Appendix F
RapidRide Roosevelt Hazardous Materials Technical Memorandum

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RapidRide Roosevelt Project – Hazardous Materials Technical Memorandum

This memorandum provides an overview of the potential hazardous materials impacts associated with the construction and operation of the proposed RapidRide Roosevelt Project (Project) by the Seattle Department of Transportation (SDOT). The Project would include an approximately 6-mile corridor that would provide high-quality bus rapid transit (BRT) service using King County Metro RapidRide buses, connecting the Downtown Seattle neighborhood with the neighborhoods of Belltown, South Lake Union, Eastlake, the University District, and Roosevelt. It would increase transit speed, reliability, and passenger-carrying capacity, serving high existing ridership in the corridor as well as future population and employment growth.

1. Project Overview

The RapidRide route would run from 3rd Ave in Downtown Seattle to NE 65th St and would include the following:

- 26 new RapidRide stations (13 for each direction of travel) from 3rd Ave to NE 65th St with service south to 9 existing stations along 3rd Ave in Downtown Seattle. Stations would be identifiable as part of the RapidRide system and include real-time arrival information and off-board payment.
- New poles and overhead contact system (OCS) wires added north of the University Bridge.
- A new traction power substation or TPSS (source of electric power) in the northern portion of the project.
- A northern bus layover where buses would park between runs.
- Protected bicycle lanes along 11th/12th Avenues NE, Eastlake Ave E, and Fairview Ave N.
- Sidewalk improvements to meet Americans with Disabilities Act (ADA) accessibility requirements.
- Intersection improvements to improve safety for pedestrians accessing the stations, including sidewalk repairs and crosswalk striping.
- Paving along sections of 11th and 12th Avenues NE and Eastlake Ave E and at stations.
- Four stormwater detention facilities would be installed to meet flow control requirements per the City of Seattle Stormwater Manual.

No improvements are proposed along 3rd Ave south of Virginia and Stewart Streets. However, bus service would be provided utilizing existing RapidRide stations.

2. Methodology

2.1 Study Area

The study area for the identification of potential hazardous material sites for the proposed Project includes a 1/8-mile buffer around the corridor (Figures 1, 2, and 3). The study area was selected because, if contamination is present, being within 1/8 mile of a high-risk site could affect the Project. For the hazardous materials assessment, environmental records searches for known and potentially contaminated sites may extend beyond the study area.

2.2 Relevant Regulations, Plans, and Policies

Hazardous materials may be classified in several different categories based on laws and regulations that define their characteristics and use. These categories include hazardous waste, hazardous substances, and toxic substances. Although often treated separately from hazardous materials, petroleum products (including crude oil and refined products such as fuels and lubricants) and natural gas are considered in the hazardous materials assessment because they may also pose a potential hazard to human health and the environment, if released.

Applicable laws and regulations include the following:

- Comprehensive Environmental Response Compensation and Liability Act (42 United States Code [U.S.C.] 9601, et seq.)
- Superfund Amendment and Reauthorization Act
- Resource Conservation and Recovery Act of 1976, as amended (42 U.S. C. 6901, et seq.)
- Clean Water Act (33 U.S.C. Section 1 251, et seq.)
- Toxics Substances Control Act (15 U.S.C. 2601-2629)
- Dangerous Waste Regulations (Washington Administrative Code [WAC] 173-303)
- Model Toxics Control Act (MTCA) (WAC 173-340)
- Underground Storage Tanks (USTs) (WAC 173-360)
- Seattle Municipal Code (SMC) 25.05.675(F) - Environmental Health

2.3 Analysis Objectives

The hazardous material analysis reviewed the Project for the potential to encounter hazardous materials that could pose risks to human health and the environment or that could create control or cleanup requirements. The analysis also considered the potential for the Project to introduce new sources of hazardous materials contamination.

2.4 Data Collection

The U.S. Environmental Protection Agency (EPA) and Washington State Department of Ecology (Ecology) maintain databases to track sites with potential or confirmed hazardous material releases to the environment, and they monitor facilities that manage hazardous materials as part of their operations. A search of these databases was generally conducted in accordance with ASTM E1527-13 guidance. For this hazardous materials assessment, site files that are not

available online were not reviewed. In addition, no interviews with property owners or tenants were conducted. The following databases were searched to identify sites that could affect or be affected by the Project:

- Comprehensive Environmental Response, Compensation, and Liability Information System No Further Remedial Action Planned (CERCLIS-NFRAP)
- Confirmed and Suspected Contaminated Sites List (CSCSL)
- Confirmed and Contaminated Sites – No Further Action (CSCSL NFA)
- Voluntary Cleanup Program Sites (VCP)
- Hazardous Sites List (HSL)
- Independent Cleanup Reports (ICR)
- Institutional Control Site List (INST CONTROL)
- Leaking Underground Storage Tanks Site List (LUST)
- Hazardous Waste Manifest Data (MANIFEST)
- Underground Storage Tank Database (UST)

2.5 Hazardous Materials Assessment Approach

For the hazardous materials assessment, sites identified in the database search were prioritized based on potential risk levels to determine the need for avoidance, remediation, and/or mitigation while considering associated costs and liability. The three risk levels are defined as follows:

- **High**: The high-risk level is assigned to contaminated sites that might create liability for SDOT because of construction activities. High-risk sites include contaminated sites that are located on properties where acquisition may occur and have not received a No Further Action (NFA) determination from regulatory agencies such as Ecology. High-risk sites could also include sites that have existing groundwater contamination located adjacent to properties where acquisition may occur or adjacent to the areas within the right-of-way proposed for utility relocation or repairs, where deeper excavation may be expected.
- **Medium**: Medium-risk sites are located on properties where acquisition may occur where there has been a past release, but the sites have undergone remedial cleanup and have received an NFA determination from regulatory agencies such as Ecology. Medium-risk sites could also include sites located within the study area that have existing contamination but are not located on properties where acquisition may occur or are not likely to have an effect on the Project because of their location (for example, down gradient from the Project alignment).
- **Low**: This risk level applies to sites within the study area where there has been no documented release to the environment and which therefore are not expected to have noticeable effects on the or because of the Project. Low-risk sites could also include sites that are located within the study area that have undergone remedial cleanup and have received an NFA determination from regulatory agencies such as Ecology but are not located on properties where acquisition may occur.

3. Affected Environment

3.1 Physical Environment

This section discusses the environmental conditions that could influence hazardous materials in the study area.

3.1.1 Topography

The City of Seattle is generally composed of hilly terrain and lies on seven significant hills, including Capitol Hill, First Hill, West Seattle, Beacon Hill, Queen Anne, Magnolia, and the former Denny Hill. In general, elevation in Seattle varies between sea level and up to approximately 450 feet above sea level. The highest point within city limits is known as High Point in West Seattle, which lies at an elevation of 520 feet above sea level (U.S. Geological Survey, 2014).

The topography of the study area ranges from 180 feet at the northern terminus at NE 65th St to a low of 30 feet above sea level near south end of Lake Union and back up to about 100 feet above sea level at the southern terminus of the corridor two blocks northwest of the International District Transportation Hub.

3.1.2 Geology

The surficial geology has been mapped as predominantly glacial till deposits from the University District to near Downtown Seattle. The modified land in the downtown area is primarily the result of the Denny Regrade, which occurred in the early part of the 20th century. Material from Denny Hill was removed and hydraulically placed in what was then the Seattle waterfront and is now between 7th Ave and the current Seattle waterfront. The depths of fill range from 0 to over 30 feet.

3.1.3 Hydrogeological Conditions

Hydrogeological conditions in the Project vicinity are greatly influenced by the steep topography of the region and the presence of Elliott Bay to the west, Portage Bay, and Lake Union. Groundwater depth and flow in the area generally follow local topography. Often, groundwater in the area may be perched above impermeable layers, at relatively shallow depths.

In the Roosevelt and University District neighborhoods, groundwater was encountered in the advance outwash or pre-Vashon sand and gravel at elevations from 190 to 130 feet (Sound Transit, 2006). A survey of the soil boring logs available in the Washington Geologic Information Portal maintained by the Washington State Department of Natural Resources (DNR) suggests depths to water in Roosevelt and University District to range between 10 to 35 feet (DNR, 2018). Depth to groundwater around South Lake Union range from 10 to 45 feet. Depths to groundwater in the area around the Chinatown-International District range between 20 and 30 feet below ground surface (DNR, 2018).

3.2 Agency Database Review

This study included a review of applicable regulatory agency documents and lists of known or potential hazardous waste sites or landfills, as well as properties or facilities currently under investigation for potential environmental violations.

There are 501 hazardous material sites in the study area; 332 are considered low risk and 138 are considered medium risk. A total of 31 sites were identified in Table 1 as high risk for the Project. Additional information about the sites can be found on Ecology's web page developed for each site (links provided). The locations of the high-risk sites with respect to the Project alignment are identified on Figures 1, 2 and 3.

Table 1. High Risk Sites

Map ID	Site Name	Site Address	Neighborhood	Cleanup Status	Ecology Website
1	Trinity 43rd Ave LLC	4301 Roosevelt Way NE	University District	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=4255
2	D & L Ventures	5339 Roosevelt Way NE	University District	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=1362
3	Shemiram Trade	5201 University Way	University District	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=5495
4	BP Brooklyn	4557 Brooklyn Ave NE	University District	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=7601
5	University District PCE Plume	11th Ave NE south of NE 47th St	University District	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=12030
6	UW Surface Lot 1	4513 - 4557 11th Ave NE	University District	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=12374
7	Shell 120441	1013 NE 45th St	University District	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=6211
8	Stoughton Estate Property	4307 11th Ave NE	University District	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=376
9	PCE Plume Roosevelt & NE 41st St	Roosevelt Way NE & NE 41st St	University District	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=12678
10	Augusta Apartments1	4043 Roosevelt Way NE	University District	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=12966
11	UW Burke Gilman Trail Mercer Bldg1	3925 Adams Lane NE	University District	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=12700
12	Covey Laundry	2851 Eastlake Ave E	Eastlake	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=11514
13	Inhabit Eastlake1	1823 Eastlake Ave E	Eastlake	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=12962
14	Fred Hutchinson Center Lake Union	Eastlake Ave E & Fairview Ave N	South Lake Union	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=1891
15	Gunn Building	1165 Eastlake Ave E	South Lake Union	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=4272
16	Rainier Precision LLC	1150 Eastlake Ave E	South Lake Union	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=121

Map ID	Site Name	Site Address	Neighborhood	Cleanup Status	Ecology Website
17	400 Fairview LLC Seattle1	412 Fairview Ave N	South Lake Union	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=12065
18	Troy Laundry Seattle	307 Fairview Ave N	South Lake Union	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=11690
19	Seattle Times	1120 John St	South Lake Union	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=14495
20	Cascade 1 & 2 Apartments1	Minor Ave N & Fairview Ave N/ Thomas St & John St	South Lake Union	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=12649
21	New Richmond Laundry	224 Pontius Ave N	South Lake Union	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=2118
22	Red Carpet Car Wash	1164 Denny Way	South Lake Union	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=3230
23	Seattle Times Parcel 1B	100 Fairview Ave N	South Lake Union	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=5458
24	Tritell Parking Lot1	1821-1823 Minor Ave	Belltown	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=3478
25	Goodyear Stewart St1	1105 Stewart St	Belltown	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=8998
26	1918 Eighth Office Tower	1918 8th Ave	Belltown	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=12346
27	4th & Virginia	1920 4th Ave	Belltown	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=2152
28	Barg French Cleaners	1929 3rd Ave	Belltown	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=4045
29	Cherry Street Garage	213 Cherry St	Downtown	Awaiting	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=9512
30	King County Goat Hill Parking	5th Ave & Jefferson St	Downtown	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=5825
31	King Street Center	201 S Jackson St	Downtown	Started	https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=7711

[1] These properties have undergone redevelopment in the past couple of years with new development onsite. Cleanup activities were performed and either remediation may still be required on part of the property or the project has recently been completed and the final notice has not been finalized.

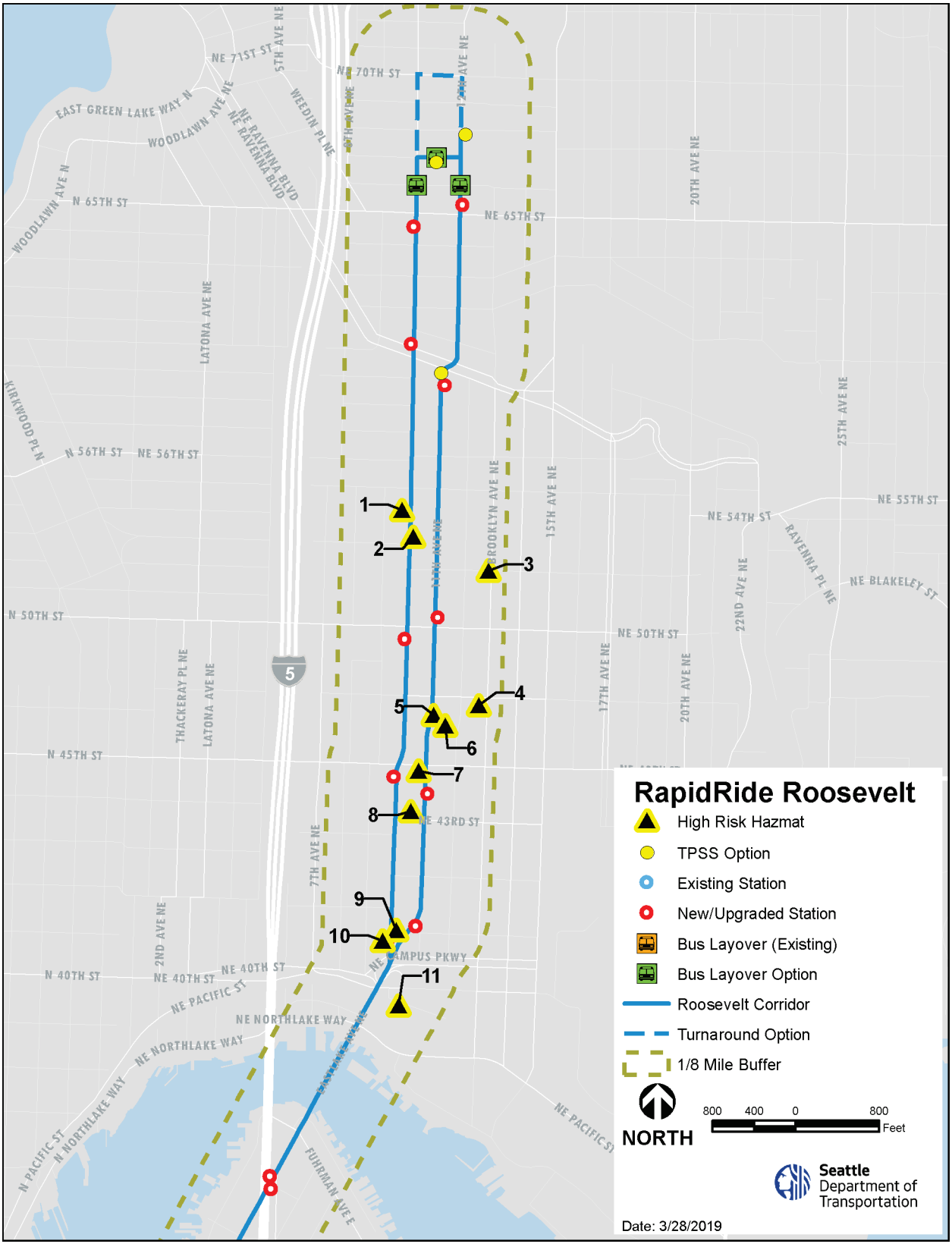

Figure 1. RapidRide Roosevelt High Risk HazMat Sites – North

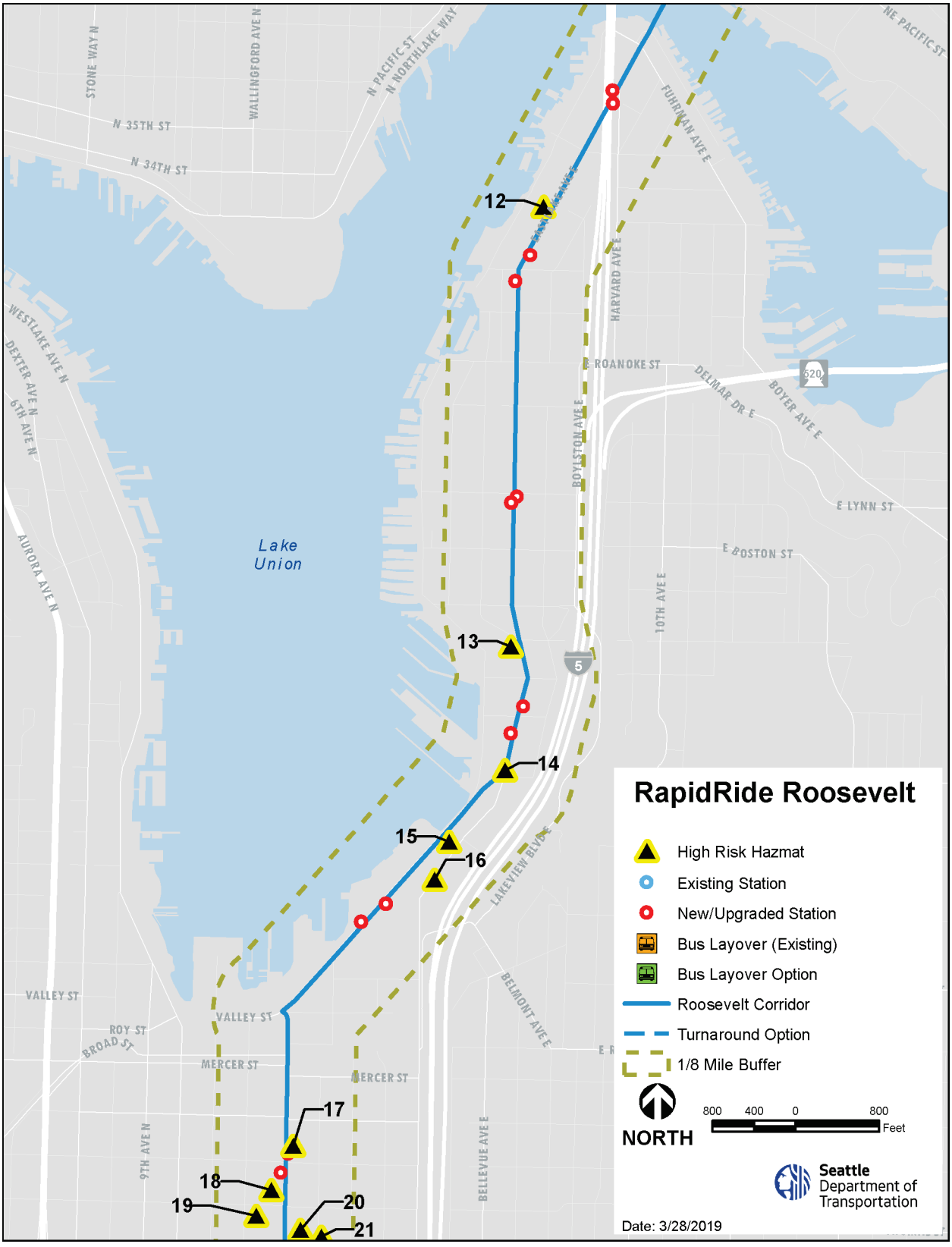

Figure 2. RapidRide Roosevelt High Risk HazMat Sites – Central

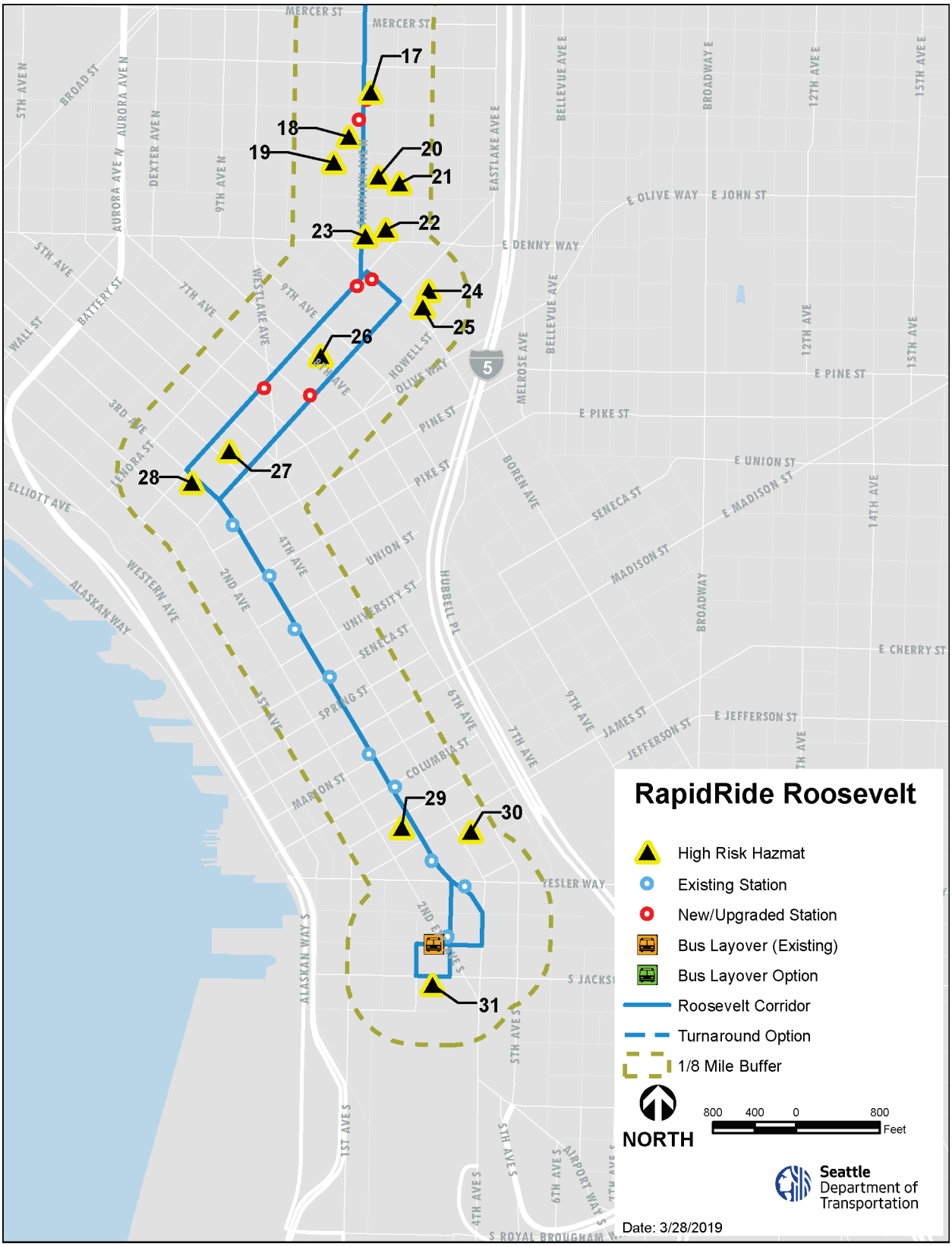

Figure 3. RapidRide Roosevelt High Risk HazMat Sites – South

4. Environmental Consequences

4.1 No Build Alternative

Under the No Build Alternative, the Project would not be implemented, there would be no impacts on hazardous material or contaminated sites, and there would be no releases or spills of hazardous substances. In addition, potential discovery, cleanup, or removal of new and existing hazardous material and contaminated sites would not occur under the No Build Alternative.

4.2 Locally Preferred Alternative

4.2.1 Impacts During Operation

Impacts during normal operation are unlikely because most of the RapidRide vehicles would be powered by electricity. Fuel spills could occur when diesel buses are in use. However, minor impacts during operation could result from using hazardous materials during maintenance activities; however, the likelihood of impacts (i.e., releases) from project operations and maintenance activities would be low.

4.2.2 Impacts During Construction

Potential impacts during excavation activities could result from encountering existing soil or groundwater contamination and containers holding hazardous materials associated with high-risk sites. Soil or groundwater contamination could be found on or adjacent to contaminated sites and in utility corridors, which can be conduits for underground contamination.

Because the Project would be constructed mainly within existing right-of-way in areas that have been previously disturbed, encountering hazardous materials containers (such as underground storage tanks) is not likely. Deeper excavation up to 30 feet for utilities relocation has not been identified as part of the Project but could be required.

Based on a review of geotechnical bores in the study area, groundwater depths in the corridor range from 10 to 45 feet and fluctuate seasonally (DNR 2018). Groundwater would be deeper during the dry summer season. Groundwater is not likely to be encountered during most of the proposed work because of the anticipated maximum depth of construction of 5 feet in most of the corridor.

Of the 31 high-risk sites, 14 are in Downtown Seattle and South Lake Union, south of Harrison St, where construction activities are not anticipated to exceed 5 feet. This would minimize the potential for encountering hazardous materials. Of the 17 other high-risk sites north of Harrison St, there are 9 sites located in close proximity to either the stormwater detention pipes or OCS poles. Because the stormwater detention pipes and OCS poles would be installed up to 10 feet and between 10 and 15 feet below the surface, respectively, there is potential to encounter groundwater. One high-risk site is in close proximity to the location of a stormwater detention pipe (Site 17 on Figure 3) and the other three stormwater detention facilities are all at least 400 feet away from high risk sites. There are 8 high risk sites adjacent to Roosevelt Way NE and 11th Ave NE (Figure 1) where new OCS poles would be installed. Geotechnical borings are planned as part of future design phases. Borings would provide specific information on the depths to groundwater (if encountered) and whether contaminated soils or groundwater are present.

A variety of impacts, both beneficial and adverse, would be possible, including the following:

- Construction activities, such as grading, near these materials could release contaminants to soil, groundwater, and surface water.
- Contaminated materials might be uncovered, allowing more direct exposure to the public.
- Contamination might spread as a result of construction.
- Contamination that otherwise would remain in place and potentially migrate might be discovered and addressed by the Project.
- To accommodate Project construction, contamination might be cleaned up earlier than otherwise would occur.

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

4.2.3 Indirect and Cumulative Impacts

4.2.3.1 Operational

No indirect or cumulative impacts have been identified for the operation of the Project.

4.2.3.2 Construction

Construction of the Project could potentially result in redevelopment of existing structures and/or paved areas, as opposed to development of previously undisturbed areas. Existing contamination is more likely to be encountered or potentially released during redevelopment activities in older urban areas. Therefore, if the redevelopment of older structures occurs in the study area, the result may be the cleanup of hazardous materials sites, which would be an indirect benefit of the Project.

4.2.4 Mitigation Measures

To avoid or minimize construction-related impacts, SDOT could implement BMPs and develop plans to guide the characterization, management, and disposal of contaminated materials. Construction-related BMPs can be grouped into three general categories: site avoidance, cleanup prior to construction, and minimization of potential impacts on contaminant migration.

4.2.4.1 Site Avoidance

Through final design, SDOT would minimize impacts from known sites by avoiding construction at the contaminated sites, or portions of sites, as practical. By minimizing encounters with hazardous materials, the Project would reduce exposure risk, as well as potential delays, construction costs, and liability associated with site cleanup. Avoiding contaminated sites would

also reduce the opportunity for beneficial impacts associated with cleanup. Avoidance could be implemented using the following strategies:

- Conducting additional studies and building surveys to confirm the presence or absence of contaminated environmental media at or near the high-risk sites.
- Evaluating the nature and extent of contamination at high-risk sites with confirmed contamination prior to construction.
- Locating USTs and associated piping at sites within the construction footprint.
- Using construction techniques that minimize disturbance or release of contaminated media.

4.2.4.2 Cleanup Prior to Construction

Cleanup efforts implemented before or during construction would reduce potential short-term and long-term impacts. The Project would comply with hazardous materials regulatory requirements associated with construction. To the extent possible, the extent of contamination at a site with known contamination should be verified prior to construction to minimize exposure to hazardous materials. Coordination with the site cleanup manager and agencies could help ensure that the Project would comply with site-specific cleanup and disposal requirements.

4.2.4.3 Minimization of Potential Impacts on Contaminant Migration

Potential impacts on contaminant migration would be minimized to the extent possible using the following strategies:

- Preparing a Comprehensive Contingency and Hazardous Substances Management Plan; a Health and Safety Plan; Spill Plan; Waste Management Plan; and Stormwater Pollution Prevention Plan.
- Managing and disposing of hazardous or contaminated materials in accordance with applicable requirements.

5. References

U.S. Geological Survey. 2014

Sound Transit. 2006. North *Link Light Rail Transit Project, Final Supplemental Environmental Impact Statement*. March. https://www.soundtransit.org/Projects-and-Plans/Northgate-Link-Extension/Northgate-Link-Extension-document-archive/Northgate-Link-Extension-documents/Northgate-Link-document-collections/North-Link-Final-Supplemental-Environmental-Impact-Statement-SEIS.

Washington State Department of Natural Resources (DNR). 2018. Geologic Information Portal, Accessed on May 3, 2018. https://geologyportal.dnr.wa.gov/.

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