# 3.11 Energy

This section evaluates potential energy-related impacts associated with the proposed project by estimating the amount of energy that would be consumed during construction and operation of the proposed project, including electricity, natural gas, and fuel consumption (e.g., gasoline, diesel).

## 3.11.1 Introduction to Resources and Regulatory Requirements

According to the Energy Information Administration (2012), Washington consumed over 2,037 trillion British thermal units (Btu) of energy in 2010, which is equivalent to 352 million barrels of oil. Total energy consumption per capita in 2010 was 302 million Btu, which ranks 31st among all states in the country. Transportation (30%) accounts for the majority of energy consumption in Washington State, followed by the industrial (28%), residential (24%), and commercial (19%) sectors.

Per capita energy consumption, in general, is declining due to improvements in energy efficiency and design. Despite this reduction in per capita energy use, the state's overall energy consumption is expected to increase over the next several decades due to growth in population, jobs, and demand for vehicle travel. Increased demand for energy is closely tied to energy prices; if prices remain high, the growth in energy demand may be moderated by consumers who purchase fuel efficient vehicles or change personal consumption habits (Washington State Department of Community, Trade, and Economic Development 2007).

Although no laws have been adopted to regulate energy consumption, many federal, state, and local plans and policies identify goals for the efficient use of energy. The following federal and state policies are applicable to the proposed project.

- **Moving Ahead for Progress in the 21st Century (MAP-21**). The Moving Ahead for Progress in the 21st Century Act (MAP-21) authorizes funding for federal transit and highway programs through Fiscal Year 2014 and continues the planning factors passed in 2005 under the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). MAP-21 promotes the reduction of traffic congestion to improve safety and protect air quality and the environment. The Metropolitan Planning Program under MAP-21 provided funding for the integration of transportation planning processes in the Metropolitan Planning Organizations (MPOs) into a unified metropolitan transportation planning process, and one of the planning factors included the promotion of energy conservation.
- **Requirements for Energy Assessments (49 Code of Federal Regulations [CFR] 622.301)**. Requires an energy assessment for the construction, reconstruction, or modification of buildings for which applications are submitted to the Federal Transit Administration (FTA) after October 1, 1980. The energy assessment must include an analysis of the total energy requirements for the building.

- **Washington Transportation Plan, Washington State Multimodal Transportation Plan.** The Washington Transportation Plan and the Washington State Multimodal Transportation Plan provide a multimodal framework for efficient goods and vehicle movement.
- **Executive Order 07-02, Senate Bill 6001.** State legislation related to greenhouse gas (GHG) emissions and climate mitigation, such as Executive Order 07-02 and Senate Bill 6001, also include performance standards related to energy consumption.

## 3.11.2 Methods

The study area for the energy analysis includes the build alternative sites.

There are no established federal, state, or local thresholds for the evaluation of energy-related impacts from construction or operational activities. Accordingly, the context and intensity of net energy consumption associated with implementation of the proposed project, relative to the No Build Alternative, was evaluated to determine the potential for adverse effects on energy resources.

## 3.11.3 Affected Environment

Given the regional nature of energy, this section discusses existing conditions related to energy use at both the state and project level. A general discussion of energy use patterns within the state and Puget Sound region is also included.

Two utilities provide power to the build alternative sites: Snohomish County Public Utilities District (SnoPUD) provides power to the City of Lynnwood and Puget Sound Energy (PSE) is the primary electricity provider in the City of Bellevue. Table 3.11-1 lists the number of customers and energy sales for each utility's service area.

**Table 3.11-1. Utility Data for SnoPUD and PSE**

| Utility Data | SnoPUD | PSE |
|---|---|---|
| Service area | 2,200 square miles | 6,000 square miles |
| Number of electric customers | 322,228 | 1.1 million |
| Energy sales | 9 million MWh | 23.4 million MWh |

Source: Snohomish County Public Utilities District 2012; Puget Sound Energy 2012.
SnoPUD = Snohomish Public Utilities District; PSE = Puget Sound Energy; MWh = megawatts per hour.

Both utilities rely on their own generation sources, as well as energy purchases through long- and short-term contracts with other energy producers. In 2011, hydropower represented 50% of PSE's fuel mix, followed by coal (32%), natural gas (16%), nuclear (1%), and other resources (1%). PSE currently owns and operates three large wind farms in central and eastern Washington, and is the second-largest utility producer of wind power in the country (Puget Sound Energy 2012). According to 2011 data, hydropower is the primary generation source for SnoPUD, representing 88% of its fuel mix. SnoPUD's remaining portfolio comprises coal (4%), nuclear (4%), biomass (2%), natural gas (1%), and other resources (1%) (Snohomish County Public Utilities District 2012).

## 3.11.4 Environmental Impacts

### 3.11.4.1 No Build Alternative

The No Build Alternative assumes the continuation of existing conditions. Existing land uses would continue to consume electricity and natural gas to support annual operations.

### 3.11.4.2 Impacts Common to All Build Alternatives

Table 3.11-2 summarizes aggregate annual operational energy consumption data for the proposed project. Table 3.11-3 summarizes estimated energy consumption (i.e., construction equipment fuel consumption, material delivery, and soil import/export) associated with construction of the build alternatives. As indicated in Table 3.11-2, OMSF operations would result in increases in energy consumption associated with all build alternatives. However, given that these increases represent a minute fraction of SnoPUD's and PSE's total energy resources (equivalent to the energy requirement for up to 100 homes), it is anticipated that SnoPUD and PSE would have more than sufficient capacity and energy resources to accommodate these increases in energy consumption, even with expansive growth projected for the Regional Growth Center/City Center.

**Table 3.11-2. Aggregate Annual Operational Energy Consumption (Electricity and Natural Gas Consumption and Vehicle Miles Traveled)**

| | | | Total | |
|---|---|---|---|---|
| | Electricity (MMBtu) | Natural Gas Use (MMBtu) | Total[a] (MMBtu) | Equivalent Number of Homes Powered[b] |
| **Build Alternative** | | | | |
| Lynnwood Alternative[c] | 31,160 | 6,583 | 37,743 | 100 |
| BNSF Alternative<br>BNSF Modified Alternative<br>SR 520 Alternative | 28,716 | 6,067 | 34,783 | 92 |

[a] Total energy content of unit, including energy used to refine/generate and transport to point of use.

[b] Equivalent number of homes that can be powered for the same energy is based on EPA estimated number of homes per 100,000 Btu of energy use associated with estimated total Btu consumption (Environmental Protection Agency 2011).

[c] The Lynnwood Alternative includes 716,257 kWh of Electricity and 516 MMBtu of natural gas to account for the BNSF Storage Tracks.

MMBtu = million metric British thermal units.

**Table 3.11-3. Annual Construction-Related Energy Consumption**

| Build Alternative | Gallons of Diesel Consumed | MMBtu |
|---|---|---|
| Lynnwood Alternative | 116,073 | 16,018 |
| BNSF Alternative | 92,193 | 12,722 |
| BNSF Modified Alternative | 150,960 | 20,832 |
| SR 520 Alternative | 101,240 | 13,971 |
| Average consumption | 115,117 | 15,886 |

MMBtu = million metric British thermal units.

### 3.11.4.3 Lynnwood Alternative

#### Construction Impacts

As indicated in Table 3.11-3 the Lynnwood Alternative is anticipated to result in more fuel consumption relative to the average of the build alternatives.

#### Operational Impacts

Operational impacts for the Lynnwood Alternative are stated previously in the Impacts Common to All Build Alternatives discussion, which indicates the Lynnwood Alternative would result in energy consumption equivalent to the energy requirement for up to 100 homes. This minor increase would not result in an adverse impact on energy resources.

### 3.11.4.4 BNSF Alternative

#### Construction Impacts

As indicated in Table 3.11-3, the BNSF Alternative is anticipated to result in less fuel consumption relative to the average of the build alternatives, and the least fuel consumption relative to all of the build alternatives.

#### Operational Impacts

Operational impacts for the BNSF Alternative are stated previously in the Impacts Common to All Build Alternatives discussion, which indicates the BNSF Alternative would result in energy consumption equivalent to the energy requirement for up to 92 homes. This minor increase would not result in an adverse impact on energy resources.

### 3.11.4.5 BNSF Modified Alternative

#### Construction Impacts

As indicated in Table 3.11-3, the BNSF Modified Alternative is anticipated to result in more fuel consumption relative to the average of the build alternatives and the most fuel consumption relative to all of the build alternatives. As previously discussed, this minor increase would not result in an adverse impact on energy resources.

#### Operational Impacts

Operational impacts for the BNSF Modified Alternative are stated previously in the Impacts Common to All Build Alternatives discussion, which indicates the BNSF Modified Alternative would result in energy consumption equivalent to the energy requirement for up to 92 homes. This minor increase would not result in an adverse impact on energy resources.

#### 3.11.4.6 SR 520 Alternative

**Construction Impacts**

As indicated in Table 3.11-3, the SR 520 Alternative is anticipated to result in less fuel consumption relative to the average of the build alternatives.

**Operational Impacts**

Operational impacts for the SR 520 Alternative are stated previously in the Impacts Common to All Build Alternatives discussion, which indicates the SR 520 Alternative would result in energy consumption equivalent to the energy requirement for up to 92 homes. This minor increase would not result in an adverse impact on energy resources.

## 3.11.5 Indirect and Cumulative Impacts

No indirect impacts related to energy would result from construction and operation of the proposed project.

The proposed OMSF project would result in net increases in electricity and natural gas consumption and demand under all alternatives, which is equivalent to the energy requirement for up to 100 homes (Table 3.11-2). However, it is anticipated that both SnoPUD and PSE would have sufficient capacity and energy resources to accommodate any increase in energy consumption resulting from the proposed project, as the total energy requirements of the project represent a minute fraction of the total energy provided by SnoPUD and PSE. Consequently, the proposed project is not anticipated to result in cumulative impacts on these electricity and natural gas energy resources.

The Lynnwood Link Extension alternatives would consume less energy compared with the proposed OMSF project No Build Alternative because of a shift in travel mode, which would also reduce traffic congestion (Sound Transit 2013). In addition, the *East Link Project Final EIS* (Sound Transit 2011) notes that East Link would decrease total energy consumption, relative to the proposed OMSF project No Build Alternative, because it would reduce total VMT and East Link's power requirements are less than the vehicles it is replacing. Consequently, the proposed OMSF project would not contribute to a cumulative adverse energy impact.

## 3.11.6 Potential Mitigation Measures

No impacts on energy resources would occur as a result of the proposed project; therefore, no mitigation would be required.

# 3.12 Geology and Soils

This section describes the existing geologic conditions that could affect or be affected by the proposed project. The geologic conditions include site topography, regional geology, local soil characteristics, groundwater, seismicity, and potential geological hazards.

## 3.12.1 Introduction to Resources and Regulatory Requirements

Revised Code of Washington (RCW) 36.70A identifies geological hazards as one of a number of critical areas to be considered for development regulation. Geological hazards include susceptibility to erosion, sliding, earthquake, or other geological events. These hazards need to be appropriately considered in the design, construction, and operation of the proposed project to reduce risks to public health and safety.

## 3.12.2 Methods

The study area for geology and soils extends approximately 100 feet beyond each build alternative site. When a preferred alternative is identified, additional field studies will be required to assess site-specific geological and geotechnical aspects of the affected environment.

Geotechnical characteristics and groundwater information is based on geological maps and historical subsurface exploration studies near the build alternative sites. Anticipated geological units were identified using regional and site-specific subsurface information, topographic maps, and geologic hazard maps. Sources included the U.S. Geological Survey, U.S. Department of Natural Resources, and the U.S. Department of Agriculture. Available, historical, site-specific studies were also compiled and assessed for the build alternative sites. Historical explorations across the sites included borings, test pits, hand augers, and well installations. This information was obtained from online sources such as GeoMapNW and the U.S. Department of Natural Resources Subsurface Geology System.

## 3.12.3 Affected Environment

The geologic conditions include site topography, regional geology, local soil characteristics, groundwater, seismicity, and potential geological hazards.

- **Topography and Regional Geology.** The four build alternative sites have generally flat or gradually sloping topography. The overall elevation difference in the study area is approximately 35 feet for the Lynnwood Alternative, BNSF Alternative, and BNSF Modified Alternative, and approximately 50 feet for the SR 520 Alternative.

  Soils in the study area are characterized by geological units typical to the Puget Sound Basin. The geology of the Puget Sound Basin has been shaped by several major glaciations, most recently the Vashon Glaciation which blanketed the Puget Sound region with approximately 3,000 feet of ice.

Past glaciations have left behind a complex sequence of glacially derived and interglacial sediments. These glaciations are characterized by an intricate sequence of lacustrine deposits, glaciomarine drift, till, and recessional outwash. As ice receded during the Vashon Glaciation about 14,000 years ago, vast amounts of glacial till and advance outwash were deposited in the region. Soils that were overridden by the glaciers are typically very dense or hard and underlie loose or soft recessional soils that were deposited by glacial meltwater. Since the last major glaciation, surficial soils across the Puget Sound region have been influenced by erosion and human development. Cut and fill operations have been common across the region to provide more suitable topography and/or to remove unsuitable soil from development sites.

- **Seismicity.** The area of Puget Sound where the build alternative sites are located is known to be seismically active. The seismicity of western Washington is dominated by the Cascadia Subduction Zone, where the offshore Juan de Fuca Plate is subducting beneath the continental North American Plate. Three main types of earthquakes are typically associated with subduction zone environments: crustal, intraplate, and interplate. The Juan de Fuca Plate produces deep subduction zone earthquakes centered offshore. Movement of the subducting Juan de Fuca Plate also produces related intraplate earthquakes approximately 20 to 40 miles beneath the Puget Sound region (e.g., the 1949, 1964, and 2001 earthquakes) and crustal earthquakes at shallower depths near the Washington coast (e.g., the 1700 earthquake with an approximate magnitude of 8 to 9 on the Richter Scale[1]).

  The closest known active source is the Seattle Fault Zone, which is a crustal fault. The Lynnwood Alternative site is approximately 18 miles north of this fault zone, and BNSF Alternative site, BNSF Modified Alternative site, and SR 520 Alternative site in the City of Bellevue are approximately 3.5 miles north of this fault zone.

- **Site Geology and Groundwater Conditions.** None of the build alternative sites and surrounding areas have any known potable water supply derived from groundwater source, and the proposed project would not be located within boundaries of a critical aquifer recharge or wellhead protection area. Estimated distance to nearest U.S. Environmental Protection Agency (EPA)-designated sole source aquifers from the build alternative sites is about 5 miles or more. Section 3.10, Water Resources, provides more detail on surface waters, stormwater, floodplains, and groundwater in the build alternative sites.

- **Potential Geological Hazards.** Table 3.12-1 presents a comparative summary of potential geological hazards in the study area.

[1] The Richter scale assigns a single number to quantify the energy released during an earthquake. The scale is a base-10 logarithmic scale.

**Table 3.12-1. Potential Geological Hazards in the Study Area**

| | Build Alternative | | |
|---|---|---|---|
| **Geological Hazard** | **Lynnwood Alternative** | **BNSF Alternative BNSF Modified Alternative** | **SR 520 Alternative** |
| Steep Slopes | Low | Low to moderate | Low |
| Erosion | Low to moderate | Low to moderate | Low to moderate |
| Landslide | Low | Low | Low |
| Seismic (Distance from Seattle Fault Zone) | About 18 miles | About 3.5 miles | About 3.5 miles |
| Liquefaction Susceptibility | Low to moderate | Low to moderate | Low to moderate |
| Soft Soils | Moderate | Low to moderate | Low to moderate |

Source: Hart Crowser, Inc. 2013.

### 3.12.3.1 Lynnwood Alternative

The Lynnwood Alternative site is located upslope from Scriber Creek along the southern perimeter of the Cedar Valley. The creek runs across the northeast perimeter of the property, along the toe of a gentle slope. The gradual slope that defines the northern half of the Lynnwood Alternative site is expected to consist of fill over native soils. Initial studies indicate no evidence of historical slope instability near the site.

Past land development modified the original site topography, resulting in flatter site conditions; the site originally sloped downward toward the northeast. Native soils upslope from the valley are characterized by glacial till, and surficial soils in the valley are generally recessional outwash deposits consisting of poorly graded sand and gravel. Recessional outwash deposits in the Cedar Valley are typically overlain by soft silt and peat.

The Lynnwood Alternative includes the BNSF Storage Tracks in Bellevue, located along the Eastside Rail Corridor. A service area, operator report facilities, and parking would be located east of the storage tracks. Site geology and groundwater conditions for this part of the Lynnwood Alternative are described under the BNSF Alternative and BNSF Modified Alternative section.

#### *Geotechnical Characteristics*

Soils across the southern portion of the Lynnwood Alternative site are characterized by glacial till, while the northern areas may consist of fill soil. Loose fill soils are expected on this site, and tend to increase in depth from the southwest to the northeast. Limited available borings indicate that fill may be from 0 to over 10 feet deep over loose- to medium-dense sand. Test pits and borings just east of the Lynnwood Alternative site contained substantial construction debris, trash, asphalt chunks, and concrete chunks in up to about 40 feet of fill over peat. In general, the site soil likely consists of fill, recessional sand, and Vashon-age glacial till. Extensive pockets of peat may be encountered.

### *Groundwater Conditions*

Previous subsurface explorations indicated that the depth to groundwater might range from 5 to 15 feet below ground surface (bgs). Historical borings indicate that the groundwater is generally perched above the glacial till within the fill and recessional outwash units. Groundwater levels are representative of the time the borings were advanced. Fluctuations in groundwater levels may occur due to variations in rainfall, temperature, seasons, and other factors.

## 3.12.3.2 BNSF Alternative and BNSF Modified Alternative

The BNSF Alternative site is on the east side of the Eastside Rail Corridor, which runs north-south through this location. The BNSF Modified Alternative site encompasses both east and west sides of the Eastside Rail Corridor, and the west side of the OMSF would be placed at a higher elevation than the east side. The elevation difference would be approximately 29 feet and would require an earth-retaining structure and fill placement.

The BNSF Alternative and the BNSF Modified Alternative sites are located within the Larsen Channel, a shallow depression believed to be part of an ancient glacial melt channel that connected Lake Sammamish and Lake Washington during the Vashon Glaciation. This connection resulted in formation of a valley covered by recessional outwash deposits transported by glacial meltwater. Glacial till and recessional outwash soil units likely comprise most of the sites.

Past explorations across the BNSF Alternative and BNSF Modified Alternative sites indicate that a wetland covered the northern extent of the sites before commercial development. Existing records indicate that soft soil and peat were removed in some areas and replaced with controlled fill. Existing fill soil at the sites has been preliminarily characterized as loose to medium-dense. Past subsurface explorations indicate relatively shallow depths to groundwater.

### *Geotechnical Characteristics*

Past land development has modified the site topography and surficial geology on both sides of the Eastside Rail Corridor. Glacial till is expected to be encountered at the surface or at shallow depths across the southern part of the site because of historical cutting. The northern portion of the sites has been historically characterized by wetlands; some remnants of the wetlands remain along the northernmost site perimeter. Available records indicate that soft peat and silt was removed from some areas and replaced with controlled fill. Historical borings indicate up to 17 feet of fill over medium dense sand in the northern portion of the sites.

### *Groundwater Conditions*

Historical borings and test pits indicate that the depth to groundwater generally ranges from 6 to 25 feet bgs. It is apparent that groundwater exists within the fill and recessional outwash units, perched over glacial till or glaciolacustrine deposits. Fluctuations in groundwater levels can be caused by variations in rainfall, temperature, seasons, and other factors.

#### 3.12.3.3 SR 520 Alternative

Located less than 1 mile east of the BNSF Alternative and BNSF Modified Alternative sites, the SR 520 Alternative site is also believed to be a part of the Larsen Channel. The site geology is generally similar to the BNSF Alternative site and BNSF Modified Alternative site, and glacial till and recessional outwash likely comprise most of the surficial soils. A fill embankment of variable height supporting SR 520 bounds the northern perimeter of the SR 520 Alternative site.

***Geotechnical Characteristics***

Limited historical subsurface explorations at the site indicate fill soils range from 0 to 4 feet deep. Where present, fill is expected to be underlain by either glacial till or recessional outwash. Historical logs of test pits south of NE 20th Street along the eastern half of the site identify a very soft, dark brown, fibrous peat layer 4 to 5 feet thick under the fill. Peat may also underlie the eastern part of the site.

***Groundwater Conditions***

Historical exploration logs indicate that the depth to groundwater ranges from 3 to 17 feet bgs. According to historical drilling records, the groundwater is within the fill and recessional outwash layers, perched above the underlying glacial till. Historical records also note that the groundwater tends to flow north to south. Fluctuations in groundwater levels can occur due to variations in rainfall, temperature, seasons, and other factors.

## 3.12.4 Environmental Impacts

This section summarizes impacts that could result from the four build alternatives and the No Build Alternative, including general impacts that may be common to all alternatives.

#### 3.12.4.1 No Build Alternative

Under the No Build Alternative, the proposed project would not be constructed. The existing geology and soils environment would remain essentially unchanged. The existing risk from seismic hazards would still exist, and new development would continue to take place, thus, resulting in more geologic risk from existing steep slope, erosion, and seismic hazards.

#### 3.12.4.2 Impacts Common to All Build Alternatives

**Slope Stability and Landslides**

Considering that all build alternatives are planned for generally flat areas, existing slope stability and landslide issues would be minor concerns for onsite project activities, as well as for surrounding properties from construction and operation at the build alternative sites. However, various extents of site regrading and topographical modifications are proposed for the build alternatives. For example, the BNSF Modified Alternative would place the LRV storage area to the west of the Eastside Rail Corridor at a higher elevation (178.5 feet) compared to the remaining OMSF (elevation 150.0 feet), which would require an approximate 29-foot-high earth-retention system. Slope

stability assessments would be conducted in specific areas where substantial fill placement or embankments are planned. Adequate consideration of existing topography and proposed modifications during the design phase would address possible slope instability and landslide issues to reduce risk for onsite project activities and surrounding properties. In general, the risk of instability to existing slopes because of construction activities is considered low.

In areas where construction would expose native soil due to vegetation removal, surface water may transport fine sediments downslope from the sites. However, erosion control best management practices (BMPs) would be put in place to limit surface water from transporting fines downslope from the sites.

There is potential for encountering contaminated soils at the sites. In the event contaminated soil is encountered, excavated soil would be transported off-site for regulated disposal. Further details related to this issue are discussed in Section 3.13, Hazardous Materials.

Glacial till is anticipated at shallow depths below surficial fill soil across the sites. With proper precautions in planning and design, the risk of settling because of construction activities is low.

Based on preliminary project layout, estimated excavation depths, and historical records of groundwater depth at the sites, construction activities may be affected by groundwater. Potential construction dewatering would need to be assessed during final design, but in general, construction dewatering issues are not expected to be a major concern.

**Seismic Hazard and Liquefaction**

All build alternative sites are within a seismically active area. During construction, the risk of seismic hazard is considered low because of the low probability that a major earthquake would occur during construction. If a major earthquake occurred during construction, the most common impact would be disruption of the construction schedule. In addition, there may be components that have not reached their design strength. For example, if concrete in the superstructure or a foundation has not developed full strength when shaken by a strong tremor, it would be necessary to assess integrity of the structure and address safety concerns.

During operation, major seismic events would cause strong shaking of OMSF structures since seismic motions are transmitted to structures through the ground supporting them. Strong ground shaking could lead to liquefaction of loose, saturated, sandy soil, resulting in a loss of soil-bearing capacity. Strong shaking during an earthquake may also cause settlement, slope instability, or increased lateral earth pressure on retaining walls. It is expected that the proposed project would be designed in accordance with the requirements of the International Building Code. When designed to withstand design-level seismic ground shaking as required by the code, the risk to the proposed project is expected to be low.

For all sites, there is a low to moderate likelihood of seismically induced liquefaction of loose, saturated, cohesionless soils. Areas within the site where soil may be susceptible to liquefaction

would be assessed during final design based on additional exploration, and adequately considered in analysis and design.

### Groundwater Flow Alteration

Groundwater flow paths are sometimes altered by major subsurface construction affecting large volumes of earth. Considering the relatively light construction planned and comparatively shallow depth expected to be affected by the build alternatives, the risk of substantial groundwater flow alteration would generally be considered low. However, some limited groundwater flow alteration may result locally depending on the volume of earth movement. For example, the BNSF Modified Alternative would involve placing about 29 feet of retained fill at the base of an existing slope, which may result in some groundwater flow alteration locally. However, appropriate design measures, such as providing rainwater infiltration systems and allowing permeable pathways to existing groundwater flow, would be implemented to minimize the potential to alter flows.

### Export/Import of Material for Earthwork

The volume of earthwork required for the build alternatives depends on the existing site topography, proposed site regrading, and suitability of existing site soil for reuse. Actual reuse of excavated soil as structural fill would depend on the nature and composition of excavated soil and the time of year construction occurs. Excavated soil not suitable for reuse as structural fill would need to be removed off site, although it may be possible to use some of it for landscaping. For a relative comparison between build alternatives, cut and fill volume estimates summarized in Table 3.12-2 are based on the assumptions that all cut soils can be reused. Based on this assumption, the SR 520 Alternative would involve exporting material, while all other build alternatives would involve importing soil to achieve proposed site grading. The BNSF Alternative and BNSF Modified Alternative would require the least and largest amount of soil, respectively, to be imported for site regrading.

**Table 3.12-2. Comparative Estimate of Earthwork Quantities in Cubic Yards**

| Alternative | Cut Volume | Fill Volume | Cut/Fill Balance | Remarks[a] |
|---|---|---|---|---|
| Lynnwood Alternative | | | | |
| Design Option C1 | 191,455 | 201,920 | -10,465 | Import |
| Design Option C2 | 191,455 | 201,920 | -10,465 | Import |
| Design Option C3 | 193,890 | 202,945 | -9,055 | Import |
| BNSF Alternative | 55,335 | 55,855 | -520 | Import |
| BNSF Modified Alternative | 67,965 | 215,090 | -147,125 | Import |
| SR 520 Alternative | 190,600 | 85,150 | +105,450 | Export |

[a] Actual export/import of material at particular build alternative would depend on the suitability of excavated soils for reuse.

### 3.12.4.3 Lynnwood Alternative

#### Construction and Operational Impacts

Construction and operational impacts would be the same as those described under Section 3.12.4.2, Impacts Common to All Build Alternatives. Impacts for the BNSF Storage Tracks in Bellevue are expected to be similar to those stated for the BNSF Alternative and BNSF Modified Alternative.

### 3.12.4.4 BNSF Alternative and BNSF Modified Alternative

#### Construction Impacts

The BNSF Alternative site is limited to the east side of the Eastside Rail Corridor, which is relatively flat. The BNSF Alternative and the BNSF Storage Tracks would require relatively minor alteration of existing topography where potential slope instability and landslide hazards are almost nonexistent.

The BNSF Modified Alternative site encompasses both the east and west sides of the Eastside Rail Corridor. The proposed development footprint along the west side of the corridor would be on newly placed retained fill of greater depth located at the base of a relatively steep slope of variable height. The risk of construction-induced slope instability to the existing upward slope on the west side of the Eastside Rail Corridor would depend on the type of earthwork operations conducted, as well as their proximity to the toe of the existing slope. Historical studies and a preliminary site reconnaissance indicate no evidence of existing slope instability issues near these sites. With proper buffer and setback for structures located in front of the existing slope toe, any construction-induced instability hazards to the existing slope would be considered minor.

All other construction impacts would be the same as those described under Section 3.12.4.2, Impacts Common to All Build Alternatives.

#### Operational Impacts

Operational impacts would be the same as those described under Section 3.12.4.2, Impacts Common to All Build Alternatives.

### 3.12.4.5 SR 520 Alternative

#### Construction Impacts

The SR 520 Alternative site is not near any natural geographical features that could pose concerns for construction-induced landslide hazards. However, the site would be located adjacent to the south base of a relatively steep fill embankment that supports SR 520. Slope stability analysis of the embankment would be conducted, and other geotechnical design considerations would be employed to assess potential construction impacts on SR 520. All other construction impacts would be the same as those described under Section 3.12.4.2, Impacts Common to All Build Alternatives.

**Operational Impacts**

Operational impacts would be the same as those described under Section 3.12.4.2, Impacts Common to All Build Alternatives.

## 3.12.5 Indirect and Cumulative Impacts

No indirect impacts related to geology and soils would result from construction and operation of the proposed project.

Build alternative site-specific aspects of geotechnical hazards are summarized above considering the site geology identified based on existing information. All build alternatives would be subject to uniform site development and construction standards relative to prevalent seismic and geotechnical engineering considerations. Other developments that could occur nearby from the preferred build alternative would also be built to meet current design standards and permit requirements. Geotechnical engineering design criteria for the preferred build alternative would be developed based on the results of a detailed site investigation.

The Lynnwood Link Extension alternatives under consideration and the East Link design would be subject to the same standards, would be required to address known hazards, and would not result in adverse impacts regarding geology and soils. By implementing suitable grading and construction techniques that are consistent with the geotechnical design recommendations on all projects, no adverse cumulative impacts would occur.

## 3.12.6 Potential Mitigation Measures

With the implementation of design standards and best management practices BMPs described above for the geotechnical engineering design and construction, it is expected that geology and soil impacts would be avoided and minimized. Therefore, no mitigation would be required.

# 3.13 Hazardous Materials

This section describes existing conditions and applicable regulatory requirements for hazardous materials relating to the proposed project and the proposed project's potential to result in impacts by introducing new sources of hazardous materials.

## 3.13.1 Introduction to Resources and Regulatory Requirements

A hazardous material is any substance that—because of its quantity, concentration, or physical or chemical properties—may pose a hazard to human health and the environment. Hazardous materials in various forms can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property. Hazards to human health and the environment can occur during production, storage, transportation, use, or disposal of hazardous materials.

Applicable laws and regulations regarding hazardous materials include the following.

- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S. Code [U.S.C.] 103)
- Superfund Amendments and Reauthorization Act (SARA)
- Federal Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901 *et seq.*)
- Clean Water Act (CWA) (33 U.S.C. 1251 *et seq.*)
- Toxic Substances Control Act (TSCA) (15 U.S.C. 2601–2629)
- Department of Transportation Hazardous Materials Regulations (49 Code of Federal Regulations [CFR] 100–185)
- Spill Prevention Control and Countermeasure Plans (40 CFR 112.7)
- Dangerous Waste Regulations (Washington Administrative Code [WAC] 173–303)
- Model Toxics Control Act (MTCA) and its implementing regulations (Revised Code of Washington [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)

## 3.13.2 Methods

The study area for the hazardous materials analysis includes the build alternative sites and the area within a one-eighth-mile radius of each build alternative site. Properties farther than one-eighth of a mile from the build alternative sites were not considered for further analysis because they present a low probability of having releases that could affect the study area.

The hazardous materials analysis was developed primarily from analysis contained in the *Lynnwood Link Extension Draft EIS* (Sound Transit 2013), *East Link Project Final EIS* (Sound Transit 2011), and conducting an environmental database search via the Environmental Data Resources Inc. (EDR) Radius Map™ Report with Geocheck® EDR database. The EDR reports summarize database information for the areas located within a one-eighth-mile radius of each build alternative site. This information—along with the *Lynnwood Link Extension Draft EIS* (Sound Transit 2013) and *East Link Project Final EIS* (Sound Transit 2011), and the Washington State Department of Ecology (Ecology) Cleanup Site Search database for the Bellevue build alternatives—was used to evaluate the study area.

The regulatory database records search included, but was not limited to, reviewing the following federal, state, and local databases.

- Federal National Priorities List (NPL)
- Federal Proposed NPL
- Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
- Federal CERCLIS No Further Remedial Action Planned (NFRAP)
- Federal Corrective Action Sites (CORRACTS)
- Federal Emergency Response and Notification System (ERNS)
- Leaking Underground Storage Tank Incident Report
- Underground Storage Tank (UST)
- Ecology's ALLSITES
- Confirmed and Suspected Contaminated Sites – No Further Action (CSCSL NFA)
- Voluntary Cleanup Program (VCP)

## 3.13.3 Affected Environment

One of three risk categories was assigned to sites with known contamination (either presently or in the past), within the study area: high risk, medium risk, and low risk.

- **High Risk**. The high-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 open groundwater remediation sites within the proposed project footprint, sites with 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 Risk**. The medium-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 Risk**. The low-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 sites and do not have groundwater contamination.

As further described in Section 3.13.3, Methods, the hazardous materials analysis was developed from analysis contained in the *Lynnwood Link Extension Draft EIS* (Sound Transit 2013) and *East Link Project Final EIS* (Sound Transit 2011), and by conducting an environmental database search via the EDR report.

Table 3.13-1 identifies properties found during the regulatory records search within one-eighth of a mile from the build alternative sites and assigns a risk category based on the sites' potential for impact.

**Table 3.13-1. Number of Hazardous Material Sites within One-Eighth Mile of the Build Alternative Sites**

| Alternative | High Risk | Medium Risk | Low Risk |
|---|---|---|---|
| Lynnwood Alternative | 0 | 1 | 2 |
| BNSF Storage Tracks | 1 | 3 | 0 |
| BNSF Alternative | 1 | 3 | 0 |
| BNSF Modified Alternative | 1 | 3 | 0 |
| SR 520 Alternative | 0 | 1 | 2 |

### 3.13.3.1 Lynnwood Alternative

There is one medium-risk and two low-risk hazardous materials sites within a one-eighth-mile radius (Figure 3.13-1). Both hazardous materials sites were found in multiple databases.

#### Medium Risk

***Rimpac Steel, Inc. (20311 52nd Avenue W)***

The hazardous materials site is located on 52nd Avenue W, between 200th Street SW and 204 Street SW. It is listed in the RCRA-Non Generators, FINDS, ALLSITES, Confirmed and Suspected Contaminated Sites List No Further Action (CSCSL NFA), ICR (environmental remedial action reports), and VCP databases. The site is currently included in the NFA-Voluntary Cleanup Program database. Contamination included metals and petroleum impacted soil and groundwater. The No Further Action designation was granted in 1999.


**Figure 3.13-1:** Hazardous Material Sites (Ranked) within One-Eighth Mile—Lynnwood
Sound Transit Link Light Rail OMSF Draft EIS

**Low Risk**

***Connelly Skis, Inc. (20621 52nd Avenue W)***

The hazardous materials site is located on 52nd Avenue W, between 206th Street SW and 208 Street SW. It is listed in the Resource Conservation and Recovery Act-Conditionally Exempt Small Quantity Generator (RCRA-CESQG), ALLSITES (Ecology information on facilities and sites of interest), SPILLS (hazardous materials onsite spills), FINDS (environmental interest and information system) and MANIFEST (hazardous waste manifest information) databases. The information found in the SPILLS database indicates that in 2005 there was a minor onsite mineral oil spill. No other violations were reported.

***C Martin Trucking (20631 48th Avenue W)***

This hazardous materials site is located on 48th Avenue W, just northeast of 50th Avenue W. The site was listed in various databases including ALLSITES, CSCSL NFA, UST, and ICR. The site was granted "No Further Action" status as of 1997. Remediated media included petroleum impacted soil.

### 3.13.3.2 BNSF Alternative, BNSF Modified Alternative, and BNSF Storage Tracks

One high-risk and three medium-risk hazardous materials sites exist within a one-eighth-mile radius of the build alternative sites (Figure 3.13-2). The hazardous materials sites were found in multiple databases and are discussed below.

**High Risk**

***International Paper Bellevue/Willamette Industries, Inc. (1899 120th Avenue NE)***

This hazardous materials site is located on 120th Avenue NE, and is bounded by NE 12th Street to the south and SR 520 to the north. At the completion of the *East Link Project Final EIS* (Sound Transit 2011) the site was listed in the ICR, LUST, and UST databases. As of 2011, Weyerhaeuser used this 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 impacted soil was reportedly cleaned up (RCU) as of 2002.

The EDR search conducted in April 2013 revealed that International Paper (Willamette Industries) is currently listed in the aforementioned ICR, LUST, UST databases along with ALLSITES, RCRA NonGen and MANIFEST databases.

Further research conducted in July 2013 (via Ecology's Cleanup Site Search database) revealed an RCU Status Update letter from Ecology (dated April 16, 2013) informing the property owner that the site is not officially a case-closed site and is currently listed as contaminated in their Hazardous Sites List database. According to this document, groundwater contamination remains above regulatory levels near a former underground storage tank area.

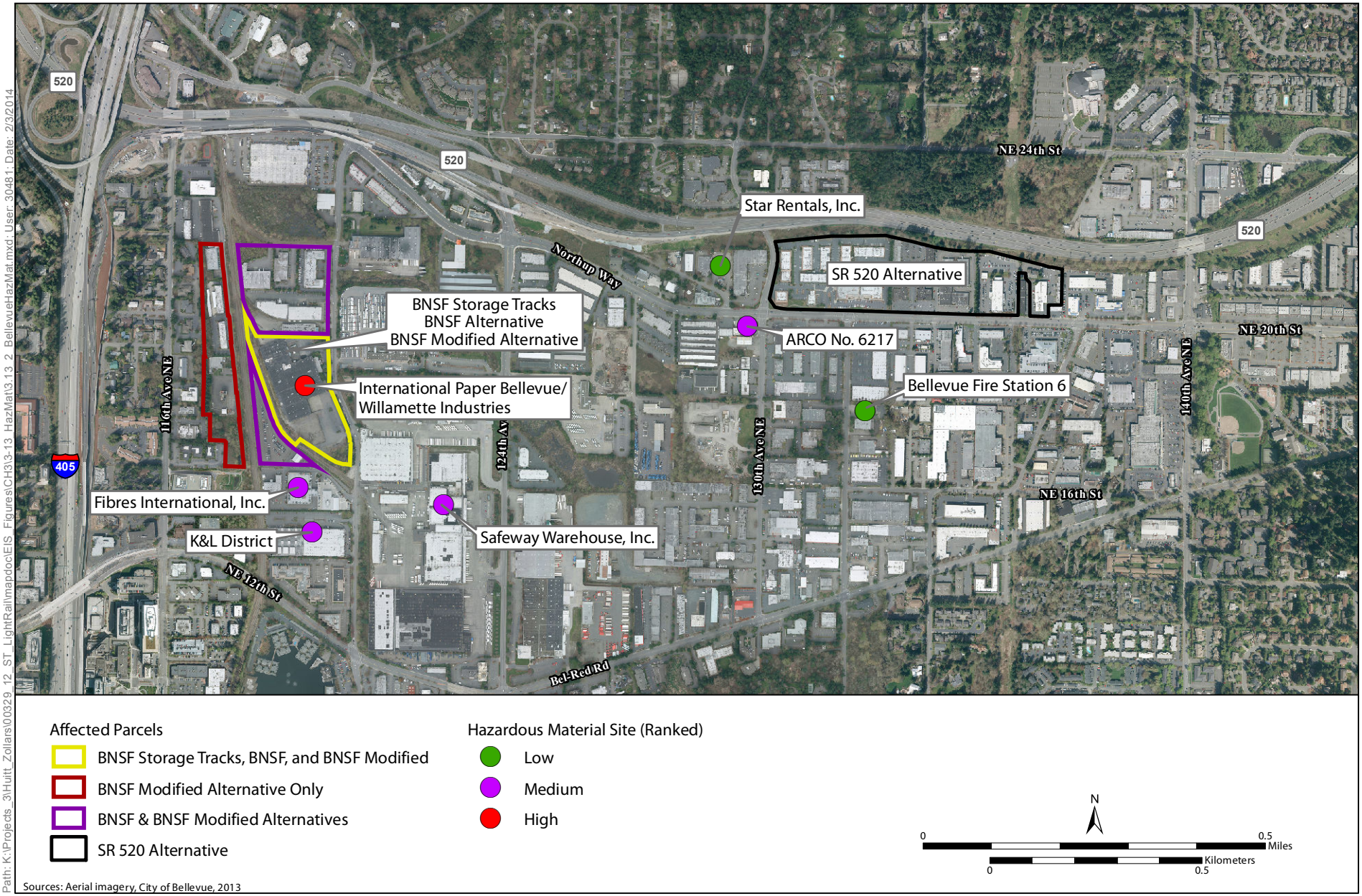


**Figure 3.13-2:** Hazardous Material Sites (Ranked) within One-Eighth Mile—Bellevue
Sound Transit Link Light Rail OMSF Draft EIS

**Medium Risk**

***Safeway Warehouse, Inc. Distribution Center (1723 124TH Avenue NE, 2009)***

This site is located on 124th Avenue NE, and is bounded by NE 12th Street to the south and NE 18th Place to the north. At the time of the *East Link Project Final EIS* (Sound Transit 2011), the site was listed in ERNS, FINDS, Federal Insecticide, Fungicide & Rodenticide Act and Toxic Substances Control Act Tracking System (FTTS), ICR, LUST, MANIFEST, National Pollutant Discharge Elimination System (NPDES), and RCR databases. It is currently found in the NFA-Voluntary Cleanup Program database. Contamination included gasoline and diesel impacted soil. The No Further Action designation was granted in 2009.

The 3.5-acre site was formerly used by Safeway as a warehouse and distribution center. This five-building complex included a retail and warehouse building, cross dock, cold storage, office building, and a former vehicle maintenance shop. As of August 2013, many of the Safeway facility operations had been consolidated and moved elsewhere; however, some operations related to Safeway Bellevue Beverage, Safeway Ice Cream and the Safeway bread production plant exist on the site.

***Fibres International, Inc. (1533 120th Avenue NE)***

This site is located on 120th Avenue NE, and is bounded by NE 12th Street to the south and SR 520 to the north. At the time of the *East Link Project Final EIS* (Sound Transit 2011), the site was listed in the FINDS, ICR, LUST, RCRIS-SQG, and UST databases. The site is currently included in the NFA-Voluntary Cleanup Program database. Contamination included gasoline, diesel and benzene impacted soil and groundwater. The No Further Action designation was granted in 2011.

***K&L District, North Bellevue Facility (1445 120th Avenue NE)***

This site is also located on 120th Avenue NE, and is bounded by NE 12th Street to the south and SR 520 to the north. At the time of the *East Link Project Final EIS* (Sound Transit 2011) completion, the site was listed in the CSCSL NFA, FINDS, ICR, RCRIS-SQG, UST, and VCP databases. The site is currently included in the NFA-Voluntary Cleanup Program database. Contamination included petroleum impacted soil and groundwater. The No Further Action designation was granted in 1998.

### 3.13.3.3 SR 520 Alternative

The EDR database search and *East Link Project Final EIS* (Sound Transit 2011) analysis surrounding the SR 520 Alternative site revealed one medium-risk and two low-risk hazardous materials sites within a one-eighth-mile radius of the build alternative site (Figure 3.13-2).

**Medium Risk**

***ARCO No. 6217 (12903 NE 20th Street)***

This site is located on NE 20th Street, and is bounded to the east by 130th Avenue NE and NE 20th Place to the west. At the time of the *East Link Project Final EIS* (Sound Transit 2011) completion, the site was listed in the FINDS, ICR, LUST, MANIFEST, RCRIS-SQG, and UST databases. The site is

currently included in the NFA-Voluntary Cleanup Program database. Contamination included metals and petroleum impacted soil and groundwater. The No Further Action designation was granted in 1998.

**Low Risk**

***Star Rentals, Inc. (12900 Northrup Way)***

This site is located on Northrup Way, and is bounded to the east by 130th Avenue NE and NE 20th Place to the west. At the time of the *East Link Project Final EIS* (Sound Transit 2011), the site was listed in the FINDS, ICR, LUST, and UST databases. Site is currently under awaiting clean up status. Contamination includes gasoline, diesel and benzene impacted soil only.

***Bellevue Fire Station 6 (1850 132nd Avenue NE)***

This site is located on 132nd Avenue and is bounded by NE 20th Street to the north and NE 16th Street to the south. The site was listed in the ALLSITES, CSCSL NFA, UST and ICR databases. Contamination included petroleum impacted soil only. The No Further Action designation was granted in 2011.

## 3.13.4 Environmental Impacts

In addition to potential impacts common to all build alternatives, the ensuing sections discuss site-specific potential impacts from known contaminated sites to the build alternative sites. Potential impacts are based on the hazardous materials site's location relative to the build alternative site. As previously stated, the focus of the discussion is on hazardous materials sites located within a one-eighth-mile radius of the build alternative sites because they present a higher probability of affecting implementation of the proposed project. High-risk sites could also have long-term impacts if they involve remediation actions after the proposed project is constructed.

### 3.13.4.1 No Build Alternative

Under the No Build Alternative, disturbance, removal, or cleanup of potentially hazardous materials, including contaminated soil and/or groundwater, would not occur.

### 3.13.4.2 Impacts Common to All Build Alternatives

All of the build alternatives would involve similar construction and operational features.

To minimize the potential for impacts from all potential sites, Sound Transit would perform a level of environmental due diligence appropriate to the size and presumed past use of the property at all properties before they are acquired. Environmental site assessments would be conducted where appropriate. Where known hazardous sites are present, Sound Transit would remediate any contaminated soil and groundwater, including those previously unknown and found during construction. To the extent practical, Sound Transit would limit construction activities that might encounter contaminated groundwater or soils. Impacts can be minimized by avoiding contaminated sites, particularly when other options or alternatives are being considered.

**Construction Impacts**

For all build alternatives, construction impacts could result from misuse, improper storage, and accidental spills of hazardous materials. Construction impacts could also result from encountering contaminated soil or groundwater (found on or adjacent to contaminated sites) during construction activities (such as grading, excavating, dewatering and demolition). In addition to residual soil and groundwater contamination as a potential impact, and to the extent that existing edifices, structures, bollards, etc. would be demolished as part of proposed project construction, exposure to lead-based paint and asbestos-containing materials could create additional construction impacts. Additionally, construction activities such as drilling, excavating, or demolition can be a cause of accidental damage of hazardous material containers such as aboveground and underground storage tanks and utility infrastructure such as pole-mounted electrical transformers.

It is expected that construction activities for all build alternatives would involve the routine transport, use, storage, and disposal of hazardous materials such as fuels, solvents, paints, oils, and grease. Such transport, use, storage, and disposal would be compliant with applicable regulations such as the RCRA, U.S. Department of Transportation Hazardous Materials Regulations, and any local regulations, mentioned previously in Introduction to Resources and Regulatory Requirements. Additionally, hazardous materials likely to be transported, used, stored, and disposed of during construction of the proposed project would be materials typical of construction projects and would be generally used and handled in small quantities.

Potential construction impacts could result from accidental releases of typical hazardous construction materials over water or in areas where stormwater runs off into water bodies. Spills, if not contained, could harm water quality, vegetation, and wildlife in the immediate area and downstream; large spills could require emergency response. While the potential for this type of release exits, typical construction hazardous material products would be generally used in small, localized amounts, and any spills that may occur would be immediately contained and cleaned up as soon as they occur. Furthermore, it is anticipated that construction personnel would follow applicable construction BMPs via the Construction Stormwater General Permit issued by Ecology (see Section 3.10, Water Resources, for details).

The proposed project construction contractor would have certified personnel and a Health and Safety Plan (HASP) that comply with the Occupational Safety and Health Administration's (OSHA) Hazardous Waste Operations and Emergency Response Standard (HAZWOPER). Also, during construction the contractor would employ BMPs to minimize human exposure to suspected contaminants.

In the event that disturbed soil is suspected to be contaminated, construction BMPs can include but are not limited to the following.

- Water or mist soil as it is being excavated and loaded onto transportation trucks.
- Place any stockpiled soil in areas shielded from prevailing winds.
- Cover the bottom of excavated areas with sheeting when work is not being performed.

In addition to these measures, it is expected that the construction contractor would adhere to all existing federal, state, and local regulations during all construction activities. Compliance with these regulations, requirements and implementation of these measures would preclude any potential hazards encountered.

**Operational Impacts**

Routine office maintenance activities could result in the use of solvents, cleaning agents, paints, etc. Some of these materials can be classified as hazardous. These hazardous material products would generally be used in small amounts, and any spills that may occur would be limited in scope and spill area and typically would be cleaned up soon after they occur.

Light rail vehicle (LRV) maintenance activities conducted in the OMSF could result in operational impacts; however, since LRVs operate on electricity and not fuel, large spills are not likely to occur. Hazardous materials releases could occur during track maintenance or other fleet vehicle maintenance. A spill response program and hazardous material handling plan has been created by Sound Transit for existing maintenance locations and where appropriate, would be implemented during operations of the proposed OMSF.

OMSF activities would generate hazardous material waste due to the use of lubricants, solvents, etc. Hazardous waste generated at the OMSF would be managed according to all applicable regulatory requirements, which would minimize the exposure risk to all Sound Transit personnel and the surrounding environment. Additionally, it is expected that the OMSF would be constructed with engineering controls to limit and contain releases and spills, thus, further minimizing the potential for operational impacts. Operational impacts could occur if any of the properties acquired for the project are contaminated. The acquisition of contaminated properties could require remediation activities.

### 3.13.4.3 Lynnwood Alternative

**Construction Impacts**

One medium-risk and one low-risk hazardous materials sites are located in the Lynnwood Alternative site. Based on the records available, the medium-risk site is considered to be remediated. However, because of its past history of groundwater and soil contamination and its location directly within the Lynnwood Alternative site, there is potential to encounter previously undiscovered contaminated media during construction. The records review for the low-risk site indicated that there was a minor mineral oil spill onsite in 2005. No agency follow-up was indicated in the report, and no other reports of violations were found in any of the other databases for this site.

Construction impacts for the BNSF Storage Tracks would be the same as those discussed for the BNSF Alternative and BNSF Modified Alternative.

**Operational Impacts**

Operational impacts for this alternative would be the same as those discussed in Section 3.13.4.2, Impacts Common to All Build Alternatives.

### 3.13.4.4 BNSF Alternative and BNSF Modified Alternative

The analysis for the BNSF Storage Tracks, BNSF Alternative and BNSF Modified Alternative was combined due to the sites having similar conditions. The EDR radius analysis was conducted to include all sites within one-eighth of a mile of the BNSF Alternative and BNSF Modified Alternative sites.

**Construction Impacts**

Three medium-risk sites and one high-risk site are located within a one-eighth-mile radius of the BNSF Alternative and BNSF Modified Alternative sites. A No Further Action determination for the three medium-risk sites (located outside of the proposed project footprint) has been made by Ecology. There were no other reports of violations found during the database search. Therefore, there is low potential to encounter existing contamination in the soil and groundwater from these sites. The high-risk site (International Paper Bellevue/Willamette Industries, Inc. (1899 120th Avenue NE) is of some concern because of its past operations and location directly within the BNSF Alternative and BNSF Modified Alternative sites. The most recent information provided by Ecology denotes the site as having contaminated groundwater and, therefore, the potential to encounter contaminated media during construction of the proposed project is high.

**Operational Impacts**

Operational impacts for these alternatives would be the same as those discussed in Section 3.13.4.2, Impacts Common to All Build Alternatives.

### 3.13.4.5 SR 520 Alternative

**Construction Impacts**

There is one medium-risk site and two low-risk sites within a one-eighth-mile radius of the SR 520 Alternative site. A No Further Action determination has been made by Ecology for the medium-risk site and one of the low-risk sites. The remaining low-risk site status is open and awaiting remediation. However, the affected media was soil only and is not likely to affect the proposed project. There were no other reports of violations found during the database search.

**Operational Impacts**

Operational impacts for the SR 520 Alternative are discussed in Section 3.13.3.2, Impacts Common to All Build Alternatives.

## 3.13.5 Indirect and Cumulative Impacts

No indirect impacts related to hazardous materials would result from construction and operation of the proposed project.

For other transit projects in the build alternative sites, such as the Lynnwood Link Extension and East Link, Sound Transit would adhere to applicable regulations regarding the handling and treatment of contaminated materials during construction and long-term operation of the projects. As a result, the proposed project would not have an adverse effect and could have a net beneficial impact on the environment. Similarly, all other related projects' development would require the remediation of any contaminated sites encountered in compliance with state and federal environmental regulations, consequently improving overall environmental quality. Therefore, there would be no cumulative impacts of the related projects, when combined with the proposed project, on hazardous materials in the build alternative sites.

## 3.13.6 Potential Mitigation Measures

As mentioned, it is possible that unanticipated residual soil contamination may be encountered during construction activities in portions of the build alternative sites. To mitigate potential impacts from all potential hazardous material sites, Sound Transit would perform a level of environmental due diligence appropriate to the size and presumed past use of the property at any properties in the study area 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. Sound Transit would also limit construction activities that might encounter contaminated groundwater or contaminated soil.

# 3.14 Electromagnetic Fields

Electrical systems produce both electric and magnetic fields. Electric fields result from the strength of the electric charge, while magnetic fields result from the motion of the charge. Together these fields are referred to as *electromagnetic fields* (EMFs). EMFs are invisible, nonionizing, low-frequency radiation.

## 3.14.1 Introduction to Resources and Regulatory Requirements

EMFs are present around all electrical equipment and facilities, including the electrical power lines and electrical equipment for the proposed project, and wherever electricity is used. Common EMF sources in households and workplaces include microwave ovens, vacuum cleaners, copy machines, and fax machines. EMFs are also produced from electric rail power lines and maintenance facilities, which would include the facilities associated with the proposed project.

EMFs result in *electromagnetic interference* (EMI), which can cause disruptions and possibly malfunctions in sensitive equipment. In certain situations with sufficiently high exposure, EMFs can also result in adverse effects on human health. The potential for EMI and adverse human health effects depends on the location of EMF-sensitive receptors in relation to light rail equipment. In general, EMI and associated effects decrease as a function of distance from the source.

Table 3.14-1 lists common sources of EMFs and the corresponding median field strengths at a source-receptor distance of 6 inches (National Institutes of Environmental Health Sciences and National Institutes of Health 2002). Magnetic fields are typically measured in units of milligauss, while electric fields are typically measured in volts per meter or kilovolts per meter.

**Table 3.14-1. Common EMF Sources and Median Corresponding Field Strengths**

| Source | Median Magnetic Field at 6 Inches from Source (milligauss) |
|---|---|
| Copy Machines | 90 |
| Fax Machines | 6 |
| Fluorescent Lights | 40 |
| Microwave Ovens | 200 |
| Washing Machines | 20 |
| Vacuum Cleaners | 300 |

Source: National Institute of Environmental Health Sciences and National Institute of Health 2002.

Concern over EMF exposure generally pertains to human-made sources of electromagnetism, such as the electrical conveyance lines and electrical devices associated with the proposed project. Cables emerging from the electrical substation would carry direct current power, creating primarily EMFs in the static (0 to 3 hertz) frequency range. At a typical electrical substation, EMFs would be generally low or nonexistent beyond the substation's perimeter fence.

The National Institute for Occupational Safety and Health measured the daily exposure of workers who service the tracks of electric rail lines. The average exposure of EMFs that these workers experience ranged from 3 to 18 milligauss per day (National Institutes of Environmental Health Sciences and National Institutes of Health 2002). The study also found that electric train operators experience 0.4 to 31.1 milligauss of EMF exposure on a daily basis (National Institutes of Environmental Health Sciences and National Institutes of Health 2002). Table 3.14-2 summarizes the exposures measured in the studies of track maintenance workers and train operators.

**Table 3.14-2. Ranges of EMF Exposure to Electric Rail Workers**

| Receptor | Range of Average Daily EMF Exposure (milligauss) |
|---|---|
| Electric Rail Line Workers | 3–18 |
| Electric Train Operators | 0.4–31.1 |
| Source: National Institute of Environmental Health Sciences and National Institute of Health 2002. | |

Neither the federal government nor State of Washington has set standards for EMF exposure. Although there are no regulatory requirements for EMFs, EMF exposure guidelines have been developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). The ICNIRP guidelines address known human biological effects resulting from exposure of the public to EMFs by establishing reference levels of EMF exposure. For frequencies of 60 hertz, ICNIRP has established a reference level for occupational and public exposure to EMFs at 4,167 milligauss and 833 milligauss, respectively (Table 3.14-3). These referenced levels represent guidelines for the amount of EMFs to which a receptor can be exposed without experiencing adverse effects. The likelihood of adverse effects occurring increases in a receptor that is exposed to EMFs above these reference levels (International Commission on Non-Ionizing Radiation Protection 1998). Reference levels for exposure of potentially sensitive equipment to EMFs, such as magnetic resonance imaging machines (MRIs) or defibrillators, however, are not included in the ICNIRP guidelines.

**Table 3.14-3. ICNIRP Reference Levels for EMF Exposure at 60 Hertz**

| Type of Exposure | Electric Field (Kilovolts/meter) | Magnetic Field (milligauss) |
|---|---|---|
| Occupational | 8.3 | 4,167 |
| Public | 4.2 | 833 |
| Source: International Commission on Non-Ionizing Radiation Protection 1998. | | |

## 3.14.2 Methods

The EMF study area is the area immediately adjacent (300 feet) to the build alternative sites. Facilities with potentially EMI-sensitive equipment within 300 feet of the build alternatives were identified using a review of aerial photographs and contacting identified potential EMF-sensitive facilities to determine whether they have equipment sensitive to EMF.

## 3.14.3 Affected Environment

EMF-sensitive receptors typically include hospitals and laboratories that use equipment that is sensitive to EMI (e.g., MRI). Pipes and cable utilities commonly located under and along roadways can also be susceptible to stray currents. There are no EMF-sensitive receptors in the study area for the Lynnwood Alternative, BNSF Alternative, and SR 520 Alternative.

There are three facilities with equipment that may be sensitive to EMFs in the study area for the BNSF Modified Alternative.

- **Overlake Obstetricians and Gynecologists.** The Overlake Obstetricians and Gynecologists facility has ultrasound equipment and other electronic medical equipment that may be sensitive to EMFs. The facility would be located approximately 150 feet from the OMSF under this alternative.
- **Specialty Eyecare Centre.** The Specialty Eyecare Centre has a surgery center with electronic equipment that may be sensitive to EMFs. This facility would be located approximately 150 feet to the west from the OMSF under this alternative.
- **Seattle Children's Hospital: Bellevue Clinic and Surgery Center.** Seattle Children's Hospital: Bellevue Clinic and Surgery Center has an MRI unit located in a magnetically shielded room on the second floor of the building. The facility would be located approximately 300 feet to the southwest from the OMSF under the BNSF Modified Alternative.

## 3.14.4 Environmental Impacts

EMFs could pose certain health effects on humans and interference with electrical medical devices used by some individuals, such as shock or burns. Interference with medical pacemakers and other electrical devices could also occur.

### 3.14.4.1 No Build Alternative

The No Build Alternative would not introduce new sources of EMI related to the proposed project into the study area; therefore, no impacts would result from this alternative.

### 3.14.4.2 Impacts Common to All Build Alternatives

At each build alternative, light rail vehicles (LRVs) and overhead wires used to provide power to the LRVs would be sources of EMFs. When LRVs accelerate or are in motion, more energy is required (and more EMFs are produced) than when the vehicles are stationary or moving slowly. Consequently, EMFs at the OMSF at all build alternative sites would be relatively low due to the low rate of speed (no greater than 8 miles per hour) as the LRVs enter, exit, and circulate within the OMSF, and because the LRVs would be stationary for a substantial portion of the time. Some equipment used to provide maintenance for the LRVs would also be sources of EMFs, such as any electrical equipment and on-site traction power substation facility. It is unlikely that EMFs from any of this equipment would reach levels higher than the LRVs; however, the LRVs would require more electrical current, which would produce higher levels of EMFs, than the maintenance equipment.

Stray currents could result if electrical current traveling through the LRVs or overhead wires were to jump to nearby cables that are buried in the ground. Control measures preventing stray currents would be developed by Sound Transit, if necessary, in coordination with the operators of electric and other utility lines.

As shown in Table 3.14-2, the ranges of EMF exposure to track maintenance workers and train operators are below the guidelines established by the ICNIRP. Because maintenance workers and operators would be in the immediate vicinity of electrical equipment generating EMFs, the EMF exposure to the public in surrounding land uses from the build alternative sites would be lower than train-worker exposure. Therefore, the build alternatives would not likely result in any health impacts on facility employees, visitors, or the surrounding public.

### 3.14.4.3 Lynnwood Alternative, BNSF Alternative, and SR 520 Alternative

#### Construction Impacts

While equipment used to construct the Lynnwood Alternative, BNSF Alternative, and SR 520 Alternative would generate EMFs, these EMFs would not be substantially higher than the EMFs generated at a typical construction site. Consequently, no impacts from EMFs on nearby sensitive facilities are anticipated during construction of these alternatives.

#### Operational Impacts

There are no potentially EMF-sensitive sites located within 300 feet of the Lynnwood Alternative, BNSF Alternative, and SR 520 Alternative sites. Therefore, there would be no impacts from EMF operation of these alternatives.

### 3.14.4.4 BNSF Modified Alternative

#### Construction Impacts

While construction equipment used to construct the BNSF Modified Alternative would generate EMFs, these EMFs would not be substantially higher than those generated at a typical construction site. Consequently, no impacts from EMFs on nearby sensitive facilities are anticipated during construction of the BNSF Modified Alternative.

#### Operational Impacts

Although the three identified facilities (Overlake Obstetricians and Gynecologists, Specialty Eyecare Centre, and Bellevue Clinic and Surgery Center) have potentially EMF-sensitive equipment, there would likely be no interference caused by the electrical equipment at the BNSF Modified Alternative site because these facilities are over 150 feet away, which is adequate for the field strength to weaken to negligible levels. The MRI unit at the Children's Hospital Bellevue Clinic and Surgery Center is located close to moving cars in a shielded room immediately above the ground-level parking garage beneath the hospital. Since the Bellevue Clinic and Surgery Center is a new facility specifically designed for this location, it is not thought that these EMF sources would cause any malfunctions for the MRI unit. Given the existing exposures from sources in or near the Bellevue

Clinic and Surgery Center, especially from cars moving in the parking garage immediately below the MRI unit (approximately 20 milligauss), EMFs from OMSF operations are not expected to have an impact on the facility.

## 3.14.5 Indirect and Cumulative Impacts

No indirect impacts related to electromagnetic fields would result from construction and operation of the proposed project.

The *Lynnwood Link Extension Draft EIS* (Sound Transit 2013) notes that there are no potentially sensitive electronic or electrical receptors closer than 1,000 feet to the Lynnwood Link Extension alternative alignments (Sound Transit 2013). The *East Link Project Final EIS* (Sound Transit 2011) notes that the projected EMF from the East Link extension is lower than the existing EMF environment. Sound Transit did not identify any areas where EMI would combine with past, present, or future actions to result in human health effects or effects to facilities with equipment sensitive to EMI. Therefore, no EMI cumulative impacts would result from the proposed project.

## 3.14.6 Potential Mitigation Measures

No adverse impacts related to EMI/EMF have been identified; therefore, no mitigation would be required.

# 3.15 Public Services

This section discusses the existing conditions and potential impacts on the public services that would serve the proposed project.

## 3.15.1 Introduction to Resources and Regulatory Requirements

Public services that are considered in this analysis are fire and emergency medical services (including hospitals), police services, schools (public and private), and solid waste and recycling collection. Libraries are not included in this analysis because none are located in the study areas.

## 3.15.2 Methods

The study area for the public services analysis is defined as the area within 0.5 mile of each build alternative site. The study area is within Lynnwood's and Bellevue's city jurisdictions.

The public services analysis was conducted by reviewing design drawings and construction documentation to identify what could cause changes in response times for fire/medical and police services, travel times for school bus and solid waste collection routes, and overall demand for all public services. Acquisition and displacement data were also reviewed to see if any public services facilities would be acquired or if emergency access would be interrupted.

## 3.15.3 Affected Environment

### 3.15.3.1 Lynnwood Alternative

#### Fire and Emergency Medical Services

The Lynnwood Fire Department provides fire and emergency medical services to the City of Lynnwood. The department consists of 50 full-time employees comprising career firefighters, emergency medical technicians (EMTs), paramedics, and fire inspectors that work to protect over 35,000 residents in a 7-square-mile area (City of Lynnwood 2013a). The Lynnwood Fire Department is staffed by two stations (Stations 14 and 15) from which firefighters and EMTs respond to an average of 6,000 alarms annually, approximately 75% of which are emergency medical calls. The average response time for all emergencies is 5 minutes and 7 seconds (City of Lynnwood 2013b).

Emergency medical services are also provided by the Swedish Medical Center at the Edmonds Campus. This regional medical center is located at 21601 76th Avenue W, less than 3 miles from the Lynnwood Alternative site.

#### Police

The Lynnwood Police Department is the primary law enforcement agency serving the City of Lynnwood. The department has 42 sworn-in personnel who respond to emergency calls within Lynnwood's city limits. In 2011, the department responded to 32,270 calls (approximately 768 calls

per officer) with average response times for high-priority calls at 4 minutes and 38 seconds, and 5 minutes and 13 seconds for medium-priority calls (City of Lynnwood 2012).

The Washington State Patrol also responds to calls in Lynnwood. This department has over 600 state troopers patrolling approximately 17,000 miles of interstate and state highways. The state patrol is responsible for traffic law enforcement, collision investigation, criminal interdiction, terrorism prevention, and motorist assistance, and does not keep record or maintain response time statistics (Washington State Patrol 2013).

**Schools**

The Edmonds School District is located in the City of Lynnwood and owns a 20-acre vacant parcel in the study area. The parcel was previously occupied by the Scriber Lake Alternative School and is currently planned to house the district support center. The Harvest Time Church School, a private school, is located at the intersection of Scriber Lake Road and 196th Street SW. Additionally, Kepler College, an unaccredited astrological college, is located at 200th Street SW and 45th Avenue W. There are no public schools in the study area.

**Solid Waste and Recycling Collection**

The City of Lynnwood does not provide solid waste services such as curb-side pickup. Solid waste and recycling services in the study area are provided by Waste Management Northwest, a private waste management company that provides services throughout Washington, Oregon, and Idaho. It owns and operates 55 sites, 26 collection districts, 14 transfer stations, two recycling centers, four construction and demolitions recovery facilities, two renewable energy plants, and seven landfills (Waste Management Northwest 2013).

### 3.15.3.2 BNSF Alternative, BNSF Modified Alternative, and SR 520 Alternative

**Fire and Emergency Medical Services**

The Bellevue Fire Department provides fire suppression and education, and rescue and emergency medical services to the City of Bellevue and is a regional provider of advanced life-support services for King County. The department consists of 241 personnel, including 199 emergency medical service personnel, working at nine stations located throughout the Bellevue region (City of Bellevue 2013). The average response time to emergencies is approximately 7 minutes (International City/County Management Association 2011).

The City of Bellevue's Public Safety Training Center is located at 1838 116th Avenue NE, Bellevue, within the BNSF Modified Alternative site. This facility is jointly shared between Bellevue Fire and Police Departments and hosts several safety training courses including first aid and cardiopulmonary resuscitation (CPR) classes. The training facility includes a six-story emergency response training tower and surrounding drill grounds. The training facility also has previously hosted other local jurisdictions' emergency responders training.

There are several medical centers that provide emergency medical services to the Bellevue region. These facilities include Overlake Hospital Medical Center, a regional medical center located at 1035 116th Avenue NE; Group Health Cooperative: Bellevue Medical Center, an emergency and urgent care facility located south of the Overlake Hospital Medical Center at 11511 NE 10th Street; and the Seattle Children's Hospital: Bellevue Clinic and Surgery Center, a family medical center located at 1500 116th Avenue NE.

#### Police

The City of Bellevue Police Department responds to calls within the Bellevue city limits. The department has 178 commissioned police officers and 41 professional support staff (City of Bellevue 2013). In 2011, the average response time for Priority-1 emergencies (i.e., life-threatening emergencies) was 3 minutes and 33 seconds (City of Bellevue 2011). The department has a target to reduce Priority-1 call response times to 3 minutes and 28 seconds by 2014 (City of Bellevue 2012).

#### Schools

The Bellevue School District serves the City of Bellevue. No schools are located in the study area; however, the Academic Institute, a private high school, is located at 13400 Northeast 20th Street, in the SR 520 Alternative site. School enrollment in 2012 was approximately 30 students.

#### Solid Waste and Recycling Collection

The City of Bellevue contracts with Allied Waste, a private company, for residential and commercial solid waste and recycling services. Allied Waste collects solid waste, recycling, and yard debris from thousands of residents and businesses in the Puget Sound region. The operations facility is located less than 0.5 mile east of the BNSF Alternative and BNSF Modified Alternative sites and BNSF Storage Tracks, and less than 0.5 mile south of the SR 520 Alternative site.

## 3.15.4 Environmental Impacts

### 3.15.4.1 No Build Alternative

Under the No Build Alternative, the proposed project would not be constructed and public services in the study area would presumably continue to operate as they do currently. Additionally, parcels containing public service facilities, including the parcel owned by the Edmonds School District and the City of Bellevue Public Safety Training Center, would not be acquired under any of the build alternatives. Therefore, the No Build Alternative would not result in impacts on public services.

### 3.15.4.2 Impacts Common to All Build Alternatives

#### Construction Impacts

Implementation of any of the build alternatives would temporarily affect the roadways in the study area and vicinity, resulting in short-term impacts on all public services. Construction activities would result in short-term increased traffic congestion due to added construction vehicles. However, no road closures or detours are anticipated. Additionally, as discussed in Section 3.1, Transportation, any construction-related traffic impacts would be minimized with implementation of a construction transportation management plan prepared per City of Lynnwood and City of Bellevue requirements. Coordination between Sound Transit and potentially affected public service providers before and during construction would minimize delays in emergency response times and disturbance to school bus and solid waste collection routes.

#### Operational Impacts

No operational impacts on fire, police, or emergency response access or school bus and solid waste/recycling collection routes would occur under any of the build alternatives. Increased demand for police services would not occur because security measures for the OMSF would be similar to the existing Forest Street OMF including on-site security personnel that reduces demands on local law enforcement. Additional security measures would include placing a fence surrounding the site perimeter, installing electronically controlled gates, and security patrol in the evenings from 5:00 p.m. to 5:00 a.m. 7 days a week (Cummins 2013). Regarding other public services, the build alternatives would not include features that would increase the population, thus, creating an increased demand. Therefore, impacts related to access interruption and increased public services demand during operation of any of the build alternatives would not occur.

### 3.15.4.3 Lynnwood Alternative

#### Construction Impacts

Construction impacts for this alternative are the same as those discussed in Section 3.15.4.2, Impacts Common to All Build Alternatives.

#### Operational Impacts

Operation of the Lynnwood Alternative would include acquiring an undeveloped, industrial-zoned parcel owned by the Edmonds School District. The district's current planning efforts for the parcel include developing it into a district support center. The school district would be required to reassess its plans for administrative, bus maintenance, and bus storage facilities at the site; however, this would not represent impacts on any existing schools. No other acquisition of a public-service facility at the Lynnwood Alternative site would occur. Additionally, as discussed in Section 3.15.4.2, Impacts Common to All Build Alternatives, no impacts on public services related to access interruption or increased demand are anticipated during operation.

### 3.15.4.4 BNSF Alternative

#### Construction and Operational Impacts

Construction and operational impacts for this alternative are the same as those discussed in Section 3.15.4.2, Impacts Common to All Build Alternatives.

### 3.15.4.5 BNSF Modified Alternative

#### Construction Impacts

Construction impacts for this alternative are the same as those discussed in Section 3.15.4.2, Impacts Common to All Build Alternatives.

#### Operational Impacts

Operation of the BNSF Modified Alternative would require relocating the Bellevue Public Fire Training Center at 1828 116th Avenue NE. This facility is used by the City of Bellevue as a training facility for police and fire department staff. Sound Transit would work with the City of Bellevue to minimize the disruptive effect of the relocation. Coordination between Sound Transit and applicable agencies prior to implementation is part of the proposed project's planned commitments. No other impacts on public services are anticipated during operation, as discussed in Section 3.15.4.2, Impacts Common to All Build Alternatives.

### 3.15.4.6 SR 520 Alternative

#### Construction Impacts

Construction impacts for this alternative are the same as those discussed in Section 3.15.4.2, Impacts Common to All Build Alternatives.

#### Operational Impacts

Operation of the SR 520 Alternative would require relocating the private school, the Academic Institute. As part of the proposed project's planned commitments prior to development of the proposed project, Sound Transit would work with the school to minimize disruptive effects of moving academic operations to another site. No other impacts on public services are anticipated during operation, as discussed in Section 3.15.4.2, Impacts Common to All Build Alternatives.

## 3.15.5 Indirect and Cumulative Impacts

No indirect impacts related to public services would result from construction and operation of the proposed project.

Sound Transit would coordinate with public service agencies regarding construction of the proposed project and other proposed developments being built at the same time, thereby minimizing cumulative construction-related impacts on emergency response services.

## 3.15.6 Potential Mitigation Measures

The OMSF would be designed within a framework of standards that addresses emergency, safety, and security at the facility. Operations at the OMSF would be performed in accordance with a facility operations plan that would ensure safety and security at the site. Also, Sound Transit would work with local jurisdiction where the OMSF is sited to develop an emergency response, safety, and security plans.

Given these commitments, along with implementation of the project commitments stated in Chapter 3.2 Acquisitions, Displacements, and Relocations, no mitigation for public services would be required.

# 3.16 Utilities

This section analyzes the utility providers and systems that would serve or could be affected by the proposed project.

## 3.16.1 Introduction to Resources and Regulatory Requirements

Utilities considered in this analysis include natural gas, electricity, water, sanitary sewer, storm sewer, cable/communications, and petroleum systems and/or pipelines within the jurisdictions of Lynnwood and Bellevue. Utilities within the build alternative sites for the proposed project are regulated by local policies and procedures for the Cities of Lynnwood and Bellevue, as well as Washington Administrative Code (WAC) 468-34 and Washington State Department of Transportation (WSDOT) policies within the sites.

## 3.16.2 Methods

The study area for the utilities analysis is defined as the area within 100 feet of the build alternative sites. Information on relocated or protected utility lines was compiled from several sources, including Sound Transit geographic information system (GIS) data, utility maps, and in some cases, as-built drawings obtained from private and public utility companies (excluding municipal services), GIS data available on City of Lynnwood and City of Bellevue websites, and Huitt-Zollars civil engineering plans depicting OMSF layouts. Sound Transit identified utility conflicts for each build alternative site by determining where underground or overhead utilities were within the project limits of each site. The goals of identifying the conflicts are as follows.

- Plan for relocating the utilities during construction and, therefore, remove conflicts with construction.
- Prevent disturbing the build alternative sites during future maintenance of underground utilities.
- Keep the project elements (i.e., buildings, tall structures) clear of the minimum required distance of overhead utilities.
- Account for relocation costs.

## 3.16.3 Affected Environment

Utility providers in the study area include municipal agencies, public utility districts, and private companies. Existing and planned utilities in the study area have been identified by Sound Transit. Table 3.16-1 summarizes the utility providers in each jurisdiction.

**Table 3.16-1. Utility Providers in the Study Area**

| Jurisdiction | Utility | Provider |
|---|---|---|
| Lynnwood | Gas | Snohomish Public Utility District |
| | Electricity | Snohomish Public Utility District |
| | Water, Sewer | City of Lynnwood |
| | Stormwater | City of Lynnwood |
| | Cable | Comcast |
| | Communications | Frontier, Black Rock Cable |
| | Petroleum Products | None |
| Bellevue | Gas | Puget Sound Energy |
| | Electricity | Puget Sound Energy |
| | Water, Sewer | City of Bellevue, King County Wastewater |
| | Stormwater | City of Bellevue |
| | Cable | Comcast |
| | Communications | Century Link, Verizon, Integra, Allstream |
| | Petroleum Products | Olympic (British Petroleum) |

## 3.16.4 Environmental Impacts

### 3.16.4.1 No Build Alternative

Under the No Build Alternative, the OMSF would not be constructed and land use on the build alternative sites would develop based on current demand and in concert with existing planning and development guidelines. The Edmonds School District is planning to develop a district support center on the parcel it owns within the Lynnwood Alternative site, and it is reasonable to assume utilities for the site would be developed to accommodate the Edmonds School District's needs.

### 3.16.4.2 Impacts Common to All Build Alternatives

#### Construction Impacts

Potential construction impacts common to all build alternatives would include relocating utility poles that support overhead lines; relocating aerial utilities to taller or different types of poles; constructing new distribution lines to provide power to substations; relocating underground utilities from under the build alternative sites; and inspecting, repairing, and encasing underground utilities at yard track crossings. In general, water lines and high-pressure gas mains would be located approximately 3 to 6 feet underground and sewer pipes 6 or more feet below grade. Smaller pipes, fiber optic cables, telephone lines, and other utilities would likely be located less than 3 feet below grade. Water, sewer, and storm drain pipes would likely run parallel under streets placed in various locations ranging from the center of the roadway to its periphery, while fiber optic cables, telephone lines, underground electrical conduits, and smaller pipes would be located beneath sidewalks. The effect on these utilities is dependent on their depth and material, as well as excavation and fill limits of the build alternative sites. Underground utilities would be relocated or protected to allow for

excavation and/or fill and to minimize load impacts on existing utilities from the weight of the light rail vehicles (LRVs) and building foundations. Disruptions to utility service during utility relocations would be minimal because temporary connections to customers would typically be established before the start of the relocation process. Inadvertent damage to underground utilities could occur during construction if utility locations are uncertain or misidentified. Such accidents could temporarily affect service to the utilities' customers. Potholing, preconstruction surveys, and outreach measures to inform customers of potential disruptions would be used to minimize these impacts. Table 3.16-2 summarizes the conflicts for each build alternative and information on utility lines to be relocated or protected.

Construction of distribution systems within the site boundaries for electric, natural gas, water, communications, sanitary sewer and stormwater will be achieved through relocation and reuse of existing systems as well as installation of new systems. Specific requirements for the on-site distribution systems would be determined during final design.

**Operational Impacts**

***Natural Gas, Cable/Communications, and Petroleum***

Operation of the proposed project at any of the build alternative sites would result in a negligible increased demand for natural gas, cable/communications systems, and petroleum products.

***Electricity***

Each build alternative site would require a traction power substation (TPSS) to power the LRVs and for substations in the vehicle maintenance shops for tools and machinery and at the storage yard for lighting, etc. The TPSS would be powered by 26-kilovolt electric lines connecting to the nearest power pole. Increased electricity demand at the OMSF would require additional distribution lines to be constructed and maintained by the Snohomish County Public Utility District or Puget Sound Energy. At this time it is not anticipated these utilities would require additional energy resources to meet the demand. The specific needs would be determined during final design. For further information on energy demands of the OMSF and any additional infrastructure required, see Section 3.11, Energy.

***Water Conveyance***

While water demand at the build alternative sites would increase, a majority of the base water demand would be for vehicle washing and a high percentage of this washwater would be recycled on site. The additional water demand would not greatly affect the water providers' existing and projected water supplies and would not likely compromise flow for fire protection. Water demand would be coordinated with fire departments and water suppliers to avoid impacts. The OMSF drainage system would be designed to filter and recycle a high percentage of the wash and rinse water. Solids, oils, soaps, and other contaminants would be filtered, settled into a sludge tank and periodically removed for disposal in accordance with applicable regulations.

**Table 3.16-2. Utility Conflict Summary with Approximate Length of Utility Lines to be Relocated or Protected[a]**

| Alternative | Natural Gas | Electricity | Water Conveyance | Sewer | Stormwater | Cable/ Communications | Petroleum Products |
|---|---|---|---|---|---|---|---|
| Lynnwood Alternative | 770 feet (relocated) | 600 feet (T)<br>1 crossing (relocated) | 160 feet (relocated) | None | 1,000 feet (relocated) | 1,420 feet (relocated) | None |
| BNSF Storage Tracks | None | 500 feet (D) (relocated) | 680 feet (relocated) | 1,400 feet (protected) | Unknown | 1,320 feet (protected) | None |
| BNSF Alternative | None | 1,800 feet (D) (relocated) | 2,830 feet (relocated) | 240 feet (relocated)<br>780 feet (protected) | Unknown | None | None |
| BNSF Modified Alternative | None | 1,800 feet (D) (relocated) | 4,130 feet (relocated) | 240 feet (relocated)<br>2,100 feet (protected) | Unknown | 1,320 feet (protected) | None |
| SR 520 Alternative | 1,150 feet (relocated) | 480 feet (T)<br>1 crossing (relocated) | 2,500 feet (relocated) | 750 feet (relocated) | 3,800 feet (relocated) | Unknown | 960 feet (protected) |

[a] For purposes of this analysis, *protected* means structurally supported or isolated from future loading, which may damage the OMSF.

D = Electrical Distribution, T = Electrical Transmission

#### *Sewer*

Some disposal to the local sanitary sewer system would be expected from the recycled, filtered washwater. The water discharged to the sanitary sewer system would be disposed in accordance to local and state regulations. For the potential sites, existing sewer lines on adjacent streets are available for sewer connections. Nonrecycled vehicle washwater disposal volumes would be compared with conveyance capacity of the existing system. Onsite filtering and recycling capacity would be developed in more detail during the final design to ensure compatibility with the existing system.

#### *Stormwater*

For all of the build alternatives, any required stormwater detention facilities and infrastructure to collect storm and wastewater would connect to both the existing sewer system and stormwater conveyances. Operational impacts on stormwater are discussed in Section 3.10, Water Resources.

### 3.16.4.3 Lynnwood Alternative

#### Construction Impacts

#### *Natural Gas*

Grading of the Lynnwood Alternative site may create a conflict with approximately 770 feet of a 2-inch-diameter, medium-density polyethylene natural gas pipeline owned by Snohomish Public Utility District and located in the vicinity of 204th Street SW within the site boundaries. Relocation of this pipeline portion has been assumed to provide service to the OMSF buildings, but additional length of distribution piping may be required for this purpose. No natural gas pipelines were identified at the BNSF Storage Tracks, requiring construction of new distribution pipelines within the site boundaries to serve the OMSF building.

#### *Electricity*

The elevated lead track entering the south boundary of the Lynnwood Alternative site may create a vertical conflict with the Snohomish County Public Utility District's 115-kilovolt transmission lines along with aerial communications and cable facilities connected to the transmission towers. The track would run under the transmission lines and would require raising the transmission lines over a distance of approximately 600 feet to maintain the minimum vertical clearance. This activity would also affect the Comcast and Frontier facilities attached to the towers.

There are approximately 500 feet of electrical distribution ducts and conductors at the BNSF Storage Tracks, which are owned by Puget Sound Energy and serve existing buildings within site boundaries that are to be removed. This infrastructure would be relocated to provide service to the new OMSF office and support building. Additional electrical distribution infrastructure within the site boundaries may be required for this building and storage track canopy lighting.

### *Water Conveyance*

Construction of the Lynnwood Alternative may conflict with a 160-foot section of 16-inch-diameter cast iron water pipe owned by the City of Lynnwood at the northern boundary of the Lynnwood Alternative site. The line may be abandoned in place, but for the purposes of this Draft EIS, it is assumed the pipe would be relocated in kind to provide service to the new buildings. Additional water main may be required.

At the BNSF Storage Tracks, approximately 680 feet of 12-inch-diameter water line, owned by the City of Bellevue, enters the site in the southwest corner along the rail corridor. It is assumed this water line would be relocated to provide service to the proposed building. It is not known at this time whether demolition and grading in this area would require the line to be relocated.

### *Sewer*

No sewer pipes were identified within the boundaries of the Lynnwood Alternative site. New sewer distribution piping within the site boundaries will be constructed to service the OMSF buildings.

The addition of a third track and maintenance road within and to the east of the Eastside Rail Corridor for the BNSF Storage Tracks, may place additional loading on the 80-foot section of King County Waste Water's 54-inch- diameter reinforced concrete pipe trunk sewer, which crosses the rail corridor. Additional loading for the full development of the rail corridor may have been anticipated in the design of the original sewer (which as approximately 10 feet of cover), but protection has been assumed for the purposes of this EIS. Additionally, the 54-inch-diameter trunk sewer connects to another King County Waste Water trunk sewer to the west of the rail corridor. This sewer, which runs parallel to the rail corridor, consists of 60-inch-diameter and 72-inch-diameter reinforced concrete pipe. The BNSF Storage Tracks would be located in proximity to and directly over this sewer for approximately 1,320 feet. Protection has been assumed.

### *Stormwater*

Approximately 1,000 feet of unknown diameter and material storm drain is located in the Lynnwood Alternative site. It may be possible to abandon the pipe in place, but for purposes of this EIS, it has been assumed to be relocated and reused for stormwater conveyance within the site boundaries.

### *Cable/Communications*

A fiber optic communications line, owned by Black Rock Cable, extends 220 feet into the Lynnwood Alternative site along 204th Street SW. It is assumed the line would be relocated to avoid conflicts with grading, yard track construction, and building foundations. Additional fiber optic lines may also be required. Approximately 1,200 feet of aerial communication facilities owned by Comcast and Frontier (600 feet for each facility) will be relocated as part of the electrical transmission line raising. A fiber optic communications line at the BNSF Storage Tracks, owned by MTS Allstream, runs parallel to the rail corridor along the west boundary. This line is located directly beneath the additional third track for approximately 1,320 feet. Protection of this facility has been assumed.

#### *Petroleum*

No pipelines for liquid petroleum were identified in the Lynnwood Alternative site or BNSF Storage Tracks.

#### Operational Impacts

Operational impacts resulting from the Lynnwood Alternative would be the same as those discussed in Section 3.16.3.2, Impacts Common to All Build Alternatives.

### 3.16.4.4 BNSF Alternative and BNSF Modified Alternative

#### Construction Impacts

#### *Natural Gas*

No conflicts associated with natural gas were identified for the BNSF Alternative and BNSF Modified Alternative. New gas distribution piping will be constructed within the site boundaries to service the OMSF buildings.

#### *Electricity*

Approximately 1,800 feet of electrical distribution ducts and conductors owned by Puget Sound Energy serve existing buildings in the BNSF Alternative and BNSF Modified Alternative sites. This infrastructure would be demolished under these alternatives and would be relocated to provide service to the new buildings. Additional electrical distribution infrastructure within the site boundaries may be required to service the OMSF buildings.

#### *Water Conveyance*

Approximately 1,400 feet of 8-inch-diameter and 1,430 feet of 12-inch-diameter ductile iron water pipe are owned by the City of Bellevue and located in the BNSF Alternative site. Approximately 2,700 feet of 8-inch-diameter and 1,430 feet of 12-inch-diameter ductile iron water pipe is owned by the City of Bellevue and located within the BNSF Modified Alternative site boundaries. These pipes would be relocated to provide service to the new buildings. Additional length of water main distribution piping within the site boundaries may be required to service the OMSF buildings.

#### *Sewer*

The addition of a lead track, maintenance road, storage tracks, and maintenance building within and to the east of the Eastside Rail Corridor may place additional loading on the 780-foot section of King County Waste Water's 54-inch-diameter reinforced concrete pipe trunk sewer, which crosses the BNSF Alternative and BNSF Modified Alternative sites. Additional loading for the full development of the rail corridor may have been anticipated in the design of the original sewer, which has approximately 10 feet of cover. However, the section between the corridor and 120th Ave NE—which would experience loading from tracks as well as from foundations of the maintenance building—would be protected. Additionally, approximately 240 feet of 8-inch-diameter polyvinyl chloride (PVC) sanitary sewer pipe within the site boundary would be relocated to provide service to

the new buildings. Additional new sanitary sewer distribution piping within the site boundaries may be required to service the OMSF buildings. At the BNSF Modified Alternative site, approximately 720 feet of 60-inch-diameter and 600 feet of 72-inch-diameter reinforced concrete pipe trunk sewer will be protected. Coordination with the King County Wastewater Treatment Division would be required for these regional wastewater conveyance lines.

***Stormwater***

The locations of stormwater drains in the BNSF Alternative and BNSF Modified Alternative study area are unknown; however, any storm drains found in the study area would be protected or relocated to avoid disruptions to the existing stormwater system. New piping may be constructed for adequate stormwater conveyance within the site boundaries.

***Cable/Communications***

No conflicts associated with cable or communications lines were identified for the BNSF Alternative. For the BNSF Modified Alternative, a fiber optic line, owned by MTS Allstream, runs parallel to the rail corridor along the west boundary of the alternative site for approximately 1,320 feet. Protection of this facility has been assumed.

***Petroleum***

No conflicts associated with liquid petroleum pipes were identified for the BNSF Alternative and the BNSF Modified Alternative.

**Operational Impacts**

Operational impacts resulting from the BNSF Alternative and BNSF Modified Alternative would be the same as those discussed in Section 3.16.3.2, Impacts Common to All Build Alternatives.

### 3.16.4.5 SR 520 Alternative

**Construction Impacts**

***Natural Gas***

Approximately 1,150 feet of 2-inch-diameter medium-density polyethylene natural gas pipeline, owned by Puget Sound Energy, is located within the SR 520 Alternative site boundaries and would be relocated to provide service to the new buildings. Additional gas distribution piping within the site boundaries may be required to service the OMSF buildings.

***Electricity***

The lead track passes under two pair of Puget Sound Energy's 115-kilovolt transmission lines at the east end of the SR 520 Alternative site. The lead track is also close to a pair of transmission towers that support the transmission lines and are located within the site limits. There may be a vertical clearance conflict with the transmission lines as a required clearance of 35 feet from top of rail is required for this voltage. Horizontal clearance with the track is also tight and may require relocation

of the towers if a minimum horizontal clearance of 12 feet from center of track or adequate protection cannot be provided. Adjustment of the transmission lines to provide adequate vertical clearance has been assumed, which would require construction of new towers. Location of the new towers would be coordinated with the horizontal clearance requirements with the lead track. The entire 480 feet of transmission lines crossing the SR 520 Alternative site would be adjusted. The adjustment would comply with the City of Bellevue's permitting requirements for a sensitive electrical facility.

***Water Conveyance***

Approximately 2,500 feet of 8-inch-diameter ductile iron water pipe, owned by the City of Bellevue, is located within the SR 520 Alternative site boundaries and would be relocated to provide service to the OMSF buildings.

***Sewer***

Approximately 750 feet of 8-inch-diameter PVC sanitary sewer pipe in the SR 520 Alternative site boundary would be relocated to provide service to the OMSF buildings. Additional sanitary distribution piping within the site boundaries may be required to provide adequate service to the OMSF buildings.

***Stormwater***

Approximately 3,800 feet of unknown diameter and composition storm drain pipe located within the site boundaries would likely be removed or abandoned in place, in lieu of relocation as the redeveloped site drainage pattern may not be consistent with existing pipe locations. New piping will be constructed for adequate stormwater conveyance within the site boundaries.

***Cable/Communications***

The locations of cable or communication lines in the SR 520 Alternative study area are unknown; however, any cable or communications lines found in the study area would be protected or relocated to avoid disruptions to the existing cable/communications system.

***Petroleum***

The lead track would be located over two high pressure liquid petroleum pipelines owned by Olympic Pipeline at the east end of the SR 520 Alternative site, which runs parallel to and on both sides of the 115-kilovolt transmission lines. The pipelines are 20-inch and 16-inch-diameter steel pipe. It is anticipated that protection would be provided for the entire 480-foot length of each pipe (960 feet total). An access road, lead track, and yard tracks would be constructed above and in proximity to the pipelines.

**Operational Impacts**

Operational impacts resulting from the SR 520 Alternative would be the same as those discussed in Section 3.16.3.2, Impacts Common to All Build Alternatives.

## 3.16.5 Indirect and Cumulative Impacts

No indirect impacts related to utilities would result from construction and operation of the proposed project.

The availability of light rail service resulting from the Lynnwood Link Extension and East Link could encourage development of property in the vicinity of the proposed project build alternative sites. This could increase the demand for utility services in the project vicinity. However, local governments have already accounted for this in their adopted local land use plans and utilities anticipate serving this future demand since all of the OMSF build alternatives are located entirely within the urban growth boundaries of the Cities of Lynnwood and Bellevue, and any development near the project footprint would be no more intense than what is allowed in the adopted land use plans of these local governments.

Puget Sound Energy's Energize Eastside project would increase power capacity to the Eastside area, and the project's anticipated design and construction schedule would overlap with the OMSF. Realignment of the 480 feet of transmission lines crossing the SR 520 Alternative site would likely be included in the Energize Eastside project.

Similar to the proposed project, the Lynnwood Link Extension and East Link would require relocating some utilities. Cumulatively, however, these projects would not require substantial disruptions in service or place demands on existing utilities that would exceed projected supply, based on routine planned upgrades to keep pace with planned growth. Utility infrastructure in the project limits, such as electric, water, sewer, gas, petroleum, or communications service lines, that would conflict with any of the OMSF build alternatives would be relocated before or during project construction. Other reasonably foreseeable future actions in the project vicinity would also be responsible for providing similar relocations where utility conflicts occur. Relocating utilities can provide utility providers a cost-efficient opportunity to upgrade infrastructure, thereby reducing maintenance costs and potentially resulting in a beneficial cumulative impact.

## 3.16.6 Potential Mitigation Measures

None of the build alternatives for the proposed project would result in impacts on or conflicts with utilities; therefore, no mitigation would be required.

# 3.17 Historic and Archaeological Resources

This section summarizes the proposed project's affected environment and potential impacts on cultural resources, which include historic and archaeological resources and culturally significant properties. Please see Appendix E.4, *Historic and Archaeological Resources Technical Report*, of this Draft EIS for details regarding the methods and findings of the cultural resources studies.

## 3.17.1 Introduction to Resources and Regulatory Requirements

Several laws and executive orders deal with particular kinds of *resources* that are *cultural* in character and applicable under the National Environmental Policy Act (NEPA). These regulations each use different terms to define these resources. Resource types referred to in this section include *archaeological resources*, *historic resources*, and *culturally significant properties*. These resources are all considered to be *cultural resources*, the term typically used under NEPA to consider a project's effects on such resources.

Cultural resources for the proposed project are regulated and protected by the following federal, state, and local codes and regulations.

### 3.17.1.1 Federal Regulations

NEPA requires federal agencies to consider the effects that plans and programs may have on important historic, cultural, and natural aspects of our national heritage by considering, among other things, unique characteristics of the geographic area such as proximity to cultural resources (40 Code of Federal Regulations [CFR] 1508.27(b)(3)) and the degree to which actions may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP) (40 CFR 1508.27(b)(8)). Although NEPA does not define standards specific to cultural resource impact analyses, the implementing regulations of NEPA (40 CFR 1502.25) state that, to the fullest extent possible, "agencies shall prepare draft environmental impact statements concurrently with and integrated with environmental impact analyses and related surveys and studies required by…the National Historic Preservation Act of 1966 (16 United States Code [U.S.C.] 470 *et seq*.) …and other environmental review laws and executive orders."

Section 106 of the National Historic Preservation Act (NHPA) (Public Law 88-655, 16 U.S.C. 470 *et seq*.) ensures that federal agencies consider cultural resources in any funded, licensed, or permitted undertaking prior to initiation, and provide the State Historic Preservation Officer (SHPO), affected Native American tribes, and other interested parties an opportunity to comment on these actions. Section 106, therefore, typically forms the crux of federal agencies' NEPA cultural resources impact analyses, although other federal cultural resources regulations must also be considered. Similar processes for the identification, consultation, evaluation, affects assessment, and mitigation of cultural resources are required for both NEPA and Section 106, and compliance should be coordinated and completed simultaneously.

Section 4(f) of the Department of Transportation Act of 1966 (Section 4(f)) (23 U.S.C. 138) also prohibits the Federal Transit Administration (FTA) from approving a project or program that uses land from a significant historic site or other specified areas, with the following exceptions.

- There is no feasible and prudent alternative to the use of the land.
- The project includes all possible planning to minimize harm to the property.

As described in Appendix D, *Section 4(f) and 6(f) Evaluation*, none of the build alternatives would result in a use under Section 4(f). Because the proposed project would not affect any identified cultural resources eligible for listing in the NRHP, FTA determined no further analysis of historic and archaeological resources for the purpose of Section 4(f) is required.

### 3.17.1.2 State Regulations

The Washington State Environmental Policy Act (SEPA) requires that all major actions sponsored, funded, permitted, or approved by state and/or local agencies be planned so that environmental considerations—such as impacts on cultural resources—are considered when state-agency-enabled projects affect properties of historical, archaeological, scientific, or cultural importance (Washington Administrative Code [WAC] 197-11-960). Under SEPA, the Washington State Department of Archaeology and Historic Preservation (DAHP) is the designated agency with the technical expertise to consider the effects of a proposed action on cultural resources and to provide formal recommendations to local governments and other state agencies for appropriate treatments or actions. DAHP does not regulate the treatment of cultural resources found to be significant. A local governing authority may choose to uphold the DAHP recommendations and may require mitigation of adverse effects on significant cultural resources.

Other state laws that govern the protection of archaeological resources include the following.

- **RCW 27.44, Indian Graves and Records.** Revised Code of Washington (RCW) 27.44 provides protection for Native American graves and burial grounds, encourages voluntary reporting of said sites when they are discovered, and mandates a penalty for disturbance or desecration of such sites.
- **RCW 27.53, Archaeological Sites and Resources.** RCW 27.53 governs the protection and preservation of archaeological sites and resources and establishes DAHP as the administering agency for these regulations.
- **RCW 36.70A.020, Growth Management Act.** RCW 36.70A.020 includes a goal to "Identify and encourage the preservation of lands, sites, and structures that have historical, cultural, and archaeological significance." Cities planning under the Washington State Growth Management Act must consider and incorporate this historic preservation goal.
- **RCW 68.60, Abandoned and Historic Cemeteries and Historic Graves.** RCW 68.60 provides for the protection and preservation of abandoned and historic cemeteries and historic graves.

### 3.17.1.3 Local Regulations

The City of Lynnwood regulates the impacts of projects on cultural resources within the city (Lynnwood Municipal Code Chapter 21.80), and maintains a register of locally recognized cultural resources and regulates changes to these properties. The City of Bellevue has no applicable ordinances regarding cultural resources. In addition, the codes of Snohomish County (Chapter 30.32D) and King County (Title 20.62) provide for the protection and preservation of recognized cultural resources, including designated buildings, sites, objects, and districts.

## 3.17.2 Methods

The study area for the cultural resources analysis—referred to as the Area of Potential Effects (APE) under Section 106 of the NHPA—encompasses the archaeological resources, historic resources, and culturally significant properties that could be affected by construction or operation of the proposed project. The APE is considered to be the legal parcels that comprise the footprint of each build alternative site, plus a 200-foot buffer surrounding each site. This area includes locations of potential ground-disturbance at each build alternative site where project activities would be conducted, such as areas for demolition, construction, staging, equipment storage locations, and stormwater management facilities. The depth of potential ground disturbance may vary according to construction practice—deeper for excavation areas and shallower for at-grade construction—and depending on the subsurface limits of known human use or occupation where the project feature occurs.

A cultural resources records search, a landform history analysis, and a historic resources survey were conducted in and within 0.5 mile of the APE to determine if significant cultural resources were located in the APE. The records search was conducted in December 2012 using DAHP's Washington Information System for Architectural and Archaeological Records Database (WISAARD) to identify previously documented cultural resources in the APE. The landform history analysis used the Washington Statewide Archaeological Predictive Model (WSAPM) to assess the extent to which the local geology and development history affects the potential for encountering archaeological deposits near each build alternative site. The historic resources survey involved a reconnaissance-level examination of all buildings and structures in the APE determined to be 45 years of age or older. Historic resources 45 years of age or older were evaluated to determine their eligibility for listing in the NRHP.

## 3.17.3 Affected Environment

### 3.17.3.1 Archaeological Resources

No known archaeological resources eligible for listing in the NRHP were identified in any portion of the APE. The archaeological landform history analysis revealed that the Lynnwood Alternative, BNSF Alternative, and BNSF Modified Alternative sites all contain areas with moderate archaeological sensitivity. Given the limited coverage of previous subsurface investigations at these sites; however, it is impossible to define precisely the vertical and horizontal boundaries of these areas. In comparison, the SR 520 Alternative is considered to have low archaeological sensitivity due

to the absence of post-glacial deposits and extensive development in its vicinity. These findings roughly corroborate each alternative site's anticipated archaeological potential as defined by the WSAPM, with minor variations likely owing to the low-resolution geology and soils data used by the WSAPM.

### 3.17.3.2 Culturally Significant Properties

A search was conducted using information presented by Waterman (Hilbert et al. 2001) and Buerge (1984) to determine whether Traditional Cultural Properties (TCPs), as defined under Section 106 of the NHPA, or other culturally significant locations are located in the vicinity of the APE. FTA conducted government-to-government consultation with potentially concerned tribes. Sound Transit and FTA consulted with all Section 106 consulting parties to obtain input on the proposed project and have provided initial project information by mail. Consultation with the tribes has revealed no TCPs in the project vicinity.

No ethnographic place names have been recorded in the Lynnwood Alternative site or SR 520 Alternative site. A single ethnographically named place, *Tc!u* (Northup Creek), is located in the vicinity of the BNSF Storage Tracks, BNSF Alternative site, and BNSF Modified Alternative site, (Hilbert et al. 2001).

### 3.17.3.3 Historic Resources

A historic resources survey was conducted in December 2012. Nearly all of the properties in the APE that are 45 years of age or older were previously evaluated for NRHP eligibility through the environmental review processes for the Lynnwood Link Extension and East Link projects. Based on results of the survey, FTA determined that no historic resources eligible for listing in the NRHP are located in the APE. The Washington SHPO concurred with this determination on August 22, 2013.

## 3.17.4 Environmental Impacts

The proposed project would result in an adverse impact under Section 106 of the NHPA, as outlined in 36 CFR 800, if it were to alter, directly or indirectly, any characteristic of a cultural resource (archaeological, historical, or culturally significant) that qualifies it for inclusion in the NRHP. Adverse effects could include direct effects resulting from construction and reasonably foreseeable effects caused by the proposed project that could occur later in time, be farther removed in distance, or be cumulative. Those impacts considered adverse would need to be mitigated.

### 3.17.4.1 No Build Alternative

Under the No Build Alternative, the use of each alternative site would be developed in accordance with local plans and policies. Therefore, no impacts on any significant cultural resources would be expected as a result of this alternative.

### 3.17.4.2 Impacts Common to All Build Alternatives

No cultural resources eligible for listing in the NRHP are known to exist in any part of the APE. Therefore, future development at any of the build alternative sites would not be expected to affect

any significant cultural resources. Because the APE has been subject to limited or no subsurface archaeological investigations, it remains possible that previously unknown archaeological resources might be discovered in the APE. The landform history analysis concluded that the Lynnwood Alternative site, BNSF Alternative site, and BNSF Modified Alternative site each have moderate archaeological sensitivity because they retain areas with post-glacial sediments, despite extensive development. The SR 520 Alternative site is considered to have low archaeological sensitivity because of the absence of post-glacial sediments. Based on the landform history analysis, the potential for affecting undiscovered archaeological resources is comparable for the Lynnwood Alternative, BNSF Alternative, and the BNSF Modified Alternative. The possibility for affecting undiscovered archaeological resources by the SR 520 Alternative site is lower, when compared to the other build alternatives.

## 3.17.5 Indirect and Cumulative Impacts

No indirect impacts related to historic and archaeological resources would result from construction and operation of the proposed project.

No significant cultural resources were identified in the APE, and no impacts on cultural resources are expected from any of the four build alternatives. Because of this circumstance, the proposed project would have no cumulative impact on cultural resources.

## 3.17.6 Potential Mitigation Measures

No significant cultural resources were identified in the APE. Therefore, none of the four build alternatives are expected to have direct, indirect, or cumulative impacts on cultural resources and no potential mitigation measures are recommended. Nevertheless, it remains possible that unknown archaeological resources could be discovered through the course of the proposed project. Because the APE has been subject to limited or no subsurface archaeological investigations, FTA and Sound Transit would conduct archaeological monitoring or review boring logs of project-related geotechnical boreholes to characterize the extent of archaeologically sensitive deposits. The results of this monitoring effort would then be used to determine the need for any additional preconstruction subsurface archaeological investigations for the proposed project. An Unanticipated Discovery Plan would also be prepared to address previously unidentified archaeological resources should any be discovered during construction.

# 3.18 Parklands and Open Space

This section describes the parklands and open space that could be affected by the proposed project.

## 3.18.1 Introduction to Resources and Regulatory Requirements

For the purposes of this analysis, parklands and open space resources are defined as including the following types of facilities.

- Existing and proposed parks, playgrounds, recreation centers, and other public recreation facilities, such as golf courses and pools in the Cities of Lynnwood and Bellevue.
- Designated public open spaces and greenbelts.
- Existing and planned recreational trails.

Impacts on parklands and open space are also evaluated under two federal statutes: Section 4(f) of the U.S. Department of Transportation Act of 1966 (23 Code of Federal Regulations [CFR] 774), and Section 6(f) of the 1965 Land and Water Conservation Fund Act (36 CFR 59). These statutes require specific analysis of and avoidance or mitigation for certain direct impacts on some properties with parks and recreational uses. The analysis of parks, trails, and other recreational resources that may be covered by these statutes is provided in Appendix D, *Section 4(f) and 6(f) Evaluation*. As described in Appendix D, none of the build alternatives would result in a use under Section 4(f). As described in Appendix D, the records of grants under the Land and Water Conservation Fund Act were reviewed to confirm that there are no properties in the study area that were developed with monies from the Land and Water Conservation Fund. No further evaluation is needed for the project to comply with Section 6(f) requirements.

## 3.18.2 Methods

The study area for parklands and open space resources consists of facilities and land within 0.25 mile of each build alternative site.

Data collection for parks, recreation, and open space consisted of a review of the plans and policies and the use of geographic information system (GIS) data banks to determine the locations, size, boundaries, and use of each park, recreation, or open space resource. Based on the information collected, the impact analysis evaluated all aspects of the proposed project that have the potential to affect the use or enjoyment of existing and planned parks and recreation resources including instances where the project location could affect property, access, or functions of the resource, or instances where proximity impacts of the project could affect access, usage, or the character of the resource.

## 3.18.3 Affected Environment

The following is a discussion of the parklands and open-space resources located in the Cities of Lynnwood and Bellevue.

### 3.18.3.1 Lynnwood

The Lynnwood Alternative site is surrounded to its south, east, and north by recreational trails, one park, and open-space areas. The Interurban Trail—a paved regional trail that travels from North Seattle through Shoreline, Edmonds, Mountlake Terrace, Lynnwood, unincorporated Snohomish County, and Everett along the Public Utilities District/Pacific Northwest (PUD/PNW) traction right-of-way—is close to the Lynnwood Alternative site, running along the southern boundary of the site between 52nd Avenue W to 44th Avenue W. To the east of 46th Avenue W, the Interurban Trail connects with Scriber Creek Trail, which is a soft-surface pedestrian trail that travels from the Interurban Trail west, along Scriber Creek and the Lynnwood Transit Center, where it connects with Scriber Creek Park on the northern boundary of the site.

Scriber Creek Park is a 3.8-acre park surrounding Scriber Creek. The park includes forested wetland areas, wildlife habitats, and nature trails including Scriber Creek Trail which runs along the southern boundary of the park. A large, forested, and open-space area surrounding Scriber Creek to the southeast of the park forms the eastern boundary of the Lynnwood Alternative site. As described in Section 3.8, Noise and Vibration, Scriber Creek Park was evaluated as a noise-sensitive park. This area is zoned Business/Technical Park (BTP) immediately adjacent to the site and zoned Public (P1) with a future land use designation of Parks, Recreation, and Open Space (PRO) to the east (Figure 3.18-1). Other parks in the vicinity of the Lynnwood Alternative site include the Mini Park at Sprague's Pond located south of 200th Street SW approximately 0.1 mile northwest of the Lynnwood Alternative site, and Scriber Lake Park located approximately 0.3 mile northwest of the Lynnwood Alternative site.

No parks, recreational areas, trails, open space, or other recreational facilities are located within 0.25 mile of the BNSF Storage Tracks. The Eastside Rail Corridor is "railbanked," which keeps the corridor available for interim trail use or for the reactivation of freight rail service in the future. Sound Transit now owns this portion of the Eastside Rail Corridor; King County owns a trail easement over the Eastside Rail Corridor.


**Figure 3.18-1:** Lynnwood Alternative—Parklands
Sound Transit Link Light Rail OMSF Draft EIS

### 3.18.3.2 Bellevue

There are no parks, recreational areas, trails, open space, or other recreational facilities located within 0.25 mile of the BNSF Alternative site or BNSF Modified Alternative site (Figure 3.18-2).

The Eastside Rail Corridor described in the BNSF Storage Tracks component of the Lynnwood Alternative is located adjacent to the BNSF Alternative and the BNSF Modified Alternative. The City of Bellevue also owns a small parcel, which was a former rail spur associated with the former BNSF Rail Corridor, just south of the BNSF Alternative and BNSF Modified Alternative sites. The parcel is identified in the *Parks and Open Space System Plan* (City of Bellevue 2010) as open space owned by the City. This property is currently undeveloped, and there are no specific plans or funding development of this property as a park resource. In addition, the *Spring District Master Development Plan* (City of Bellevue 2012) includes approximately 2.2 acres of parks and open space to be developed over the next 15 years in the Spring District, which is located southwest of the BNSF Alternative and BNSF Modified Alternative sites.

Three parks and two trails are located within 0.25 mile of the SR 520 Alternative site (Figure 3.18-3). Viewpoint Park is the nearest park approximately 200 feet north of the site, on the opposite side of SR 520 and south of NE 24th Street. Viewpoint Park is a 24-acre natural green space featuring a 0.6-mile trail that loops through the space and a clearing with log benches providing views to the south. The SR 520 bicycle trail also runs along the north side of State Route (SR) 520.

Cherry Crest Mini Park and Bellevue Highlands Park are the other parks within 0.25 mile of the SR 520 Alternative site. Cherry Crest Mini Park is approximately 0.25 mile northwest of the site along the east side of 127th Avenue NE. The park is a 5-acre mini park consisting of playground equipment, picnic tables, a tennis court, and a basketball court. There is no direct access to Viewpoint Park, Cherry Crest Park, or the SR 520 bicycle trail from the SR 520 Alternative site, because they are separated from each other by SR 520. The other park within 0.25 mile of the SR 520 Alternative site is Bellevue Highlands Park, which is approximately 0.1 mile southeast of the SR 520 Alternative site along the east side of 140th Avenue NE and along the north side of Bel-Red Road. The park consists of a lighted baseball field, a softball field, two tennis courts, picnic areas, and a playground. The SR 520 bicycle trail is a paved trail that runs along the north side of SR 520 from 124th Avenue NE, through the SR 520 Alternative site vicinity, and northeast to its terminus at W Lake Sammamish Parkway. An off-street pedestrian and bicycle facility runs along the western edge of Bellevue Highlands Park and connects to a city-designated bicycle corridor that runs along NE 140th Avenue. In addition, the City of Bellevue plans to construct an off-street bicycle and walking trail along the east side of 140th Avenue NE from NE 24th Street to Bel-Red Road.

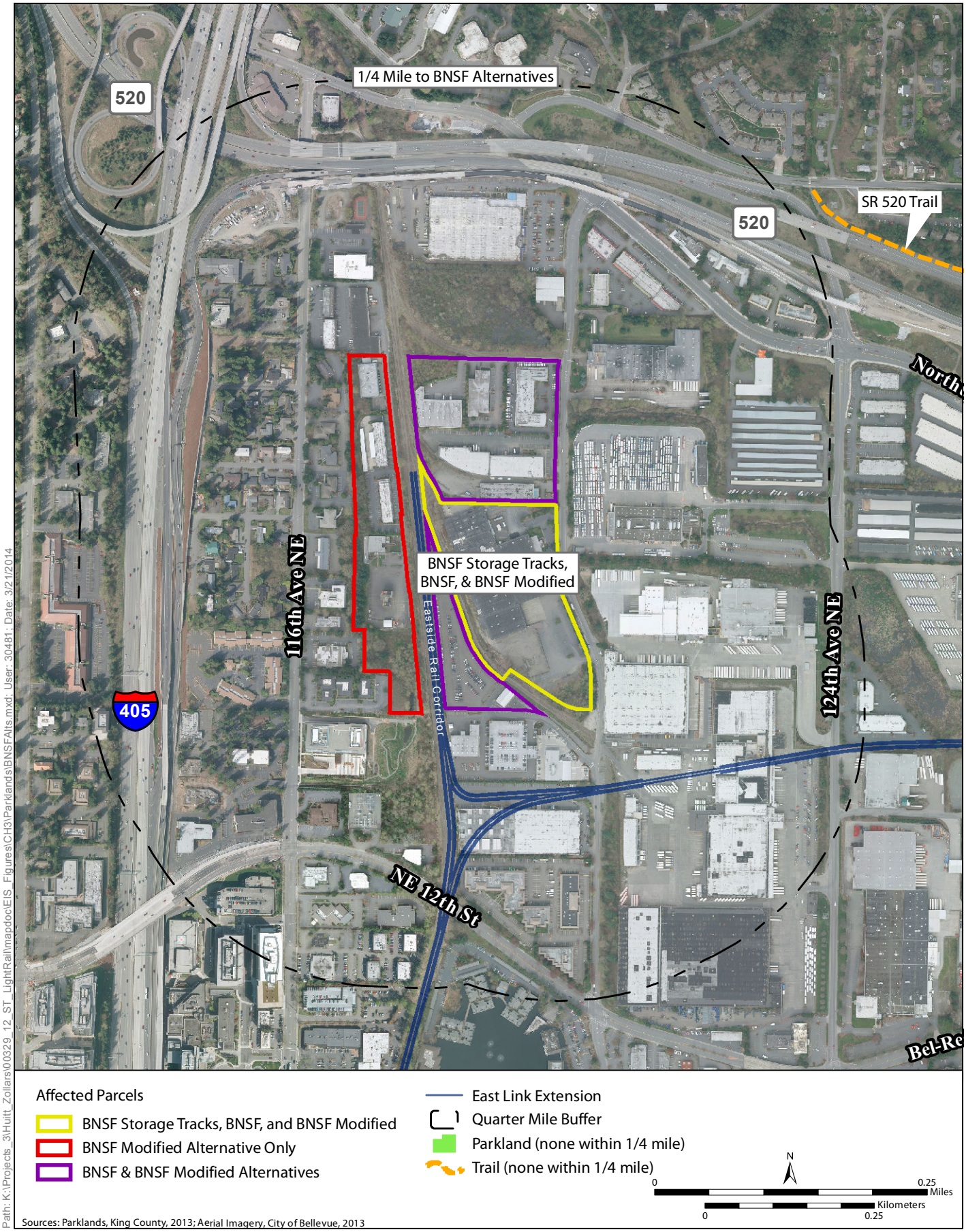


**Figure 3.18-2:** BNSF Alternative, BNSF Modified Alternative, and BNSF Storage Tracks—Parklands
Sound Transit Link Light Rail OMSF Draft EIS

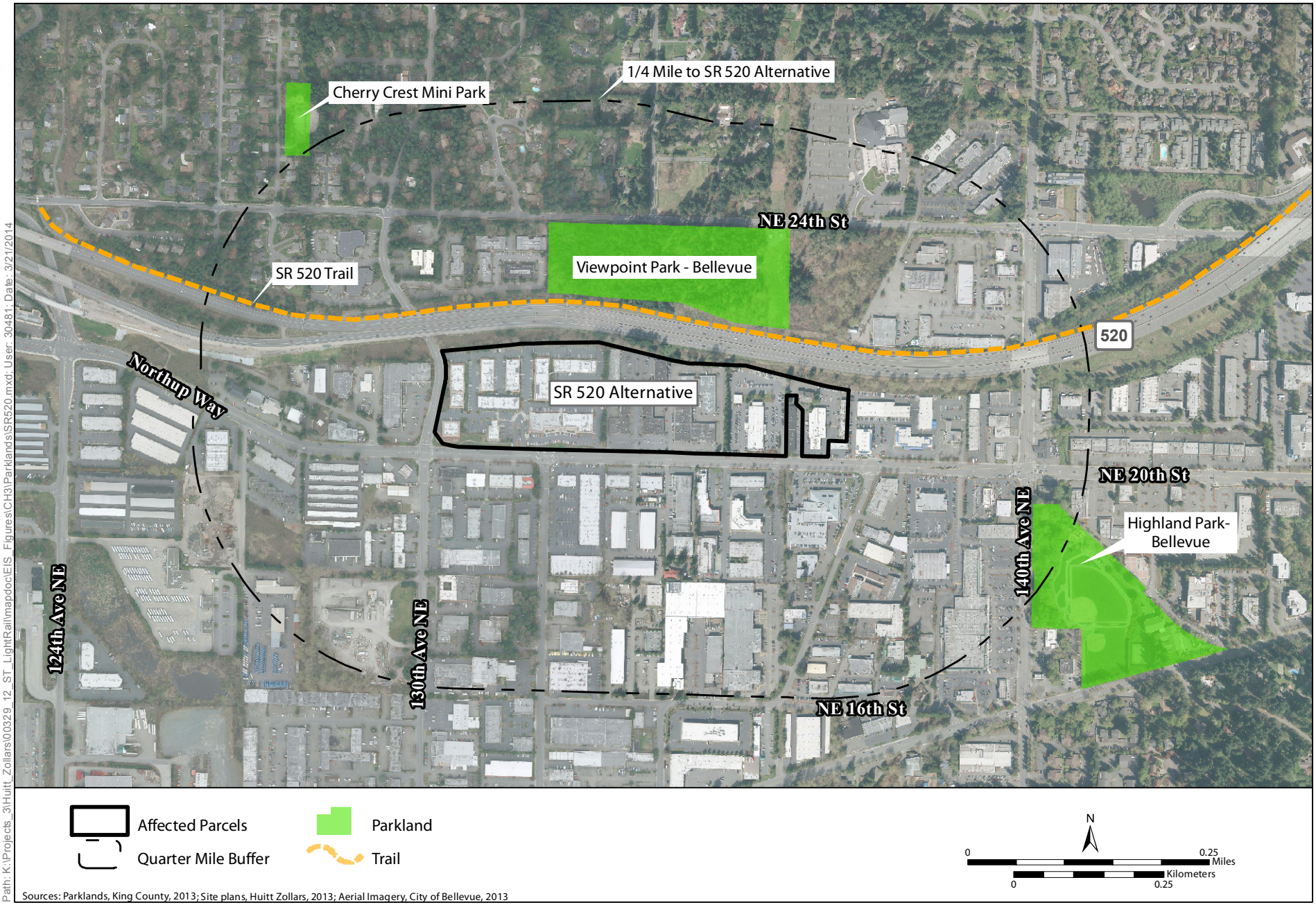


**Figure 3.18-3:** SR 520 Alternative—Parklands
Sound Transit Link Light Rail OMSF Draft EIS

The *Bel-Red Subarea Plan* (City of Bellevue 2009) provides a range of actions by both public and private entities that support the vision for the Bel-Red corridor in 2030. The plan includes an east-west bike pathway along the NE 15th Street/NE 16th Street Corridor from 116th Avenue NE to 136th Place NE. It also includes a potential future paved trail along the West Tributary of Kelsey Creek, which is located north of the BNSF Alternative and BNSF Modified Alternative sites and a potential future paved trail along Goff Creek, which travels through the west portion of the SR 520 Alternative site. Funding and timing for development of trails along Goff Creek and the West Tributary of Kelsey Creek have not been identified.

## 3.18.5 Environmental Impacts

Impacts on parklands and open spaces as a result of proposed project operation or construction can be categorized as direct operational impacts, indirect operational impacts or construction impacts.

- **Construction impacts.** These impacts include construction activities and/or use of staging areas within or near recreational facilities that create impacts such as noise or air pollution, detours that change access to or from the park, or visual clutter.
- **Direct operational impacts.** Direct impacts during operation could include permanent acquisition of all or part of a park or open-space property to accommodate the proposed project, changing or reducing access affecting park usage, relocating trails, or noise impacts affecting passive park uses.
- **Indirect (proximity) operational impacts.** Indirect impacts during operation could include changes in the nature of surrounding land uses, increased noise and/or vibration, visual intrusion, or a general increase in the level of activity near the alternative sites that could diminish or affect the continued availability, integrity, usage, or value of the specific park or recreational facility and degrade the overall recreational experience.

Potential construction and operational impacts were identified based on the definitions above and the current use of parklands and/or open-space resources. If a recreational facility is not mentioned, no impacts would occur for that facility. Proximity impacts are based on the findings of other environmental elements such as Section 3.6, Visual and Aesthetic Resources; Section 3.7, Air Quality and Greenhouse Gases; and Section 3.8, Noise and Vibration.

### 3.18.5.1 No Build Alternative

The No Build Alternative would not affect any parklands or open-space resources in the study area because no project-related changes would be made to any parklands or park usage or to any open-space areas.

### 3.18.5.2 Impacts Common to All Build Alternatives

No parklands would be acquired and converted from recreational use for construction and operation under any build alternative.

### 3.18.5.3 Lynnwood Alternative

#### Construction Impacts

Construction activities and staging for the Lynnwood Alternative would occur entirely within the proposed site. Construction would not inhibit normal use of Scriber Creek Park or Scriber Creek Trail since access to and use of these park resources would not be affected. Construction would result in impacts such as noise, dust, and traffic from movement of haul trucks transporting construction materials in proximity to Scriber Creek Park, Scriber Creek Trail, and the Interurban Trail. Dust from construction would be mitigated using dust-control measures described in Section 3.7, Air Quality and Greenhouse Gases.

Construction of the elevated lead track on the south side of the Lynnwood Alternative site (under all design options) would likely require a temporary detour of the Interurban Trail since the proposed track would cross the trail.

#### Operational Impacts

A new elevated track would cross over the Interurban Trail, which would result in a change to the visual character of the trail environment but would not directly affect recreational use of the trail. The elevated track and OMSF would be prominent for trail users; however, the trail is already located in a visually complex urban setting, adjacent to and crossing existing transportation facilities. Facilities associated with the OMSF operation would not result in a substantial change to the visual environment or affect the trail's use and enjoyment.

No portion of the OMSF would occupy or cross over Scriber Creek Park or Scriber Creek Trail. Scriber Creek Park is the only park in the study area determined to be noise sensitive. Under all design options, the noise levels at Scriber Creek Park would not exceed the noise impact criteria established by FTA or the City of Lynnwood. Therefore, noise as a result of the Lynnwood Alternative (all design options) would not disrupt activities at the park. See Section 3.8, Noise and Vibration, for a detailed noise analysis.

The design of the BNSF Storage Tracks acknowledges the railbanked status of the Eastside Rail Corridor by allowing sufficient width to accommodate a future trail or future freight or passenger rail use of the corridor. According to the *King County Comprehensive Plan 2012* (King County 2013), the Eastside Rail Corridor trail plans are listed as "not prioritized" projects, which denotes the lowest priority project under the County's comprehensive plan. The design of light rail facilities in this corridor would not preclude development of an interim trail or possible reactivation of freight rail operations.

### 3.18.5.4 BNSF Alternative and BNSF Modified Alternative

#### Construction and Operational Impacts

There are no parklands, recreational, or open-space resources within 0.25 mile of the BNSF Alternative and BNSF Modified Alternative sites. No impacts, either during construction or

operation, would occur as a result of these alternatives. The design acknowledges the railbanked status of the Eastside Rail Corridor by allowing sufficient width and vertical clearances to accommodate a future trail or reactivation of freight rail operations in the corridor. Similarly, the BNSF Alternative and BNSF Modified Alternative would not preclude development of the City of Bellevue-owned parcel for recreational or other uses in the future.

#### 3.18.5.5 SR 520 Alternative

**Construction Impacts**

Construction of the SR 520 Alternative would not result in direct impacts on any parklands, recreational, or open-space facilities. The SR 520 Alternative would not be visible from Viewpoint Park, nor from the SR 520 bicycle trail. Cherry Crest Mini Park is separated by SR 520 and is located too far from the proposed construction activities under this alternative to experience any noticeable increase in noise, dust, or other construction disturbances. Bellevue Highlands Park and the existing 140th Avenue NE Trail would not be affected by construction activities since no changes to the sidewalk on the east side of 140th Avenue NE would occur.

**Operational Impacts**

Operation of the SR 520 Alternative would not result in direct impacts on any parklands, recreational, or open-space facilities.

## 3.18.6 Indirect and Cumulative Impacts

The elevated lead track under the Lynnwood Alternative would be visible to users of the trail in Scriber Creek Park, but would not restrict recreational activities or otherwise diminish the integrity of the user experience inside the park. The BNSF Alternative, BNSF Modified Alternative, and SR 520 Alternative would not result in any indirect impacts related to parklands and open space. Potential for cumulative impacts on parks or recreational resources in the vicinity of the OMSF build alternative sites would be limited. While the Lynnwood Link Extension and the OMSF Lynnwood Alternative would both include crossings of the Interurban Trail, these crossings would be elevated and would require air rights only and not acquisition of land from the trail. The crossing of light rail over the trail would not permanently impair the activities, characteristics, or features of the trail.

One of the Lynnwood Link Extension Alternative C1 would introduce an elevated guideway along the western entrance of Scriber Creek Park with support columns directly affecting less than 1 acre of the park. The elevated guideway would be a prominent feature of the parking area, crossing directly overhead and changing the experience of the parking lot, which is currently buffered from the surrounding street and neighborhoods by established vegetation.

Lynnwood Link Extension Alternative C1 would be visible from the short nature trail and picnic areas in the park but would not be as prominent as it would be from the parking area, and would not restrict recreational activities inside the park. Lynnwood Link Extension Alternative C2 would be located in Scriber Creek Park but would have visual impacts that would change the user experience in the park and along Scriber Creek Trail. The Lynnwood Link Extension Alternative C3 would have no

direct effects on Scriber Creek Park or Trail but would be visible from a distance; therefore, potential for cumulative impacts associated with the Lynnwood Link Extension Alternative C3 would be limited.

The Lynnwood Alternative for the proposed OMSF project would have no visual impacts on Scriber Creek Park, but elements of the elevated lead track under all design options would be visible from portions of Scriber Creek Park and Scriber Creek Trail. These elements may contribute to the cumulative effects on Scriber Creek Park and Trail that would occur with the Lynnwood Link Alternative C1 or C2.

## 3.18.7 Potential Mitigation Measures

Construction of the Lynnwood Alternative would require temporary closure of the Interurban Trail. Sound Transit would coordinate with the City of Lynnwood to develop a detour and to provide public information and signed detour routes during construction to allow for continued use of the trail. Replacement landscaping would also be provided if vegetated areas needed to be cleared for construction.

No other impacts on parklands, open space, or recreational resources would occur under the build alternatives; therefore, no mitigation would be required.