

February 2019

OMF South Alternatives Evaluation Technical Memorandum



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OMF South Alternatives Evaluation Technical Memorandum

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Acronyms and Abbreviations

BRT	bus rapid transit
FTA	Federal Transit Administration
FWLE	Federal Way Link Extension
FWTC	Federal Way Transit Center
GIS	geographic information system
LRV	light rail vehicle
MOW	Maintenance of Way
OMF	operations and maintenance facility
OMF East	Operations and Maintenance Facility: East
OMF South	Operations and Maintenance Facility South
Sound Transit	Central Puget Sound Regional Transit Authority
SR	State Route
ST2	Sound Transit 2
ST3	Sound Transit 3
TDLE	Tacoma Dome Link Extension

1 Introduction

The purpose of this technical memorandum is to document the results of the Operations and Maintenance Facility South (OMF South) alternatives evaluation. This technical memorandum comprises the following three sections:

- 1.0 Introduction
- 2.0 Alternatives Evaluation Process
- 3.0 Results of Alternatives Evaluation

1.1 Sound Transit 3 Fleet Requirements

The Central Puget Sound Regional Transit Authority (Sound Transit) is currently implementing a systemwide expansion of its Link light rail system throughout its service area. This expansion is part of the Sound Transit 3 (ST3) Plan of transit investments approved by voters in 2016.

Exhibit 1-1 on the following page shows the ST3 system expansion and the schedule for the completion of the new light rail projects and extensions.

Sound Transit will need to purchase additional light rail vehicles (LRVs) to operate the ST3 service. At the completion of the Sound Transit 2 (ST2) Plan, the fleet size will be 214 vehicles. The ST3 Plan assumes the potential purchase of an additional 246 LRVs by 2041, resulting in a total fleet size of up to 460 vehicles.

1.2 Sound Transit 3 Operations and Maintenance Facility Locations

ST3 assumes the construction of two additional operations and maintenance facilities (OMFs): one in the north service area and one in the south service area. The existing light rail OMF (Forest Street OMF) is located on a 25-acre site south of Forest Street and west of Airport Way in the industrial area south of downtown Seattle. The existing Forest Street OMF is currently configured to store and service 104 vehicles. The ST2 Plan investments, approved by voters in 2008, also required the expansion of its light rail fleet and maintenance facility needs. As a result, Sound Transit is currently constructing the 20-acre Operations and Maintenance Facility: East (OMF East) project in Bellevue for the expanded ST2 fleet with a facility that will be able to store and maintain 96 LRVs, for a total ST2 maintenance capacity of 200 vehicles. However, because the ST2 fleet consists of 214 vehicles, the remaining 14 vehicles will be stored on the tail tracks south of the Federal Way Transit Center (FWTC) Station, along with the siding track that is being constructed as part of the Federal Way Link Extension (FWLE) project.

In late 2017, Sound Transit hired a consultant team to conduct an Operations Analysis to update the operating assumptions used in the development of the ST3 Plan. This analysis identified the need to connect the OMF South to an operational light rail line as early as 2026 in order to take delivery of the new LRVs and put them through the commissioning process in order to start service in 2030.



EXHIBIT 1-1
Sound Transit Regional System Map

2 Alternatives Evaluation Process

The alternatives evaluation of the OMF South sites comprised two main steps. The first step was to conduct early scoping, which included developing the OMF South project Purpose and Need statement, identifying potential sites, and performing a pre-screening process on these sites. The second step was to conduct the alternatives evaluation on the sites that remained after the pre-screening. This included preparing preliminary layout drawings; developing the evaluation criteria, measures, and methods; and collecting information needed to conduct the evaluation. These two steps are discussed below.

2.1 Early Scoping

In the ST3 Plan, the Tacoma Dome Link Extension (TDLE) project included a representative light rail alignment and stations, and identified that an OMF would be built in the south corridor. At the start of the TDLE project in early 2018, the project team developed potential alignments and station locations in the corridor to be evaluated through a Level 1 and Level 2 process. The identification of potential OMF South sites also began during this time.

2.1.1 Operations and Maintenance Facility South Draft Purpose and Need Statement

The Purpose and Need statement establishes the basis for developing and evaluating a range of reasonable alternatives for environmental review, and for selecting the project to be implemented. The purpose of the OMF South is to support Sound Transit's Link light rail system expansion and the related increase in its light rail vehicle fleet and daily operations. The OMF South must:

- Provide a facility with the capacity to store, maintain, and deploy vehicles associated with system-wide light rail system expansion.
- Support efficient and reliable light rail service that minimizes system operating costs.
- Support and connect efficiently to the regional system and be technically and financially feasible to build, operate, and maintain, consistent with Sound Transit's ST3 Plan and its Regional Transit Long-Range Plan.
- Preserve and promote a healthy and sustainable environment by minimizing adverse impacts to people and the natural and built environments.

The project is needed because:

- The regional system does not currently have the operations and maintenance facility capacity necessary to efficiently operate and maintain the long-term light rail vehicle fleet required for the next phase of light rail expansion in King and Pierce counties.
- Light rail maintenance and storage capacity needs to be available by 2026 to accept delivery of and commission new vehicles and/or store existing vehicles while the new vehicles are tested and prepared.
- The current regional system lacks a facility with sufficient capacity and located to support the efficient and reliable long-term operations for system-wide light rail expansion, including the next phase of expansion in King and Pierce counties.

2.1.3 Identification of Sites

Sites were identified in two ways: 1) through a series of internal workshops with Sound Transit staff and the consultant team, and 2) by the public during early scoping for the TDLE project and the OMF South project, which was initiated on April 2, 2018. Over 190 people participated in three community open houses held in Tacoma, Federal Way, and Fife, plus an additional 2,470 people participated in the online open house. In all, over 550 written comments pertaining to the TDLE and OMF South projects were submitted in person or on the online comment forms, 56 of which were related specifically to the potential OMF South sites.

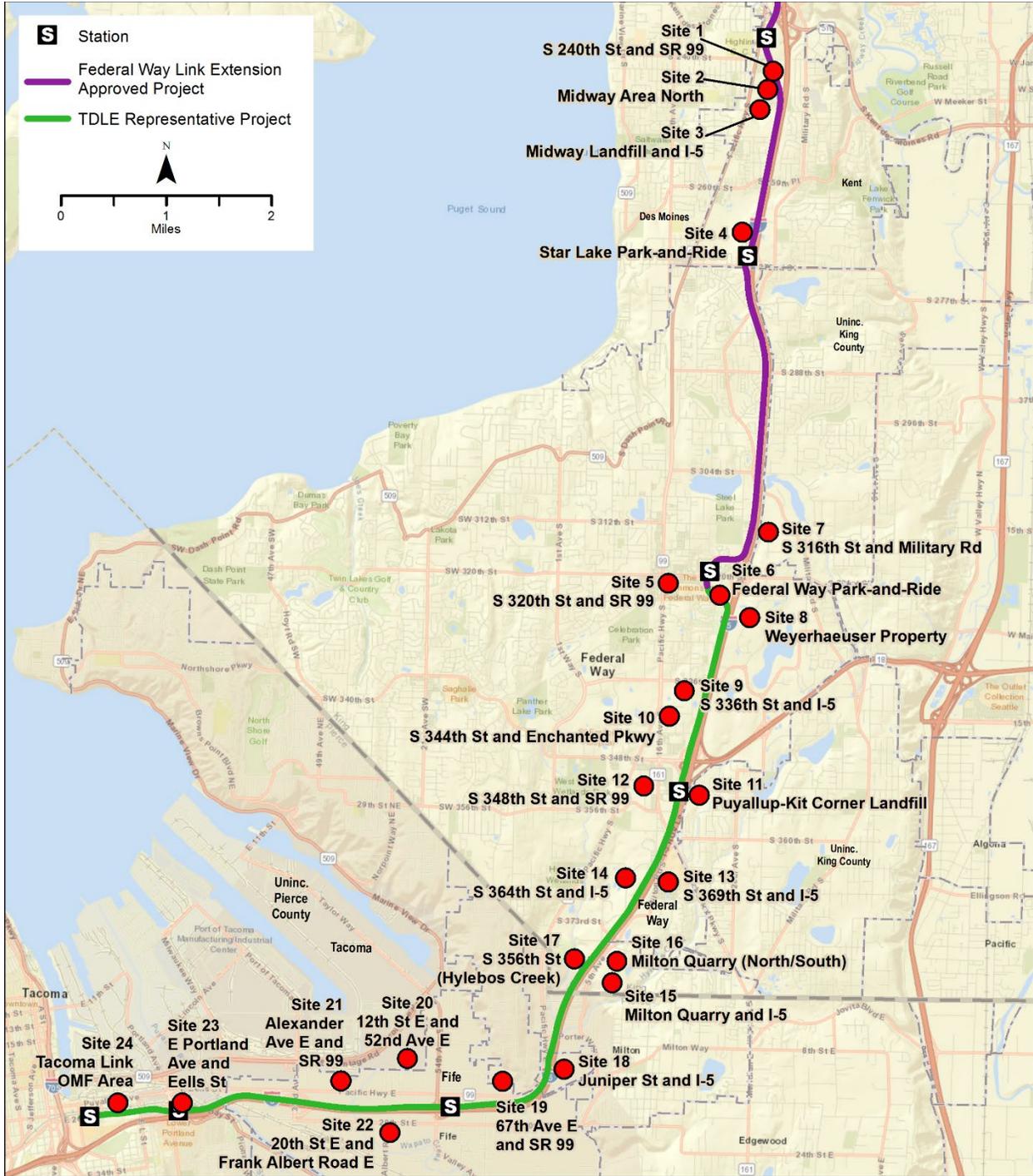
The public meetings featured an OMF South comment area with an aerial map that extended from Angle Lake to the Tacoma Dome. The comment area was staffed by a Sound Transit employee who answered questions and marked potential OMF South sites that were identified by the public on the aerial map.

Through this process, 24 individual sites were identified by both the project team and the public, as summarized below in Table 2-1 and Exhibit 2-1.

TABLE 2-1
OMF South Summary of Pre-Screening Sites

Site No.	City/County	Site Name
1	Kent	S 240th St and SR 99
2	Kent	Midway Area North
3	Kent	Midway Landfill and I-5
4	Kent	Star Lake Park-and-Ride
5	Federal Way	S 320th St and SR 99
6	Federal Way	Federal Way Park-and-Ride Lot
7	King County	S 316th St and Military Rd
8	Federal Way	Weyerhaeuser Property
9	Federal Way	S 336th St and I-5
10	Federal Way	S 344th St and Enchanted Pkwy
11	King County	Puyallup-Kit Corner Landfill
12	Federal Way	S 348th St and SR 99
13	King County	S 369th St and I-5
14	Federal Way	S 364th St and I-5
15	Milton	Milton Quarry and I-5
16	Milton	Milton Quarry (North/South)
17	Federal Way	S 356th St (Hylebos Creek)
18	Pierce County	Juniper St and I-5
19	Fife	67th Ave E and SR 99
20	Fife	12th St E and 52nd Ave E
21	Fife/Tacoma	Alexander Ave E and SR 99
22	Fife	20th St E and Frank Albert Rd E
23	Tacoma	E Portland Ave and Eells St
24	Tacoma	Tacoma Link OMF Area

SR = State Route



The FWLE Approved Project is shown on the map in purple. The TDLE Project alignment is shown in green and is based on the ST3 representative project alignment identified in ST3.

EXHIBIT 2-1
OMF South Sites Identified in Early Scoping

2.1.5 Pre-Screening

Once the sites were identified they underwent a pre-screening process, which used three high-level evaluation criteria. These three pre-screening criteria were applied to the 24 sites identified in early scoping. The pre-screening criteria and their definitions are shown below in Table 2-2.

TABLE 2-2
OMF South Pre-Screening Evaluation Criteria

Criteria	Description
Meets Minimum Size and Shape	Site capable of storing and maintaining 144 vehicles
	5-acre storage site that includes a 30,000-square-foot building adjacent to or near the site
Roadway Improvements	Does not preclude funded roadway improvements
Environmental Constraints	Potentially severe impacts to known cultural resources, wetlands, and sensitive areas

The three evaluation criteria were applied to each site using a pass or fail method. If a site failed one criterion it was not advanced to the alternatives evaluation.

Six sites did not advance to the alternatives evaluation. Site 5 (S 320th St and SR 99), Site 6 (Federal Way Park-and-Ride), Site 23 (E Portland Ave and Eells St) and Site 24 (Tacoma Link OMF Area) were not advanced into alternatives evaluation because they did not meet the minimum size and shape criteria. Site 17 (S 356th St - Hylebos Creek) did not meet the environmental constraints criteria and Site 19 (67th Ave E and SR 99) did not meet the roadway improvements criteria, so both were also not advanced into alternatives evaluation.

Following pre-screening, additional analysis was performed and several variations on individual sites were developed. Site 2A, Midway Area South, was added as a variation of Site 2 and is located south of the parcel that includes Lowe's and Dick's Drive-In. Site 3A was added as variation of Site 3, Midway Landfill and I-5, and moves the potential OMF location further west adjacent to SR 99. Site 10A was developed as a variation of Site 10, S 344th and Enchanted Parkway, and moves the location further east adjacent to I-5. Two sites were considered on the Milton Quarry; however, due to topography and site access issues, only Site 15 (Milton Quarry and I-5) was advanced in alternatives evaluation.

Table 2-3 below and Exhibit 2-2 show the 20 sites that were advanced from pre-screening into alternatives evaluation.

TABLE 2-3
OMF South Sites Advanced to Alternatives Evaluation

Site No.	City/County	Site Name
1	Kent	S 240th St and SR 99
2	Kent	Midway Area North
2A	Kent	Midway Area South
3	Kent	Midway Landfill and I-5
3A	Kent	Midway Landfill and SR 99
4	Kent	Star Lake Park-and-Ride
7	King County	S 316th St and Military Rd
8	Federal Way	Weyerhaeuser Property
9	Federal Way	S 336th St and I-5
10	Federal Way	S 344th St and Enchanted Pkwy
10A	Federal Way	S 344th St and I-5
11	King County	Puyallup-Kit Corner Landfill
12	Federal Way	S 348th St and SR 99
13	King County	S 369th St and I-5
14	Federal Way	S 364th St and I-5
15	Milton	Milton Quarry and I-5
18	Pierce County	Juniper St and I-5
20	Fife	12th St E and 52nd Ave E
21	Fife/Tacoma	Alexander Ave E and SR 99
22	Fife	20th St E and Frank Albert Rd E

Note: Site numbering follows the original numbering scheme prior to pre-screening.

SR = State Route

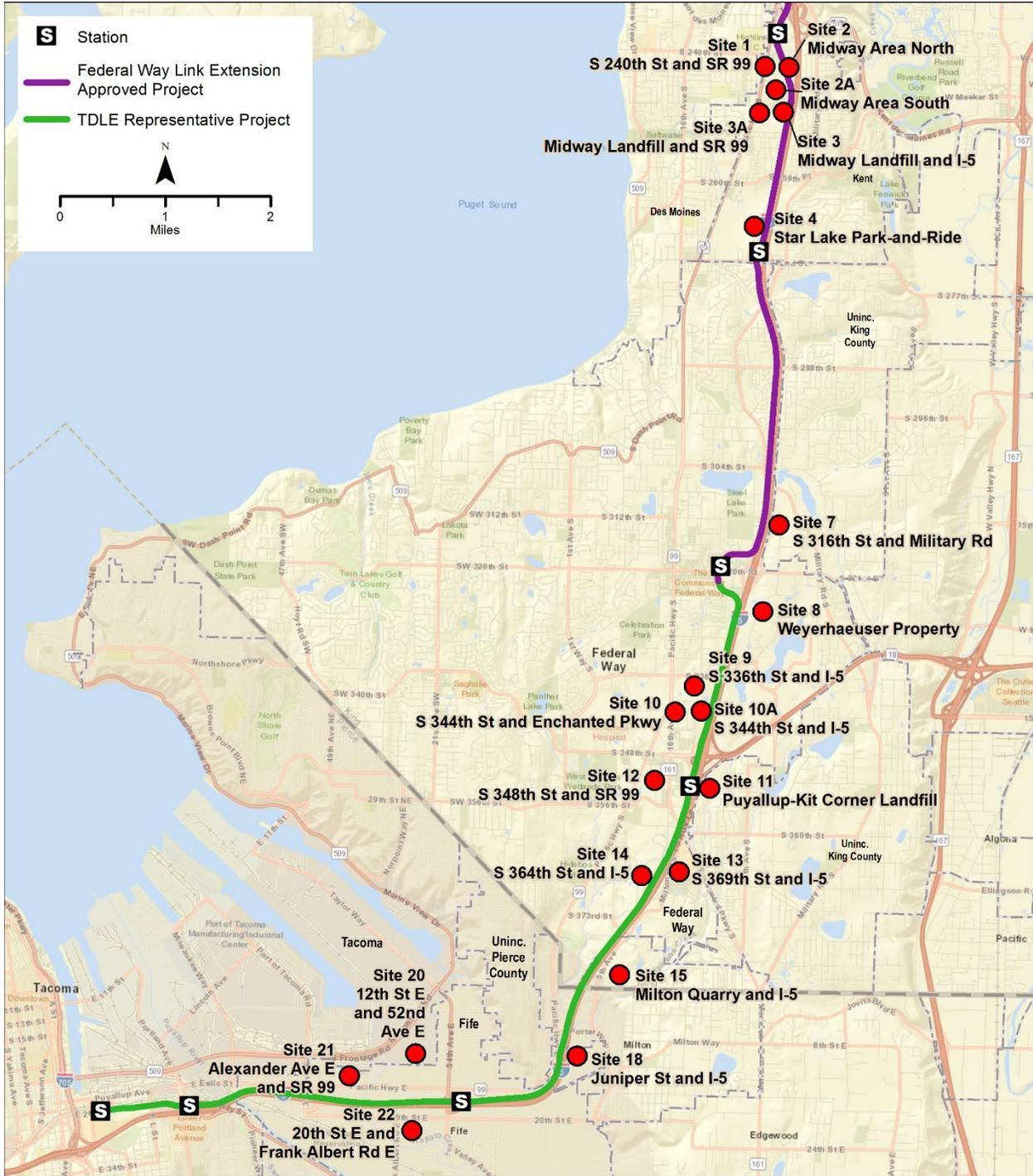


EXHIBIT 2-2
OMF South Sites Included in the Alternatives Evaluation

2.2 Alternatives Evaluation

The alternatives evaluation process included three activities: 1) identifying evaluation criteria, 2) developing conceptual site plans for each site, and 3) collecting information to conduct the alternatives evaluation.

2.1.6 Identify Project Evaluation Criteria, Measures, and Methods

Using the Purpose and Need statement as a starting point, three categories were identified to develop the evaluation criteria. These were environmental factors, operational and cost factors, and plan consistency. Under these three categories, the evaluation criteria, their measures, and methods of applying those measures were developed. Table 2-4 describes the OMF South evaluation criteria, measures, and methods.

Early versions of the alternatives evaluation criteria, measures, and methods were shared with the TDLE Elected Leadership Group and the TDLE Interagency Group. Comments were received from the Interagency Group and, where appropriate, changes were made to the criteria, measures, and methods.

The environmental factors comprise 12 individual criteria, including: 1) current and proposed zoning, 2) economic impacts, 3) property impacts, 4) auto and truck access to the site, 5) neighborhood/community impacts, 6) topography, 7) wetlands and streams, 8) flood plains and critical areas, 9) parks, trails, and open space, 10) historic/archaeological resources, 11) hazardous materials/brownfields and 12) noise.

Under operational and cost factors, individual criteria include: 1) site configuration, 2) maintenance window, 3) LRV access, 4) schedule risk (other than LRV access), 5) operability, 6) operating estimates, 7) capital estimates, and 8) property value.

Finally, plan consistency relates to how well a site meets the Sound Transit Regional Transit Long-Range Plan and ST3 Plan as they relate to the technical and financial feasibility to build, operate, and maintain the system. Additional detail on plan consistency is provided in Section 3 in the individual site summaries.

Table 2-4 lists the measures associated with each criterion, and the methods used to rate each criterion based on the measures.

A three-tier qualitative rating system was established for each criterion. The ratings were 1 = low performing (red), 2 = medium performing (yellow), and 3 = high performing (green), with 3 being the highest rating and 1 the lowest rating. Each of the criteria was rated individually without consideration of the other criteria.

The criteria are not listed in any particular order in Table 2-4 and are not weighted.

TABLE 2-4
OMF South Alternatives Evaluation Criteria, Measures, and Methods

Environmental Factors		
Purpose and Need: <ul style="list-style-type: none"> • Preserve and promote a healthy and sustainable environment by minimizing adverse impacts to people and the natural and built environments. 		
Criteria	Measures	Methods
Current and Proposed Zoning	Suitability of current and proposed zoning/land use for use as an OMF.	Identify current and proposed zoning on the site using existing city and county land use and zoning maps, and proposed development plans adjacent to adopted land use plans. <i>1 = lowest suitability (moderate- to high-density mixed-use or residential land use or zoning, and many parcels to assemble)</i> <i>2 = moderate suitability (low- to moderate-density commercial zoning with few conflicting uses or proposed development plans, and fewer parcels to assemble)</i> <i>3 = highest suitability (zoning allows OMF and/or industrial uses, no conflicting development plans, and fewer parcels to assemble)</i>
Economic	Site located on properties with major economic activity generators.	Assessment of potential property impacts that have a major economic activity generator. <i>1 = high level of major economic activity-generating properties</i> <i>2 = moderate level of economic activity-generating properties</i> <i>3 = low level of economic activity-generating properties</i>
Property Impacts	Estimated level of property impacts (residential, commercial).	Assessment of potential property impacts from OMF South by property type. <i>1 = highest level of property acquisitions/easements resulting in displacements (relocation, full/partial acquisitions)</i> <i>2 = medium level of property acquisitions/easements resulting in displacements (relocation, full/partial acquisitions)</i> <i>3 = low level of property acquisitions/easements resulting in displacements (relocation, full/partial acquisitions)</i>
Streets/Roads	Auto and truck access to the site from existing highway/arterial system.	Prepare site layouts that show the auto and truck access route to the OMF South site. <i>1 = requires access via local roads</i> <i>2 = requires access via minor arterials</i> <i>3 = access via major arterial or highway</i>

TABLE 2-4
OMF South Alternatives Evaluation Criteria, Measures, and Methods (continued)

Environmental Factors – continued		
Purpose and Need: <ul style="list-style-type: none"> • Preserve and promote a healthy and sustainable environment by minimizing adverse impacts to people and the natural and built environments. 		
Criteria	Measures	Methods
Neighborhood/Community	Impacts to major neighborhood/community cohesion and whether impacts will be equitably distributed.	Identify potential impacts to neighborhood/community cohesion. <i>1 = alters major features and functions important to neighborhood/community cohesion or affects areas where low-income or minority populations are prevalent</i> <i>2 = alters some features and functions important to neighborhood/community cohesion or affects areas where low-income or minority populations are prevalent</i> <i>3 = alters no features and functions important to neighborhood/community cohesion or affects areas where low-income or minority populations are prevalent</i>
Topography	Amount of grading required to accommodate facility.	Prepare site layouts that assess the relative amount of grading required for the OMF South site. <i>1 = major grading of site required</i> <i>2 = some grading of site required</i> <i>3 = little or no grading of site required</i>
Wetlands and Streams	Disruption to wetland and stream resources or priority habitat areas on or adjacent to the site.	Identify the disruptions to sensitive areas, including wetlands and streams, buffers, steep slopes, or sensitive species or habitat, using geographic information system (GIS) mapping and visual reconnaissance. <i>1 = major disruption of more than 2 acres</i> <i>2 = moderate disruption of under 2 acres</i> <i>3 = minor to no disruption</i>
Floodplains and Critical Areas	Impacts to floodplains or other critical areas.	Identify floodplains and other critical areas using GIS mapping. <i>1 = presence of mapped floodplain or other major critical area unsuitable for development</i> <i>2 = presence of floodplain but outside floodway or major mapped critical area</i> <i>3 = not within floodplain, floodway, or other critical area</i>
Parks, Trails, and Open Space	Impacts to parks, trails, or open space.	Identify potential impacts to parks, trails, or open space on or adjacent to the OMF South site using GIS mapping. <i>1 = property impacts</i> <i>2 = adjacent property impacts</i> <i>3 = minor to no impacts</i>

TABLE 2-4

OMF South Alternatives Evaluation Criteria, Measures, and Methods (continued)

Environmental Factors – continued		
Purpose and Need: <ul style="list-style-type: none"> • Preserve and promote a healthy and sustainable environment by minimizing adverse impacts to people and the natural and built environments. 		
Criteria	Measures	Methods
Historic/ Archaeological ¹	Impacts to historic, archaeological resources on or adjacent to the site.	Identify the impacts to National Register of Historic Places-eligible historic and archaeological resources on or adjacent to the OMF South site using records search and general reconnaissance. <i>1 = likely adverse impacts to eligible properties</i> <i>2 = impacts to potentially eligible properties</i> <i>3 = minor to no impact to potentially eligible properties</i>
Hazardous Materials/ Brownfields	Potential to impact sites with hazardous materials.	Identify potential for impacts to sites with hazardous materials releases. <i>1 = affects major sites of federal or state concern</i> <i>2 = affects smaller sites of local concern</i> <i>3 = minor to no sites of concern</i>
Noise	Potential for impacts to noise-sensitive properties.	Number of noise-sensitive property types within Federal Transit Administration (FTA) noise-impact screening distance of 350 feet for unobstructed noise-generating areas of the site or connecting tracks. <i>1 = 50 or more affected properties</i> <i>2 = 49 to 10 affected properties</i> <i>3 = 9 or fewer affected properties</i>
Operational and Cost Factors		
Purpose and Need: <ul style="list-style-type: none"> • Provide a facility with the capacity to store, maintain, and deploy vehicles associated with system-wide light rail system expansion. • Support efficient and reliable light rail service that minimizes system operating costs. 		
Criteria	Measures	Methods
Size/ Configuration	A minimum site size of 33 acres able to store and maintain approximately 144 vehicles, plus an additional 5-acre storage area that includes a 30,000-square-foot building on or adjacent to the site.	Prepare conceptual site layouts that include building footprints, storage tracks, auto/truck access, employee and support vehicle parking, and a 5-acre storage area that includes a 30,000-square-foot building on or adjacent to the site. <i>1 = meets few programming requirements</i> <i>2 = meets most of the programming requirements</i> <i>3 = meets all programming requirements</i>
Maintenance Window	Impact on the nightly maintenance window of 1 am to 5 am.	Estimate the impact in minutes on the maintenance window for the OMF South site based on information generated from the Operations Analysis. <i>1 = most impact on maintenance window</i> <i>2 = moderate impact on maintenance window</i> <i>3 = least impact on maintenance window</i>

TABLE 2-4

OMF South Alternatives Evaluation Criteria, Measures, and Methods (continued)

Operational and Cost Factors (continued)		
Purpose and Need: <ul style="list-style-type: none"> • Provide a facility with the capacity to store, maintain, and deploy vehicles associated with system-wide light rail system expansion. • Support efficient and reliable light rail service that minimizes system operating costs. 		
Criteria	Measures	Methods
LRV Site Access	LRV access to the site related to the complexity of the connection and the distance from the FWLE or TDLE representative alignment.	Identify the complexity and length of the yard lead and track connection to the OMF South sites. <ul style="list-style-type: none"> <i>1 = most complex and a long distance to the site</i> <i>2 = somewhat complex and a medium distance to the site</i> <i>3 = simple connection and a short distance to the site</i>
Schedule Risk (Other than LRV Access)	Will the facility be able to receive and commission LRVs per ST3 Operations Analysis?	Identify potential site constraints such as property availability, access, or other logistical, physical, or regulatory factors that would affect the schedule for the facility to be ready to receive and commission LRVs per the ST3 Operations Analysis. <ul style="list-style-type: none"> <i>1 = highest risk</i> <i>2 = medium risk</i> <i>3 = lowest risk</i>
Operability	When the facility (OMF South) opens, will the site be connected to an activated line to allow vehicles to move around the system?	Identify the length of track required to connect the site to an activated line. <ul style="list-style-type: none"> <i>1 = track length is more than approximately 1.5 miles to the activated line</i> <i>2 = track length is between approximately 0.5 mile and 1.5 miles to the activated line</i> <i>3 = track length is equal to or less than approximately 0.5 mile to the activated line</i>
Operating Estimates	Order of magnitude operating estimates.	Assess the relative order of magnitude operating estimate for each site. <ul style="list-style-type: none"> <i>1 = high operating estimates because the operator relief connection is across I-5 from the OMF South site, requiring a long van ride for the relief operators, and longer LRV travel distance from the mainline to the site</i> <i>2 = medium operating estimates because the operator relief connection is not adjacent to the mainline tracks, and may require a van ride for the relief operators</i> <i>3 = low operating estimates because the operator relief connection is adjacent to the mainline tracks so the operators can walk to the relief site, and the site is on and directly connects at both ends to the mainline</i>
Capital Estimates	Order of magnitude preliminary capital estimates for the site footprint, 5-acre storage site, and lead track.	Develop order of magnitude preliminary capital estimates for each site, 5-acre storage site, and lead track to the representative alignment. <ul style="list-style-type: none"> <i>1 = over \$1 billion</i> <i>2 = over \$800 million to \$1 billion</i> <i>3 = up to \$800 million</i>
Property Value	Assessed value plus escalation factors for each property affected by the project footprint of the facility.	Current county property values plus escalation factors for parcels that need to be acquired in order to construct the facility. <ul style="list-style-type: none"> <i>1 = greater than \$100 million</i> <i>2 = \$50 million to \$100 million</i> <i>3 = less than \$50 million</i>

TABLE 2-4

OMF South Alternatives Evaluation Criteria, Measures, and Methods (continued)

Plan Consistency		
Purpose and Need: <ul style="list-style-type: none"> Support and connect efficiently to the regional system and be technically and financially feasible to build, operate, and maintain, consistent with Sound Transit's ST3 Plan and its Regional Transit Long-Range Plan. 		
Criteria	Measures	Methods
Sound Transit Regional Transit Long-Range/ ST3 Plan	Consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan.	Compare site to Sound Transit Regional Transit Long-Range Plan and ST3 Plan for consistency and evaluate whether the site is technically and financially feasible to build, operate, and maintain. <i>1 = OMF South site is not consistent and not feasible</i> <i>2 = OMF South site is partially consistent and feasible</i> <i>3 = OMF South site is consistent and feasible</i>

¹ Potentially eligible historic resources are at least 50 years old and have not yet been evaluated to see if they meet the criteria for the National Register of Historic Places. Eligibility will be determined during future planning efforts for the OMF sites that are recommended for evaluation in the EIS.

2.1.7 Prepare Conceptual Site Plans

Individual conceptual site plans were developed for each of the 20 OMF South sites based on a conceptual typical OMF site layout. The conceptual typical layout is shown in Exhibit 2-3. The typical site layout is 1,550 feet long and 930 feet wide and covers approximately 33 acres. The site can store and maintain 144 vehicles assuming two four-car trains are stored on each of the 18 storage tracks. In addition to the typical layout shown in Exhibit 2.3, the sites that were identified also include a 5-acre storage area that includes a 30,000-foot Maintenance of Way (MOW) warehouse building adjacent to the site. The OMF South site would cover about 40 to 50 acres when the 5-acre storage area is added and the lead tracks to the site are taken into account.

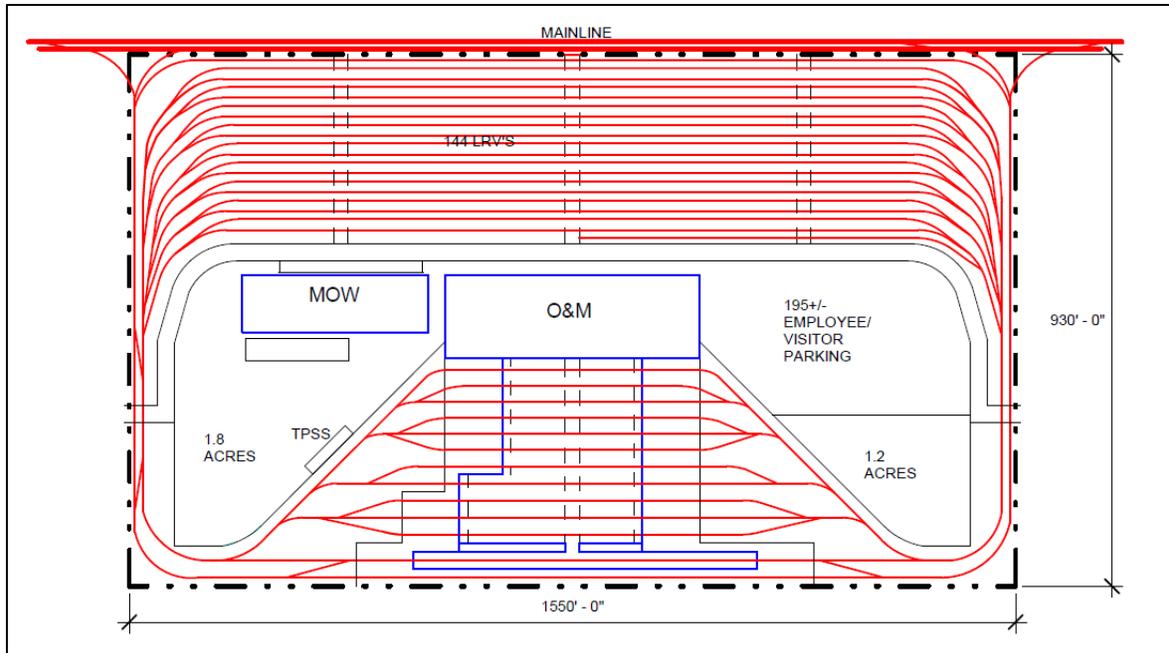


EXHIBIT 2-3
Typical OMF Site Layout with Storage for 144 Cars

The typical layout was adapted to each site based on unique topography, auto/truck access routes, and other physical factors. In addition, each site design was connected to either the FWLE alignment or the TDLE representative alignment via LRV lead tracks. In many cases the elevation of the site plans had to be modified to provide LRV access that meets Sound Transit design criteria. In addition, to meet Sound Transit’s operation requirements, two separate LRV access points were designed for each site.

2.1.8 Collect Information to Conduct Alternatives Evaluation

Information about environmental factors, operational and cost factors and plan consistency factors for each individual site was collected and a rating of 1 to 3 was assigned. Appendix A lists the quantitative information used to assign the ratings to each site.

3 Results of Alternatives Evaluation

Appendix A and Table 3-1 below provide a summary of the alternatives evaluation results and identify the six sites recommended for additional evaluation.

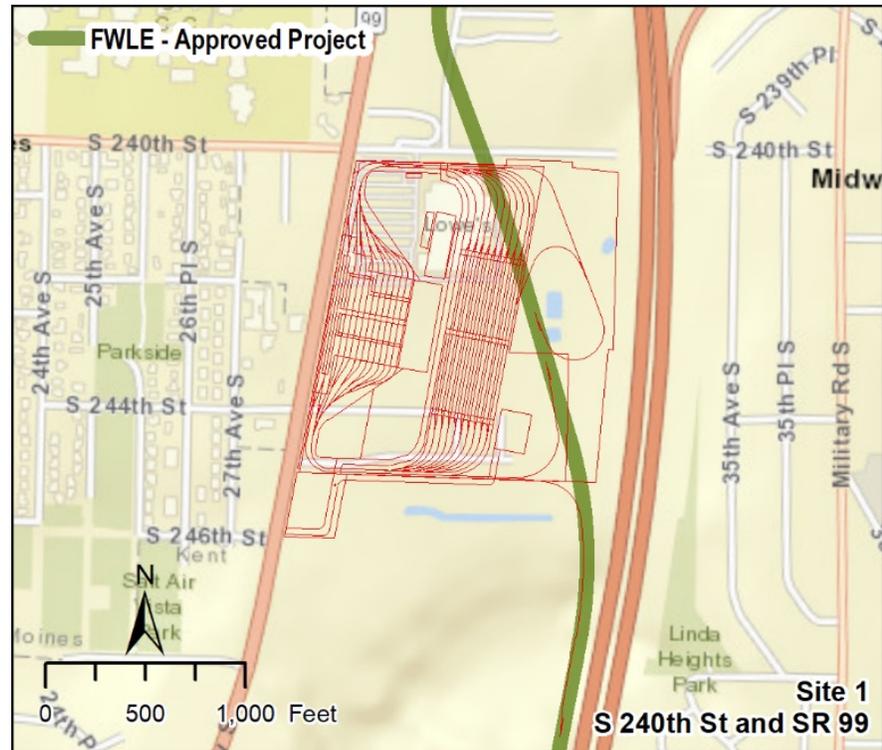
Following Table 3-1, descriptions of each OMF South site are provided, along with a discussion of the environmental factors, operational and cost factors, and plan consistency factors.

TABLE 3-1
OMF South Alternatives Evaluation Results Summary

Site No.	City/County	Site Name	Evaluation Results Summary	Recommend -ed for Additional Evaluation
1	Kent	S 240th St and SR 99	Site is rated high or medium for all criteria with the exception of economics, property impacts, neighborhood/community, LRV site access and schedule risk and property value.	✓
2	Kent	Midway Area North	Site does not physically fit between SR 99 and the funded SR 509 ramp project.	
2A	Kent	Midway Area South	Site does not physically fit between SR 99 and the funded SR 509 ramp project.	
3	Kent	Midway Landfill and I-5	Site is rated high or medium for all criteria with the exception of topography, hazardous materials/brownfields, schedule risk, and capital estimates.	✓
3A	Kent	Midway Landfill and SR 99	Site is rated high or medium for all criteria with the exception of economics, property impacts, topography, hazardous materials/brownfields, schedule risk, property value and capital estimates.	✓
4	Kent	Star Lake Park-and-Ride	Site requires over 3 million cubic yards of fill to level the site and perimeter walls over 50 feet high, making the site technically and financially impractical to develop.	
7	King County	S 316th St and Military Rd	Site is ranked high or medium for all criteria with the exception of current and proposed zoning, property impacts, street and road access, wetlands and streams, noise, LRV site access, and operating estimates.	✓
8	Federal Way	Weyerhaeuser Property	Site is rated high or medium for all criteria except for economics, wetlands and streams, parks, trails and open space, LRV site access, schedule risk, and operating estimates.	
9	Federal Way	S 336th St and I-5	Site is ranked high or medium for all criteria with the exception of current and proposed zoning, neighborhood/community impacts and property value.	✓
10	Federal Way	S 344th St and Enchanted Pkwy	Site is rated high or medium for all criteria with the exception of economics, property impacts, street and road access, topography, and property value.	
10A	Federal Way	S 344th St and I-5	Site is ranked high or medium for all criteria with the exception of property impacts Site 10A (S 344th St and I-5) is a design variation of site 10 and is rated higher for more criteria than site 10.	✓
11	King County	Puyallup-Kit Corner Landfill	<p>The OMF South site must be connected to an active light rail line to allow vehicles to move around the system (Operability criteria). All the sites south of site 10A are more than 1.5 miles from an operating light rail line (FWLE) at the time the maintenance facility is opened, resulting in a low rating for operability. Siting maintenance facilities in proximity to operating lines reduces lead track length and cost, and operating time to reach in-service tracks where vehicles can be tested and placed into service.</p>	
12	Federal Way	S 348th St and SR 99		
13	King County	S 369th St and I-5		
14	Federal Way	S 364th St and I-5		
15	Milton	Milton Quarry and I-5		
18	Pierce County	Juniper St and I-5		
20	Fife	12th St E and 52nd Ave E		
21	Fife/Tacoma	Alexander Ave E and SR 99		
22	Fife	20th St E and Frank Albert Rd E		

Site 1 S 240th St and SR 99

The site is located in the city of Kent, south of S 240th Street and east of State Route (SR) 99.



Environmental Factors

The environmental factors for this site are rated high or medium except for economics, property impacts, and neighborhood/community. The site would displace the Kent Lowe's, Dick's Drive-In, and a mobile home park.

Operational and Cost Factors

The operational and cost factors for the site are rated high or medium, with the exception of LRV site access (FWLE alignment crosses the northeast corner and the site access is complex), schedule, and property value.

Plan Consistency

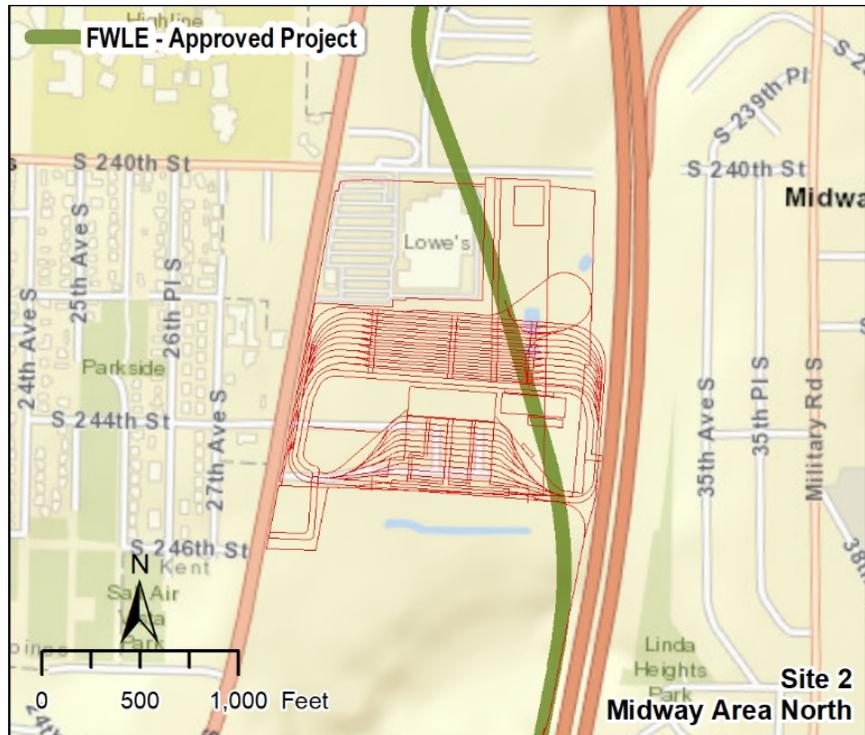
The site is consistent with the Sound Transit Regional Transit Long-Range Plan and the ST3 Plan criteria.

Preliminary Estimates: \$800 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 2 Midway Area North

The site is located in the city of Kent and is immediately south of the Kent Lowe's, east of SR 99, and west of I-5.



Environmental Factors

The environmental factors for this site are all rated high or medium except for neighborhood/community (displaces a mobile home park), topography, and hazardous materials/brownfields.

Operational and Cost Factors

The operational and cost factors for this site are rated high or medium except for size/configuration (the length of the facility does not physically fit between SR 99 and the funded SR 509 ramps), LRV site access, and property value. For these reasons the site will not be considered further.

Plan Consistency

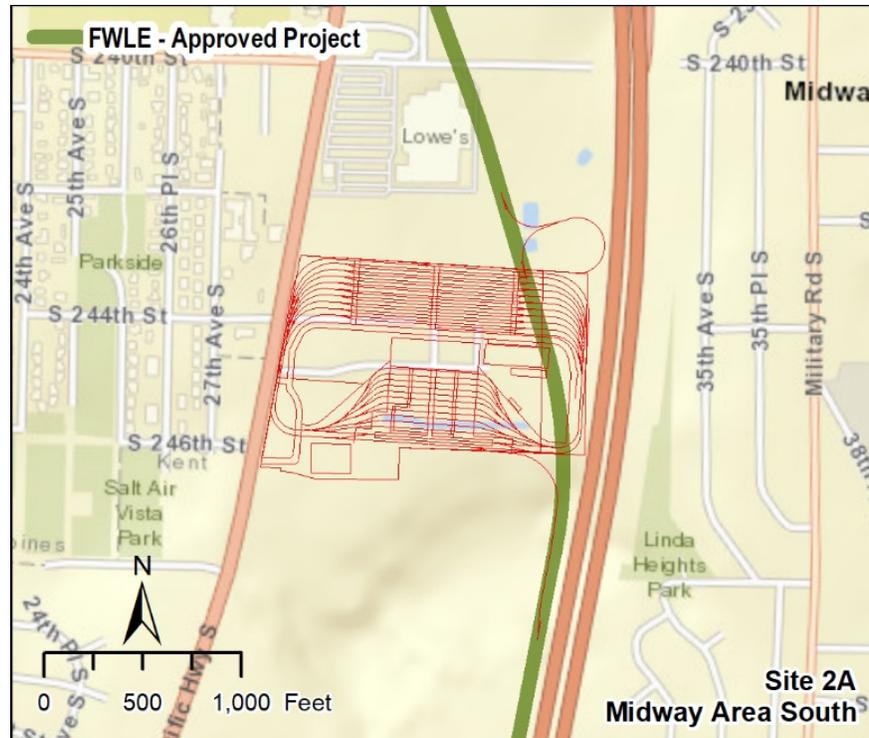
The site is not consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan because it is technically not feasible to build due to the impacts on SR 99 and SR 509.

Preliminary Estimates: \$850 million *

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 2A Midway Area South

The site is located in the city of Kent and is south of the Kent Lowe's, east of SR 99 and west of I-5 (slightly south of Site 2).



Environmental Factors

The environmental factors for this site are all rated high or medium except for neighborhood/community and hazardous materials/brownfields. The site would require the relocation of the Midway Landfill retention pond.

Operational and Cost Factors

The operational and cost factors for this site are rated high or medium except for size/configuration (the length of the facility does not physically fit between SR 99 and the funded SR 509 ramps) and LRV site access. For these reasons the site will not be considered further.

Plan Consistency

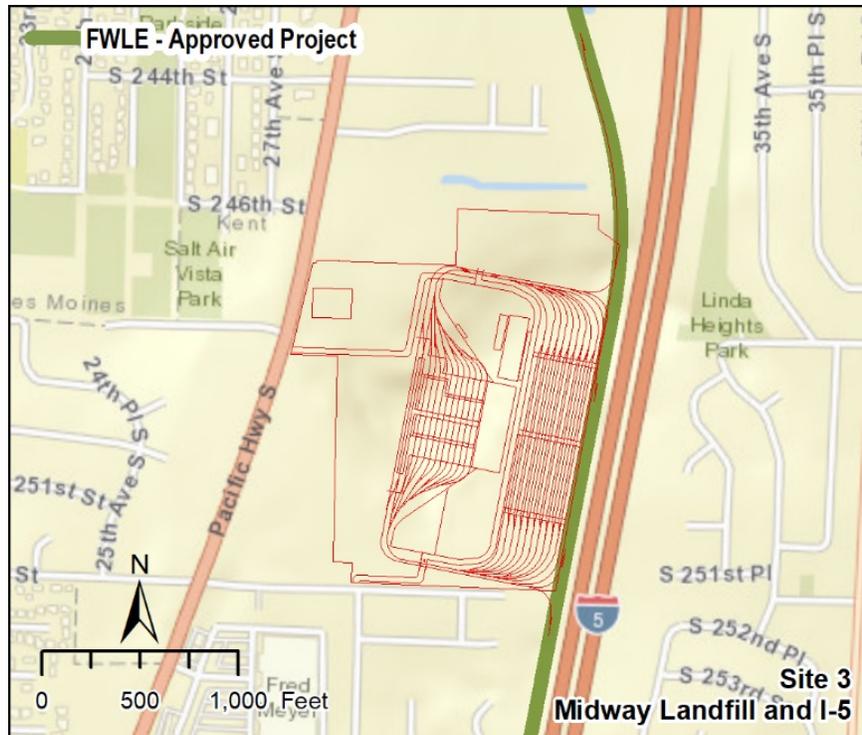
The site is not consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan because it is technically not feasible to build due to the impacts on SR 99 and SR 509.

Preliminary Estimates: \$750 million *

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 3 Midway Landfill and I-5

The site is located in the city of Kent on the eastern portion of the Midway Landfill, west of I-5.



Environmental Factors

The environmental factors for this site are rated high or medium except for topography and hazardous materials/brownfields. The site would require major grading due to topography and would likely require the purchase of the Midway Landfill, a federal superfund site.

Operational and Cost Factors

The operational and cost factors for this site are all rated high or medium except for schedule risk (potential regulatory requirements) and capital estimates. Building on the site requires the construction of a 33-acre, 3-foot-thick concrete structural platform that includes approximately 160 piles at a depth of approximately 150 feet over the deepest portion of the Midway Landfill.

Plan Consistency

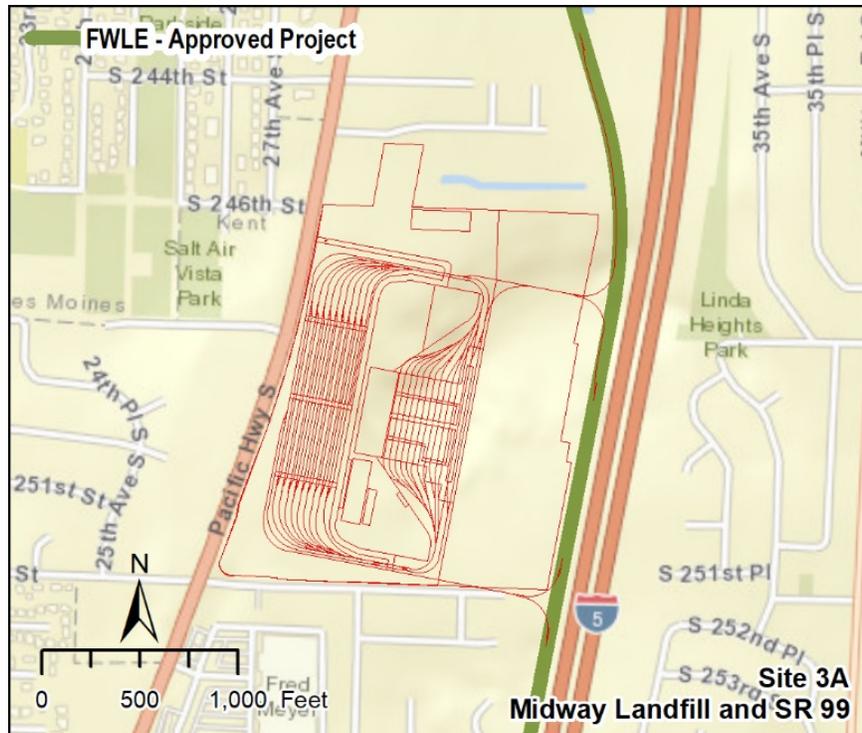
The site is consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan.

Preliminary Estimates: \$1,300 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 3A Midway Landfill and SR 99

The site is located in the city of Kent on the western edge of the Midway Landfill, east of SR 99.



Environmental Factors

The environmental factors for this site are rated high or medium except for economics, property impacts, topography, and hazardous materials/brownfields.

Operational and Cost Factors

The operational and cost ratings for this site are rated high or medium except for schedule risk, capital estimates and property value. Building on the site requires the construction of a 33-acre, 3-foot-thick concrete structural platform that includes approximately 120 piles at a depth of approximately 150 feet over a portion of the Midway Landfill.

Plan Consistency

The site is consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria.

Preliminary Estimates: \$1,400 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 4 Star Lake Park-and-Ride

The site is located in the city of Kent north of the Star Lake Park-and-Ride and west of I-5.



Environmental Factors

The environmental factors for this site are rated high or medium except for current and proposed zoning, property impacts, street/roads, neighborhood/community, and topography. The site would require over 3 million cubic yards of fill to level the site and require retaining walls up to 100 feet high. Therefore, this site will not be advanced for further consideration.

Operational and Cost Factors

The operational and cost factors for this site are rated high or medium except for size/configuration and capital estimates.

Plan Consistency

The site is not consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan because it is financially and technically not feasible to build due to the amount of fill required to level the site and the associated capital estimates.

Preliminary Estimate: \$1,050 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 7 S 316th St and Military Rd

The site is located in unincorporated King County east of I-5, south of Military Road, and north of S 316th Street.



Environmental Factors

The environmental factors for this site are rated high or medium except for current and proposed zoning, property impacts, streets/roads, wetlands and streams, and noise. The City of Federal Way has future plans to extend S 312th Street across the site and I-5.

Operational and Cost Factors

The operational and cost factors for this site are all rated high or medium except for LRV site access (site is across I-5 from the FWLE alignment) and operating estimates.

Plan Consistency

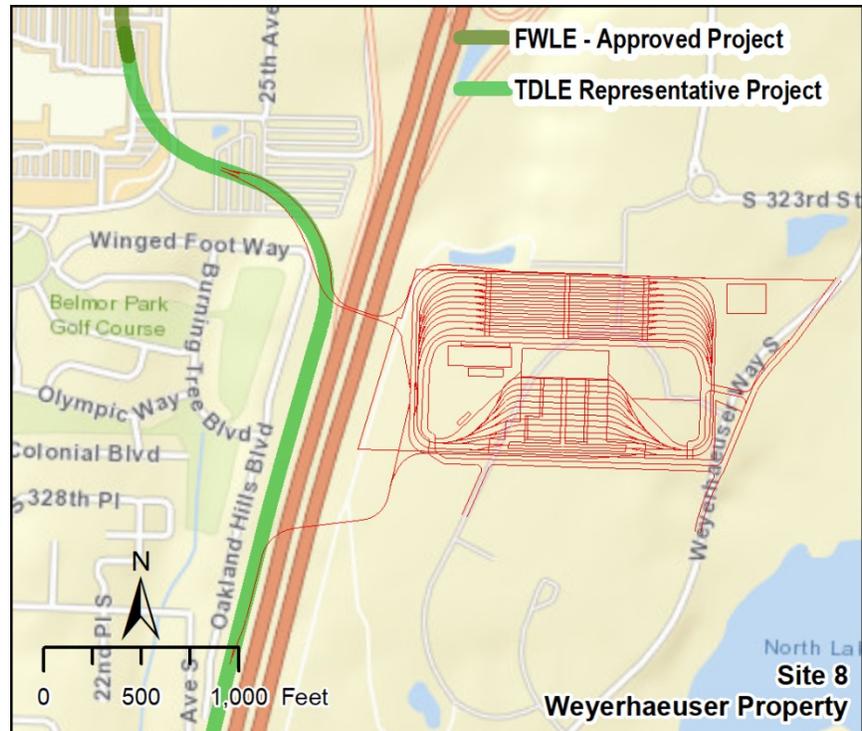
The site is consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria.

Preliminary Estimate: \$750 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 8 Weyerhaeuser Property

The site is located in the city of Federal Way on the north area of the Weyerhaeuser property east of I-5.



Environmental Factors

The environmental factors for this site are rated high or medium except for economic impacts, wetland and streams, and parks, trails, and open space impacts.

Operational and Cost Factors

The operational and cost factors for this site are rated high or medium except for LRV site access (site is located across I-5 from the TDLE alignment), schedule risk and operating estimates.

Plan Consistency

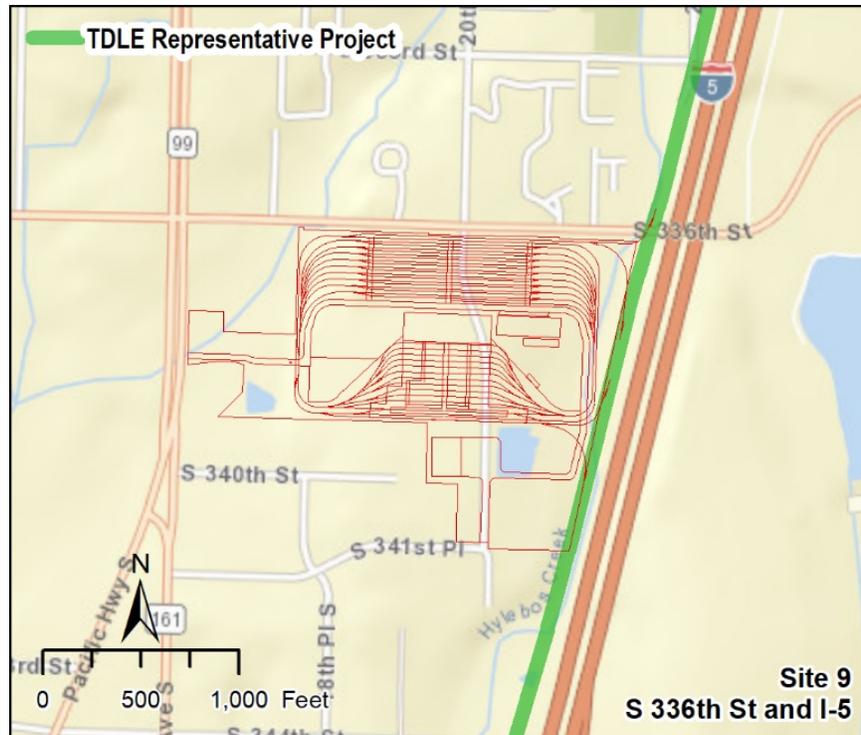
The site is partially consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria.

Preliminary Estimate: \$700 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 9 S 336th St and I-5

The site is located in the city of Federal Way south of S 336th Street and west of I-5.



Environmental Factors

The environmental factors for this site are rated high or medium except for current and proposed zoning, and neighborhood/community impacts (site has a large church and school located on the property).

Operational and Cost Factors

The operational and cost factors for this site are all rated high or medium except for property value. The site is 1.1 miles south of the operable alignment that ends at the FWTC.

To connect this site to the FWLE, the portion of the TDLE track between the Federal Way Transit Center and the facility will need to be constructed as part of the OMF South project.

Plan Consistency

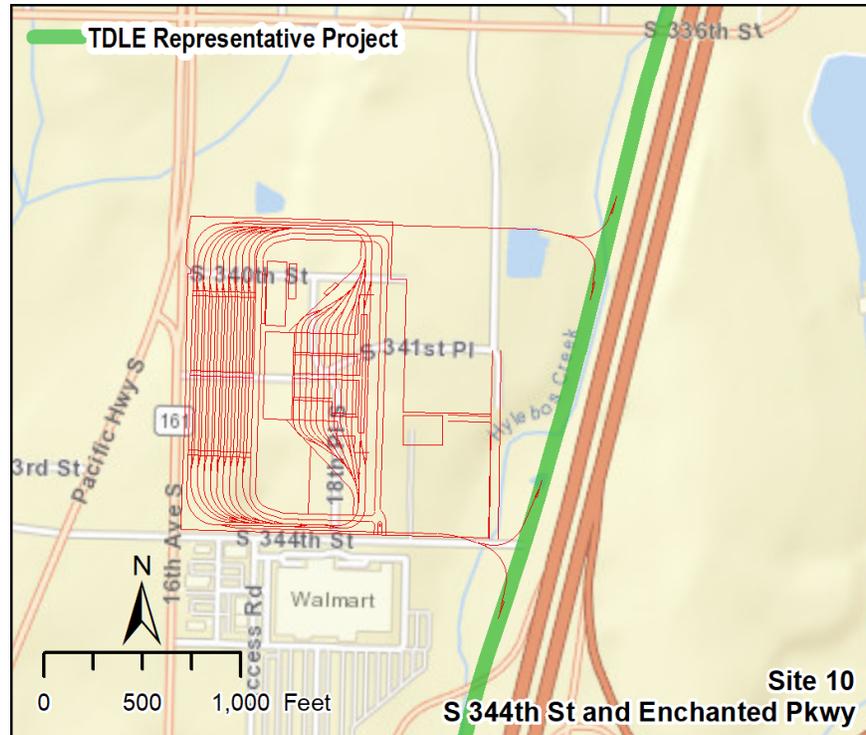
The site is partially consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria, but is assigned a medium score because its location could affect the ability to open the facility in time to accept and commission the ST3 light rail fleet.

Preliminary Estimate: \$750 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 10 S 344th St and Enchanted Pkwy

The site is located in the city of Federal Way north of S 344th Street and east of Enchanted Parkway (16th Avenue S).



Environmental Factors

The environmental factors for this site are rated high or medium except for economic impacts, property impacts, streets/roads, and topography.

Operational and Cost Factors

The operational and cost factors for this site are rated either high or medium except for property value. The site is 1.3 miles south of the operable alignment that ends at the FWTC.

To connect this site to the FWLE, the portion of the TDLE track between the FWTC and the facility will need to be constructed as part of the OMF South project.

Plan Consistency

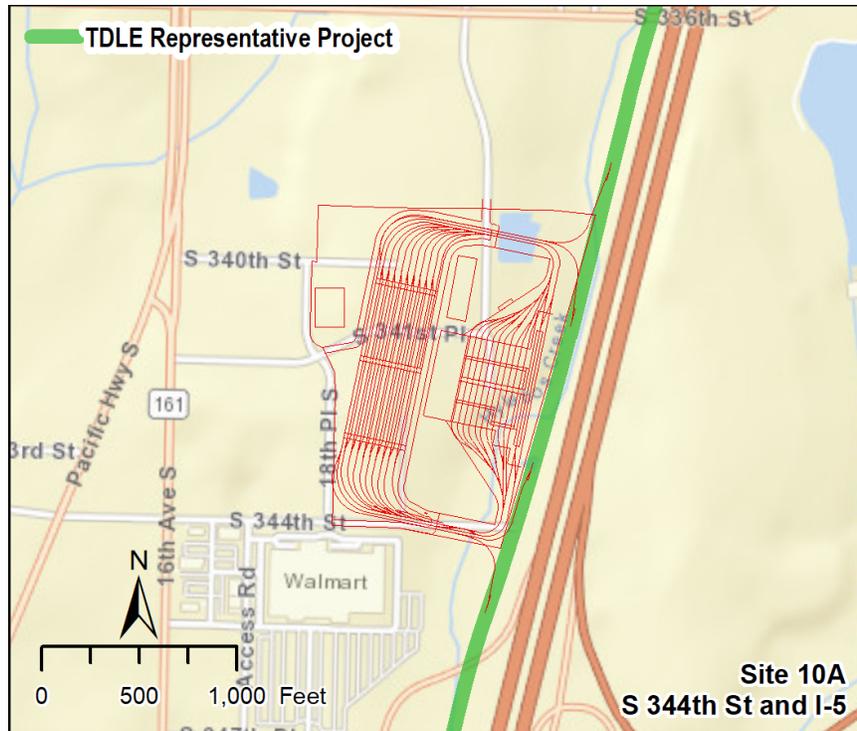
The site is partially consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria, but is assigned a medium score because its location could affect the ability to open the facility in time to accept and commission the ST3 light rail fleet.

Preliminary Estimate: \$900 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 10A S 344th St and I-5

The site is located in the city of Federal Way north of S 344th Street and just west of I-5.



Environmental Factors

All the environmental factors for this site are rated either high or medium except for property impacts.

Operational and Cost Factors

All the operational and cost factors for this site are rated high or medium. The ratings for Site 10A are similar to those of Site 10. The LRV access to the site is better than the access to Site 10 because the site is adjacent to I-5 and the lead tracks are shorter. The site is 1.3 miles south of the operable alignment that ends at the FWTC.

To connect this site to the FWLE, the portion of the TDLE track between the FWTC and the facility will need to be constructed as part of the OMF South project.

Plan Consistency

The site is partially consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria, but is assigned a medium score because its location could affect the ability to open the facility in time to accept and commission the ST3 light rail fleet.

Preliminary Estimate: \$800 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 11 Puyallup-Kit Corner Landfill

The site is located in unincorporated King County south of S 351st Street and east of I-5.



Environmental Factors

The environmental factors for this site with a low rating are current and proposed zoning, streets/roads, hazardous materials/brownfields because the majority of the site is on an old landfill, and noise because of the site's proximity to a single-family neighborhood. All other environmental factors are rated high or medium.

Operational and Cost Factors

The operational and cost factors for Site 11 all rate low except for size/configuration, capital estimates, and property value.

Plan Consistency

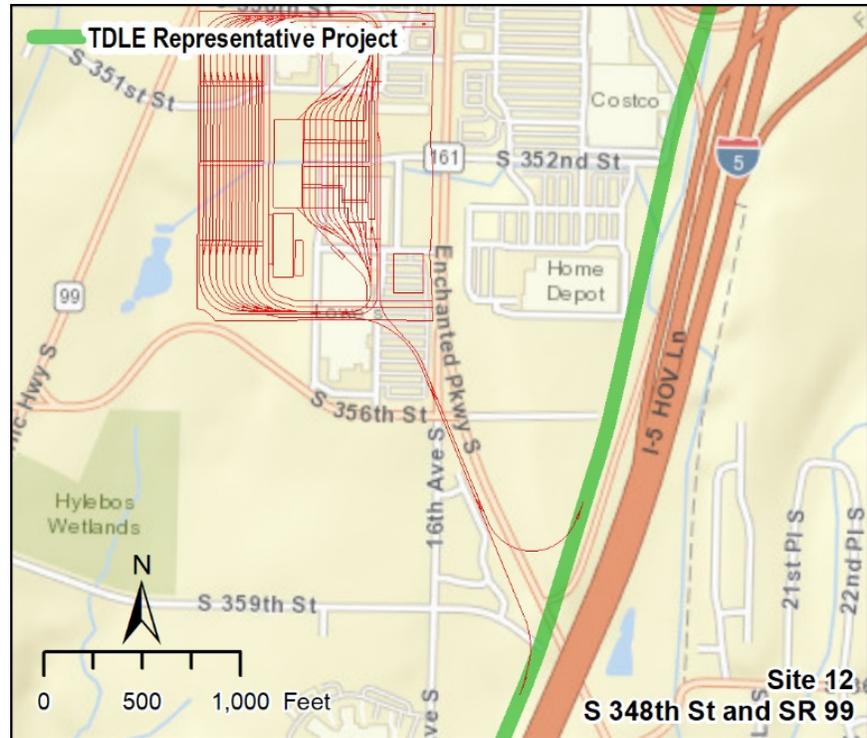
The site is not consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria because its southern location would affect the ability to open the facility early enough to accept and commission the ST3 light rail fleet.

Preliminary Estimate: \$900 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 12 S 348th St and SR 99

The site is located in the city of Federal Way west of I-5 between SR 99 and Enchanted Parkway S.



Environmental Factors

The two environmental factors that are rated low for this site are economic impacts and property impacts due to the large number of businesses on the site.

Operational and Cost Factors

All the operational and cost factors are rated low except for schedule risk and capital estimates.

Plan Consistency

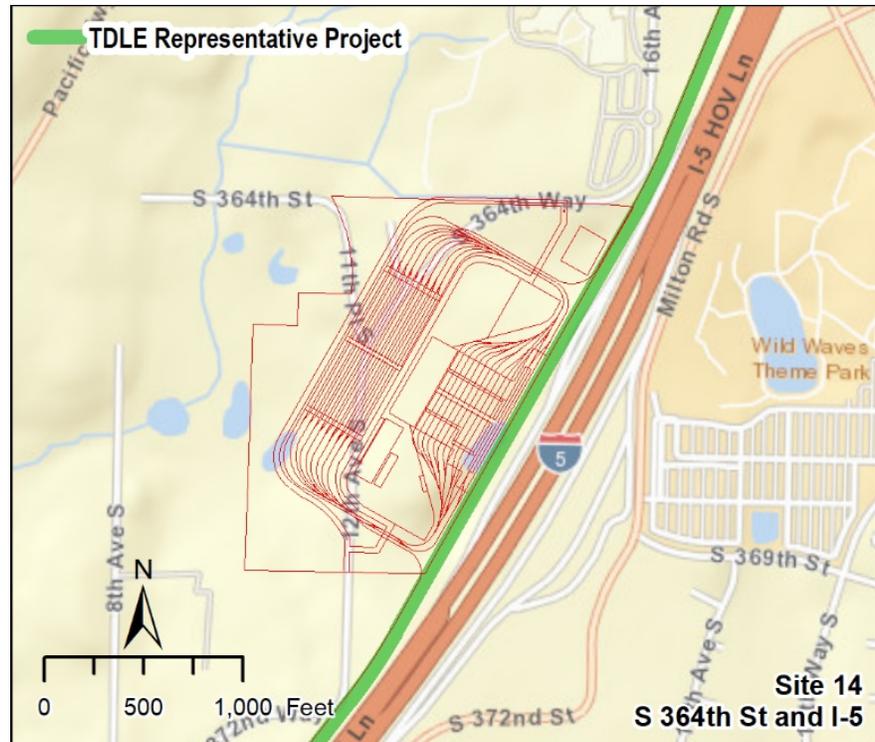
The site is not consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria because its southern location would affect the ability to open the facility early enough to accept and commission the ST3 light rail fleet.

Preliminary Estimate: \$950 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 14 S 364th St and I-5

The site is located in the city of Federal Way west of I-5 and south of S 364th Street.



Environmental Factors

The environmental factors rated low for this site are current and proposed zoning and topography. The site would require over 4 million cubic yards of fill to level the site, and retaining walls up to 100 feet high. Therefore, the site will not be advanced for further consideration.

Operational and Cost Factors

The operational and cost factors for the site are all rated low except for LRV access, schedule risk, operating estimates, and property value, which are rated high.

Plan Consistency

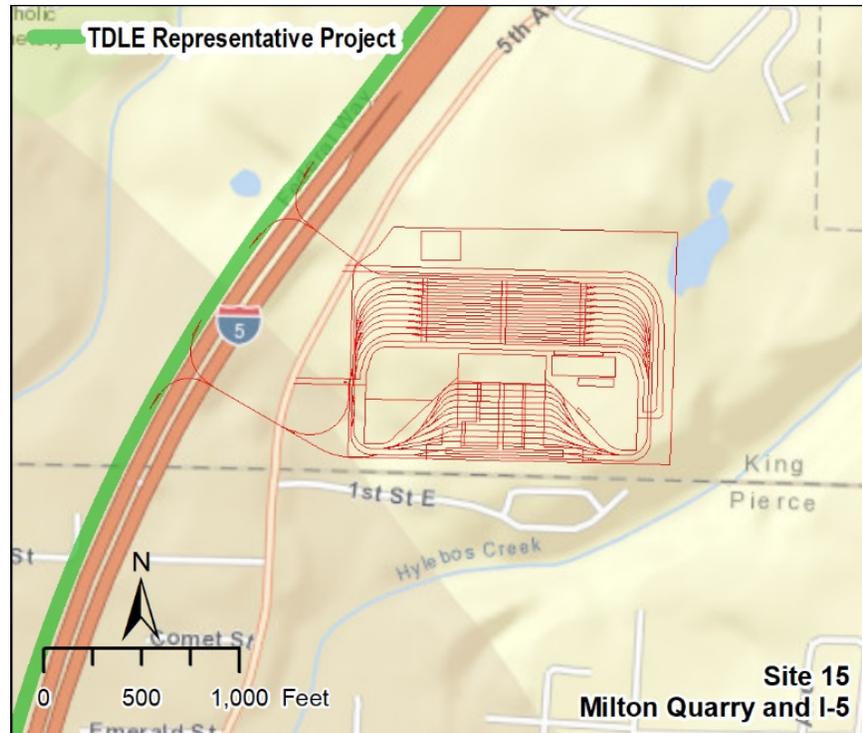
The site is not consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria because its southern location would affect the ability to open the facility early enough to accept and commission the ST3 light rail fleet.

Preliminary Estimate: \$1,150 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 15 Milton Quarry and I-5

The site is located in the city of Milton east of I-5 and just north of the Pierce County line.



Environmental Factors

The environmental factors for this site are rated high or medium with the exception of topography and floodplains and critical areas.

Operational and Cost Factors

The operational and cost factors for the site are all rated low except for size and configuration, schedule risk, capital estimates, and property value.

Plan Consistency

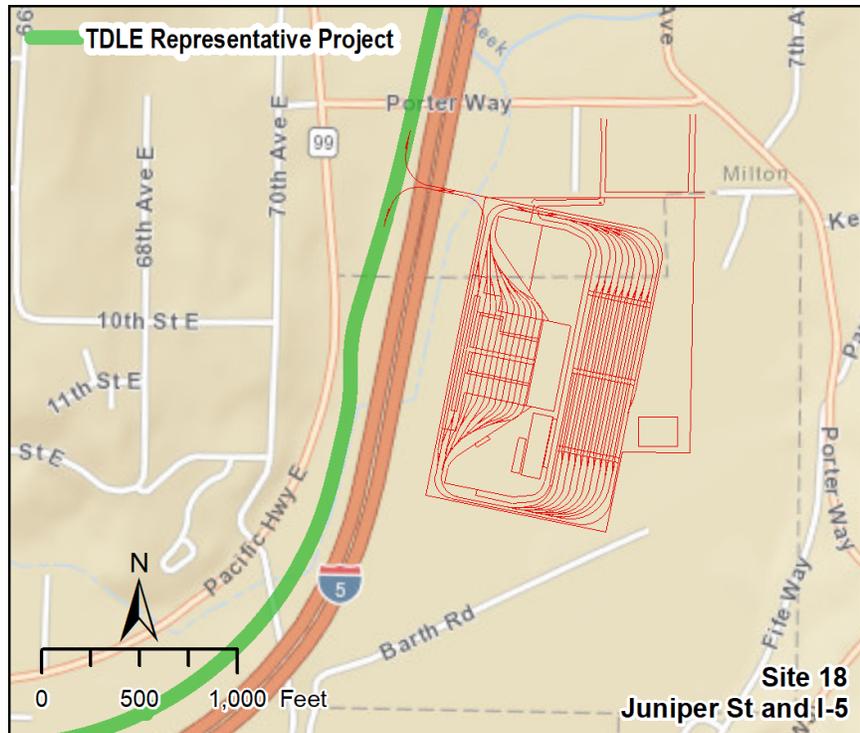
The site is not consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria because its southern location would affect the ability to open the facility early enough to accept and commission the ST3 light rail fleet.

Preliminary Estimate: \$800 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 18 Juniper St and I-5

The site is located in unincorporated Pierce County east of I-5 and south of Porter Way.



Environmental Factors

The environmental factors for this site are rated high or medium except for current and proposed zoning, streets/roads, wetlands and streams, floodplains and critical areas, historic/archeological and hazardous materials/brownfields.

Operational and Cost Factors

The operational and cost factors for the site are all rated low except for size/configuration, schedule risk, capital estimates, and property value.

Plan Consistency

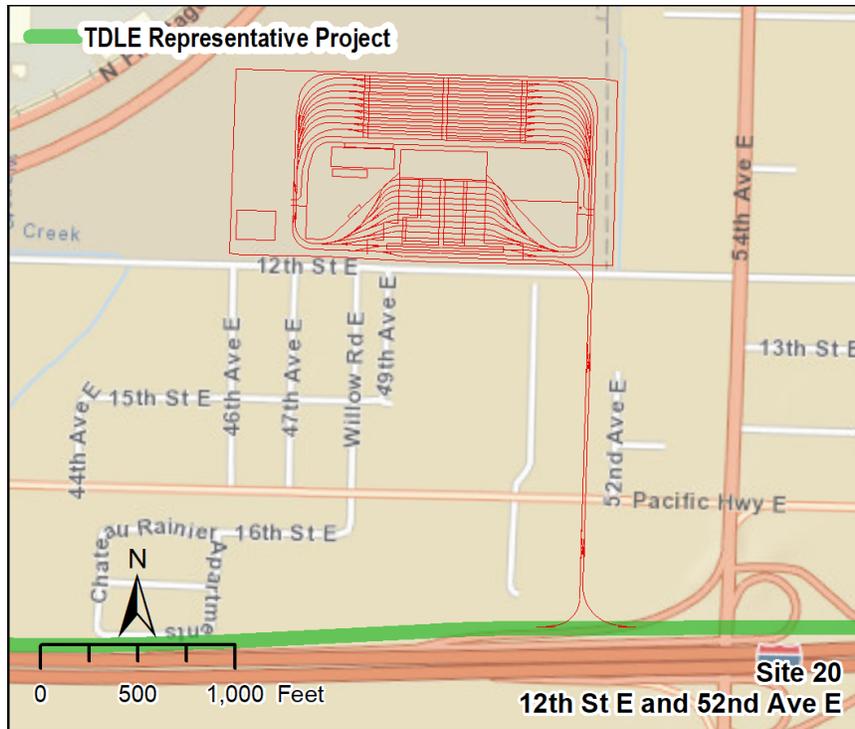
The site is not consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria because its southern location would affect the ability to open the facility early enough to accept and commission the ST3 light rail fleet.

Preliminary Estimate: \$650 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 20 12th St E and 52nd Ave E

The site is located in the city of Fife north of I-5 and south of 12th Street E.



Environmental Factors

The environmental factors for this site are rated high or medium with the exception of economic and property impacts and historical/archaeological.

Operational and Cost Factors

The operational and cost factors for the site are all rated low except for size and configuration, schedule risk and capital estimates.

Plan Consistency

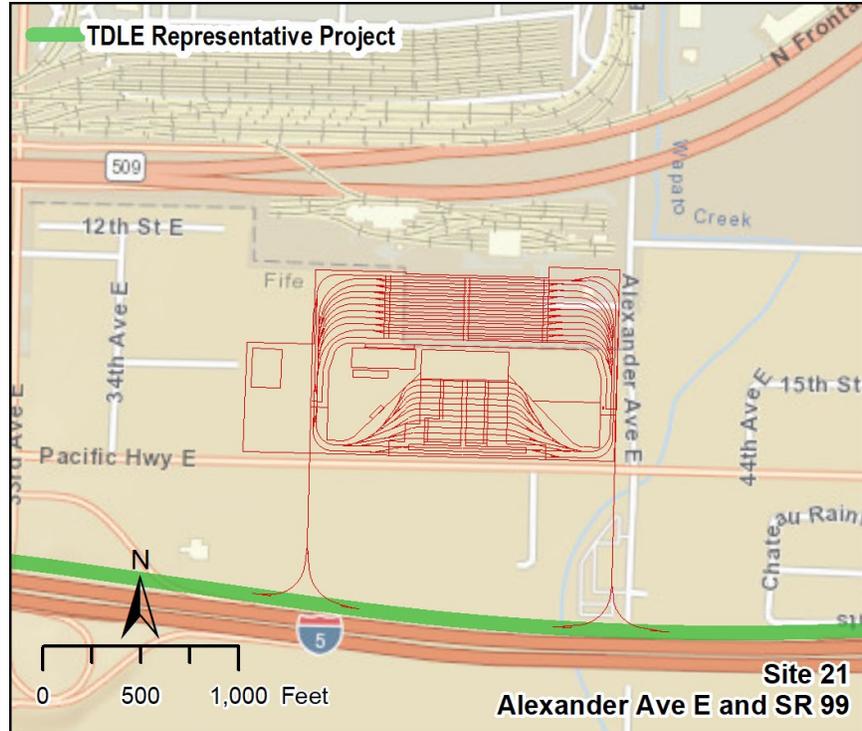
The site is not consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria because its southern location would affect the ability to open the facility early enough to accept and commission the ST3 light rail fleet.

Preliminary Estimate: \$800 million *

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 21 Alexander Ave E and SR 99

The site is located in the cities of Fife and Tacoma north of I-5 and SR 99.



Environmental Factors

The environmental factors for this site are rated high or medium except for economic and property impacts, and historic/archaeological.

Operational and Cost Factors

The operational and cost factors for this site are all rated low except for size/configuration, LRV access, schedule risk, and capital estimates.

Plan Consistency

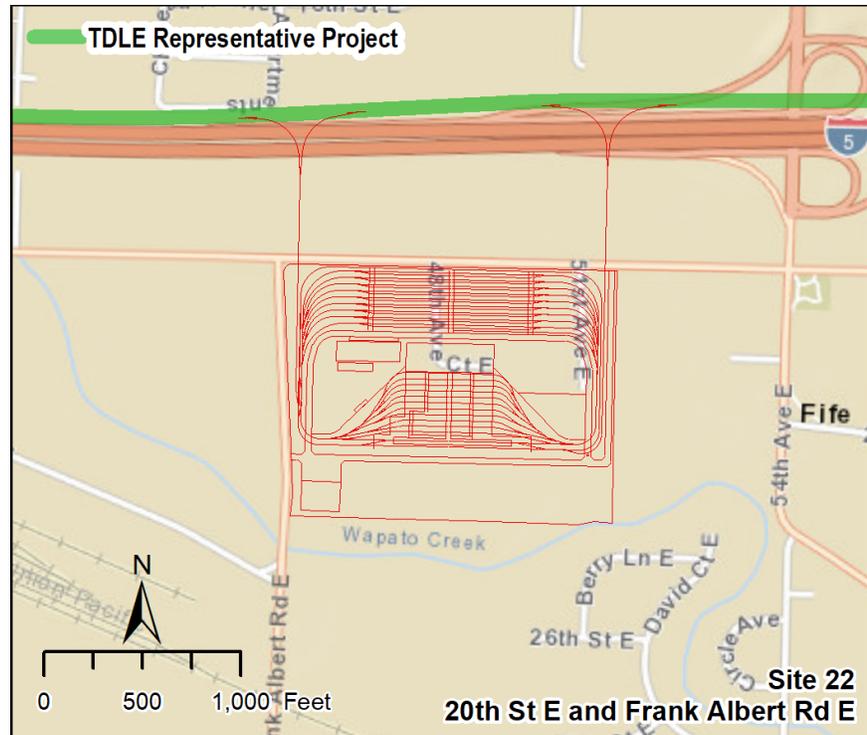
The site is not consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria because its southern location would affect the ability to open the facility early enough to accept and commission the ST3 light rail fleet.

Preliminary Estimate: \$700 million *

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Site 22 20th St E and Frank Albert Rd E

The site is located in the city of Fife south of 20th Street E and I-5.



Environmental Factors

The environmental factors for this site are all rated high or medium except for economic impact and historic/archeological.

Operational and Cost Factors

The operational and cost factors for the site are all rated low except for size/configuration, schedule risk, and capital estimates.

Plan Consistency

The site is not consistent with the Sound Transit Regional Transit Long-Range Plan and ST3 Plan criteria because its southern location would affect the ability to open the facility early enough to accept and commission the ST3 light rail fleet.

Preliminary Estimate: \$850 million*

* Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

Appendix A - OMF South Technical Data used in the Alternatives Evaluation

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Table A-1. OMF South Technical Data used in the Alternatives Evaluation

	1	2	2A	3	3A
	Kent	Kent	Kent	Kent	Kent
	S 240th St and SR 99	Midway Area North	Midway Area South	Midway Landfill and I-5	Midway Landfill and SR 99
Current and Proposed Zoning	<ul style="list-style-type: none"> Midway Commercial Residential Mobile Home Park Midway Transit Community General Commercial 	<ul style="list-style-type: none"> Midway Commercial Residential Mobile Home Park Commercial Manufacturing General Commercial 	<ul style="list-style-type: none"> Midway Commercial Residential Mobile Home Park Commercial Manufacturing General Commercial 	<ul style="list-style-type: none"> Commercial Manufacturing 	<ul style="list-style-type: none"> Commercial Manufacturing
Economic Impacts	Economic activity generators <ul style="list-style-type: none"> Home improvement store Trucking/transportation Restaurant 	Economic activity generators <ul style="list-style-type: none"> Trucking/transportation 	Economic activity generators <ul style="list-style-type: none"> Trucking/transportation Manufacturing enterprises 	None	Economic activity generators <ul style="list-style-type: none"> Long stay hotel/motel Manufacturing/storage
Property Impacts	No. of Parcels <ul style="list-style-type: none"> Commercial (4) Residential (3), but including a 30+ multi-residence mobile home park Other (11) 	No. of Parcels <ul style="list-style-type: none"> Commercial (2) Residential (3) Other (11) 	No. of Parcels <ul style="list-style-type: none"> Commercial (3) Residential (3) Other (7) 	No. of Parcels <ul style="list-style-type: none"> Commercial (1) Residential (1) Other (9) 	No. of Parcels <ul style="list-style-type: none"> Commercial (13) Residential (2) Other (13)
Streets/Roads	<ul style="list-style-type: none"> I-5/Kent Des Moines Rd exit (highway) SR 99 (major arterial) 	<ul style="list-style-type: none"> I-5/Kent Des Moines Rd exit (highway) SR 99 (major arterial) 	<ul style="list-style-type: none"> I-5/Kent Des Moines Rd exit (highway) SR 99 (major arterial) 	<ul style="list-style-type: none"> I-5/Kent Des Moines Rd exit (highway) SR 99 (major arterial) 	<ul style="list-style-type: none"> I-5/Kent Des Moines Rd exit (highway) SR 99 (major arterial)
Neighborhood/Community	<ul style="list-style-type: none"> Industrial properties Home improvement store Mobile home park 	<ul style="list-style-type: none"> Industrial properties Home improvement store Mobile home park 	<ul style="list-style-type: none"> Midway Landfill Industrial properties Mobile home park 	<ul style="list-style-type: none"> Midway Landfill S 252nd Street right-of-way Single-family parcel (1) 	<ul style="list-style-type: none"> Midway Landfill S 252nd Street right-of-way Single-family parcels (2)
Topography	Varies in elevation by 45 feet	Varies in elevation by 35 feet	Varies in elevation by 25 feet	Varies in elevation by 55 feet	Varies in elevation by 45 feet
Wetlands and Streams	<ul style="list-style-type: none"> Wetlands - Along east edge, mainly off site and avoidable. Veg area east of wetland appears to be disturbed. Veg rectangle south of Lowe's is upland Streams - none 	<ul style="list-style-type: none"> Wetlands - Very low probability of small wetland on west edge in grassy area Streams - none 	<ul style="list-style-type: none"> Wetlands - Very low probability of small wetland on west edge in grassy area Streams - none 	<ul style="list-style-type: none"> Wetlands - Very low probability of small wetland on west edge in grassy area Streams - none 	<ul style="list-style-type: none"> Wetlands - Very low probability of small wetland on west edge in grassy area Streams - none
Flood Plains & Critical Areas	No mapped water resources or landslide/erosion hazard areas	No mapped water resources or landslide/erosion hazard areas	No mapped water resources or landslide/erosion hazard areas	No mapped water resources or landslide/erosion hazard areas	No mapped water resources or landslide/erosion hazard areas
Parks, Trails, and Open Space	None identified	None identified	None identified	None identified	None identified
Historic/Archaeological¹	<ul style="list-style-type: none"> Impacts 2 parcels that are potentially eligible for the NRHP Low risk to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 2 parcels that are potentially eligible for the NRHP Low risk to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 2 parcels that are potentially eligible for the NRHP Low risk to impact archaeological resources 	<ul style="list-style-type: none"> No impacts to historic properties Low risk to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 3 parcels that are potentially eligible for the NRHP Low risk to impact archaeological resources
Hazardous Materials/Brownfields	Commercial property - petroleum in soil, remediated.	Midway Landfill – Superfund site - halogenated organics, PCBs, 4-dioxane, metals in soil. Landfill gas, active monitoring.	Midway Landfill – Superfund site - halogenated organics, PCBs, 1, 4-dioxane, metals in soil. Landfill gas, active monitoring.	Midway Landfill – Superfund site - halogenated organics, PCBs, 4-dioxane, metals in soil. Landfill gas, active monitoring.	Midway Landfill – Superfund site - halogenated organics, PCBs, 4-dioxane, metals in soil. Landfill gas, active monitoring.
Noise	Residential receptors (16)	Residential receptors (13)	Residential receptors (10)	Residential receptors (40)	Residential receptors (45)
Size/Configuration	Meets requirements	Does not meet requirements	Does not meet requirements	Meets requirements	Meets requirements
Maintenance Window	No impact	No impact	No impact	No impact	No impact
LRV Site Access	Complex lead track	Complex lead track	Complex lead track	Simple lead track	Somewhat complex lead track
Schedule Risk (Other than LRV Access)	High risk	Medium risk	Medium risk	High risk	High risk
Operability	< 0.5 miles from operating line	< 0.5 miles from operating line	< 0.5 miles from operating line	< 0.5 miles from operating line	< 0.5 miles from operating line
Operating estimates	Medium	Medium	Medium	Low	Medium
Capital Estimates² (Order of Magnitude)	\$800 million	\$850 million	\$750 million	\$1,300 million	\$1,400 million
Property Value	High	High	Medium	Medium	High
Parcel Size	40.9 acres	53.2 acres	37.5 acres	54.7 acres	45.8 acres
ST Long-Range/ST3 plans	Consistent	Not Consistent	Not Consistent	Consistent	Consistent

Table A-1. OMF South Technical Data used in the Alternatives Evaluation (continued)

	4	7	8	9	10
	Kent	King County	Federal Way	Federal Way	Federal Way
	Star Lake Park-and-Ride	S 316th St and Military Rd	Weyerhaeuser Property	S 336th St and I-5	S 344th St and Enchanted Pkwy
Current and Proposed Zoning	<ul style="list-style-type: none"> Single-Family Residential 	<ul style="list-style-type: none"> Residential Community Business 	<ul style="list-style-type: none"> Office, but with land use actions pending 	<ul style="list-style-type: none"> Multi-Family Residential Commercial 	<ul style="list-style-type: none"> Multi-Family Residential Commercial
Economic Impacts	None	None	Economic activity generators <ul style="list-style-type: none"> Vacant corporate campus 	Economic activity generators <ul style="list-style-type: none"> Church and religious center 	Economic activity generators <ul style="list-style-type: none"> Automotive Storage Business park
Property Impacts	No. of Parcels <ul style="list-style-type: none"> Commercial (1) Residential (33) Other (13) 	No. of Parcels <ul style="list-style-type: none"> Commercial (0) Residential (29) Other (16) 	No. of Parcels <ul style="list-style-type: none"> Commercial (1) Residential (1) Other (5) 	No. of Parcels <ul style="list-style-type: none"> Commercial (1) Residential (1) Other (5) 	No. of Parcels <ul style="list-style-type: none"> Commercial (20) Residential (24) Other (10)
Streets/Roads	<ul style="list-style-type: none"> I-5/S 272nd St (highway) S 272nd St (minor arterial) 26th Ave E (local) 	<ul style="list-style-type: none"> I-5/S 320th St (highway) S 320th St/Military Rd (major arterials) S 316th Ave (local) 	<ul style="list-style-type: none"> I-5/S 320th St (highway) S 320th St (major arterial) Weyerhaeuser Way (major arterial) 	<ul style="list-style-type: none"> I-5/S 348th St (highway) S 348th St (major arterial) 16th Ave S (major arterial) S 336th St (major arterial) 	<ul style="list-style-type: none"> I-5/S 348th St (highway) S 348th St (major arterial) 16th Ave S (major arterial) S 344th St (local)
Neighborhood/Community	<ul style="list-style-type: none"> Public properties Single-family parcels (31) 	<ul style="list-style-type: none"> Single-family parcels (29) Vacant parcels 	<ul style="list-style-type: none"> Privately owned open space/natural areas and trails open to the public 	<ul style="list-style-type: none"> Church and religious center Industrial properties 	<ul style="list-style-type: none"> Church/religious center Industrial/commercial properties (48)
Topography	Varies in elevation by 110 feet	Varies in elevation by 30 feet	Varies in elevation by 25 feet	Varies in elevation by 60 feet	Varies in elevation by 55 feet
Wetlands and Streams	<ul style="list-style-type: none"> Wetlands - Large complex to the north and west and upland to the east Streams - Wetland is headwaters of McSorley Creek 	<ul style="list-style-type: none"> Wetlands - Mapped in south end of site and unmapped wetlands within central portion Streams - Fish-bearing immediately north of site with extensive native forest 	<ul style="list-style-type: none"> Wetlands - Mapped peat bogs immediately north and west of site and unmapped wetlands in site and southwest corner Streams - Present to south with extensive native forest 	<ul style="list-style-type: none"> Wetlands - On west side of parcel Streams - Hylebos Creek on east side of parcel with fish 	<ul style="list-style-type: none"> Wetlands - North of parcel (off site)
Flood Plains & Critical Areas	Site encroaches slightly on erosion hazard area to north	Site encroaches slightly on erosion hazard area to south	No mapped water resources or landslide/erosion hazard areas	West Hylebos Creek tributary flows through west side and Hylebos Creek flows through east side of site. No floodplain beyond stream bank.	Hylebos Creek flows just to the southeast, outside of site footprint. No floodplain mapped beyond stream bank.
Parks, Trails, and Open Space	None identified	None identified	Open space proposed and partly funded	None identified	None identified
Historic/Archaeological¹	<ul style="list-style-type: none"> No impacts to historic properties Moderate to low potential to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 7 parcels that are potentially eligible for the NRHP Moderate potential to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 1 parcel that is potentially eligible for the NRHP Moderate potential to impact archaeological resources 	<ul style="list-style-type: none"> No impacts to historic properties Moderate potential to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 25 parcels that are potentially eligible for the NRHP Moderate potential to impact archaeological resources
Hazardous Materials/Brownfields	King County Department of Transportation - C DOT Star Lake - CSCSL NFA, LUST, petroleum in soil, NFA 2001	N/A	Weyerhaeuser Tech Center - VCP, petroleum and PAHs in soil	N/A	Commercial property - VCP, metals and petroleum confirmed in surface water, petroleum confirmed in soil, metals suspected in soil. Cleanup in process.
Noise	<ul style="list-style-type: none"> Residential receptors (36) 	<ul style="list-style-type: none"> Residential receptors (73) 	None	<ul style="list-style-type: none"> Residential receptors (28) Other receptors (7) 	<ul style="list-style-type: none"> Residential receptors (24)
Size/Configuration	Does not meet requirements	Meets requirements	Meets requirements	Meets requirements	Meets requirements
Maintenance Window	No impact	No impact	No impact	Partial impact	Partial impact
LRV Site Access	Simple lead track	Complex lead track	Complex lead track	Simple lead track	Somewhat complex lead track
Schedule Risk (Other than LRV Access)	Low risk	Medium risk	High risk	High risk	Low risk
Operability	< 0.5 mile from operating line	< 0.5 mile from operating line	<0.5 mile from operating line	1.1 miles from operating line	1.3 miles from operating line
Operating Estimates	Low	High	High	Low	Low
Capital Estimates² (Order of Magnitude)	\$1,050 million	\$750 million	\$700 million	\$750 million	\$900 million
Property Value	Medium	Low	Low	High	High
Parcel Size	41.6 acres	54.4 acres	41.4 acres	50.8 acres	46.5 acres
ST Long-Range/ST3 plans	Not Consistent	Consistent	Partially Consistent	Partially Consistent	Partially Consistent

Table A-1. OMF South Technical Data used in the Alternatives Evaluation (continued)

	10A	11	12	13	14
	Federal Way S 344th St and I-5	King County Puyallup-Kit Corner Landfill	Federal Way S 348th St and SR 99	King County S 369th St and I-5	Federal Way S 364th St and I-5
Current and Proposed Zoning	<ul style="list-style-type: none"> Commercial Multi-family Residential 	<ul style="list-style-type: none"> Residential 	<ul style="list-style-type: none"> Commercial Multi-family Residential 	<ul style="list-style-type: none"> Office 	<ul style="list-style-type: none"> Single-family Residential
Economic Impacts	Economic activity generators <ul style="list-style-type: none"> Automotive Business park 	None	Economic activity generators <ul style="list-style-type: none"> Storage/moving rentals Mall development Home improvement store 	Economic activity generators <ul style="list-style-type: none"> Amusement park 	None
Property Impacts	No. of Parcels <ul style="list-style-type: none"> Commercial (11) Residential (14) Other (11) 	No. of Parcels <ul style="list-style-type: none"> Commercial (1) Residential (1) Other (12) 	No. of Parcels <ul style="list-style-type: none"> Commercial (13) Residential (4) Other (4) 	No. of Parcels <ul style="list-style-type: none"> Commercial (0) Residential (2) Other (3) 	No. of Parcels <ul style="list-style-type: none"> Commercial (0) Residential (16) Other (7)
Streets/Roads	<ul style="list-style-type: none"> I-5/S 320th St (highway) S 320th St (major arterial) 16th Ave S (major arterial) 	<ul style="list-style-type: none"> I-5/S 348th St (northbound) and I-5/Kit Corner (southbound) (highway) Kit Corner (major arterial) S 360th St (minor arterial) Residential streets 	<ul style="list-style-type: none"> I-5/S 348th St (highway) S 348th St (major arterial) Enchanted Parkway (major arterial) 	<ul style="list-style-type: none"> I-5/S 348th St (highway) S 348th St (major arterial) Enchanted Parkway (major arterial) 	<ul style="list-style-type: none"> I-5/S 348th St (highway) S 348th St (major arterial) 16th Ave S (major arterial) S 364th Way (minor arterial)
Neighborhood/Community	<ul style="list-style-type: none"> Church and religious center Industrial and commercial properties (30) 	<ul style="list-style-type: none"> Privately owned open space/natural areas and trails open to the public 	<ul style="list-style-type: none"> Commercial properties Apartment complex Single-family parcel (1) 	<ul style="list-style-type: none"> Amusement park WSDOT Rest Area Single-family parcels (2) 	<ul style="list-style-type: none"> Residential parcels (15) Close to Todd Beamer High School
Topography	Varies in elevation by 35 feet	Varies in elevation by 20 feet	Varies in elevation by 40 feet	Varies in elevation by 60 feet	Varies in elevation by 130 feet
Wetlands and Streams	<ul style="list-style-type: none"> Wetlands - North of parcel (off site) Streams - Hylebos Creek on east side of parcel with fish 	<ul style="list-style-type: none"> Wetlands - Possibly associated with stream Streams - Possible branch of Hylebos Creek begins along west side of parcel 	<ul style="list-style-type: none"> Wetlands - southwest corner (just off site, buffer only) and northwest corner Streams - Appears to be piped 	<ul style="list-style-type: none"> Wetlands - Mud Lake? Streams - Hylebos Creek flows from Mud Lake out of site, likely in a pipe Fish mapped in stream and lake 	<ul style="list-style-type: none"> Wetlands - Large complex on west side, unmapped wetlands Streams - None Steep slopes, extensive native forest
Flood Plains & Critical Areas	Hylebos Creek flows through southeast. No floodplain mapped beyond stream bank.	Tributary to Hylebos Creek flows through southeast. No floodplain mapped beyond stream bank.	Unnamed tributary to Hylebos Creek bisects site. No floodplain mapped beyond stream bank.	No mapped water resources or landslide/erosion hazard areas.	Unnamed King County stream to the north of site.
Parks, Trails, and Open Space	None identified	None identified	None identified	None identified	None identified
Historic/Archaeological¹	<ul style="list-style-type: none"> Impacts 14 parcels that are potentially eligible for the NRHP Moderate potential to impact archaeological resources 	<ul style="list-style-type: none"> No impacts to historic properties Moderate potential to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 4 parcels that are potentially eligible for the NRHP Moderate potential to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 2 parcels that are potentially eligible for the NRHP Low potential to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 6 parcels that are potentially eligible for the NRHP Low potential to impact archaeological resources
Hazardous Materials/Brownfields	Commercial property - VCP, metals and petroleum confirmed in surface water, petroleum confirmed in soil, metals suspected in soil, cleanup in process	Puyallup-Kit Corner Landfill (closed) - Halogenated organics in groundwater. Suspected metals, pesticides, PAH's in soil, groundwater and surface water. Suspected halogenated organics and solvents in air (landfill gas).	<ul style="list-style-type: none"> Industrial property - Petroleum in soil, and suspected in groundwater and surface water, awaiting cleanup Commercial property - LUST cleanup, petroleum in soil 	N/A	N/A
Noise	<ul style="list-style-type: none"> Residential receptors (24) Other receptors (2) 	<ul style="list-style-type: none"> Residential receptors (74) 	<ul style="list-style-type: none"> Residential receptors (15) Other receptors (1) 	None	<ul style="list-style-type: none"> Residential receptors (32)
Size/Configuration	Meets requirements	Meet requirements	Does not meet requirements	Does not meet requirements	Does not meet requirements
Maintenance Window	Partial impact	High impact	High impact	High impact	High impact
LRV Site Access	Simple lead track required to access site	Complex lead track required to access site	Complex lead track required to access site	Complex lead track required to access site	Simple lead track required to access site
Maintenance Window	Partial impact	High impact	High impact	High impact	High impact
LRV Site Access	Simple lead track	Complex lead track	Complex lead track	Complex lead track	Simple lead track
Schedule Risk (Other than LRV Access)	Medium risk	High risk	Low risk	Medium risk	Low risk
Operability	1.3 miles from operating line	1.9 miles from operating line	2.0 miles from operating line	2.7 miles from operating line	2.8 miles from operating line
Operating Estimates	Medium	High	High	High	Low
Capital Estimates² (Order of Magnitude)	\$800 million	\$900 million	\$950 million	\$950 million	\$1,150 million
Property Value	Medium	Medium	High	Low	Low
Parcel Size	44.3 acres	42.5 acres	43.2 acres	38.0 acres	49.0 acres
ST Long-Range/ST3 plans	Partially Consistent	Not Consistent	Not Consistent	Not Consistent	Not Consistent

Table A-1. OMF South Technical Data used in the Alternatives Evaluation (continued)

	15	18	20	21	22
	Milton Milton Quarry and I-5	Pierce County Juniper St and I-5	Fife 12th St E and 52nd Ave E	Fife/Tacoma Alexander Ave E and SR 99	Fife 20th St E and Frank Albert Rd E
Current and Proposed Zoning	<ul style="list-style-type: none"> Planned Development District 	<ul style="list-style-type: none"> Single-family Residential 	<ul style="list-style-type: none"> Heavy Industrial 	<ul style="list-style-type: none"> Regional Commercial Heavy Industrial Open Space 	<ul style="list-style-type: none"> Regional Commercial Industrial
Economic Impacts	Economic activity generators <ul style="list-style-type: none"> Manufacturing enterprise 	None	Economic activity generators <ul style="list-style-type: none"> Warehouse/technical enterprises 	Economic activity generators <ul style="list-style-type: none"> Auto dealer Specialized laboratory Equipment rental 	Economic activity generators <ul style="list-style-type: none"> Business center Industrial park Transportation/shipping
Property Impacts	No. of Parcels <ul style="list-style-type: none"> Commercial (0) Residential (0) Other (8) 	No. of Parcels <ul style="list-style-type: none"> Commercial (2) Residential (1) Other (10) 	No. of Parcels <ul style="list-style-type: none"> Commercial (8) Residential (0) Other (5) 	No. of Parcels <ul style="list-style-type: none"> Commercial (25) Residential (0) Other (8) 	No. of Parcels <ul style="list-style-type: none"> Commercial (8) Residential (0) Other (5)
Streets/Roads	<ul style="list-style-type: none"> I-5/54th Ave E (highway) 20th St (major arterial) Milton Way (major arterial) Milton Rd (minor arterial) 	<ul style="list-style-type: none"> I-5/54th Ave E (highway) 20th St (major arterial) 70th Ave (minor arterial) Barth Rd (local road) 	<ul style="list-style-type: none"> I-5/54th Ave E (highway) 54th Ave (major arterial) 12th St E (collector arterial) 	<ul style="list-style-type: none"> I-5/33rd Ave (highway) 33rd Ave (major arterial) Pacific Highway (major arterial) 	<ul style="list-style-type: none"> I-5/54th Ave E (highway) 54th Ave (major arterial) 20th St E (minor arterial)
Neighborhood/Community	<ul style="list-style-type: none"> Working quarry Industrial properties 	<ul style="list-style-type: none"> Open space accessible to public Industrial parcels (2) 	<ul style="list-style-type: none"> Warehouse Commercial/industrial uses 	<ul style="list-style-type: none"> Commercial properties (23) Government parcels 	<ul style="list-style-type: none"> Industrial properties (10)
Topography	Varies in elevation by 115 feet	Varies in elevation by 10 feet	Varies in elevation by 10 feet	Varies in elevation by 10 feet	Varies in elevation by 10 feet
Wetlands and Streams	<ul style="list-style-type: none"> Wetlands - Possibly associated with stream, small patches of willows Streams - Hylebos Creek on south and east side of parcel, with fish 	<ul style="list-style-type: none"> Wetlands - Entire parcel Streams - Hylebos Creek on east side of parcel with fish 	<ul style="list-style-type: none"> Wetlands - Possibly associated with stream Streams - Wapato Creek along east side, with fish 	<ul style="list-style-type: none"> Wetlands - Possibly associated with streams with unmapped areas in adjacent vegetated area Streams - Tributary to Puget Sound and Wapato Creek, both with fish 	<ul style="list-style-type: none"> Wetlands - Along south edge that extends from stream into south-central area Streams - Wapato Creek along south side, with fish
Flood Plains & Critical Areas	Extensive encroachment into landslide and erosion hazard areas	Extensive encroachment into mapped Hylebos Creek floodplain. Site contains landslide hazard areas.	East side abuts Wapato Creek floodplain and south side abuts Wapato Creek channel with no mapped floodplains	Unnamed stream channel and associated floodplain bisects site	Southwest corner within Wapato Creek floodplain
Parks, Trails, and Open Space	None identified	Existing open space and adjacent to Interurban Trail	None identified	None identified	Adjacent to proposed regional connector trail along 20th St E
Historic/Archaeological¹	<ul style="list-style-type: none"> No impacts to historic properties Low potential to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 2 parcels that are potentially eligible for the NRHP High potential to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 4 parcels that are potentially eligible for the NRHP High potential to impact archaeological resources 	<ul style="list-style-type: none"> Impacts 3 parcels that are potentially eligible for the NRHP High potential to impact archaeological resources 	<ul style="list-style-type: none"> No impacts to historic properties High potential to impact archaeological resources
Hazardous Materials/Brownfields	N/A	<ul style="list-style-type: none"> Commercial property - PLIA cleanup in process, arsenic, lead and petroleum in soil, metals and petroleum in groundwater, suspected halogenated solvents Commercial property - Asarco slag-arsenic, arsenic groundwater plume, site in cleanup 	<ul style="list-style-type: none"> Port of Tacoma - Arsenic in soil, remediated Retail property - Petroleum hydrocarbons in soil and groundwater, metals in groundwater, needs further remediation 	<ul style="list-style-type: none"> Commercial property - Independent cleanup, metals and petroleum in soil Commercial property - VCP, metals and petroleum in soil 	<ul style="list-style-type: none"> Commercial property - VCP, petroleum in soil remediated, PCBs in soil suspected Commercial property - LUST/VCP, lead in groundwater, petroleum in soil above cleanup levels, site currently in cleanup
Noise	<ul style="list-style-type: none"> Residential receptors (1) 	<ul style="list-style-type: none"> Residential receptors (23) 	<ul style="list-style-type: none"> Residential receptors (22) Other receptors (1) 	<ul style="list-style-type: none"> Residential receptors (16) Other receptors (7) 	<ul style="list-style-type: none"> Residential receptors (13)
Size/Configuration	Meets requirements	Meets requirements	Meets requirements	Meets requirements	Meets requirements
Maintenance Window	High impact	High impact	High impact	High impact	High impact
LRV Site Access	Complex lead track	Complex lead track	Complex lead track	Somewhat simple lead track	Complex lead track
Schedule Risk (Other than LRV Access)	Medium risk	Medium risk	Low risk	Low risk	Medium risk
Operability	3.8 miles from operating line	4.9 miles from operating line	6.9 miles from operating line	7.4 miles from operating line	8.0 miles from operating line
Operating Estimates	Medium	High	High	Low	High
Capital Estimates² (Order of Magnitude)	\$800 million	\$650 million	\$800 million	\$700 million	\$850 million
Property Value	Low	Low	High	High	High
Parcel Size	44.3 acres	42.5 acres	43.2 acres	38.0 acres	49.0 acres
ST Long-Range/ST3 plans	Not consistent	Not consistent	Not consistent	Not consistent	Not consistent

¹ Potentially eligible historic resources are at least 50 years old and have not yet been evaluated to see if they meet the criteria for the National Register of Historic Places. Eligibility will be determined during future planning efforts for the OMF sites that are recommended for evaluation in the EIS.

² Preliminary estimates (2018\$) are not the project's budget. They are rounded numbers for use as comparisons between alternatives.

NRHP = National Register of Historic Places; LUST = leaking underground storage tank; WSDOT = Washington State Department of Transportation

Appendix B - OMF South Alternatives Evaluation Matrix

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