

4.12 Hazardous Materials

4.12.1 Introduction to Resources and Regulatory Requirements

This section discusses the potential for East Link Project alternatives to encounter hazardous materials that could pose risks to human health and the environment or that could create control or cleanup requirements for the project. This section also discusses the potential for alternatives to introduce new sources of hazardous materials contamination. This analysis has been performed in general accordance with American Society for Testing and Materials (ASTM) search radius guidance (ASTM E 1527), as referenced in the Washington State Department of Transportation's (WSDOT's) *Environmental Procedures Manual M 31-11* (WSDOT, 2007).

Hazardous materials can be classified in a number of different categories based on laws and regulations that define their characteristics and use. These categories include hazardous waste, dangerous waste, hazardous substances, and toxic substances. Applicable laws and regulations include the following:

- Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (42 U.S.C. 9601, *et seq.*)
- Superfund Amendment and Reauthorization Act (SARA)
- Resource Conservation and Recovery Act of 1976 (RCRA), as amended (42 U.S.C. 6901, *et seq.*)
- Clean Water Act (CWA) (33 U.S.C. Section 1 251, *et seq.*)
- Toxics Substances Control Act (TSCA) (15 U.S.C. 2601-2629)
- Dangerous Waste Regulations (Washington Administrative Code [WAC] 173-303)
- Model Toxics Control Act (MTCA) and its implementing regulations (RCW 70.105D and WAC 173-340)
- Underground Storage Tank Statute and its implementing regulations (RCW 90-76 and WAC 173-360)
- Sediment Management Standards (WAC 173-204)

Model Toxics Control Act Cleanup Regulation

The Model Toxics Control Act Cleanup Regulation, WAC 173-340, implements the Model Toxics Control Act (MTCA), RCW 70.105D, and sets forth strict requirements regarding site discovery and reporting, site assessments, and site remediation. Most importantly, the regulation defines standard methods used to assess whether a site is contaminated or clean.

Related resources and regulatory requirements are covered under historical and current land uses in the study area (Section 4.2), geologic conditions (Section 4.11), and groundwater conditions (Section 4.9).

4.12.2 Affected Environment

The study area for the hazardous materials analysis is the area within a 660-foot (approximately 1/8 mile) radius buffer surrounding each alternative. This study area was selected because if contamination is present, then the proximity of these sites could affect the project or the project could affect the site.

Sound Transit acquired information about sites with known contamination or potential contamination within the study area, as well as relevant historical conditions within the study area. Sound Transit collected information from multiple data sources, including the following:

- Environmental agency database records (Environmental Data Resources, Inc. [EDR], 2007)
- Washington State Department of Ecology (Ecology) Northwest Region Office site files
- Historical fire insurance maps (Sanborn maps) (King County GIS, 2009)
- Historical aerial photographs (King County GIS (2009)
- Online County Assessor data (KCGIS Center) (King County GIS, 2009)
- Current topographic and geologic maps (King County GIS, 2009)
- Windshield reconnaissance of the study area

Environmental agency records that were reviewed include those maintained by the U.S. Environmental Protection Agency (EPA) and Ecology. These databases track sites with potential or confirmed hazardous material releases to the environment and to monitor facilities that manage hazardous materials as part of their operations.

A search of these EPA and Ecology databases was conducted in February 2007 and again in October 2009 (EDR, 2007, 2009) to identify sites in or adjacent to the study area that have a record of hazardous material, substance, or waste handling, or that could be contaminated or have been contaminated in the past. The

database search report identifies the locations of such sites and assigns an identification (ID) number to each site. The approximate locations of these sites are shown in the maps in Appendix G3. Appendix G3 also presents tabular information about these sites. Note that hazardous materials sites newly identified in the October 2009 database search are shown on the maps with the letter “N” added to the site ID to distinguish them from the 2007 database search (e.g., N198).

Based on all of information collected, sites were categorized into three risk categories: high, medium, and low. The purpose of this risk analysis was to prioritize sites to determine the need for avoidance, remediation, or mitigation while considering associated costs and liability. The risk levels are defined as follows:

- **High.** This risk level identifies sites that might be substantially contaminated and might create liability for Sound Transit either due to construction activities or by virtue of acquiring all or a portion of the site, such as for a maintenance facility. High-risk sites typically involve contaminants that are difficult to treat (e.g., perchloroethylene [PCE]), have large volumes of contaminated materials, or have long histories of industrial or commercial use.
- **Medium.** This risk level identifies sites where the nature of potential contamination is known based on existing investigation data, the potential contaminants are not extremely toxic or difficult to treat, and probable remediation approaches are straightforward. It typically involves sites located within or adjacent to project construction limits that have soil contaminated with petroleum products or nonadjacent sites that have groundwater contaminated with petroleum products.
- **Low.** This risk level identifies sites where the nature of potential contamination is known based on existing investigation data, and the sites are not expected to have noticeable impacts on the project due to their location. It typically involves sites that are not directly adjacent to the alternative right-of-way and do not have groundwater contamination.

Table 4.12-1 lists the number of sites and the risk categories identified within 660 feet of each segment and alternative. In addition to sites designated as high, medium, and low risk, there are also sites where the following has occurred:

- Hazardous materials have been used but where no previous releases have been reported.

TABLE 4.12-1
Number of Hazardous Material Sites within 660 Feet of Each Segment and Alternative^a

Segment/Alternative ^b	High	Medium	Low
Segment A, Interstate 90	0	29	16
<i>Preferred Alternative A1</i>	0	29	16
Segment B, South Bellevue	7	4	6
<i>Preferred Alternative B2M^f</i>	2	1	2
Alternative B1	2	1	2
Alternative B2A	2	1	2
Alternative B2E	2	1	2
Alternative B3	2	1	2
B3 – 114th Extension Design Option	2	1	2
Alternative B7	3	2	4
Segment C, Downtown Bellevue	8	28	19
<i>Preferred Alternative C11A</i>	2	19	12
<i>Preferred Alternative C9T^e</i>	2	17	6
Alternative C1T	7	20	13
Alternative C2T	3	20	12
Alternative C3T	2	6	7
Alternative C4A	2	6	5
Alternative C7E	0	3	3
Alternative C8E	0	4	3
Alternative C9A	2	15	8
Alternative C14E	1	13	7
Segment D, Bel-Red/Overlake	6	25	12
<i>Preferred Alternative D2A^d</i>	2	15	6
D2A – NE 24th Design Option	3	17	7
Alternative D2E	3	17	7
Alternative D3	4	19	8
Alternative D5	3	13	5
Segment E, Downtown Redmond	6	11	9
Alternative E1	5	11	7
<i>Preferred Alternative E2</i>	6	8	5
E2 - Redmond Transit Center Design Option	5	8	6
Alternative E4	4	9	5

TABLE 4.12-1 CONTINUED
 Number of Hazardous Material Sites within 660 Feet of Each
 Segment and Alternative^a

Segment/Alternative ^b	High	Medium	Low
Maintenance Facilities			
MF1	0	0	0
MF2	2	0	0
MF3	0	0	3
MF5	0 to 1	0	8 to 11

^a The number of hazardous material sites for all risk levels should be considered as a snap shot in time because actual facility environmental conditions vary over time and environmental databases that are used are constantly being updated; therefore, sites can be added or deleted regularly. In addition, the number of medium- and low-risk sites should be considered as approximate because the site locations have been placed based on a single point and can fall inside or outside of the 1/8 mile (660 feet) buffer.

^b The number of hazardous material sites for each alternative includes all possible connectors for that alternative.

^c C9T – East Main Station Design Option connecting from Preferred Alternative B2M would not result in a change in impacts for either Preferred Alternative C9T or B2M.

^d Impacts for D2A - 120th Station Design Option would not vary from those of Preferred Alternative D2A.

- Sites were listed as having regulatory interactions not related to potential release of hazardous materials to the soil or groundwater (i.e. permitted air emissions).
- The sites have had a small one-time spill (i.e. less than 10 gallons) event that is reported to be cleaned up.

These sites are considered as minimal risk sites and are listed in Appendix G3 as Risk Level 4 sites.

4.12.3 Environmental Impacts

This section discusses the potential impacts that the project might have on the environment and potential impacts that the known and suspected contaminated sites might have on project development and Sound Transit liability. Operational impacts and construction impacts are considered. Sound Transit will meet regulatory requirements associated with construction and operation of the East Link Project.

4.12.3.1 No Build Alternative

With the No Build Alternative, removal or cleanup of potentially hazardous materials in the study area, including contaminated soil or groundwater, would not be removed or cleaned up, and the potential uncontrolled migration of existing contaminants might continue.

What is PCE?

PCE, or perchloroethylene, is a manmade chemical used for dry-cleaning clothes, degreasing metal parts, and as an ingredient in the manufacturing of other chemicals.

PCE contamination in soil might be cleaned up by excavating the soil, incinerating it, and disposing of the ash in a landfill.

PCE can also be treated in place using a method known as **soil vapor extraction**. Soil vapor extraction uses a network of perforated pipes placed in the soil to remove PCE vapor from the pore spaces in soil and pass it through activated carbon where it can be captured and eventually destroyed.

The particular method used to clean up PCE contamination in soil depends upon conditions such as PCE concentration, access to contaminated soil, cost of soil disposal, and other site-specific factors.

4.12.3.2 Impacts during Operation

Most impacts associated with encountering sites with existing contamination would occur during construction (as discussed in Section 4.12.3.3).

However, long-term operational impacts could occur when Sound Transit acquires properties that are the source of contamination and, therefore, could require an ongoing cleanup responsibility. Such sites are typically associated with groundwater contamination or are large and complex. The actual operational impacts at such hazardous materials sites cannot be identified or assessed without evaluating in detail site-specific conditions, which would be performed before, during, or after construction.

Impacts during normal operation are unlikely since the trains operate through electricity; therefore, fuel spills would not occur. However, minor impacts during operation could result from using hazardous materials during maintenance activities on the tracks and at the maintenance facility to be located in either Segment D or E. During track maintenance, there would be an extremely low chance that a small amount of diesel fuel or hydraulic fluid could spill from the maintenance vehicles. Activities at the maintenance facilities would involve using hazardous materials, including lubricants, solvents, and other chemicals. In addition, hazardous waste (e.g., petroleum products and waste solvents) would be generated. Hazardous waste generated at the maintenance facilities would be managed according to applicable regulatory requirements, which minimize the exposure risk. In addition, the facilities would be constructed with engineering controls to limit and contain releases and spills. The likelihood of impacts (i.e., releases) from project operation and maintenance activities would be low.

Preferred Alternatives

With the *Preferred Alternatives*, long-term operational impacts could occur at the following three high-risk sites if Sound Transit acquires these properties:

- Bellefield Office Park (Site 352) would be partially acquired for *Preferred Alternative B2M*, as well as for Alternative B2E and Alternative B3, both with and without the B3 - 114th Extension Design Option.
- Safeway Warehouse Distribution Center (Site 221C) would be partially acquired for *Preferred Alternative D2A*. Other alternatives that might impact this site are Alternatives D2E and D3.
- King County Materials Lab/City of Redmond Site (Site 38) would be acquired for *Preferred Alternative E2*. Also all segment E alternatives would impact this site.

The Bellefield Office Park (Site 352) was developed in the 1970s using imported fill reported to be demolition wood debris from wood frame residences that were demolished for I-405 construction. Contaminated soil and groundwater were encountered within the Bellefield Office Park, and the contaminants included total petroleum hydrocarbons (TPHs), polychlorinated biphenyls (PCBs), and polynuclear aromatic hydrocarbons (PAHs). A Restrictive Covenant has been in place for this site since 1996; this Restrictive Covenant prohibits activities that would release contaminants at the site without Ecology's approval and prohibits any use of the property that is inconsistent with the Covenant (Ecology, 2009). The Safeway Warehouse Distribution Center (Site 221C) has had petroleum product release from underground storage tanks (USTs). The releases have reportedly been cleaned up, but there might be residual contamination. The King County Materials Lab/City of Redmond Site (Site 38) has confirmed and suspected presence of chlorinated organic compounds (e.g., PCE) in groundwater and soil; therefore, ongoing cleanup might be required.

Property acquisition by Sound Transit could include the former BNSF Railway corridor, which is identified as a high-risk site. Depending on the alternative selected, the project might run within, parallel to, or cross over the former BNSF Railway corridor. However, operational impacts due to acquiring the former BNSF Railway corridor are not expected.

Other Alternatives

For Alternative B7, two sites would be acquired: Eastside Disposal (Site 343A) and Sound Oil Company/Davey Tree (Site 343C) sites.

Site 343A is currently operated by Eastside Disposal, and Allied Waste uses it to store equipment. The soils on the site were contaminated with petroleum products from a leaking UST.

Site 343C was formerly occupied by Sound Oil Company and is now occupied by Davey Tree Service. Sound Oil Company had three USTs containing diesel and stove oil removed in August 1990. Residual petroleum contamination could still be present.

No other sites with potential operational impacts were identified during the regulatory databases review.

4.12.3.3 Impacts during Construction

Potential construction impacts could result from encountering existing soil or groundwater contamination and from encountering containers holding hazardous materials. Soil or groundwater contamination could be found on or adjacent to contaminated sites and in utility corridors, which can be conduits for contamination. Containers that hold hazardous materials include above- and underground storage tanks, which typically contain petroleum products, and pole-mounted electrical transformers, which might contain PCB-contaminated transformer oil. The likelihood of impacts from encountering existing contamination or hazardous materials containers depends upon the extent and characteristics of the contamination and hazardous materials. A variety of impacts, both beneficial and adverse, would be possible, including the following:

- Construction activities, such as grading, in the vicinity of these materials could release contaminants to soil, groundwater, and surface water.
- Contaminated materials might be uncovered, allowing more direct exposure to the public.
- Contamination might spread as a result of construction.
- Dewatering that might occur to further construction activities might generate large quantities of contaminated water that would need to be treated and disposed of.
- Contamination that otherwise would remain in place and potentially migrate might be discovered and addressed by the project.
- To accommodate project construction, contamination might be cleaned up earlier than otherwise would occur.
- Contamination might be prevented by removing potential existing sources, such as USTs and

aboveground storage tanks (ASTs), before they cause releases.

Demolishing, removing, and disposing of existing structures during planned construction could release hazardous materials. Asbestos (commonly used in construction because of its insulation, fireproofing, and soundproofing qualities) causes cancer and other respiratory problems; asbestos is most dangerous when crushed, broken, or otherwise disturbed so that fibers are released to the air and inhaled. Lead is often found in lead pipes, copper pipes with lead solder, and interior and exterior painted wood, siding, window frames, and plaster and could cause lead poisoning if handled inappropriately and inhaled or ingested during demolition.

Contaminated material requiring special disposal—such as old railroad ties and contaminated soil—could also be generated from construction activities within and along railway corridors and crossings. Some historical railroad operations used chemicals that might have resulted in soil contamination. The most commonly reported contamination along rail lines includes metals, pesticides, and constituents of oil or fuel (petroleum products). These chemicals have been associated with normal railroad operations and would likely be found anywhere along the line. For example, arsenic (up to ten times natural background levels) is commonly present in the soil along a railroad right-of-way as a result of old railroad ties dipped in an arsenic solution, arsenic weed-control sprays, and arsenic-laced slag used as railroad bed fill. Lubricating oil and diesel that dripped from the trains would be likely sources of the petroleum product found along the lines. Other sources of contaminants associated with historical railroad operation might include coal ash from engines, creosote from ties, and PAHs from the diesel exhaust.

Potential construction impacts could result from accidental release of hazardous substances (such as lubricants and fuels needed for heavy equipment), a hazard common to all construction projects but particularly acute for construction over water or in areas where stormwater runs off into water bodies such as Lake Washington. Spills of any size, if not contained, could harm water quality, vegetation, and wildlife in the immediate area and downstream; large spills could require emergency response.

Measures Sound Transit would use to minimize the potential for accidental release of hazardous substances during construction include the following:

- Assess sites where contamination might be present to identify the presence and extent of any contaminants. Sites where stormwater facilities are proposed are especially important to survey

because any contaminants exposed there could be carried offsite when the stormwater is discharged.

- Locate ASTs, USTs, and fuel lines before construction to reduce the potential for breakage and spills.
- Survey structures that would be demolished to determine whether they contain hazardous building materials such as asbestos, lead-based paint, and PCBs.
- Specify construction techniques that minimize disturbance to areas where contamination might exist, and phase construction activities to follow cleanup activities whenever possible.
- Prepare a comprehensive contingency and hazardous substance management plan and a worker health and safety plan to reduce potential risks to human health.
- Prepare a spill prevention, control, and countermeasure plan and a stormwater pollution prevention plan to manage and prevent the release of pollution and hazardous substances to the environment.

The following subsections describe the potential impacts on the project from known contaminated sites based on their location relative to the proposed alternatives. The focus of the discussion is on high-risk sites because these are the sites that are anticipated to have the greatest impact on project development. Some of these sites could also have long-term impacts if they involve continuing cleanup responsibilities (e.g., groundwater monitoring) even after the project is constructed. The actual impacts on the environment at each hazardous materials site cannot be identified and assessed without detailed evaluations of site-specific conditions, which would be performed prior to or during construction. Site assessment might be conducted in a phased approach to address cost, schedule, and technical requirements associated with the construction process. Details about these high-risk sites are discussed under each segment.

Railroad corridors or crossings occur under *Preferred Alternatives C11A, C9T, D2A, and E2*; Maintenance Facility MF2; and various other alternatives within Segments C, D, and E. Impacted parcels would be acquired by Sound Transit; permanent easements might also be obtained. Construction impacts, such as encountering contaminated soil, as discussed above, should be anticipated everywhere along the railroad corridors and crossings and are not discussed separately under individual segments. For this section, railroad corridors and crossings, referred to as former BNSF Railway corridor throughout this section, are

considered as one high-risk site under each segment regardless of how many individual parcels are involved.

Segment A

There are no high-risk sites, 29 medium-risk sites, and 16 low-risk sites within the study area for Segment A. Segment A begins at the Downtown Seattle Transit Tunnel (where the East Link Project would connect to the Central Link light rail system) and extends to South Bellevue where I-90 touches land in Bellevue. All Segment A construction is proposed to occur within the existing I-90 right-of-way and would involve minimal ground-disturbing activities, such as soil excavation or construction dewatering. Therefore, any contamination that might exist or that has migrated from hazardous material sites within the Segment A study area are not expected to affect project construction.

Segment B

There are seven high-risk, four medium-risk, and six low-risk hazardous material sites within the Segment B study area. Table 4.12-2 summarizes the potential impacts related to high-risk sites, and Exhibit 4.12-1 shows their location relative to each alternative. The former BNSF Railway corridor, also a high-risk site, is not shown on Exhibit 4.12-1. There are two high- and one medium-risk sites along *Preferred Alternative B2M*. In addition, two low-risk sites are located in this alternative.

Site 352 is located on the east side of 112th Avenue SE between SE 8th Street and the Mercer Slough. The Bellefield Office Park was developed using imported fill material reportedly resulting from demolition debris largely consisting of wood wastes from residential construction. Contaminants detected in soil and groundwater at the site include petroleum products, PCBs, and PAHs (Ecology, 2009).

Site N198 is located on SE 8th Street between 112th Avenue SE and Lake Washington Boulevard. The fill material beneath SE 8th Street is believed to be of the same origin as that beneath the Bellefield Office Park (Site 352) (PanGeo, 2000). As part of the SE 8th Street roadway improvement project conducted by the City of Bellevue, soil and groundwater samples were collected; these samples confirmed the presence of petroleum contaminated soil and groundwater in the subgrade soils beneath the roadway (Agra Earth, 2000 and G-Logic, 2003).

Alternatives B2A, B2E, and B3 (with and without B3 - 114th Extension Design Option) could be impacted by the same high-risk sites as *Preferred Alternative B2M*.

Alternatives B1 and B7 could be impacted by two and three high-risk sites, respectively.

Site 412A is located adjacent to the at-grade rail profile of Alternative B1, and it has been used as a dry-cleaning business since at least the 1960s; the site is currently occupied by Enatai Cleaners. Soil gas probing and groundwater monitoring investigations indicated that PCE is present in the soil gas and in the groundwater in excess of MTCA Method A cleanup level (Dalton, 1994).

Site 412B is also located adjacent to the at-grade profile of Alternative B1. The site currently operates as a gas station and is hydraulically downgradient from the Kevik Cleaners site (Site 412A). The soils on the site were contaminated with petroleum products from leaking USTs. Soil excavation was conducted in 1992. Petroleum-impacted soil remains in place below the embankment on the east side of the site, adjacent to and below the area of the former heating oil tank excavations. In addition, soil and groundwater at the site have been reported to contain PCE in excess of MTCA Method A cleanup levels (EMCON, 1994a). The former dry cleaners located upgradient of the site is suspected to be the source of the PCE. (EMCON, 1994b).

Site 343A would be acquired to construct the park-and-ride lot and 118th Station for Alternative B7. Eastside Disposal currently operates on the site, and Allied Waste uses it to store equipment. The soils on the site were contaminated with petroleum products from a leaking UST. The soil was excavated until field-screening methods indicated no presence of petroleum hydrocarbons. However, confirmation soil samples indicate that ethylbenzene, diesel, and possibly heavier oil concentrations exceeding MTCA Method A cleanup levels still exist in the soil underneath the welding shop. The contaminated soil near the welding shop footprint was not remediated due to engineering constraints (Hart Crowser, 1990).

Site 343C also would be acquired to construct the park-and-ride lot and 118th Station proposed under Alternative B7. This site was formerly occupied by Sound Oil Company and is now occupied by Davey Tree Service. Sound Oil Company had three USTs containing diesel and stove oil removed in August 1990, and soil was excavated when bioremediation failed at the site (Marsh, 1996). Contamination is reported to be below MTCA Method A cleanup levels (Ecology, 2004). Ecology lists the site status as "reported cleanup" without a detailed review. This site is considered as a high-risk site because residual petroleum contamination could still be present and the site could be acquired by Sound Transit.

TABLE 4.12-2
Potential Impacts of High-Risk Hazardous Material Sites within Segment B

Map ID	Site Name and Address	Potential Impact	Potential Impacts by Alternative					Alternative B7
			Preferred Alternative B2M	Alternative B1	Alternative B2A	Alternative B2E	Alternative B3 ^a	
352	Bellefield Office Park, 11201 SE 8th Street	Encounter demolition debris, soil, and groundwater contaminated with petroleum products, PAHs, and PCBs; the Restricted Covenant requirements must be met.	✓		✓	✓	✓	
N198	Planned SE 8th Street Restoration Project, Between 112th Avenue SE and Lake Washington Boulevard	Encounter demolition debris, soil, and groundwater contaminated with petroleum products.	✓		✓	✓	✓	
412A	Kevik Cleaners, 1614 Bellevue Way	Encounter soil and groundwater contaminated with PCE.		✓				
412B	Unocal No. 4384, 1624 Bellevue Way	Encounter soil and groundwater contaminated with PCE and petroleum products.		✓				
343A	Eastside Disposal (also listed as estate of James Bussee), 969 118th Avenue SE	Encounter soil and groundwater contaminated with petroleum products.						✓
343C	Sound Oil Company/ Davey Tree Service, 1021 118th Avenue SE	Encounter soil contaminated with residual petroleum products.						✓
NA	Former BNSF Railway corridor	Encounter soil contaminated with petroleum products, PAHs, pesticides, and metals.						✓

^a With and without B3 - 114th Extension Design Option.

N/A not applicable
PAH polyaromatic hydrocarbon
PCB polychlorinated biphenyl
PCE perchloroethylene

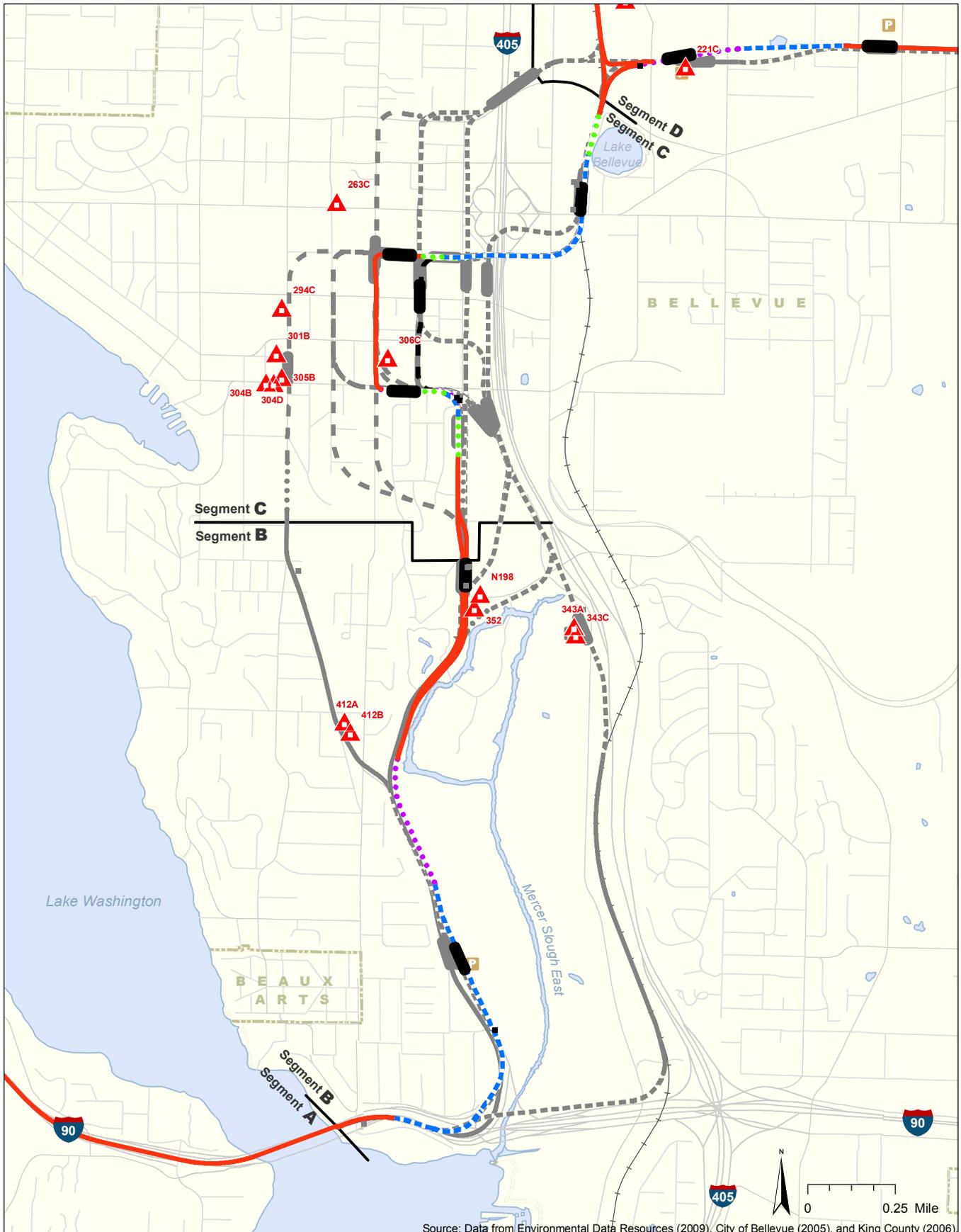
Former BNSF Railway corridor along the east side of Mercer Slough would also be leased or acquired under the Alternative B7. Contaminated material requiring special disposal – such as old railroad ties and soil contaminated with petroleum products, PAHs, pesticides, and metals – could be present within and along the railway corridor.

Segment C

There are 8 high-risk, 28 medium-risk, and 19 low-risk hazardous material sites within the Segment C study area. The connectors from Segment B do not change the number of affected high-risk sites in Segment C. Table 4.12-3 summarizes the potential impacts, and Exhibit 4.12-1 shows the location relative to each alternative. The former BNSF Railway corridor, also a high-risk site, is not shown on Exhibit 4.12-1.

Preferred Alternative C11A has 2 high-risk sites; in addition, this alternative includes 19 medium-risk sites and 12 low-risk sites.

Site 306C is adjacent to *Preferred Alternative C11A*. The site was formerly used by a dry cleaner, and a remedial investigation found PCE in a downgradient storm sewer manhole. From 1996 to 2000, a soil vapor extraction system (a device that applies a vacuum to remove airborne chemicals) was used to reduce the PCE concentration in the soil. All soil near the storm sewer manhole containing PCE concentrations greater than Method B cleanup levels were removed (Floyd Snider McCarthy, 2003). According to Ecology, groundwater is believed to be affected by the historical PCE releases (EDR, 2009).



Source: Data from Environmental Data Resources (2009), City of Bellevue (2005), and King County (2006).

- ▲ High-Risk Site
- Traction Power Substation
- ▬ Proposed Station
- Ⓟ New and/or Expanded Park-and-Ride Lot

- Preferred Alternative**
- At-Grade Route
 - - - Elevated Route
 - ⋯ Retained-Cut Route
 - ⋯ Retained-Fill Route
 - - - Tunnel Route

- Other Alternatives**
- At-Grade Route
 - - - Elevated Route
 - ⋯ Retained-Cut or Retained-Fill Route
 - ⋯ Retained-Fill Route
 - - - Tunnel Route

Exhibit 4.12-1 High Risk Hazardous Material Sites Within 1/8 Mile of Alternatives Segments B and C East Link Project

TABLE 4.12-3
Potential Impacts of High-Risk Hazardous Material Sites within Segment C

Map ID	Site Name and Address	Potential Impacts	Potential Impacts by Alternative									
			Preferred Alternative C11A	Preferred Alternative C9T ^a	Alternative C1T	Alternative C2T	Alternative C3T	Alternative C4A	Alternative C7E	Alternative C8E	Alternative C9A	Alternative C14E
263C	Former Thinker Toys, 10610 NE 8th Street	Encounter soil and groundwater contaminated with PCE			✓	✓	✓	✓				
294C	Capri Property, 315 Bellevue Way NE	Encounter soil and groundwater contaminated with PCE			✓							
301B	Bellevue Way Dry Cleaners, 103 Bellevue Way NE	Encounter soil and groundwater contaminated with PCE			✓							
304B	EV11 LLC, 10335 Main Street	Encounter soil and groundwater contaminated with PCE			✓							
304D	Safeway Property, 10301 Main Street	Encounter soil and groundwater contaminated with petroleum products and PCE			✓							
305B	Unocal No. 0587, 5 Bellevue Way NE	Encounter soil and groundwater contaminated with chlorinated solvents and petroleum products			✓							
306C	Benenson Capital, 110 108th Avenue NE	Encounter soil and groundwater contaminated with PCE	✓	✓		✓	✓	✓			✓	
N/A	Former BNSF Railway corridor (for Hospital Station and alignment)	Encounter soil contaminated with petroleum products, PAHs, pesticides, and metals	✓	✓	✓	✓					✓	✓

^a With and without C9T – East Main Station Design Option

N/A not applicable

PCE perchloroethylene

Any construction in this area could expose potentially contaminated soil and groundwater.

Former BNSF Railway corridor between NE 6th and NE 12th Streets would be leased or acquired. Contaminated material requiring special disposal, such as old railroad ties and soil contaminated with petroleum products, PAHs, pesticides, and metals, could be present within and along the railway corridor.

Preferred Alternative C9T has 2 high-risk (Site 306C, and former BNSF Railway corridor), 17 medium-risk, and 6 low-risk sites. These high-risk sites are discussed above under *Preferred Alternative C11A*.

All other Segment C alternatives have high-risk sites, especially Alternative C1T, which has 7 high-risk, 20 medium-risk, and 13 low-risk sites along the route. Compared with *Preferred Alternative C9T* and all the other alternatives, Alternative C1T would have the greatest risks because of the number of high-risk sites and the nature and extent of potential contamination. For example, PCE is believed to be present in the soil or groundwater at Sites 294C, 301B, 305B, and 304D, which are located along Bellevue Way between NE 4th Street and Main Street (see site descriptions below). In addition to the former BNSF Railway corridor discussed under the *Preferred Alternative C11A* above, the other six high-risk sites are discussed below.

Site 263C is located one block north of the tunnel for Alternatives C1T and C2T and one block west of the tunnel for Alternative C3T and the southbound alignment for Alternative C4A. In the past, the site was used as a gasoline station and dry cleaner. Soil and groundwater were reportedly impacted by a PCE release at a depth between 7 and 18 feet below ground surface (bgs) at the center of the property (Golder Associates, 2004). A shallow groundwater aquifer is located at 14 to 18 feet bgs, and it is not known whether the site's perched groundwater has impacted the deeper regional aquifer.

Site 294C is located adjacent to the tunnel for the Bellevue Way Tunnel (C1T). It was home to a dry-cleaning operation from 1951 to 1962. In the 1960s, the operation moved to an adjacent building. PCE has been detected in the groundwater (Hart Crowser, 2001, 2005). The plume of PCE extends to the south and southeast, south of the 315 Bellevue Way NE to beyond NE 2nd Street.

Site 301B is located adjacent to the tunnel for Alternative C1T. The site has been home to a variety of dry-cleaning establishments since the 1970s, and site investigations have found PCE in the soil and groundwater (Hart Crowser, 1997). Sampling

conducted in 1998 further confirmed the presence of PCE in the groundwater (Hart Crowser, 1999). The site is listed as awaiting remedial action.

Site 304B is located one block west of the tunnel for Alternative C1T. The site operated as a dry-cleaning business from the 1950s through the late 1980s. Investigations conducted in 2006 confirmed the presence of petroleum product, petroleum product-related volatile organic compounds (VOCs), and PCE in the soil and groundwater (PES Environmental, 2006). The suspected sources of the petroleum and related VOC contamination include the Unocal property (Site 305B, described below) located to the north. The suspected source of PCE and related chlorinated organic compounds, such as trichloroethylene and vinyl chloride contamination, is the dry cleaners formerly located on Site 304B. There is an east to southeast groundwater flow direction across most of the site.

Site 304D is located one block west of the tunnel for Alternative C1T; Ecology has no information available for this site. The EDR report indicated that the final *Independent Remedial Action Report* has been received. This site is considered to be high-risk because of its location adjacent to the tunnel route and a high level of uncertainty due to lack of information. This site is possibly linked to the petroleum product and PCE releases from nearby sources.

Site 305B, the Unocal property, is located adjacent to the tunnel for Alternative C1T. In the past, the site was used by a gas station. Investigations revealed gasoline product in the groundwater beneath the southern part of the site (Maul, 2003). A groundwater recovery/treatment system and vapor extraction system were installed in 1991 to remediate the groundwater and soil. Chlorinated solvents were detected in the groundwater within the site and its immediate vicinity, particularly to the south (ENSR, 2006).

Alternative C2T has three high-risk sites (Sites 263C, 306C, and the former BNSF Railway corridor), Alternative C3T and C4A each have two high-risk sites (Sites 263C, and 306C), Alternatives C7E and C8E have no high-risk sites, Alternative C9A has two high-risk sites (Sites 306C and former BNSF Railway corridor), and Alternative C14E has one high-risk site (former BNSF Railway corridor).

Segment D

There are 6 high-risk, 25 medium-risk, and 12 low-risk hazardous material sites within the Segment D study area. The number of sites do not differ between the connection points from Segment C, except that the

connection from NE 12th Street would eliminate the interaction with the former BNSF Railway corridor site in Segment D. All Segment D alternatives potentially would be impacted from two or more of the sites. Table 4.12-4 summarizes the potential impacts, and Exhibit 4.12-2 shows locations of the high-risk sites relative to each alternative. The former BNSF Railway corridor, also a high-risk site, is not shown on Exhibit 4.12-2.

Depending on the Overlake Village Station design option selected, the *Preferred Alternative D2A* would be affected by two high-risk sites when the preferred alignment continues adjacent to SR 520 (avoiding Site 146C), or three sites if the NE 24th Design Option is selected.

Site 221C, the former Safeway Warehouse Distribution Center, would be partially acquired for the at-grade profile and stations of *Preferred Alternative D2A*. The 3.5-acre site was formerly used by Safeway as a warehouse and distribution center. The five-building complex includes a retail and warehouse building, cross dock, cold storage, office building, and a former vehicle maintenance shop; the complex is currently vacant. The site has had as many as 20 USTs at one time or another, and leaking USTs were reported in 1995, 1998, and 2001. These leaking USTs were removed, and remedial actions for petroleum-contaminated soil were conducted. In April 2009, Ecology issued a "No Further Action" determination for the site, based on review of submitted documents. This site is of high concern because of the scale of the past operations and its location at a light rail station, which leads to a high likelihood of encountering contamination. During development, previously undiscovered contaminated soil might be encountered within the Safeway warehouse site due to historical releases from these USTs.

Site 146C is located approximately one block south of D2A - NE 24th Design Option alignment. This site has been home to a variety of dry cleaners since 1977. In 2000, PCE was identified in the soil and groundwater, and in November 2004, a soil vapor extraction system began operating to remove the contamination from the soil. Monitoring from September 2004 to October 2005 showed that contaminants still exceed groundwater standards (SCS Engineers, 2006).

Former BNSF Railway corridor north of NE 12th and NE 6th Streets and within the Safeway Warehouse Distribution Center parcel would be leased or acquired. Contaminated material requiring special disposal, such as old railroad ties and soil contaminated with petroleum products, PAHs, pesticides, and metals, could be present within and

along the railway corridor. This is also true for the preferred storage track location located in the former BNSF Railway corridor just north of the proposed Hospital Station. All Segment D alternatives could potentially be affected by the former BNSF Railway corridor, a high-risk site, since they would all interact with the former rail corridor. The potential impact would be greater if the preferred location for an interim terminus is selected since this would include storage tracks in the former BNSF Railway corridor.

All Segment D alternatives, except Alternative D5, could potentially be impacted by Site 221C. In addition, Alternative D2E could potentially be impacted by Sites 146C described previously, Alternative D3 could be impacted by Sites 176C and 188, and Alternative D5 could be impacted by Site 174B. Sites 174B, 176C and 188 are described below.

Site 174B is located within the Alternative D5 alignment. Weyerhaeuser currently uses the site as a manufacturing facility for corrugated containers. The site was occupied by Willamette Industries and used as a forest product manufacturing facility prior to being purchased by Weyerhaeuser in 2002. Petroleum contamination was reportedly cleaned up as of 2002.

Site 176C is located one block east of the retained-cut profile of Alternative D3, and it is currently used by a dry-cleaning business and was formerly used as a gas station. Contaminants of concern, released from these two businesses, include chlorinated solvents and petroleum hydrocarbon. Cleanup activities have been ongoing since 2004 and include soil vapor extraction and air sparging (pumping air underground to aid removal of chemical vapors).

Site 188 is located adjacent to the retained-cut profile of Alternative D3. This site was formerly occupied by a retail gas station, and it is currently occupied by restaurants. Investigations conducted in the early 1990s found benzene concentrations in excess of MTCA Method A cleanup levels in the soil. In 1993, four gasoline USTs were removed, and soil vapor extraction and groundwater air sparging began. In June 2000, soil borings showed no petroleum hydrocarbons exceeding MTCA Method A cleanup levels (Environmental Resolutions, Inc., 2006a). According to a 2006 groundwater monitoring report, three of nine wells sampled contained benzene concentrations in excess of MTCA Method A cleanup levels (Environmental Resolutions, Inc., 2006b).

TABLE 4.12-4
Potential Impacts of High-Risk Hazardous Material Sites within Segment D

Map ID	Site Name and Address	Potential Impacts	Potential Impacts by Alternative				
			Preferred Alternative D2A ^a	D2A - NE 24th Design Option	Alternative D2E	Alternative D3	Alternative D5
146C	Sato Corporation, 14820 NE 24th Street	Encounter soil and groundwater contaminated with PCE		✓	✓		✓
174B	Willamette Industries, 1899 120th Avenue NE	Encounter soil contaminated with petroleum products					✓
176C	Bel-Red Road Retail, LLC, 15260 NE 20th Street	Encounter soil and groundwater contaminated with petroleum products and chlorinated organic compounds				✓	
188	BP Exploration Oil, Inc., 1960 148th Avenue NE	Encounter soil and groundwater contaminated with petroleum products and benzene				✓	
221C	Safeway Warehouse, Inc. Distribution Center, 1227 124th Avenue NE	Encounter soil contaminated with petroleum products	✓	✓	✓	✓	
N/A	Former BNSF Railway corridor	Encounter soil contaminated with petroleum products, PAHs, pesticides, and metals	✓	✓	✓	✓	✓

^aWith and without D2A – 120th Station Design Option

N/A not applicable
PAH polyaromatic hydrocarbon
PCE perchloroethylene

Segment E

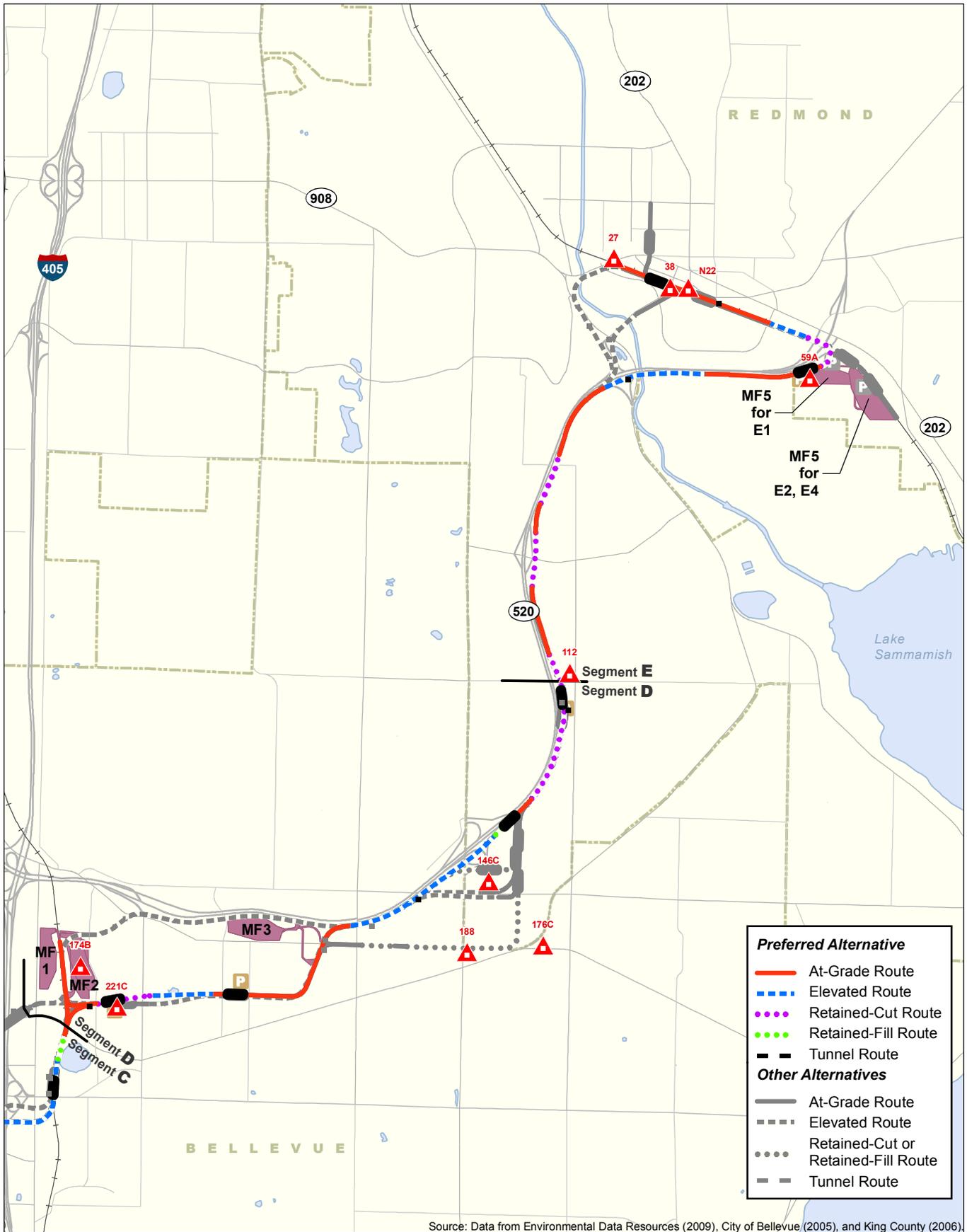
There are 6 high-risk, 11 medium-risk, and 9 low-risk hazardous material sites located within the Segment E study area. Table 4.12-5 summarizes the potential impacts, Exhibit 4.12-2 shows locations of the high-risk sites relative to each alternative. The former BNSF Railway corridor, also a high-risk site, is not shown on Exhibit 4.12-2.

Site 27 is adjacent to the terminus of *Preferred Alternative E2* and is currently used by a dry-cleaning business. Ecology determined that a release of PCE to soil and groundwater from the site represented a significant threat to human health and the environment (Ecology, 1999). Environmental remedial actions conducted at the site included soil vapor extraction and groundwater monitoring (Ecology, 2002). Remedial action is listed as in progress as of February 2008.

Site 38 is adjacent to the at-grade profile of the *Preferred Alternative E2*. The King County Department of Transportation Road Services Division, Materials Laboratory and Surveyors, Animal Control, Office of

Civil Defense, Sheriff’s Department, and the City of Redmond have all occupied portions of the property at 7733 Leary way NE, Redmond. A subsurface investigation of the site was conducted in 2002, and soil and groundwater samples indicated that TPH as diesel-range organics (DRO) and oil-range organics (ORO), as well as PCE, are present at levels exceeding their applicable cleanup levels (City of Redmond, 2004). A “No Further Action” letter was issued by Ecology for Leary Way Shop Site Buildings 1 through 9; however, this site is also listed in Ecology’s list of contaminated sites under the City of Redmond for confirmed presence of chlorinated organic compounds in groundwater, suspected presence of chlorinated organic compounds in soil, and confirmed presence of petroleum products in soil. The City of Redmond site status is listed as “Awaiting Cleanup” as of June 2009.

Site 59A is located adjacent to the at-grade profile *Preferred Alternative E2*. The site is currently used by a large industrial painting contractor that handles solvents and solvent-based paints; also, gasoline USTs are on the site. During an investigation, petroleum products were observed on the ground near the fuel pump area.



Source: Data from Environmental Data Resources (2009), City of Bellevue (2005), and King County (2006).

Preferred Alternative	
—	At-Grade Route
- - -	Elevated Route
· · ·	Retained-Cut Route
· · ·	Retained-Fill Route
- - -	Tunnel Route
Other Alternatives	
—	At-Grade Route
- - -	Elevated Route
· · ·	Retained-Cut or Retained-Fill Route
- - -	Tunnel Route

- ▲ High-Risk Site
- Traction Power Substation
- Proposed Station

- Maintenance Facility and Access Track
- P New and/or Expanded Park-and-Ride Lot



Exhibit 4.12-2 High Risk Hazardous Material Sites Within 1/8 Mile of Alternatives Segments D and E
East Link Project

TABLE 4.12-5
Potential Impacts of High-Risk Hazardous Material Sites within Segment E

Map ID	Site Name and Address	Potential Impacts by Alternative				
		Potential Impacts	Preferred Alternative E2	E2 – Redmond Transit Center Design Option	Alternative E1	Alternative E4
27	Cleaning Center of Redmond, 15796 Redmond Way	Encounter soil and groundwater contaminated by PCE	✓		✓	
38	King County Materials Laboratory/City of Redmond, 7733 Leary Way NE	Encounter soil contaminated by petroleum products and possibly chlorinated organic compounds, groundwater contaminated by chlorinated organic compounds	✓	✓	✓	✓
59A	Dunkin and Bush, Inc., 17301 NE 70th Street	Encounter soil and groundwater contaminated by petroleum products, metals, and chlorinated or nonchlorinated organic compounds	✓	✓		
112	Microsoft Corporation/ Fort James Corporation, 4001 and 4111 156th Avenue NE	Encounter soil and groundwater contaminated by petroleum products and chlorinated organic compounds	✓	✓	✓	✓
N22	T&D Feeds, Cleveland Street and 164th Avenue NE	Encounter soil contaminated by petroleum products and PAHs; encounter groundwater contaminated by chlorinated organic compounds	✓	✓	✓	✓
NA	Former BNSF Railway corridor	Encounter soil contaminated with petroleum products, PAHs, pesticides, and metals	✓	✓	✓	✓

N/A not applicable
PAH polyaromatic hydrocarbon
PCE perchloroethylene

This area was cleaned up in 1992 when two USTs were removed. In 1994, a site hazard assessment was conducted and the soil samples were reportedly below MTCA cleanup levels. Ecology issued a “No Further Action” determination for the site in 1995 (Seattle-King County Department of Public Health, 1995). However, contamination such as petroleum products, metals, and chlorinated or nonchlorinated organic compounds that were used as solvents might still exist at the site in lower levels.

Site 112 is next to the retained-cut profile of all Segment E alternatives. The site was formerly used by Fort James Corporation as a paper product manufacturing facility; the site is currently occupied by Microsoft Corporation. Petroleum products and chlorinated organic compounds have been detected in soil and groundwater at the site. The site is in Ecology’s Voluntary Cleanup Program and cleanup is ongoing as of 2010.

Site N22 is located adjacent to *Preferred Alternative E2*, and it was occupied by T&D Feeds from the 1930s to 2000. T&D Feeds used the site as a store, feed mill, and

warehouse complex (Redmond Historical Society, 2011). The structures were demolished in 2001, and the site is currently vacant. Soil at the site was contaminated with petroleum products and carcinogenic PAHs. A remedial action was conducted on the property and resulted in a “No Further Action” determination from Ecology in 2006 for soils at the site. PCE-contaminated groundwater was also detected at the site; however, Ecology has determined that the PCE appeared to be from an offsite location, and therefore, no further action was required by Ecology. The 2006 “No Further Action” letter also noted that an adjacent railroad property to the southeast of the T&D Feeds property contains carcinogenic PAHs in soil that will require further remediation (Ecology, 2006).

Former BNSF Railway corridor is encountered at several locations in all of the Segment E alternatives. Contaminated material requiring special disposal, such as old railroad ties and soil contaminated with petroleum products, PAHs, pesticides, and metals,

could be present within and along the railway corridor.

E2 - Redmond Transit Center Design Option would be impacted by the same sites as *Preferred Alternative E2* described above except for Site 27. Alternatives E4 would have four high-risk sites (Sites 38, 112, N22, and the former BNSF Railway corridor), and Alternative E1 would have the same four high-risk sites plus Site 27.

Site 59A, which impacts *Preferred Alternative E2* and is described above, appears to be south of Alternative E1 and would not appear to impact it. Alternative E4 could be impacted by four hazardous materials sites (Sites 38, 112, N22, and former BNSF Railway corridor); these sites are in areas where the alternatives overlap. Alternative E4 avoids Sites 27 and 59A.

Maintenance Facilities

As with constructing any portion of East Link, potential construction impacts from maintenance facilities could result from using hazardous materials, (e.g., lubricants, fuels, and solvents) during construction or from encountering sites with existing soil or groundwater contamination. The potential for encountering hazardous material during construction of the maintenance facilities is relative to the number of businesses associated with hazardous materials that would be displaced and the extent of excavation that might be required during facility construction.

There are 3 high-risk, 0 medium-risk, and 11 low-risk hazardous material sites for the maintenance facilities. Table 4.12-6 lists the potential impacts related to high-risk sites for each maintenance facility and Exhibit 4.12-2 shows their location. The 116th Maintenance Facility (MF1) and the SR 520 Maintenance Facility (MF3) would not acquire any known sites.

Site 174B, previously discussed under Segment D, and former BNSF Railway corridor, would be acquired as part of the BNSF Maintenance Facility (MF2).

Site 59A, previously discussed under Segment E, would be acquired as part of the SE Redmond Maintenance Facility (MF5).

4.12.4 Potential Mitigation Measures

In order to mitigate potential impacts from all potential sites, including railroad corridors and crossings, Sound Transit would perform a level of environmental due diligence appropriate to the size and presumed past use of the property at all properties along the corridor before they are acquired. Phase 2 Environmental Site Assessments would be conducted where appropriate. Where known hazardous sites are present, Sound Transit would be responsible for the remediation of any contaminated soil and groundwater, including that which would be previously unknown and found during construction. To the extent practical, Sound Transit would limit construction activities that might encounter contaminated groundwater or contaminated soil.

TABLE 4.12-6
Number of Hazardous Material Sites at Maintenance Facilities by Connection from Alternatives

Map ID	Site Name and Address	Potential Impacts	Potential Impacts by Maintenance Facility and Segment E Alternative					
			MF1	MF2	MF3	MF5		
			All	All	All	<i>Preferred Alternative E2^a</i>	Alternative E1	Alternative E4
174B	Willamette Industries, 1899 120th Avenue NE	Encounter soil contaminated with petroleum products		✓				
59A	Dunkin and Bush, Inc., 17301 NE 70th Street	Encounter soil and groundwater contaminated by petroleum products, metals, and chlorinated or nonchlorinated compounds				✓	✓	
N/A	Former BNSF Railway corridor	Encounter soil contaminated with petroleum products, PAHs, pesticides, and metals		✓				

^aWith and without E2 – Redmond Transit Center Design Option
 N/A not applicable
 PAH polyaromatic hydrocarbon

