalent chromium in yellow paint striping	X		

Source: Baseline Environmental Consulting, 2013

4.8.4.1 | HYBRID ALTERNATIVE/LPA MODIFICATIONS: ANALYSIS OF POTENTIAL ADDITIVE EFFECTS SINCE PUBLICATION OF THE DRAFT EIS/EIR

As discussed in Section 2.2.7.6, the Hybrid Alternative/LPA now includes the following six minor modifications added since the publication of the Draft EIS/EIR:

- 1) Retention of the Webster Street pedestrian bridge;
- 2) Removal of proposed BRT stops between Spruce and Cook streets (existing stops would remain and provide local and express services);
- 3) Addition of more pedestrian crossing and safety improvements;
- 4) Addition of BRT stops at Laguna Street;
- 5) Retention of existing local and express stops at Collins Street; and
- 6) Relocation of the westbound center- to side-running bus lane transition to the block between 27th and 28th avenues.

This section presents analysis of whether these six modifications could result in any new or more severe impacts related to hazards and hazardous materials during construction or operation. As documented below, the Hybrid Alternative/LPA as modified would not result in any new or more severe effects related to hazards and hazardous materials relative to what was disclosed in the Draft EIS/EIR.

Retention of the Webster Street Pedestrian Bridge

Construction: Retention of the existing Webster Street pedestrian bridge would substantially reduce the extent of ground disturbance at this location, thereby reducing the risk of exposure to subsurface hazards and hazardous materials in this area. Therefore, retention of the bridge would not result in any new or more severe construction-period hazards exposure or risk.

Operation: As risks of exposure to hazards and hazardous materials are primarily related to construction and other ground-disturbing activities, operation of the project including the modification to retain the existing Webster Street pedestrian bridge would not pose a risk of uncovering hazardous materials. Therefore, this modification would not result in any new or more severe impacts related to hazards and hazardous materials during operation.

Removal of Proposed BRT Stops between Spruce and Cook Streets

Construction: Retention of the existing bus stops between Spruce and Cook streets would reduce the extent of construction activities and ground disturbance in the sidewalk areas at this location, thereby reducing the risk of exposure to hazards and hazardous materials in this area. Therefore, retention of the existing stops would not result in any new or more severe construction-period hazards exposure or risk.

Operation: As risks of exposure to hazards and hazardous materials are primarily related to construction and other ground-disturbing activities, operation of the project including the modification to retain the existing bus stops between Spruce and Cook streets would not pose a risk of uncovering hazardous materials. Therefore, this modification would not result in any new or more severe impacts related to hazards and hazardous materials during operation.

Addition of More Pedestrian Crossing and Safety Improvements

Construction: Construction of additional pedestrian improvements would result in ground disturbance similar to that which would occur throughout the corridor. New pedestrian crossing bulbs typically require excavation to about 1.5 feet below ground surface; this minimal excavation would not be likely to expose/excavate substantial new quantities of contaminated soil and/or groundwater. To the extent any excavation uncovers hazardous material, all activities would be subject to the same minimization measures identified below in Section 4.8.5, which effectively avoid/minimize the potential for adverse effects. Therefore, this modification would not result in any new or more severe impacts related to hazards and hazardous materials during construction.

Operation: As risks of exposure to hazards and hazardous materials are primarily related to construction and other ground-disturbing activities, operation of the project including the modification to include additional pedestrian enhancements throughout the corridor would not pose a risk of uncovering hazardous materials. Therefore, this modification would not result in any new or more severe impacts related to hazards and hazardous materials during operation.

Addition of BRT Stops at Laguna Street

Construction: Construction of combined BRT/local stops at Laguna Street would result in the type of ground disturbance similar to that which would occur throughout the corridor, including excavation to create a base for the proposed transit boarding islands. All construction activity would be subject to the same minimization measures identified below in Section 4.8.5, which effectively avoid/minimize the potential for adverse effects. Therefore, this modification would not result in any new or more severe impacts related to hazards and hazardous materials during construction.

Operation: As risks of exposure to hazards and hazardous materials are primarily related to construction and other ground-disturbing activities, operation of the project including the modification to add BRT stops at Laguna Street would not pose a risk of uncovering hazardous materials. Therefore, this modification would not result in any new or more severe impacts related to hazards and hazardous materials during operation.

Retention of Existing Local and Express Stops at Collins Street

Construction: Retention of the existing bus stops at Collins Street would reduce the extent of construction activities and ground disturbance at this location, thereby reducing the risk of exposure to hazards and hazardous materials in this area. Therefore, retention of the existing stops would not result in any new or more severe construction-period hazards exposure or risk.

Operation: As risks of exposure to hazards and hazardous materials are primarily related to construction and other ground-disturbing activities, operation of the project including the modification to retain the existing bus stops at Collins Street would not pose a risk of uncovering hazardous materials. Therefore, this modification would not result in any new or more severe impacts related to hazards and hazardous materials during operation.

Relocation of the Westbound Center- to Side-Running Bus Lane Transition

Construction: Relocation of the westbound bus lane transition at 27th Avenue would not alter the total level of construction activities but would simply shift about half of it one block to the west. This modification would result in ground disturbance similar to that which would occur throughout the corridor; all such activities would be subject to the same minimization measures identified below in Section 4.8.5. Therefore, this modification would not result in any new or more severe impacts related to hazards and hazardous materials during construction.

Operation: As risks of exposure to hazards and hazardous materials are primarily related to construction and other ground-disturbing activities, operation of the project including the modification to shift the westbound bus lane transition one block to the west would not pose a new or more severe risk of uncovering hazardous materials. Therefore, this modification would not result in any new or more severe impacts related to hazards and hazardous materials during operation.

4.8.4.2 CONSTRUCTION EFFECTS

4.8.4.2.1 NO BUILD ALTERNATIVE - CONSTRUCTION EFFECTS

Under the No Build Alternative, transit and transportation facilities and services would remain unaltered except for changes that are currently planned or programmed to be implemented on the Geary corridor by 2020. Proposed physical improvements on the Geary corridor by 2020 include modifications to road surface and curbs to provide better access for pedestrians. The No Build Alternative does not propose any modification to existing medians, but would require ground-disturbing activities from pavement resurfacing projects, pedestrian crossing bulb construction, curb ramp construction, etc. Such projects could potentially result in increased risk of exposure to hazardous materials. However, the potential for this increased risk is reduced by existing state and local regulatory requirements.

Alternative 3 and Alternative 3-Consolidated would require removal of medians, trees, and landscaping for the center-running bus-only lanes. Thus, Alternative 3 and 3-Consolidated would require the most ground-disturbing activities

4.8.4.2.2 BUILD ALTERNATIVES - CONSTRUCTION EFFECTS

Alternative 2 (Side-Lane BRT) proposes bus-only lanes in the rightmost lane of the Geary corridor. All BRT stations from 34th Avenue to Van Ness Avenue under Alternative 2 would be located on bus bulbs. Alternative 2 would not disturb existing medians, but would require ground-disturbing activities from pavement resurfacing projects, pedestrian crossing bulb construction, curb ramp construction, etc. Such projects could potentially result in increased risk of exposure to hazardous materials. Any hazardous materials encountered would be disposed of in accordance with applicable, federal, state, and local regulations.

Alternative 3 (Center-Lane BRT with Dual Medians and Passing Lanes) and Alternative 3-Consolidated (Center-Lane BRT with Dual Medians and Consolidated Bus Service) would convert the existing center lane to a bus-only lane. The existing medians, trees, and landscaping would be removed for the center-running bus lanes and new medians would be installed. Construction activities would potentially result in exposure risk from hazardous materials, ADL in the soil, naturally-occurring asbestos, lead, and other environmental concerns, listed in Table 4.8-1, as it would have the most ground-disturbing activities and construction in comparison to the other alternatives.

Additionally under Alternative 3 and 3-Consolidated, at Fillmore Street, the Geary corridor would be raised to create an at-grade roadway. This work would involve filling the existing underpass, thereby creating a new roadbed, removing part of the retaining walls, relocating existing utilities, and decommissioning the existing pump station. As a result, the proposed Fillmore underpass would involve importing of dirt and fill materials. All construction activities, including filling, would therefore trigger a requirement to comply with Section 2.4.53(d) of the City Public Works Code to ensure that fill materials are clean.

The Hybrid Alternative/LPA combines various segments of Alternatives 2 and 3-Consolidated and thus would have both side-running and center-running bus-only lanes, depending on location. Stations and stops would be located in the median where the bus lane is center-running and at bus bulbs where the bus lane is side-running. As a result, Hybrid Alternative/LPA would only disturb existing medians where the center-running bus lane would occur between 27th/28th Avenue and Palm Avenue. Construction activities would potentially result in exposure risk from hazardous materials, ADL in the soil, naturally-occurring asbestos, lead, and other environmental concerns, listed in Table 4.8-1, especially in areas where the Hybrid Alternative/LPA would remove existing medians. However, the Hybrid Alternative/LPA would avoid some potential risks to hazardous materials exposure associated with the Fillmore Street underpass, as the Fillmore Street underpass would remain in place.

Prior to excavation and construction, adherence to hazardous material guidelines for collection; disposal, handling, release, and treatment of hazardous material; site remediation; and worker safety and training would be required. In constructing any of the build alternatives, SFMTA, in consultation with SFDPH, would develop, prescribe, and update such hazardous material guidelines. The guidelines shall require any of the alternatives to comply with all federal, state, and local laws regarding hazardous material, including the Maher Ordinance.

4.8.4.3 | OPERATIONAL EFFECTS

4.8.4.3.1 NO BUILD ALTERNATIVE - OPERATIONAL EFFECTS

Under the No Build Alternative, transit and transportation facilities and services would remain unaltered except for changes that are currently planned or programmed to be implemented on the Geary corridor by 2020.

Adverse effects related to hazards and hazardous material are mostly due to construction and other ground-disturbing activities that would increase the potential risk of exposure to hazardous materials. Under the No Build Alternative, Geary bus service would continue and existing parking, through traffic, and turning vehicle-movements would remain unchanged. While improved bus technology, signaling, and pedestrian facilities would be in place, the risk of uncovering hazardous materials from operation of these improvements would be low.

4.8.4.3.2 BUILD ALTERNATIVES - OPERATIONAL EFFECTS

Implementation of the build alternatives would include designated bus-only lanes, improved bus service, enhanced bus technology, and installation of transit signal priority. Additionally, the build alternatives would include improved pedestrian facilities for safety, such as pedestrian crossing bulbs, curb ramps, and improved bus station amenities. Operation of these features would not pose a risk of uncovering hazardous materials as most risks associated with hazards and hazardous materials are related to construction.

4.8.4.4 | COMPARATIVE EFFECTS OF ALTERNATIVES

As demonstrated in the preceding subsections, after the No Build Alternative, Alternative 2 and the Hybrid Alternative/LPA would have the least potential to encounter hazardous materials during construction, followed by Alternatives 3 and 3-Consolidated. Once operational, none of the project alternatives would pose a risk of uncovering hazardous materials.

4.8.5 | Avoidance, Minimization, and/or Mitigation Measures

The following measures would be incorporated into the project to reduce or eliminate hazardous material-related effects. These measures are necessary in addition to compliance with all pertinent federal, state, and local regulations regarding hazardous materials.

4.8.5.1 | CONSTRUCTION MEASURES

MIN-HZ-C1. Prior to construction, a limited Preliminary Site Investigation shall be performed to investigate hazardous materials concerns related to soil, groundwater, and construction materials on the Geary corridor, as identified in this section.

Areas where soils will be disturbed during construction shall be sampled and tested for contaminants specific to the hazardous materials concerns identified in that location. Soil analytical results shall be screened against the Regional Water Board's Environmental Screening Levels and other applicable risk-based standards to determine appropriate actions to ensure the protection of construction workers, future site users, and the environment and also be screened against state and federal hazardous waste thresholds to determine soil management options. Representative

samples of exposed shallow soils shall be collected within 30 feet of the edge of the roadway and analyzed for total lead and soluble lead. For example, aerially-deposited lead is a potential concern throughout the Geary corridor, while naturally-occurring asbestos is potentially present in only a small portion of the Geary corridor. Accordingly, samples in all areas shall be analyzed for total and soluble lead; samples from excavation areas overlying serpentinite bedrock shall also be analyzed for asbestos. Additional investigation may be required to fully evaluate potential hazardous materials issues if concerns are identified during the Preliminary Site Investigation. All environmental investigations at the project shall be provided to project contractors, so the findings may be incorporated into their Health and Safety and Hazard Communication Programs.

MIN-HZ-C2. Prior to construction, groundwater shall be collected in areas near reported hazardous materials release sites and analyzed for TPH and volatile organic compounds if project excavations were to extend into the groundwater in those areas. Hazardous materials release sites that have affected groundwater near the Geary corridor are located at 3675 Geary Boulevard, 450 Mission Street, and 2130 O'Farrell Street.

Additional hazardous materials releases may occur or be discovered in the future. Therefore, an updated review of regulatory agency records shall be conducted prior to the groundwater investigation, to ensure that groundwater that will be encountered during construction is properly investigated.

MIN-HZ-C3. A Hazardous Building Materials survey shall be conducted prior to construction. The survey shall minimally sample traffic paint and structures to be demolished or modified.

MIN-HZ-C4. Based on the findings and recommendations of the Preliminary Site Investigation, the project may need to implement special soil, groundwater, and construction materials management and disposal procedures for hazardous materials, as well as construction worker health and safety measures during construction. In addition to the findings and recommendations of the Preliminary Site Investigation, the following measures shall be implemented prior to construction.

- Groundwater from dewatering of excavations, if any, should be stored in Baker tank(s) during construction activities and the water should be characterized prior to disposal or recycling.
- A construction risk management plan should be implemented by contractors with procedures for identifying and mitigating potentially unreported releases of hazardous materials.

4.8.5.2 | OPERATIONAL MEASURES

Operation of any of the build alternatives would not include ground-disturbing activities that would increase the risk of exposure of hazards and hazardous materials. As a result, no operational avoidance, minimization, and/or mitigation measures are required.