1.0 Purpose and Need for Federal Way Link Extension

For more than 30 years, the Central Puget Sound Region has been planning for high-capacity transit (HCT) to address the issues of population growth, transportation congestion, and maintaining a vibrant, competitive economy. Sound Transit (the Central Puget Sound Regional Transit Authority) was created to take on the challenge of regional mobility and develop and deliver an HCT system to the citizens of urban King, Pierce, and Snohomish counties as part of the region's overall long-range transportation plans (Sound Transit, 1996a, 2005, and 2014). These plans include HCT serving the communities of the Federal Way Link Extension (FWLE). The FWLE corridor was included in Sound Transit's 1996 *Regional Transit Long-Range Vision* (Sound Transit, 1996a), in the 2005 *Regional Transit Long-Range Plan* (Sound Transit, 2005), and in the 2014 *Regional Transit Long-Range Plan* (Sound Transit 2014). The *Sound Move* plan, adopted in 1996 (Sound Transit, 1996b), implemented the first phase of the Regional Transit Long-Range Vision. In 2008, the voters approved financing for the *Sound Transit 2 Plan* (Sound Transit, 2008; ST2), which prioritized the second round of regional transit system investments, including the FWLE. The planned regional light rail system to connect the northern, southern, and eastern reaches of the greater Seattle metropolitan area, including the FWLE corridor, is shown in Exhibit 1-1.

High-Capacity Transit (HCT)

High-capacity transit carries a larger volume of passengers using larger vehicles and/or more frequent service than a standard fixed-route bus system. High-capacity transit can operate on exclusive rights-of-way such as a rail track or dedicated busway, or on existing streets with mixed traffic. The main goal of high-capacity transit is to provide faster, more convenient, and more reliable service for a larger number of passengers.

The FWLE would expand the existing Sound Transit Link light rail system south to serve the cities of Des Moines, Kent, and Federal Way in south King County. This 7.6-mile extension would connect the Angle Lake Station under construction at S 200th Street in SeaTac with the Federal Way Transit Center in Federal Way. The FWLE corridor parallels State Route 99 (SR 99) and Interstate 5 (I-5), and generally follows a topographic ridge between Puget Sound and the Green River Valley.

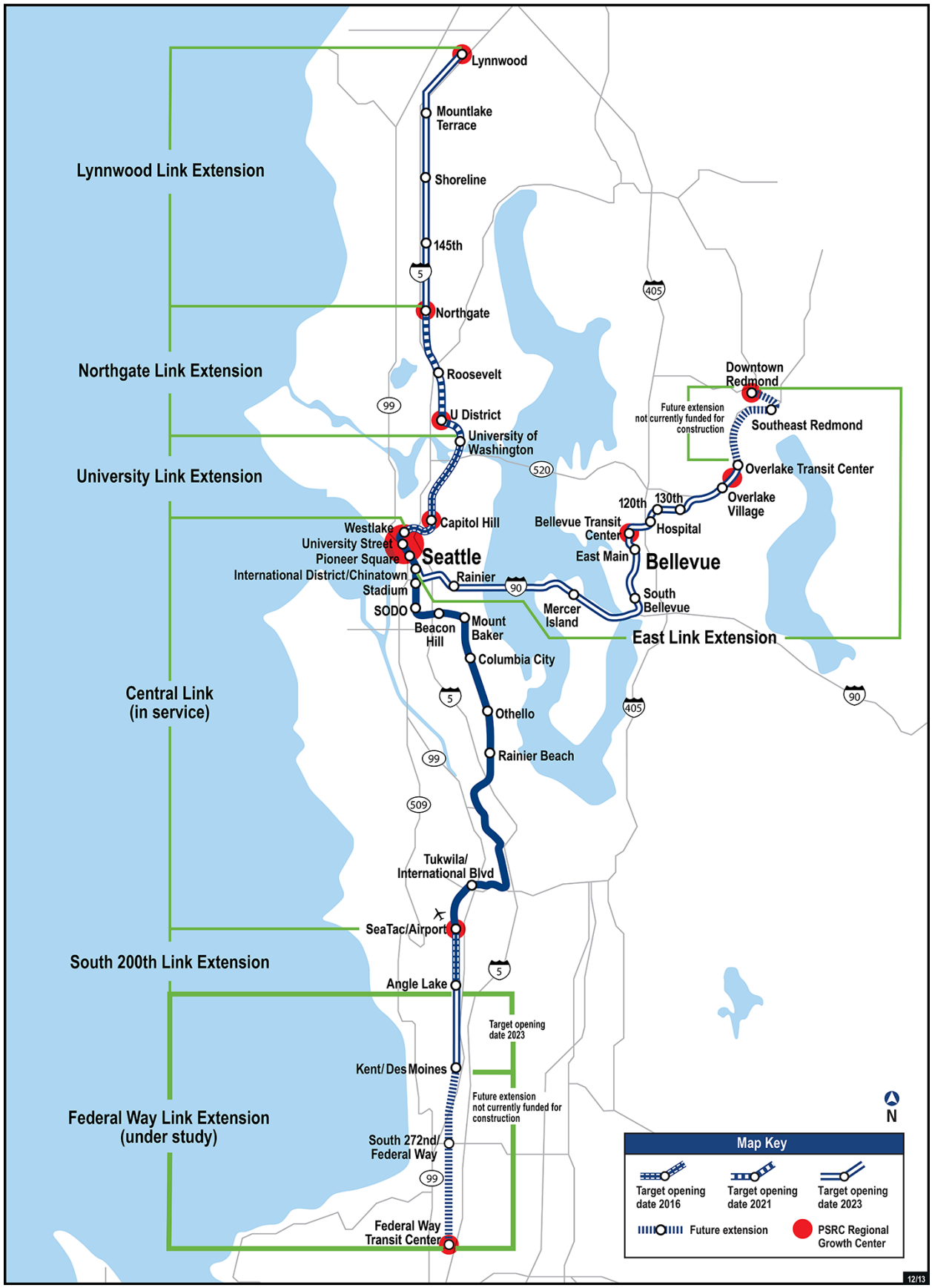

EXHIBIT 1-1
Sound Transit Link Light Rail System and FWLE Location

Major east-west arterials connecting I-5 and SR 99 include Kent-Des Moines Road (SR 516), S 272nd Street, and S 320th Street, which are served by major transit stops including the Kent/Des Moines Park-and-Ride, Redondo and Star Lake park-and-rides (S 272nd Street), Federal Way Transit Center (S 317th Street), and S 320th Street Federal Way Park-and-Ride. According to the 2010 U.S. Census, the combined population for the cities in the FWLE corridor was approximately 240,000, with SeaTac's population at 26,909, Des Moines' at 29,673, Kent's at 92,411, and Federal Way's at 89,306.

In addition to lacking reliable and efficient transit service in general, the corridor struggles particularly with growing (but unmet) north-south transit demand and the challenge of serving transit-dependent populations. These issues are described in more detail in Section 1.2, Need for the FWLE.

1.1 Purpose of the Project

The purpose of the FWLE is to expand the Sound Transit Link light rail system from the city of SeaTac to the cities of Des Moines, Kent, and Federal Way in King County in order to:

- Provide a rapid, reliable, accessible, and efficient alternative for travel to and from the corridor and other urban growth and activity centers in the region, with sufficient capacity to meet projected demand.
- Expand mobility by improving connections to the regional multimodal transportation system with peak and off-peak transit service.
- Provide the HCT infrastructure and service to support the adopted regional and local land use, transportation, and economic development plans. Plans such as Puget Sound Regional Council's (PSRC) VISION 2040 call for growth to be concentrated in designated urban centers connected to each other by HCT. Land use plans for individual cities support this regional vision.
- Advance the Sound Transit Long-Range Plan's vision, goals, and objectives for high-quality regional transit service connecting major activity centers in King, Pierce, and Snohomish counties.
- Implement a financially feasible HCT system to help preserve and promote a healthy environment.

Purpose and Need Statement

The purpose and need section establishes why the agency is proposing to invest taxpayer dollars in the project. It is intended to clarify what problems the project is addressing and to justify the expenditure needed. The project purpose and need also drives the process for alternatives consideration, in-depth analysis, and ultimate project selection.

1.2 Need for the FWLE

This section describes the need for the FWLE. For each need statement below, additional supporting information is provided along with references to sections of this Draft Environmental Impact Statement (Draft EIS) where more detailed information can be found.

Need #1: Increasing congestion on I-5 and on the key arterials leading in and out of the study area will further degrade existing transit performance and reliability.

- Transit options in the FWLE corridor depend on the existing roadway infrastructure. Congestion on I-5, SR 99, and the key corridor arterials are expected to increase and degrade transit performance and reliability. Section 3.4.2, Transit, provides additional information on transit in the FWLE area.
- Despite some substantial investments benefitting transit in the corridor (see text box), travel times are unreliable for many hours of the day because congestion extends well beyond typical commuting hours. I-5 between Federal Way and Seattle is typically congested for 8 hours each weekday. By 2035, without major investments, it is expected to worsen to 11 hours on weekdays.
- A traveler going between Federal Way and Downtown Seattle (approximately 22 miles) during peak periods, when congestion is high and delays are unpredictable, must allow 56 minutes in the morning and 46 minutes in the afternoon to ensure arriving on time 95 percent of the time. In 20 years, with the projected population and employment growth in the region, the trip will take at least 10 more minutes in the AM peak hour.
- Projected growth and increasing congestion will degrade bus service. Section 3.4.3, Arterial and Local Streets, describes the intersections in the FWLE study area that already barely meet, or do not meet, state and/or local standards, including 12 intersections along SR 99, Kent-Des Moines Road (SR 516), S 272nd Street, and Military Road S. By 2035, 14 intersections in the study area will experience this degree of congestion. This congestion will particularly affect the RapidRide A Line, which currently takes over 40 minutes during peak periods to travel 11 miles between the Federal Way Transit Center and Tukwila

Transportation Investments in the FWLE Corridor Benefitting Transit

Several locations within the FWLE corridor already feature investments to help improve transit speed and reliability. These include:

- Continuous high-occupancy vehicle (HOV) lanes on I-5 between Federal Way and the south Downtown Seattle area
- Contiguous business access and transit (BAT) lanes on both sides of SR 99 from S 216th Street to just south of S 320th Street, along with intersection signals that are programmed to give transit travel priority
- A “Texas T” HOV direct-access ramp connecting S 317th Street to the center HOV lanes on I-5, allowing buses to bypass the freeway interchange congestion
- Ramp metering and HOV bypass lanes on most I-5 interchange ramps to help control the flow of traffic onto the freeway

International Boulevard light rail station and, combined with Central Link light rail, takes up to 75 minutes to travel between Federal Way and Downtown Seattle. Accessing existing direct service (Metro and Sound Transit Express) between Federal Way Transit Center and Downtown Seattle can require out-of-direction travel for some riders located north of the transit center, increasing the total trip time. As congestion worsens, regional travel will take longer and be even less efficient.

Need #2: North-south transit demand is expected to grow by about 40 to 75 percent by 2035 as a result of residential and employment growth in the FWLE study area (Sound Transit Ridership Model, 2012). This growth will require additional and more reliable transportation options than currently exist.

- Between 2010 and 2035, population growth for the cities in the corridor is projected to be over 24 percent, and employment growth is anticipated to be over 66 percent (PSRC, 2013). Section 4.3, Economics, provides additional information on projected growth within the study area.
- PSRC's VISION 2040 (PSRC, 2009), the regional growth strategy, includes SeaTac, Kent, and Federal Way to be among the 14 core cities intended to accommodate 22 percent of the region's population growth and 29 percent of its employment growth by the year 2040. SeaTac and Federal Way also contain 2 of PSRC's 27 designated Regional Growth Centers, where population and employment growth should be focused. Exhibit 1-1 shows the Regional Growth Centers, including those in the FWLE corridor, with existing or planned Link access.
- PSRC's metropolitan transportation plan, Transportation 2040 (PSRC, 2014), prioritizes new transportation improvements in areas that accept an increased share of growth in order to concentrate growth in existing urbanized areas.
- The anticipated growth will substantially increase transit demand in the FWLE study area. Key King County Metro and Sound Transit routes between Federal Way and Seattle already operate at or above capacity in the peak periods and this condition is likely to worsen in the future. This is undesirable for passengers who must stand, and crowded vehicles slow down passenger loading and unloading.

Need #3: People in the FWLE corridor need reliable and efficient peak and off-peak transit service to connect with the region's growth centers. For corridor residents, inexpensive, reliable transit access to a variety of employment centers during peak and non-peak periods is vital. The FWLE corridor lacks such service, as described in Section 3.4.2.

Limits of Existing Transit Service:

- Most regional express transit service in the FWLE study area is Seattle-centric and operates at 30-minute headways in the peak periods, with limited or non-existent off-peak and weekend service. Generally, bus routes using I-5 make limited stops and connect the Federal Way Transit Center to Seattle-Tacoma International Airport (Sea-Tac Airport), Downtown Seattle, and the University of Washington.
- Along SR 99, there is very limited peak-period and off-peak period direct bus service to and from Downtown Seattle and other regional centers. RapidRide A Line provides frequent service along SR 99 but requires a transfer to other bus service or to Central Link Light Rail to travel to Downtown Seattle and/or other regional centers.
- Without major investments, the study area will continue to lack reliable and efficient transit service to other regional centers (such as Bellevue, Redmond, Northgate, and Lynnwood). This lack of reliable and efficient service limits opportunities for people in the FWLE corridor to work in these other employment centers, and also limits access for people in other areas of the region to jobs in the regional growth centers along and near the FWLE corridor, including the Kent manufacturing/industrial district, downtown Kent, and the Federal Way city center.

Reliable and Efficient Off-Peak Service is Important in the FWLE Corridor:

- Sixty percent of workers residing in the corridor worked in retail and in manufacturing, warehousing, transportation, communications, and utilities in 2010 (PSRC, 2010). Retail and manufacturing work schedules typically do not conform to peak-hour commute transit service. For instance, about 13 percent of

2010 Census respondents in the FWLE corridor began their commute between 4 PM and 5 AM.

- Having reliable transit service to other employment centers, including during non-peak hours, is important for households to take advantage of different employment opportunities.
- Highline College employs approximately 1,100 people and has approximately 16,500 students per year, 65 percent of whom come from the four cities within the FWLE corridor. Classes occur throughout the day and evening, and students and employees depend on reliable off-peak transit to get to and from the college.

Employment and Activity Centers in the FWLE Corridor

Large employers in the FWLE vicinity include Sea-Tac Airport and support industries such as hotels and restaurants in SeaTac, Highline College in Des Moines, and the Commons Mall and big-box retailers in Federal Way.

Need #4: The corridor has a high concentration of transit-dependent populations who need efficient and reliable regional transit connectivity. Improved transit increases access to expanding regional job markets by providing affordable and accessible commuting options for low-income households, and improves access to schools, jobs, family, and health care for transit-dependent youth and seniors.

- Transportation costs are still problematic and rising steadily. Tolls are being implemented on major freeways and additional tolls are expected on new and existing highways in the next several years. The price of fuel is generally increasing over time and PSRC forecasts a 40 percent increase in parking costs for major regional growth centers. All these expenses put a greater burden on low-income residents and impede access to important employment, educational, and health care opportunities.
- The corridor has a higher proportion of low-income residents than King County as a whole. The 2010 Census reported that nearly 16 percent of the population in the FWLE corridor had incomes at or below the federal poverty level, compared to less than 11 percent for King County. In some census tracts along SR 99, up to 61 percent of the residents had incomes below the poverty level. At 14 of the 15 elementary schools in the study area, the majority of students qualified for free or reduced lunches in the 2013-2014 school year. Chapter 7, Environmental Justice, provides additional information on low-income populations in the FWLE corridor.
- The corridor has higher percentages of populations under age 18 and over 65 years old than King County as a whole. These

populations tend to have higher percentages of residents who are transit-dependent.

Need #5: Regional and local plans call for HCT in the corridor consistent with PSRC's VISION 2040 and Sound Transit's Long-Range Plan. Planning for high-capacity transit in the FWLE corridor has been ongoing for over 30 years to address continuing population growth and the need for regional mobility to maintain a healthy economy. In anticipation of this project, cities in the corridor have updated their local comprehensive plans to encourage likely transit-oriented development in certain areas.

History of HCT/Light Rail Planning in the FWLE Corridor	
1981	Puget Sound Council of Governments completes light rail study
1986	Puget Sound Council of Governments publishes *Regional Multi-Corridor Project Summary Report*
1990	Puget Sound Regional Council (PSRC) adopts *Vision 2020*
1993	Regional Transit System Plan EIS Joint Regional Policy Committee adopts Regional Transit System Plan; Snohomish, King, and Pierce counties form the Central Puget Sound Regional Transit Authority (RTA)
1996	Sound Transit adopts Long-Range Vision, identifies potential rail extension in the corridor; voters approve funding for *Sound Move*, the initial package of high-capacity transit (HCT) investment
2000	Des Moines adopts Pacific Ridge Element of *Comprehensive Plan* that anticipates light rail
2001	PSRC adopts *Destination 2030*, identifies HCT expansion in corridor
2004	PSRC publishes *Central Puget Sound HCT Corridor Assessment*
2005	Regional Transit Long-Range Plan Supplemental EIS Sound Transit updates *Long-Range Plan*, identifies light rail extension in the corridor
2008	*Sound Transit 2* funds construction of light rail to S 272nd Street and environmental review of extensions farther south to Tacoma
2010	PSRC adopts *Vision 2040* and *Transportation 2040*, which includes light rail extension in the corridor; Des Moines updates Pacific Ridge Element of *Comprehensive Plan*; Federal Way updates City Center Chapter of *Comprehensive Plan* that anticipates light rail
2011	Kent publishes *Midway Subarea Plan* that anticipates light rail
2012	Sound Transit publishes *TOD Program Strategic Plan*
2012	PSRC approves *Central Puget Sound Regional 2010-2013 Transportation Improvement Program*, which includes light rail extension in the corridor
2013	Sound Transit completes Federal Way Transit Extension Alternatives Analysis, PSRC publishes *The Growing Transit Communities Strategy* report

TOD = transit-oriented development

Need #6: Environmental and sustainability goals of the state and region include reducing vehicle miles traveled and greenhouse gas emissions. State and regional policies strongly support actions to increase energy-efficiency and to reduce harmful greenhouse gas (GHG) emissions, especially from transportation sources. The FWLE would reduce dependency on single-occupancy vehicles, slow down growth in vehicle miles traveled, conserve energy, and lower air pollution.

Greenhouse Gases

Greenhouse gases (GHGs) are gaseous compounds (such as carbon dioxide) that absorb infrared radiation, trap heat in the atmosphere, and contribute to the greenhouse effect and climate change. Transportation generates about half of the GHGs in the state.

Washington law sets goals to decrease the annual per capita vehicle miles traveled by 30 percent by 2035 and 50 percent by 2050. Another state goal is to reduce overall emissions of greenhouse gases in Washington to 25 percent below 1990 levels by 2035 and to 50 percent below 1990 levels by 2050.

Washington State Executive Order 14-04, signed in April 2014, calls on state agencies to assist regional and local jurisdictions in "implementing measures to improve transportation efficiency, and to update their comprehensive plans to produce travel and land-use patterns that maximize efficiency in movement of goods and people, and reduce costs and greenhouse gases."

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2.0 Alternatives Considered

This chapter describes the alternatives defined and evaluated in this Draft Environmental Impact Statement (Draft EIS) and how they were developed. It also summarizes the alternatives eliminated from further consideration during the Alternatives Analysis process.

The project purpose and need described in Chapter 1 served as the basis for developing Federal Way Link Extension (FWLE) alternatives. Prior to the Draft EIS, an early scoping process and an Alternatives Analysis were conducted to define and evaluate a wide range of potential alternatives.

The FWLE would construct and operate an approximately 7.6-mile extension of light rail. It would connect the southern terminus of the Link light rail system at Angle Lake Station (now under construction) in the city of SeaTac with the Federal Way Transit Center in the city of Federal Way, traveling through and providing access to the cities of Des Moines and Kent. Exhibit 1-1 in Chapter 1 shows the project limits and the context of the project in the greater Sound Transit Link light rail system. The Draft EIS considers multiple alternative alignments and station options.

The Draft EIS also includes a No Build Alternative. This allows an analysis of the potential impacts of not building the FWLE, and provides a basis for comparing the build alternatives to a future baseline condition.

The remainder of this chapter is organized into the following subsections:

- 2.1 Overview
- 2.2 FWLE Project Alternatives
- 2.3 Alternatives Development and Early Scoping
- 2.4 Environmental Practices and Commitments
- 2.5 Estimated Project Costs and Funding
- 2.6 Minimum Operable Segments
- 2.7 Relationship to Other Transit and Transportation Projects
- 2.8 Next Steps and Schedule

2.1 Overview

The FWLE corridor is generally bounded by SR 99 to the west, I-5 to the east, S 200th Street to the north, and S 320th Street to the south. Alternatives outside this area or with different origins or destinations were not considered because they would not meet the project's purpose and need. Alternatives generally follow two corridors, SR 99 and I-5, between SeaTac and Federal Way. Sound Transit developed the alternatives through an early scoping and Alternatives Analysis process during 2012 and 2013 that included public and agency input. Additional detail on this process, the alternatives evaluated, and the alternatives not carried forward is provided in Section 2.3. As shown in Table 2-1 and Exhibits 2-1A to 2-1D, this Draft EIS evaluates a no build alternative and four build alternatives: one in each primary transportation corridor (SR 99 and I-5), and two that are different alignments using both the SR 99 and I-5 corridors.

Station Option

Station options are alternative locations for each station area: Kent/Des Moines, S 272nd Street, and Federal Way Transit Center. Options for a station generally have the same station characteristics and serve the same population.

Potential Additional Station

The Alternatives Analysis process for the FWLE identified additional station locations on SR 99. These stations could be added to the SR 99 alternatives but are not funded and would require additional approvals.

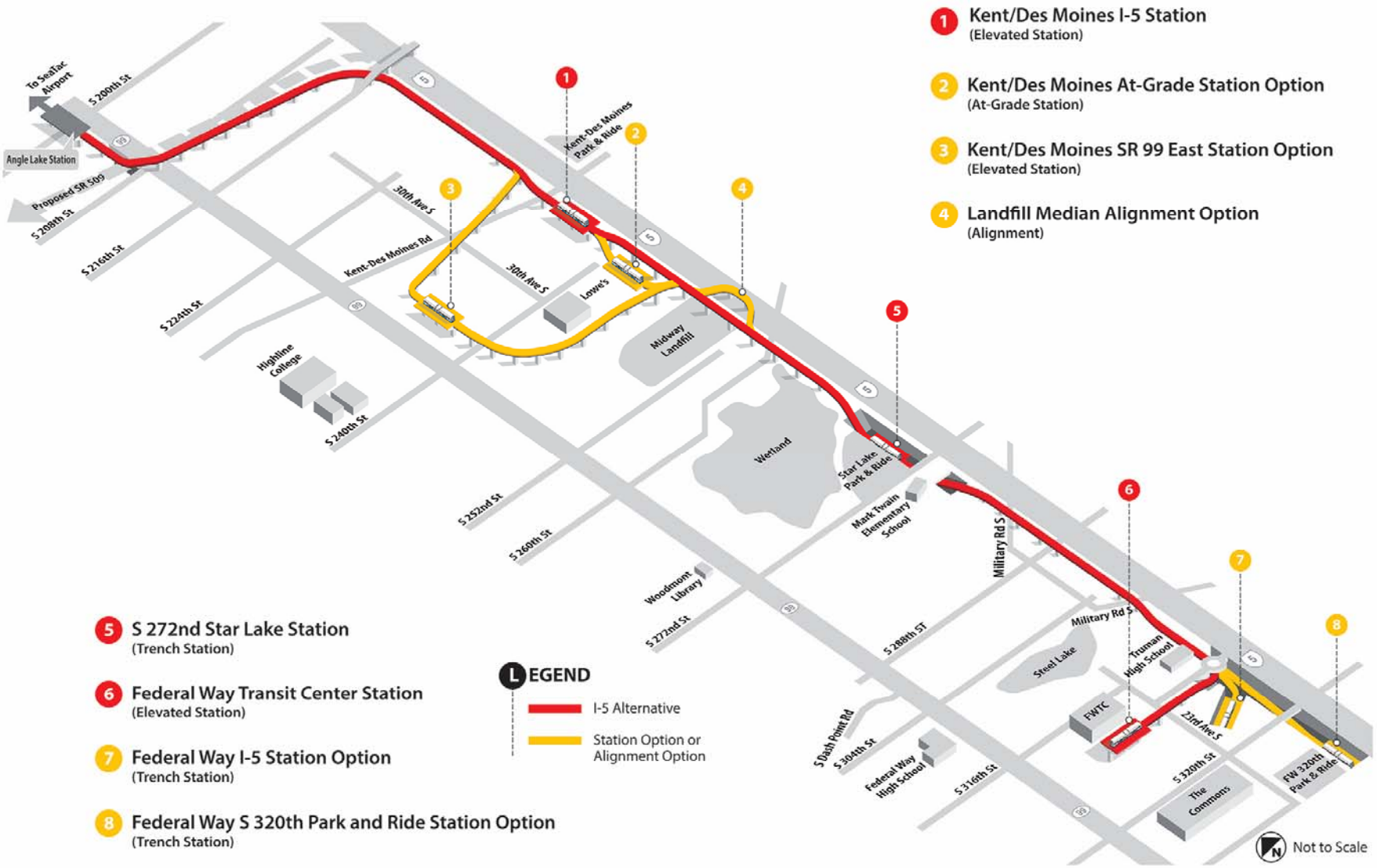
Alignment Option

An alignment option is an alternate route along a portion of the alternative. An alignment option does not include station options.

TABLE 2-1
Summary of Alternatives Evaluated in the Draft EIS

Alternative	Stations	Station Options	Potential Additional Stations (not funded in ST2)	Alignment Options
No Build	None	None	None	None
SR 99	• Kent/Des Moines SR 99 West • S 272nd Redondo • Federal Way Transit Center	• Kent/Des Moines Highline College (HC) Campus • Kent/Des Moines SR 99 Median • Kent/Des Moines SR 99 East • S 272nd Redondo Trench • Federal Way SR 99	• S 216th West • S 216th East • S 260th West • S 260th East	None
I-5	• Kent/Des Moines I-5 • S 272nd Star Lake • Federal Way Transit Center	• Kent/Des Moines At-Grade • Kent/Des Moines SR 99 East • Federal Way I-5 • Federal Way S 320th Park-and-Ride	None	Landfill Median
SR 99 to I-5	• Kent/Des Moines 30th Ave. East • S 272nd Star Lake • Federal Way Transit Center	• Federal Way I-5 • Federal Way S 320th Park-and-Ride	• S 216th West • S 216th East	Landfill Median
I-5 to SR 99	• Kent/Des Moines 30th Ave. West • S 272nd Redondo • Federal Way Transit Center	• S 272nd Redondo Trench • Federal Way SR 99	• S 260th West • S 260th East	None

EXHIBIT 2-1A
FWLE Alternatives – SR 99



Diagrams are for illustration purposes only and are not to scale.

EXHIBIT 2-1B
FWLE Alternatives – I-5

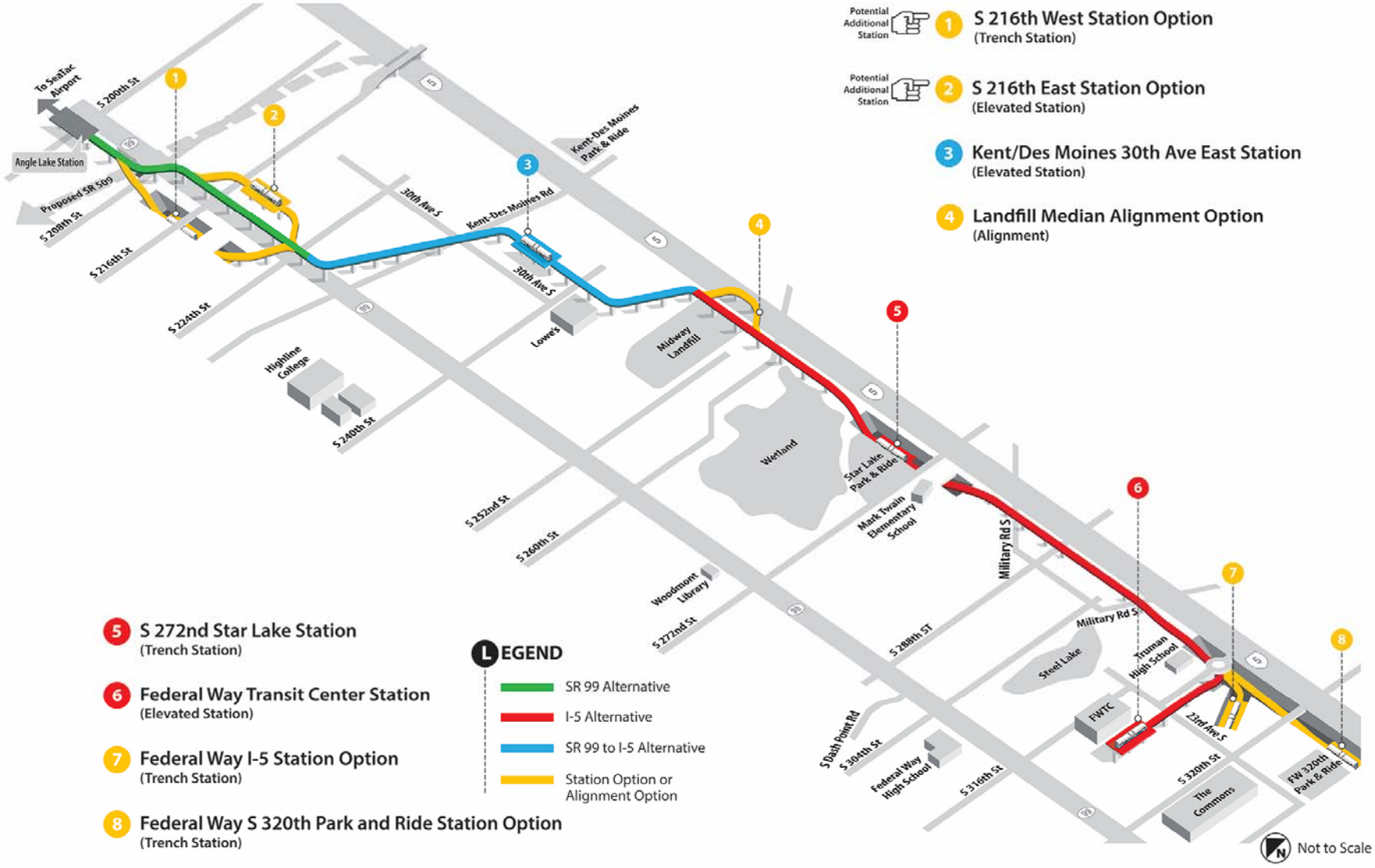


EXHIBIT 2-1C
FWLE Alternatives – SR 99 to I-5

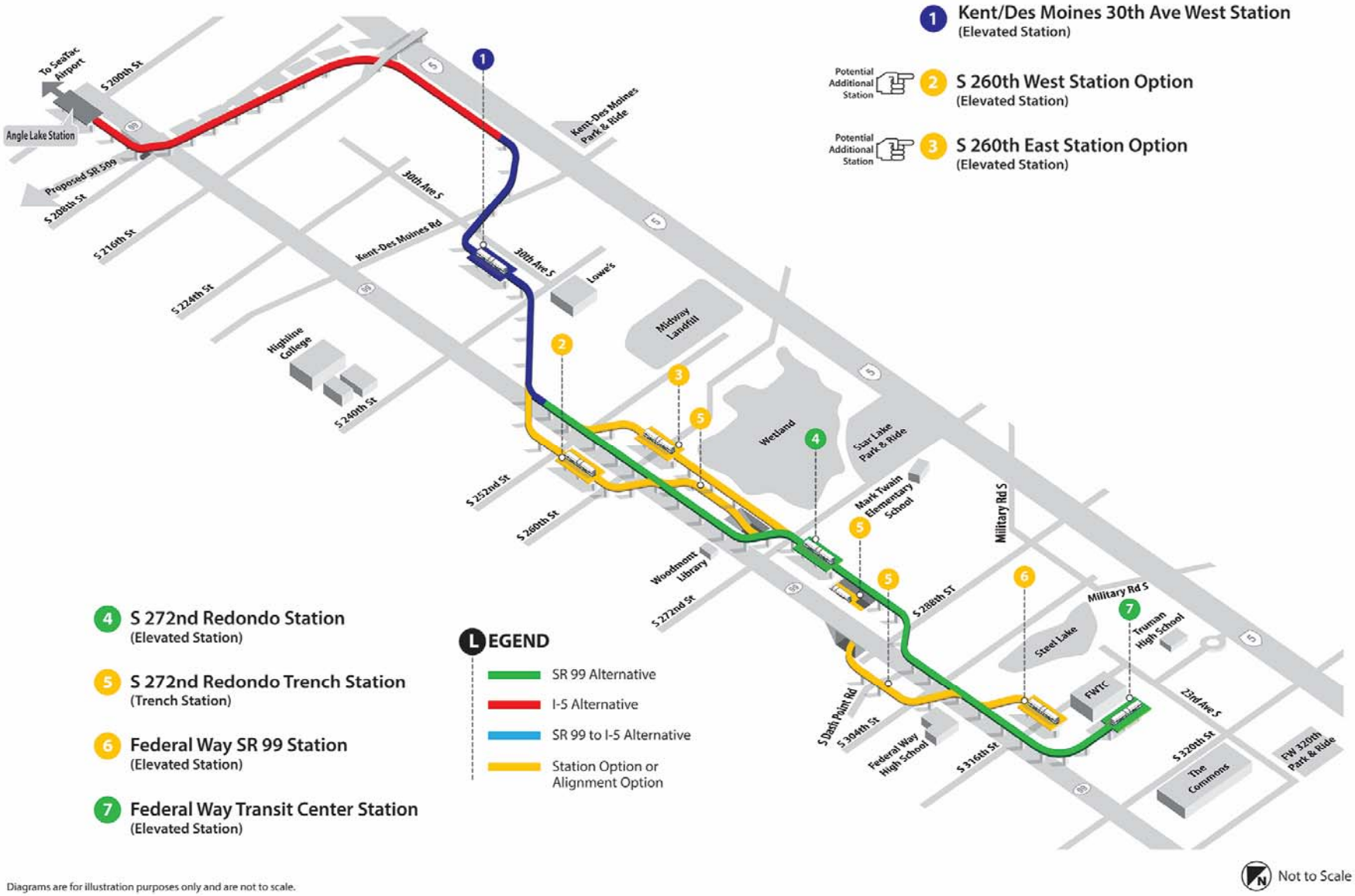


EXHIBIT 2-1D
FWLE Alternatives – I-5 to SR 99

1

Each alternative includes three stations: Kent/Des Moines, S 272nd Street, and the Federal Way Transit Center. For the Kent/Des Moines and Federal Way Transit Center stations, a station location has been identified for each alternative, along with one or more optional station locations. Voters authorized stations at Kent/Des Moines and S 272nd Street in the ST2 funding package. The Federal Way Transit Center is the terminus of this project for purposes of conceptual design and this Draft EIS. The station at the Federal Way Transit Center and its options would not restrict a southern extension of Link to a specific corridor; a future extension to Tacoma could follow the SR 99 or I-5 corridor.

The FWLE could be constructed in phases with an interim terminus station at either Kent/Des Moines or S 272nd Street. Therefore, this Draft EIS analyzes the impacts of two shorter segments, where appropriate: Angle Lake to Kent/Des Moines and Angle Lake to S 272nd Street.

There are also potential additional stations at two locations along SR 99: S 216th Street and S 260th Street. Both station locations include options on the east and west sides of SR 99. These stations were not part of the ST2 funding package, but could be added to the project if additional funding becomes available. Further evaluation of these stations' consistency with the ST2 plan would be required. There are no potential additional stations with the I-5 Alternative.

The I-5 Alternative also has an alignment option at the Midway Landfill that is designed to avoid or minimize impacts at this location. This option is described in greater detail later in this chapter.

The other two alternatives (SR 99 to I-5 and I-5 to SR 99) use portions of both the I-5 and SR 99 alternatives. The Draft EIS analyzes them with stations at three locations: Kent/Des Moines, S 272nd Street, and Federal Way Transit Center. Table 2-1 shows the station or alignment options that could be included with these alternatives.

2.2 FWLE Project Alternatives

This section describes in more detail the project alternatives shown in Exhibits 2-1A to 2-1D.

2.2.1 No Build Alternative

No Build Alternative

The No Build Alternative includes the transportation system and environment as they would exist without the proposed project.

The No Build Alternative includes a variety of projects, funding packages, and proposals in the central Puget Sound Region that are planned to occur with or without the FWLE. The No Build improvements consist of funded or committed roadway and transit actions by state, regional, and local agencies, and other projects that are considered likely to be implemented based on approved and committed funding. The same population and employment growth projections by Puget Sound Regional Council (PSRC) through 2035 are used for the No Build and Build alternatives.

The No Build Alternative includes the following major improvements by Sound Transit:

- Northgate Link Extension to Northgate Transit Center in Seattle
- Lynnwood Link Extension to Lynnwood Transit Center in Lynnwood
- East Link Extension to Overlake Transit Center in Redmond
- Service enhancements to Sound Transit Express bus and Sounder commuter rail systems
- A satellite light rail maintenance and operations facility

Minor local bus service additions by King County Metro are also expected; however, the overall bus network and its service levels were assumed to remain similar to today. Appendix G1, Transportation Technical Report, describes the major projects assumed in the No Build Alternative by jurisdiction, including regional highway improvements, new and expanded local roadways, and intersection improvements.

2.2.2 Components of Build Alternatives

This section summarizes the general components common to the four build alternatives and then describes in detail the alignments and the stations associated with each alternative, including park-and-rides and other station access.

All of the light rail alternatives would operate in exclusive right-of-way (referred to as light rail guideway), outside of traffic, to avoid operating and safety conflicts. This would assure the fast and frequent service needed to serve the FWLE corridor, with trains arriving as often as every 8 minutes and track speeds of up to 55

miles per hour (mph) (see Section 2.2.2.5 for the operating plan). The light rail guideway would be 30 to 40 feet wide, with two sets of tracks. This includes room for the poles and overhead catenary system (contact wire) needed to power the trains. Many sections would also contain space for emergency access as well as walls or barriers to restrict other access.

Elevated structures would require support columns or other bridging support structures. For at-grade guideway in areas with slopes, retaining walls might be needed where the alignment cuts into an adjacent hillside, or where needed to support fill material below the guideway. In some places, sound walls would be added to the guideway or to retaining walls to reduce noise impacts.

2.2.2.1 Profiles

For the FWLE, the developed nature of the corridor and large number of cross-streets require an elevated guideway along SR 99. There are fewer cross-streets along I-5, and therefore the profile can be based on topography and would vary between at-grade and elevated. A 15-foot zone is required next to all profiles, which would be free of trees that could overhang onto the guideway but would permit shrubs and ground-cover. The profiles of the alternatives and options are shown in Exhibits 2-7, 2-11 through 2-15, 2-17, 2-19, 2-20, and 2-22 through 2-24 later in this chapter.

Light Rail Profiles

Light rail can have several profile types: **at-grade**, **elevated**, **trench**, **retained fill**, or **tunnel**. "At-grade" means that the rail track is at the same grade (ground level) as the surrounding terrain. Tunnel profiles were ruled out for the FWLE during the alternatives analysis process (see Section 2.3).

At-Grade

Light rail at-grade operates best in areas where the grade is less than 6 percent and where there is adequate room within reserved street rights-of-way or off-street corridors. It works well with a moderate number of riders and with train frequencies as often as every 4 minutes. This project would have an at-grade profile only within the Washington State Department of Transportation (WSDOT) right-of-way for the I-5 Alternative. No at-grade crossings of roadways are proposed.

Elevated

Sound Transit uses light rail on elevated structures where the system must be grade-separated to cross over geographic or physical barriers and accommodate higher train frequencies, and where at-grade trackway might not be appropriate for surface corridors with high traffic levels. An elevated profile must have a minimum clearance of at least 16.5 feet near roadways, but topography and other

considerations might result in a profile as high as 50 feet or more. Pier supports holding up the guideway are typically about 10 feet by 10 feet square at the ground, although the underground support structure might be wider.

An elevated guideway can travel in the median of existing roadways, along the side of the roadway, or in off-street corridors.

Trench and Retained Fill

A variation of the at-grade profile is a trench or a retained fill. With a trench, the trackway is cut into the ground with a retaining wall on one side or both sides. With a retained fill, the trackway is built up above the ground surface with a retaining wall on one side or both sides, supporting the guideway. Portions of the guideway might involve trench or retained fill because of topography or to allow the guideway to travel under roadways.

2.2.2.2 Stations

The project would have three light rail stations plus two potential additional stations. The stations would be either elevated or at-grade depending upon the site conditions and the engineering requirements of the guideway.

Station Features

Stations would accommodate pedestrian, bicycle, and bus access. Each station would have a bicycle storage area with space for expansion. The station plans include connecting bus stops, paratransit stops, and handicapped-accessible drop-off areas. All station areas would accommodate a traction power substation and a signal bungalow. They would also include ticket vending machines, closed-circuit television cameras, a public address system, emergency phones, and variable message signage. Most of the stations would have parking for transit patrons in either a structure or a surface lot.

The approximately 380-foot-long boarding platforms would serve four-car trains. They could be either in the center with tracks on both sides (center platform) (Exhibits 2-2 and 2-3) or on the outer side of the tracks (side platform). Escalators, elevators, and/or stairs would let riders access the elevated platforms. All stations would meet the Americans with Disabilities Act (ADA) requirements as well as public access, fire code, and life-safety requirements.

Interim terminus stations may also include parking for operators and security staff, and spaces for crew break rooms, storage, and light maintenance activities such as cleaning the interiors of vehicles.

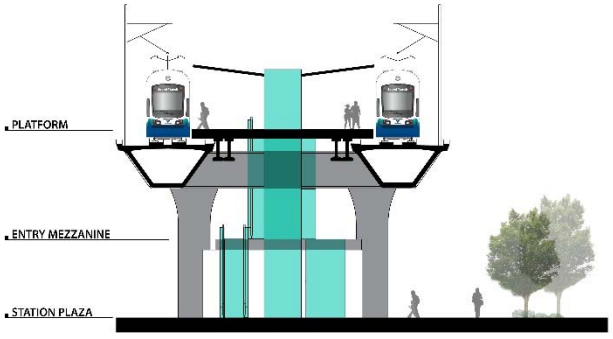


EXHIBIT 2-2
Elevated Center Platform Station

2.2.2.3 Access

Link riders could get to each station by bus, automobile, bicycle, and walking. Sound Transit and King County Metro transit

routes would provide service based on the FWLE Transit Integration Plan, which is described in more detail in Chapter 3. Each station would include an area for riders to transfer to or from buses. Depending on the projected level of future bus service, stations would have bus stops near the station on nearby streets and/or bus facilities within the station area.

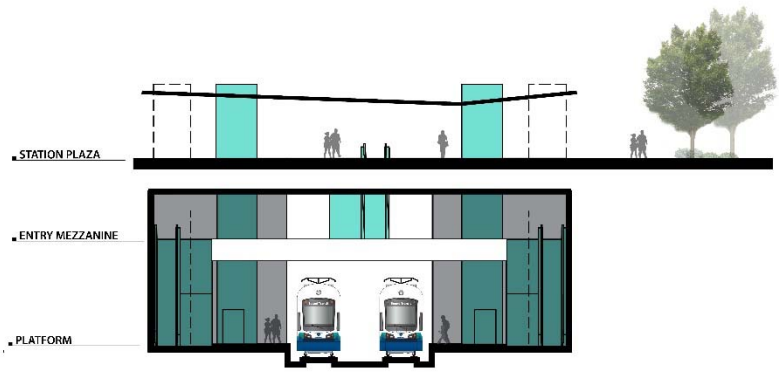


EXHIBIT 2-3
Trench Side Platform Station

Parking lots or garages would be built at the Kent/Des Moines, S 272nd Street, and Federal Way Transit Center stations, but not at the potential additional stations at S 216th Street and S 260th Street. The allocation of parking at each station is based on the existing parking supply and utilization, surrounding land use characteristics, multi-modal access expectations (pedestrian, bicycle, arterial and highway connections, and transit transfers), and data about local and national parking use at comparable facilities. More parking would be provided at the Kent/Des Moines Station when it is an interim terminus compared to the full project build-out. The demand for parking at Kent/Des Moines is expected to decrease as the project extends south and additional parking is provided at S 272nd Street and Federal Way Transit Center stations. Additional parking would not be needed at the S 272nd Street station if it is an interim terminus. All stations will have areas for rider drop-off/pick-up. Sound Transit would make road improvements or extensions at some stations. Road improvements could include sidewalks, bike lanes, or widening to accommodate projected traffic levels.

Interim Terminus

A terminus station to which the project would operate until the next portion of the project can be built. The interim terminus would typically include a station with tail tracks extending beyond the station for layover of trains.

2.2.2.4 Tail Tracks and Crossovers

Tail tracks are tracks that extend past a terminus station far enough to allow the temporary layover of one four-car train—typically 850 feet beyond the end of the station platform. They also enable trains to approach terminal stations at higher speeds because they extend the safe braking distances. They are necessary at all terminus stations, even interim ones.

Crossover tracks connect two parallel tracks and allow trains to change safely from one track to the other (Exhibit 2-4). They would be provided at various places to allow for maintenance that requires removing one track from service, to bypass a stalled train, to turn trains in the opposite direction, or to operate in the event of emergencies or blockages. Crossover trackwork requires special signaling control equipment under or adjacent to the guideway.

EXHIBIT 2-4
Crossover Tracks

2.2.2.5 Overhead Catenary System

An overhead catenary system (OCS) delivers electricity to light rail vehicles. The OCS requires two wires for each track served, supported on 15- to 23-foot-high steel poles about 200 feet apart (Exhibit 2-5). The poles are typically located between the two tracks. A zone clear of trees is maintained within about 15 feet of the poles.

EXHIBIT 2-5
Overhead Catenary System

2.2.2.6 Traction Power Substation

Traction power substations (TPSSs) boost the power to the OCS. The TPSSs are metal buildings about 20 feet wide by 60 feet long, with an additional 10 to 20 feet of clearance required around each unit (Exhibit 2-6), screened by a wall or fence.

TPSSs would be located at the Kent/Des Moines, S 272nd (Redondo or Star Lake), and Federal Way Transit Center stations, and near S 221st Street and S 288th Street. All TPSSs would likely be placed in the footprint of a light rail station or beneath the guideway.

EXHIBIT 2-6
Traction Power Substation

2.2.3 SR 99 Alternative

The SR 99 Alternative (Exhibit 2-7) would exit the Angle Lake Station along 28th Avenue S, cross over WSDOT's proposed SR 509 extension (see Section 2.7), and transition to the existing SR 99 median near S 208th Street. It would remain in the median of SR 99 except at station areas and at crossings of Kent-Des Moines Road and S 272nd Street as described below. The alignment and all stations would be elevated and would be in public right-of-way except in the station areas. The alternative would require additional right-of-way in some areas for intersection widening or station access improvements. The three stations described below would be center-platform configurations, but potential additional stations would have side-platform configurations. Typical cross-sections for median, west, and east alignments are shown on Exhibits 2-8, 2-9, and 2-10.

2.2.3.1 Kent/Des Moines SR 99 West Station

This station would be on the west side of SR 99 between S 236th Lane and S 240th Street. After exiting the station, the alignment would transition back to the SR 99 median south of S 240th Street. This station would have approximately 1,000 parking spaces (500 surface, 500 structured) if the station were an interim terminus, and the number of parking spaces could be reduced to about 500 spaces when the system is extended south and additional system parking is made available at other stations.

Kent/Des Moines Station

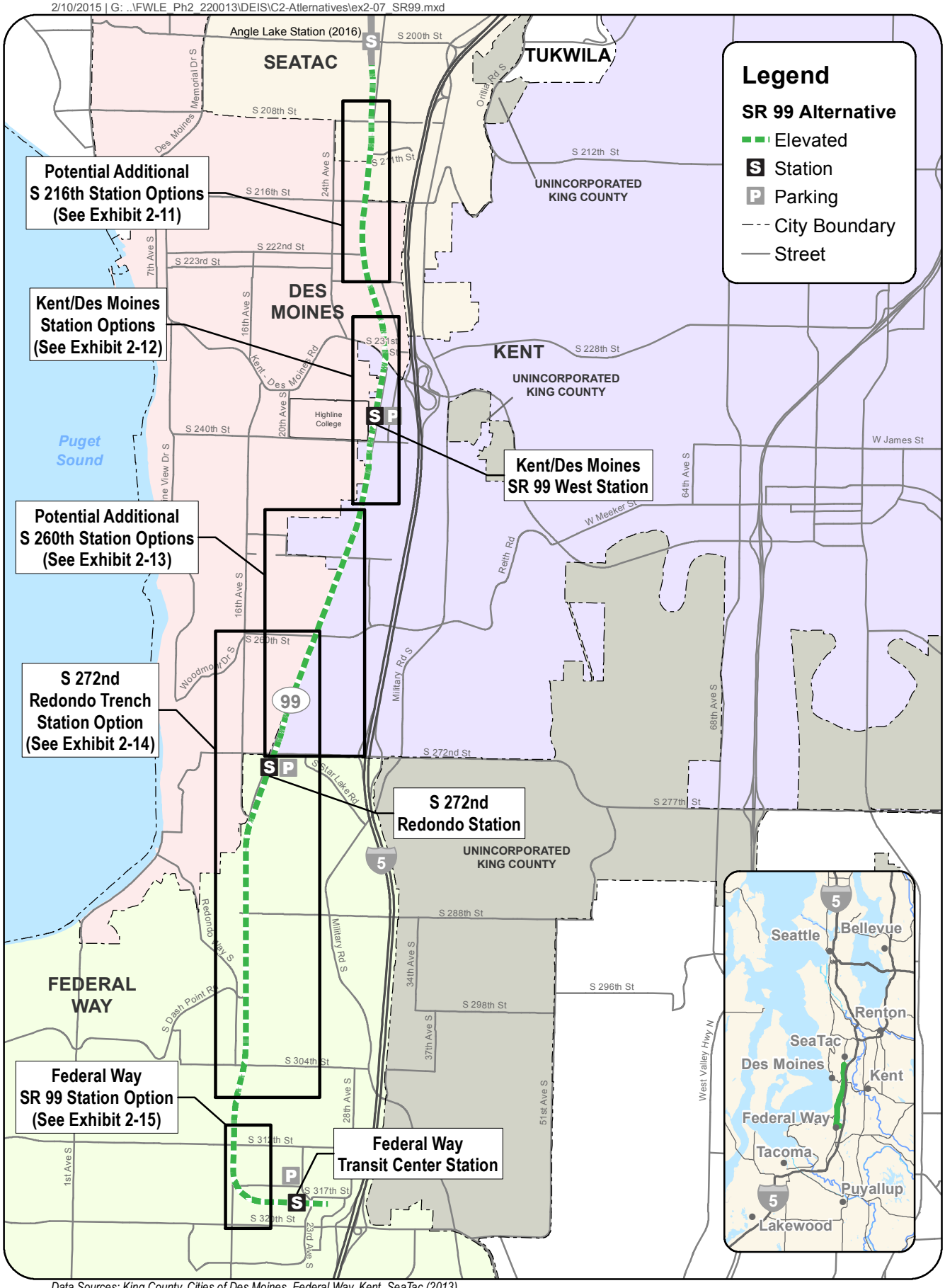
All Kent/Des Moines stations and station options for the SR 99 Alternative would include construction of a new S 236th Lane east of SR 99 to provide access to the station and parking area.

2.2.3.2 S 272nd Redondo Station

The guideway alignment would transition to the east side of SR 99 north of S 272nd Street before entering an elevated station at the existing Redondo Heights Park-and-Ride. This station would have access from SR 99 and S 272nd Street, and approximately 1,400 combined surface and structured parking spaces, an increase of approximately 700 from what is currently provided. It would not need additional parking if it were a terminus. After exiting the station, the alignment would transition back to the SR 99 median near S 279th Street.

2.2.3.3 Federal Way Transit Center Station

The alignment would exit the SR 99 median north of S 316th Street and head east to an elevated Federal Way Transit Center Station on the south side of the existing transit center. This station would add approximately 400 new surface parking spaces to the 1,200 existing parking spaces.



Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

N

0 0.5 1 2 Miles

EXHIBIT 2-7
SR 99 Alternative

Federal Way Link Extension

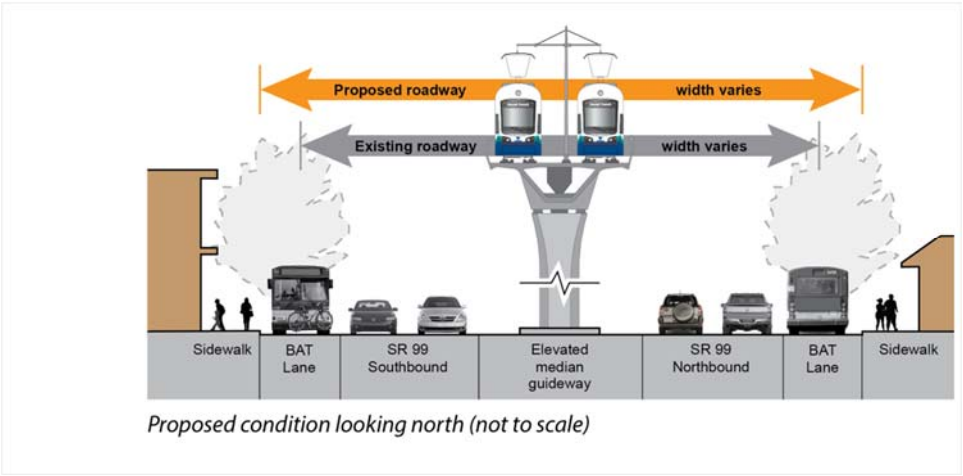


EXHIBIT 2-8
Typical Cross-Section - SR 99 Alternative - Median

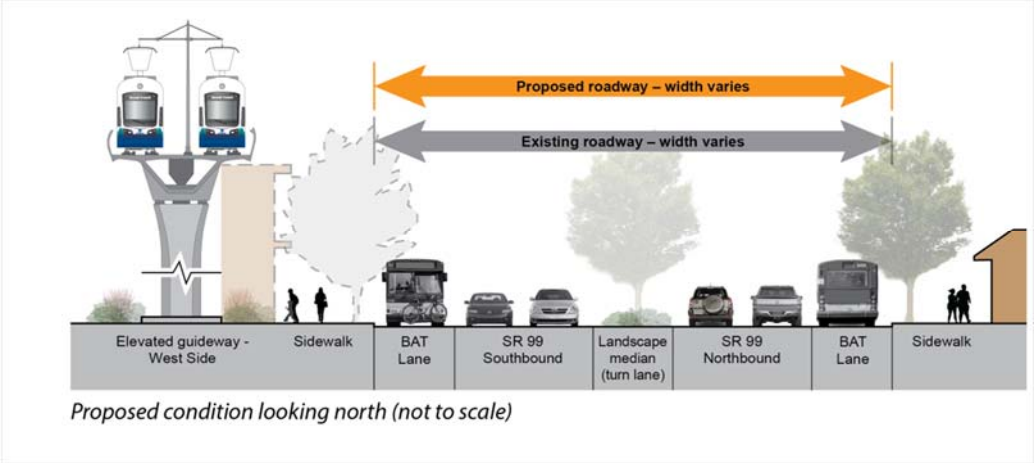


EXHIBIT 2-9
Typical Cross-Section - SR 99 Alternative and Station Options- West or East Side

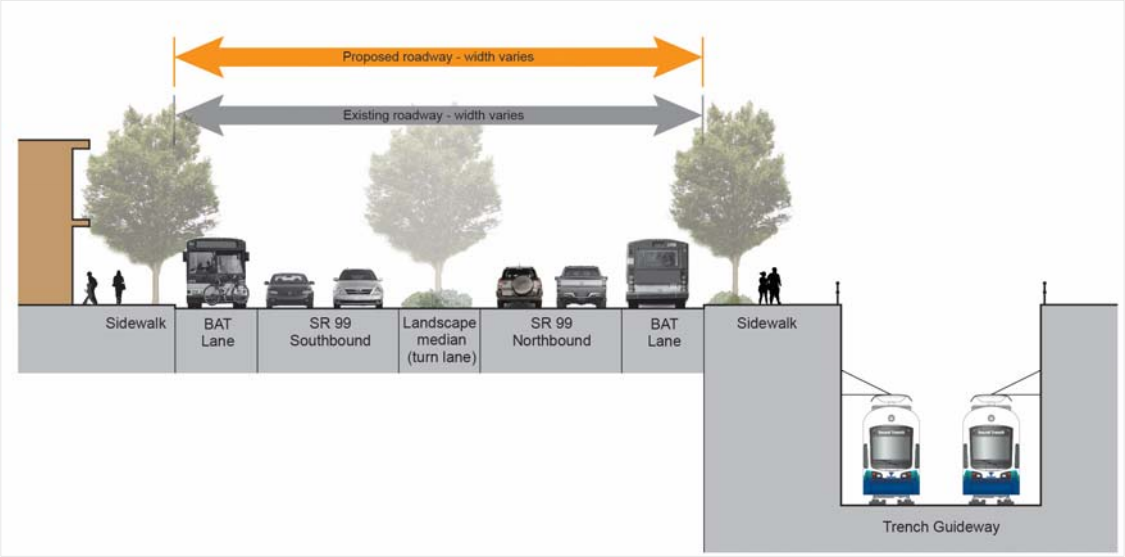


EXHIBIT 2-10
Typical Cross-Section for SR 99 Station Options with Trench-West or East Side

2.2.3.4 S 216th Potential Additional Station

The project could have a potential additional S 216th Station (Exhibit 2-11) on either side of SR-99. In either case, it would be designed with side platforms, preserving the ability to add the station at a later time. The station would not have parking. This station location is not funded under ST2.

S 216th West Station Option

The alignment for this potential additional station would stay on the west side of SR 99 from Angle Lake Station to S 216th Street instead of transitioning to the median. Similar to the SR 99 Alternative, the alignment would exit the Angle Lake Station and follow the SR 509 right-of-way to the west side of SR 99, and then would remain behind the sidewalk on the west side of SR 99 to S 216th Street, entering a trench near S 211th Street. It would remain in a trench, with the station under S 216th Street, until it approaches S 220th Street. Entrances to the station would be located on both the north and south sides of S 216th Street. After exiting the trench, the alignment would cross S 220th Street and transition to the SR 99 median.

S 216th East Station Option

The light rail alignment for this potential additional station would be the same as the SR 99 Alternative until approximately 300 feet north of S 216th Street, where it would transition to the east side of SR 99 and enter an elevated station south of S 216th Street. After exiting the station, it would transition back to the SR 99 median near S 222nd Street.

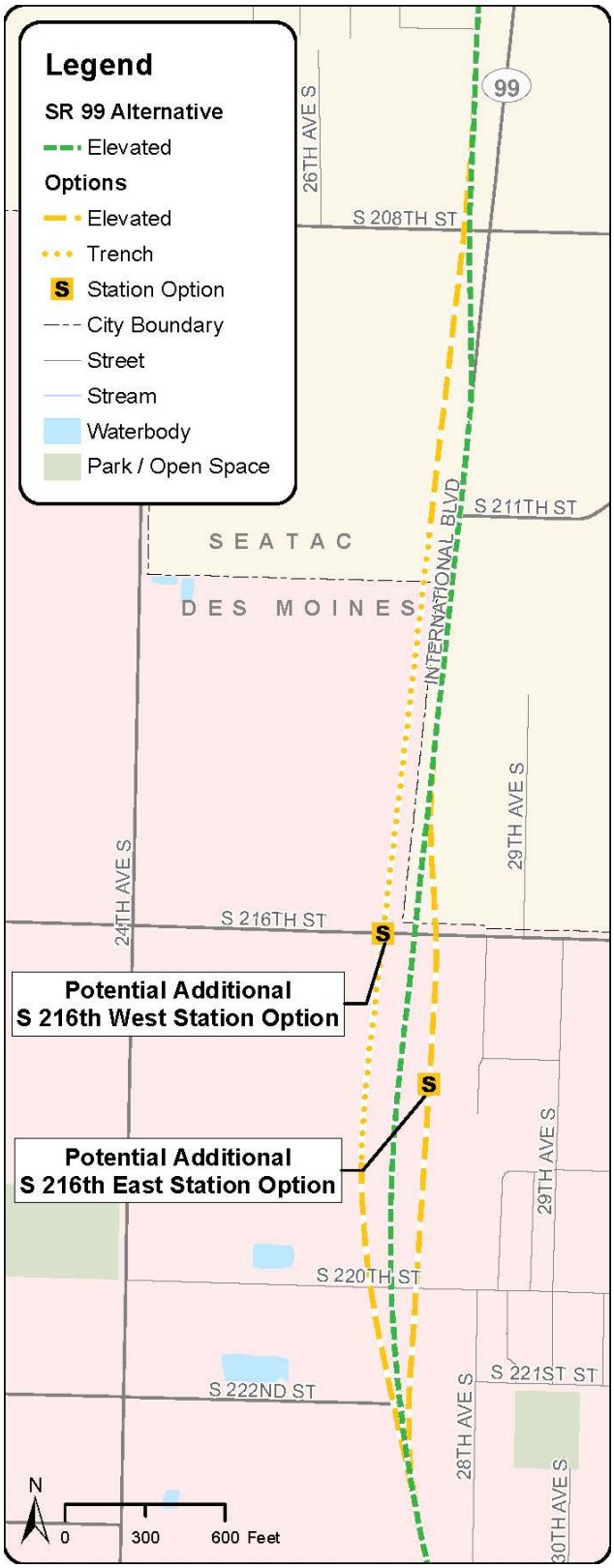


EXHIBIT 2-11
S 216th Station Options

2.2.3.5 Kent/Des Moines Station Options

All Kent/Des Moines Station options (Exhibit 2-12) would have center platforms and parking for approximately 1,000 vehicles (500 surface, 500 structured) if an interim terminus. The parking could be reduced to 500 spaces when the system is extended south and additional system parking is available at other stations.

Kent/Des Moines HC Campus Station Option

The alignment for this station option would transition to the west side of SR 99 north of S 226th Street and generally follow the east side of 28th Avenue S across Kent-Des Moines Road. It would then enter a trench south of S 232nd Street and continue in a trench to a station on the eastern edge of the Highline College (HC) campus east parking lot and then under S 240th Street. It would become elevated and return to the SR 99 median south of S 240th Street. If this station option were combined with the S 216th West Station Option, the alignment would remain on the west side of SR 99 between these two station options.

Kent/Des Moines SR 99 Median Station Option

The alignment for this station option would transition from the west side of SR 99 south of Kent-Des Moines Road to enter the median. The station would be in the SR 99 median at approximately S 236th Lane. The alignment would stay in the median after exiting this station.

Kent/Des Moines East Station Option

This station option would transition to the east side of SR 99 north of Kent-Des Moines Road and would span this intersection to enter an elevated station on the east side of SR 99, north of S 240th Street. The alignment would return to the SR 99 median south of S 240th Street.

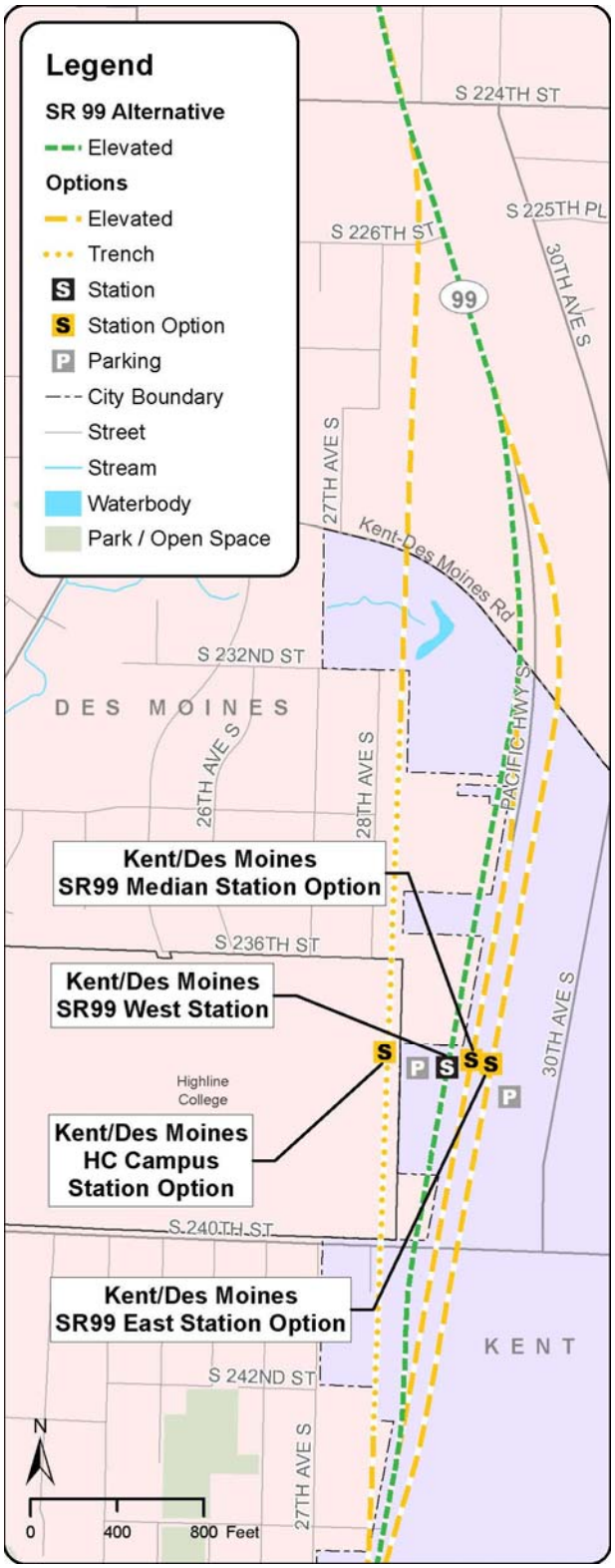


EXHIBIT 2-12
Kent/Des Moines Station Options

2.2.3.6 S 260th Potential Additional Station

The project could have a potential additional station (Exhibit 2-13) on either the east or west side of SR 99. In either case, it would be designed with side platforms, preserving the potential to be built at a later time if not included in and built as part of the Preferred Alternative. There would be no patron parking built with this station. This station location is not funded under ST2.

S 260th West Station Option

The alignment for the S 260th West potential additional station would transition to the west side of SR 99 south of S 240th Street and continue behind the sidewalk to an elevated station north of S 260th Street. It would transition back to the SR 99 Alternative just south of S 260th Street.

S 260th East Station Option

The alignment for the S 260th East potential additional station would transition to the east side of SR 99 north of S 260th Street and continue to a station straddling S 260th Street. Entrances to the station would be on both sides of S 260th Street. The alignment would then continue on the east side of SR 99 to the S 272nd Street Redondo Station and reconnect with the SR 99 Alternative.

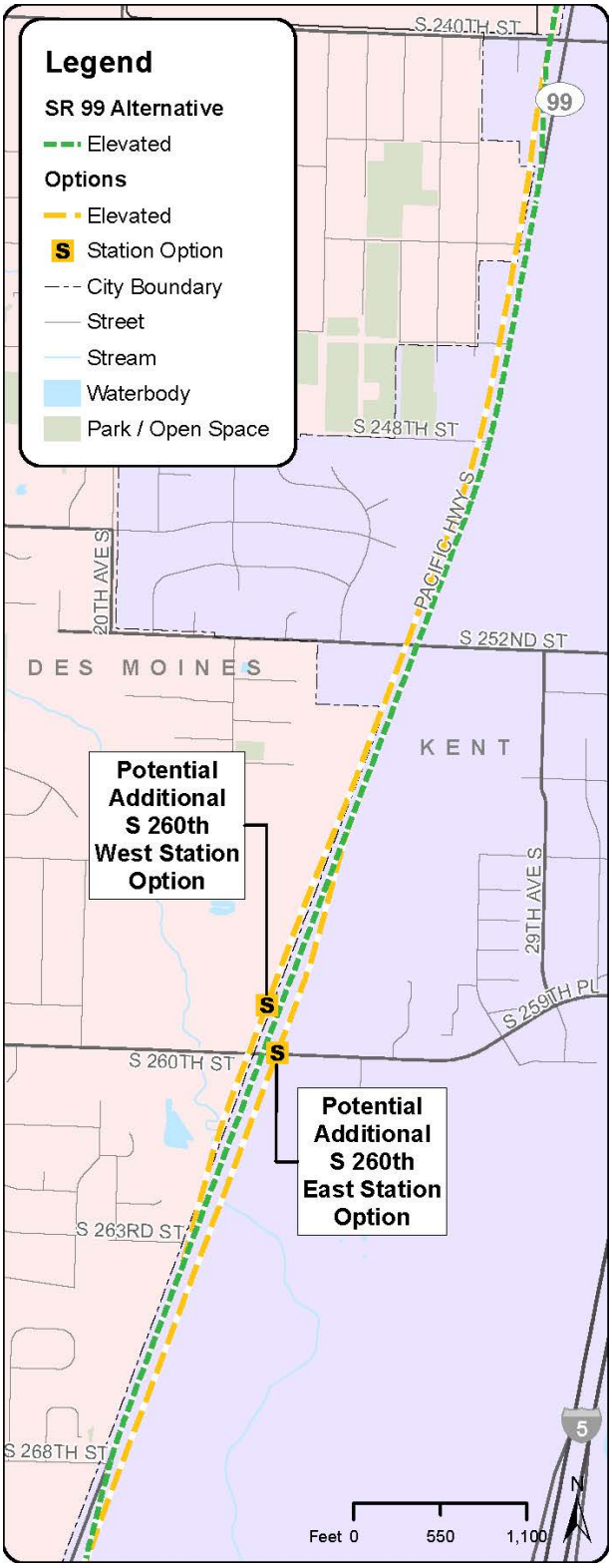


EXHIBIT 2-13
S 260th Station Options

2.2.3.7 S 272nd Redondo Trench Station Option

The alignment for the S 272nd Redondo Trench Station Option (Exhibit 2-14) would shift from the SR 99 median to the east side of SR 99 just south of S 260th Street and then transition to a trench by S 272nd Street. The guideway would cross under S 272nd Street to the S 272nd Redondo Trench Station at the existing Redondo Heights Park-and-Ride and then continue south, crossing under SR 99 near S 279th Street. On the west side of SR 99, it would travel behind properties fronting the west side of SR 99 and would be on a structure but below the elevation of SR 99, due to the terrain sloping down to the west. It would cross over 16th Avenue S, enter an existing utility corridor south of S 288th Street, and follow this corridor south and span over Dash Point Road. It would then travel on the east side of 16th Avenue S until SR 99 near S 308th Street, where it would transition back to the SR 99 median.

Parking for this station would be the same as described for the S 272nd Redondo Station.

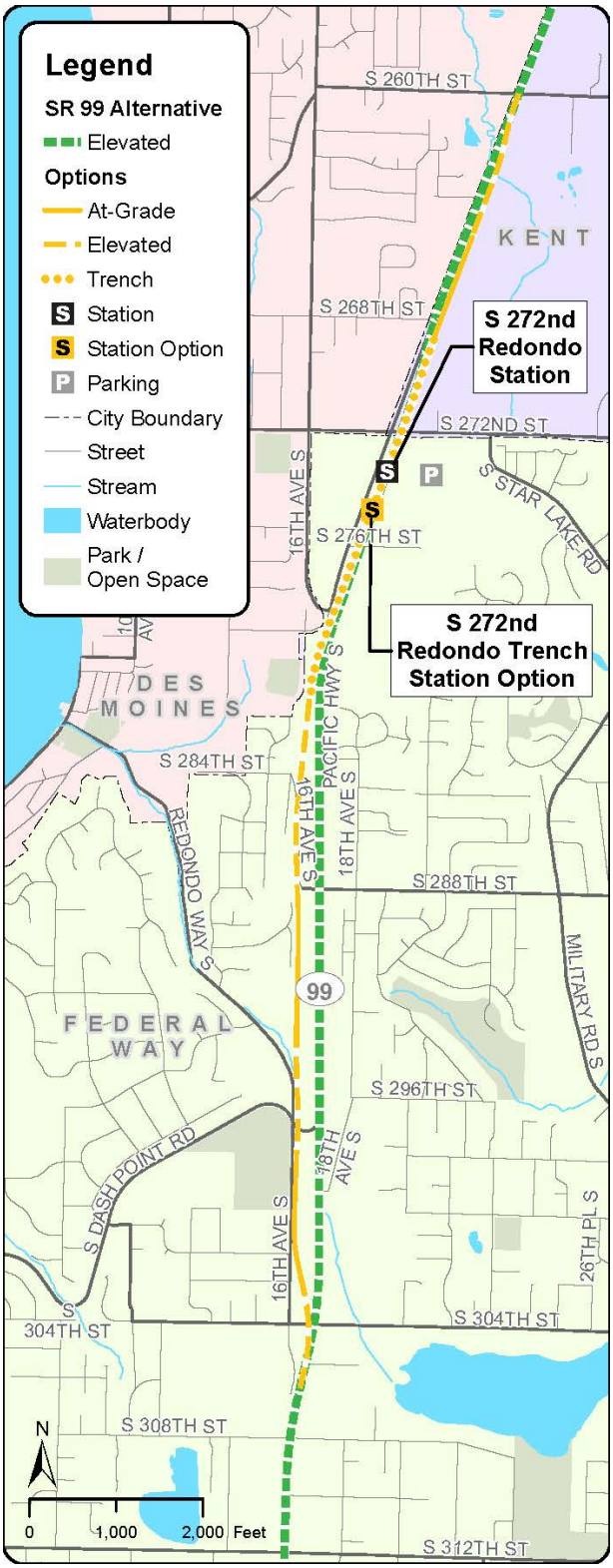


EXHIBIT 2-14
S 272nd Redondo Trench Station Option

2.2.3.8 Federal Way Transit Center SR 99 Station Option

The alignment for the Federal Way Transit Center SR 99 Station Option (Exhibit 2-15) would leave the SR 99 median between S 308th Street and S 312th Street, and would travel southeast outside of existing public right-of-way to an elevated center-platform station between SR 99 and 20th Avenue S, straddling S 316th Street. This station would add 400 new parking spaces to the 1,200 existing parking spaces at the Federal Way Transit Center.

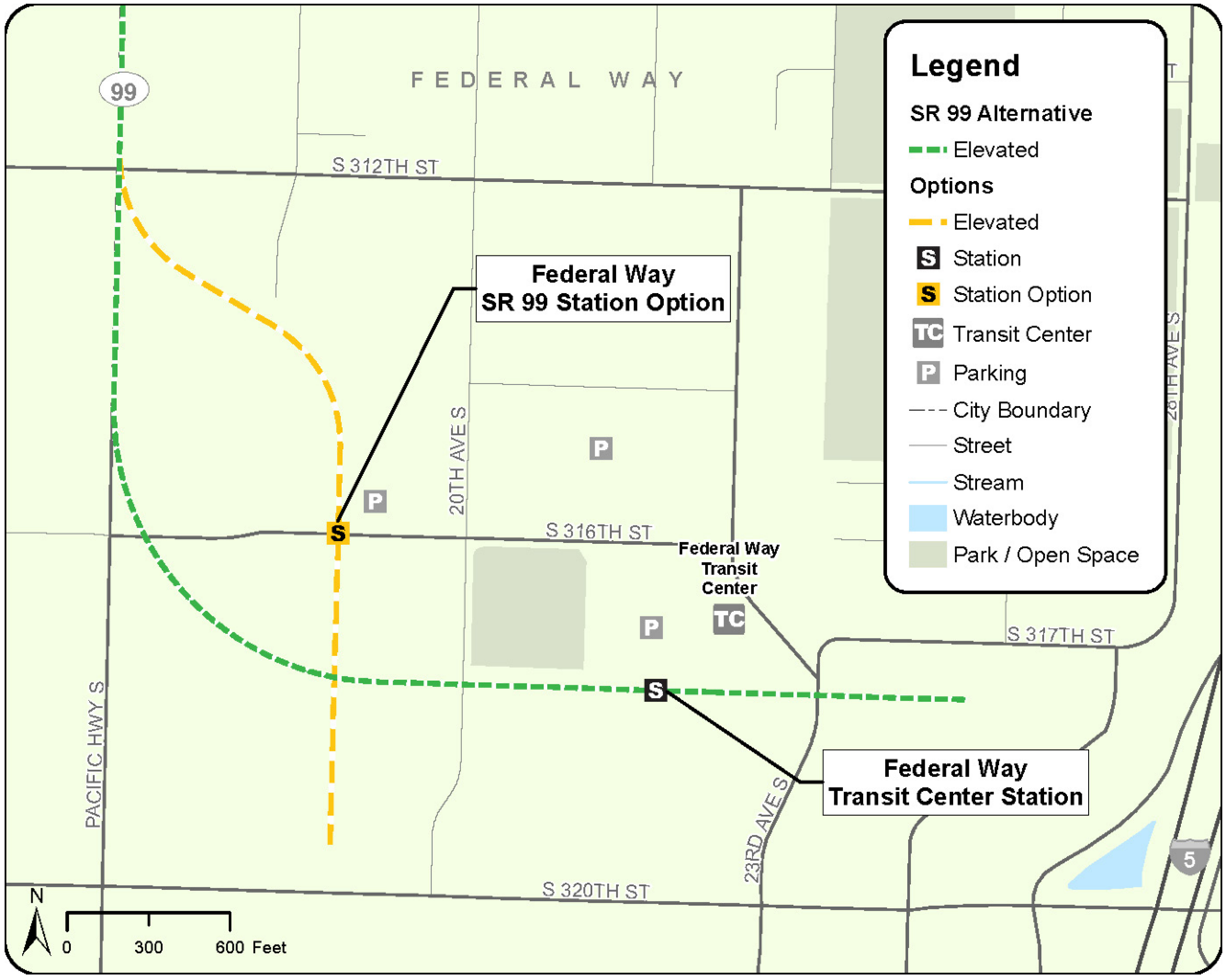


EXHIBIT 2-15
Federal Way Transit Center SR 99 Station Option

2.2.4 I-5 Alternative

The I-5 Alternative (Exhibits 2-16 and 2-17) would leave the Angle Lake Station and cross to the east side of SR 99 near the proposed SR 509 extension (see Section 2.7 for additional information on this project). It would be inside the future SR 509 WSDOT right-of-way until reaching I-5. From S 211th Street to S 231st Street, the light rail alignment would be outside of and west of the WSDOT right-of-way to allow for the planned future build-out of I-5 in this area. Appendix F, Conceptual Design Plans, shows the proposed SR 509 Extension in relation to the FWLE. Between S 231st Street and S 317th Street, the alignment would be mostly within the I-5 right-of-way except to access stations. Some areas of this alternative would be at-grade or in a trench where existing topography allows and road crossings are not present (see Exhibit 2-17). All road crossings would be grade-separated. All stations would have center platforms and transit connections.

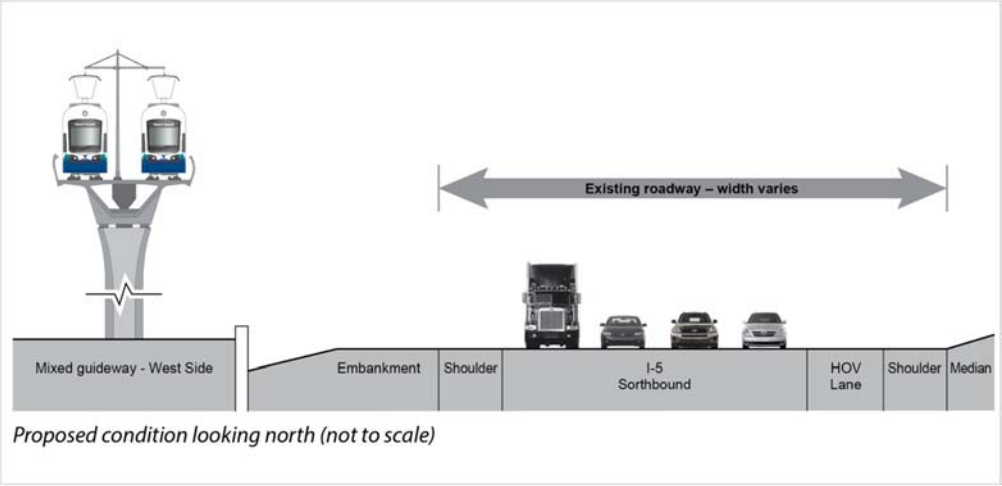


EXHIBIT 2-16
Typical Cross-Section, Elevated Profile - I-5 Alternative

2.2.4.1 Kent/Des Moines I-5 Station

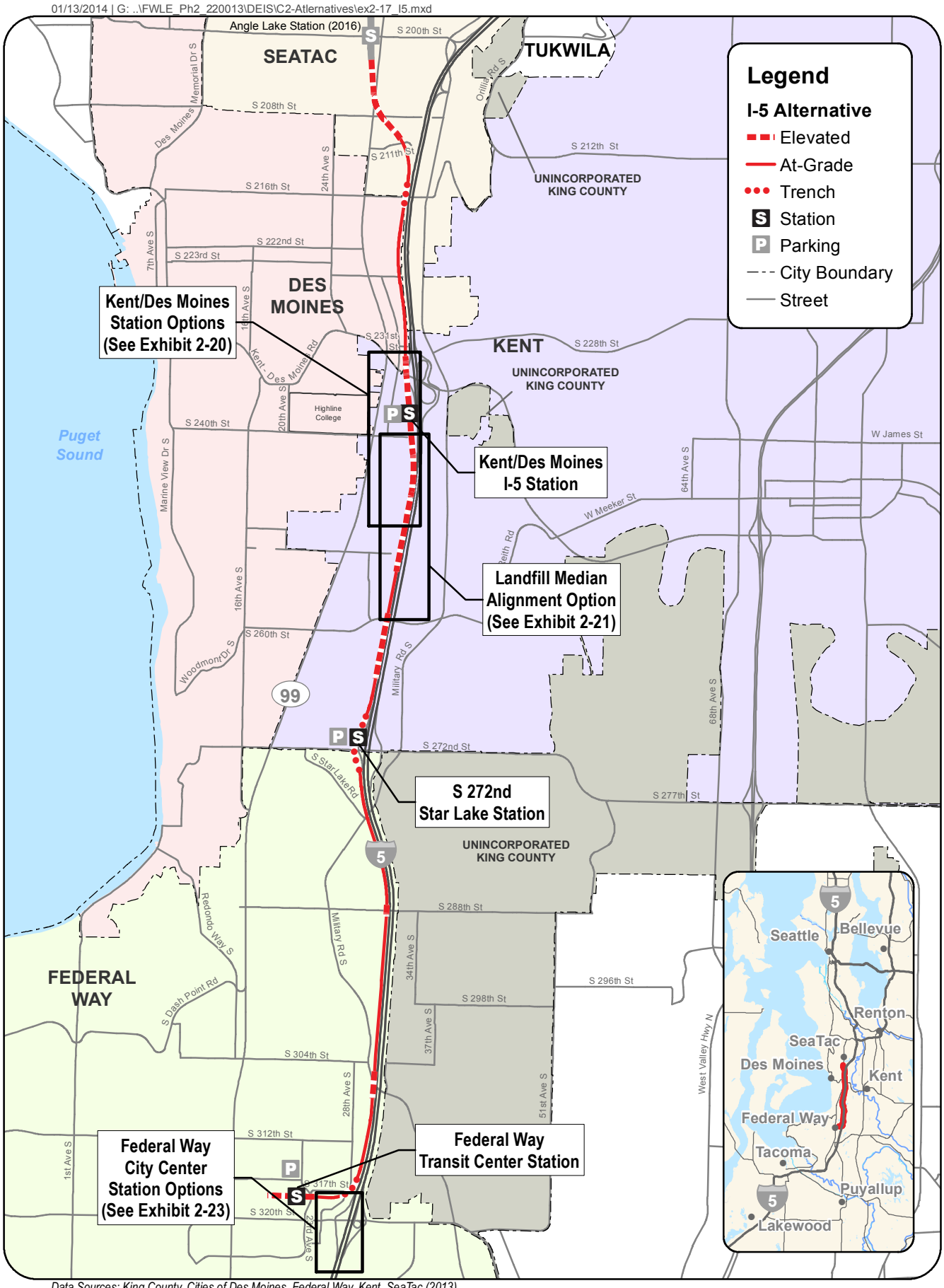
This elevated station would be adjacent to the west side of I-5, north of S 240th Street. It would have approximately 1,000 parking spaces (500 surface, 500 structured) if used as an interim terminus, which could be reduced to 500 spaces when the system is extended south and additional system parking is made available at other stations.

Kent/Des Moines Station

The Kent/Des Moines I-5 station and SR 99 East Station Option would include construction of a new S 236th Lane east of SR 99 to provide access to the station and parking area.

2.2.4.2 S 272nd Star Lake Station

This trenched station would be at the Star Lake Park-and-Ride and would have approximately 1,240 parking spaces in structured parking, about 700 more than the existing parking at this location.



Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

EXHIBIT 2-17
I-5 Alternative

Federal Way Link Extension

2.2.4.3 Federal Way Transit Center Station

This station would be elevated on the south side of the existing Federal Way Transit Center. It would add about 400 new parking spaces to the 1,200 existing spaces.

2.2.4.4 Location within I-5 Right-of-Way

The width of the undeveloped I-5 right-of-way under consideration for transit use varies from roughly 20 feet to 45 feet along the potential alignment. Given the project's current level of conceptual design, it is premature to define the precise location of the light rail guideway within this strip of undeveloped right-of-way. If for the Final EIS Sound Transit identifies a Preferred Alternative within the I-5 right-of-way additional analysis and more detailed design will help inform the specific siting of the guideway within the right-of-way.

To help decision-makers and the public understand potential impacts of an alignment within the undeveloped I-5 right-of-way, Sound Transit has assumed in this Draft EIS that the guideway will generally follow the western edge of the interstate right-of-way. This is to ensure that potential impacts to neighboring properties and land uses are disclosed as fully as possible given the current level of design. It also reflects the general practice of agencies with jurisdiction over interstate highways (in Washington state, the Federal Highway Administration and WSDOT) to locate non-highway uses as far as possible from an existing highway. There are several reasons for this approach, including the following:

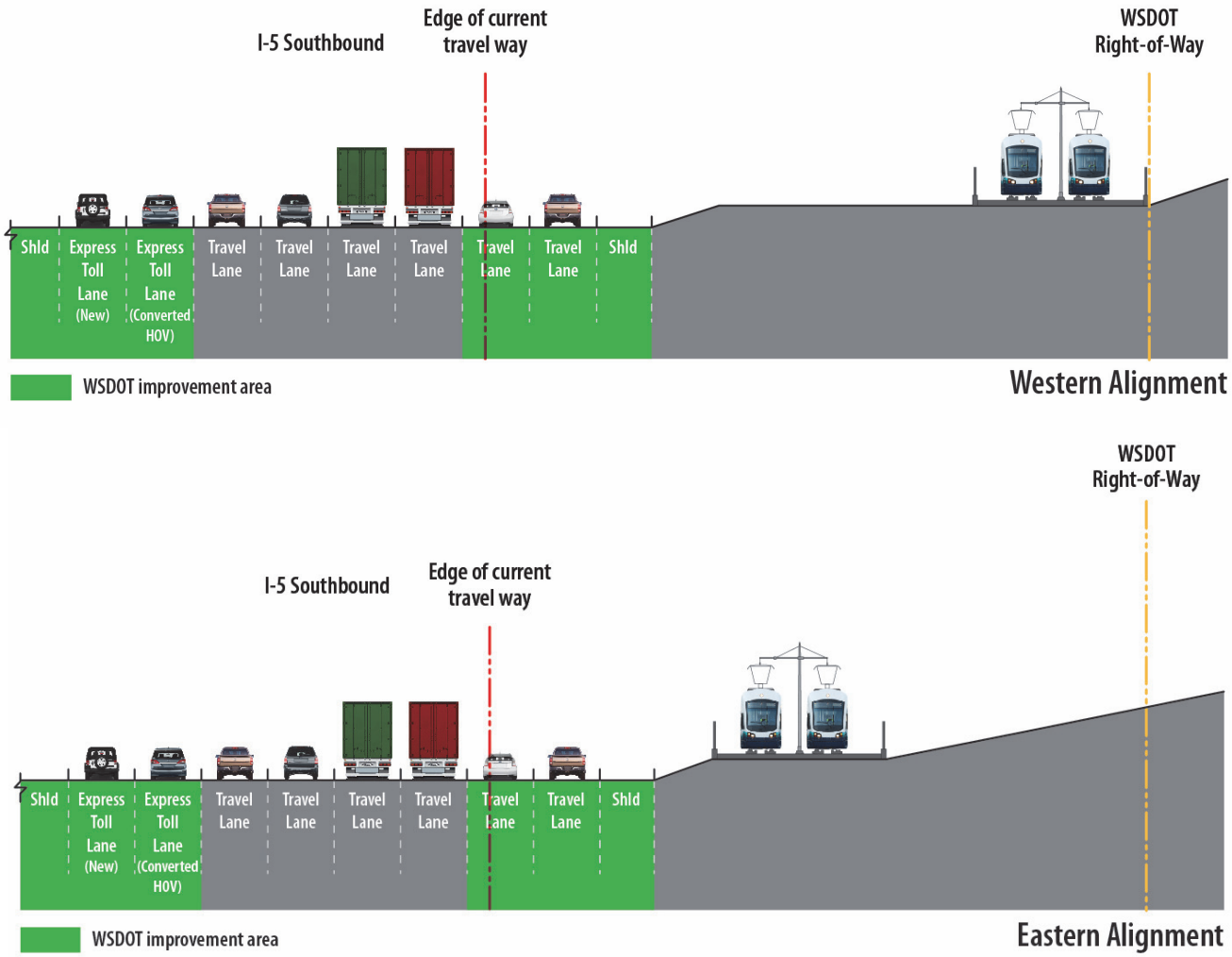
- **Safety:** As the distance diminishes between the proposed non-highway structure and the highway pavement, the risk to highway users increases. The amount of increased hazard at any location depends on factors like the specific highway configuration, location-specific highway volumes, average speeds, topography, and the distance from the edge of pavement to the structure/barrier. The effect could be a very slight increase in the accident rate, or a substantial increase, depending on the factors involved. Safety mitigation measures may help, but WSDOT and FHWA believe they will not fully mitigate safety concerns. For example, a guardrail in front of the structure may mitigate the increased hazard of a non-highway use's large concrete pier, but guardrails themselves are potential hazards.
- **Future highway-related needs for the right-of-way:** The highway agencies must also determine that any use of the right-of-way

leaves enough room to accommodate reasonably foreseeable highway expansion needs, considering the width of the right-of-way and the anticipated regional growth. Even if highway expansion is not precluded after the introduction of the non-highway use, such projects become more difficult and expensive if there is inadequate right-of-way in which to work.

In addition to potentially needing right-of-way for new lanes, highway agencies may also need it for requirements including new or improved drainage/stormwater facilities, signage, new or existing technologies to improve traffic management, environmental mitigation, upgrading storm water facilities, and innovative interchange designs. For example, grassy swales within a right-of-way provide an effective stormwater/drainage treatment. They can be replaced with concrete vaults, but vaults are more costly and require more maintenance.

- **Operations and maintenance:** The highway agencies must also maintain their roadways. As the amount of right-of-way decreases, the likelihood that maintenance will disrupt traffic increases. If maintenance vehicles have to use the highway shoulders, that also increases risk to motorists. And just as insufficient right-of-way can make new construction more costly, it can increase maintenance costs.

FHWA and WSDOT also recognize that site-specific constraints along the undeveloped right-of-way exist and may require flexibility to adjust the location of the transit guideway to avoid impacts or problems. For example, moving a guideway closer to the pavement from the edge of the right-of-way in some locations could reduce visual and noise impacts; it may avoid or reduce impacts to streams or wetlands or other natural features at a specific location; it may resolve constructability conflicts or serious cost problems due to working in or around existing infrastructure in the area; or it may mitigate or avoid other problems that would exist if the guideway were on the edge of the right-of-way. Appendix H illustrates some of the specific tradeoffs to be weighed at different locations along the I-5 alignment (Exhibit 2-18). Sound Transit, FTA, and the highway agencies acknowledge that if an alternative that uses I-5 right-of-way is identified as the Preferred Alternative, they will work collectively to perform this balancing of cost, complexity, and benefits with impacts



WSDOT improvement area includes additional lanes on the outside of the roadway as proposed in the *I-5 -SR 509 Corridor Completion an Freight Improvement Project* (not funded) as well as toll lanes in the shoulder and current HOV lane as proposed in the *SR 509, I-5 and SR 167 Puget Sound Gateway Project* (not funded).

EXHIBIT 2-18
Potential Locations of I-5 Alternative within WSDOT Right-of-Way (looking south)

to safety, future highway needs, and interstate maintenance and operations.

Exhibit 2-18 shows a representative cross section of the I-5 southbound lanes in the FWLE corridor, including the western limits of the I-5 right-of-way as well as the western limit of the current travel way. The WSDOT improvement area shown in green represents planned and potential improvements. The outside two additional lanes and shoulder represent I-5 widening proposed as part of the I-5 – SR 509 Corridor Completion and Freight Improvement Project as designed and documented in FHWA's Record of Decision for that project (2003). The inside improvement area reflects the potential for converting an existing HOV lane to an express toll lane and adding a

second express toll lane and shoulder in the I-5 median. These latter potential improvements have not been studied in an environmental impact statement but have been considered as part of the WSDOT Gateway Program. These potential improvements are not in the funded regional transportation plan.

Sound Transit, FTA, and the highway agencies have already identified two places in the I-5 alignment where, if the Sound Transit Board identifies an I-5 alternative as the Preferred Alternative, they would balance cost, complexity, and benefits with impacts to safety, future highway needs, and interstate maintenance and operations. One such location is where the light rail alignment approaches the Camelot Mobile Home Park south of S 288th Street, where shifting the alignment east may be necessary to adequately mitigate impacts to residents and, perhaps, Bingaman Creek.

The other location is where the alignment crosses the Midway Landfill. A more eastern alignment may be proposed if it is determined that there are constructability risks with the western alignment in the vicinity of the Midway Landfill. In both of these locations, and perhaps others, more information will be developed, and FHWA and WSDOT will be consulted to determine the guideway location that best accommodates all of the concerns described in this section.

After the Sound Transit board identifies a Preferred Alternative, Sound Transit will prepare a Final EIS with more precise and detailed information and more refined designs for that alternative. This will occur whether the Preferred Alternative uses I-5 or SR 99 or both, as the project team performs more detailed analysis and refines the design to reduce the project's impacts and maximize its benefits. Still more design refinements will continue after the Record of Decision (ROD) during final design and permitting. Consultation with the highway agencies, other interested agencies, and the public will also continue in tandem with the design advancement. All post-ROD design refinements will be subject to additional environmental review, consistent with the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA).

2.2.4.5 Kent/Des Moines Station Options

All Kent/Des Moines Station options (Exhibit 2-19) would have center platforms and surface parking for approximately 1,000 vehicles if used as an interim terminus, which could be reduced to 500 when the system is extended south and additional system parking is available at other stations.

Kent/Des Moines At-Grade Station Option

The at-grade station option would be next to the I-5 right-of-way just south of S 240th Street. It would not change the alignment of the I-5 Alternative.

Kent/Des Moines SR 99 East Station Option

This station option would be elevated on the east side of SR 99. The alignment would begin transitioning from the west side of I-5 to the east side of SR 99 north of Kent-Des Moines Road, and would span Kent-Des Moines Road near 30th Avenue S. It would transition back to I-5 south of S 240th Street and re-enter the I-5 right-of-way.

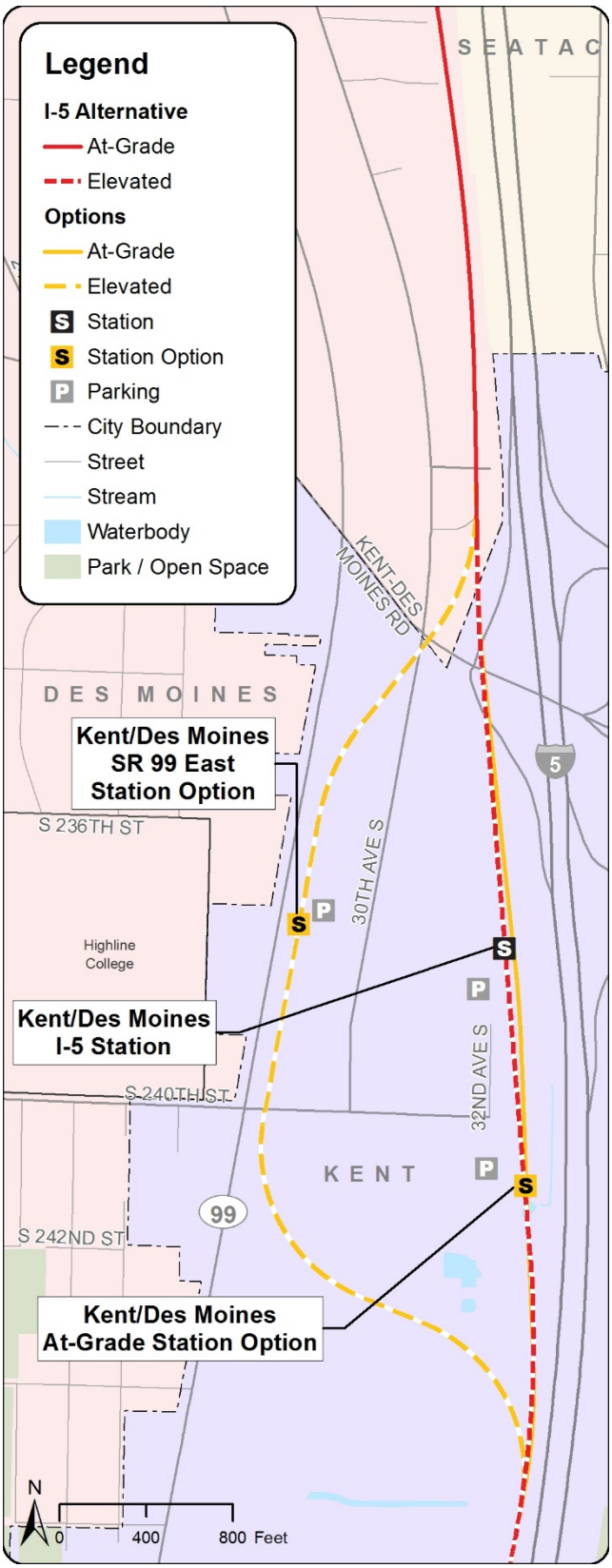


EXHIBIT 2-19
Kent/Des Moines Station Options

2.2.4.6 Landfill Median Alignment Option

To avoid crossing the Midway Landfill, which has unique engineering challenges associated with it, this alignment option (Exhibits 2-20 and 2-21) would transition to the I-5 median south of S 240th Street and would transition back to the west side of I-5 at approximately S 252nd Street. It would require spanning over the southbound lanes of I-5 to enter and exit the median.

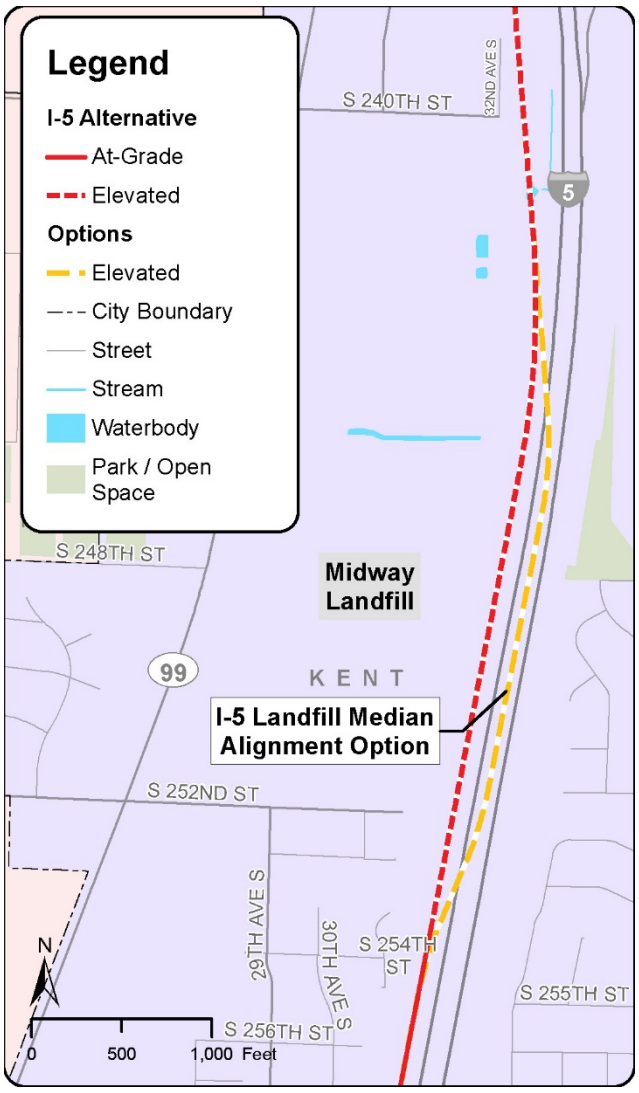


EXHIBIT 2-20
I-5 Landfill Median Alignment Option

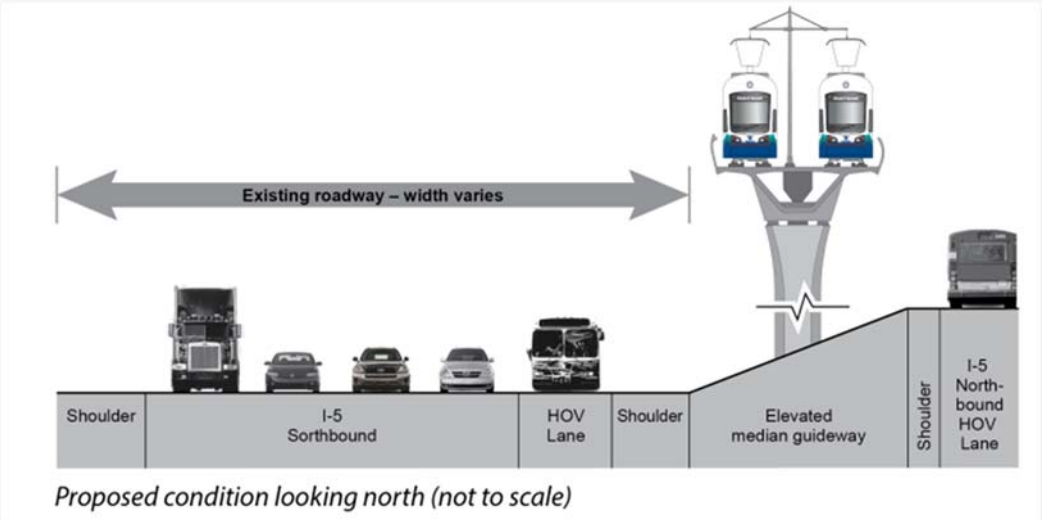


EXHIBIT 2-21
Typical Cross-Section – I-5 Landfill Median Alignment Option

2.2.4.7 Federal Way City Center Station Options

The Federal Way City Center Station options (Exhibit 2-22) are center platform stations and would have a crossover and tail track after the station.

Federal Way I-5 Station Option

This station option would be partially in a trench and partially at-grade and located close to I-5, between S 317th Street and S 320th Street, parallel to Gateway Center Boulevard. It would add 400 surface parking spaces to the existing 1,200 spaces at the transit center.

Federal Way S 320th Park-and-Ride Station Option

This station option would be at-grade near the west side of I-5 at the S 320th Street Park-and-Ride. It would have 1,600 parking spaces in structured parking, which would include the 877 spaces already at this location and over 700 new spaces. Transit service would be provided, including connections to the Federal Way Transit Center.

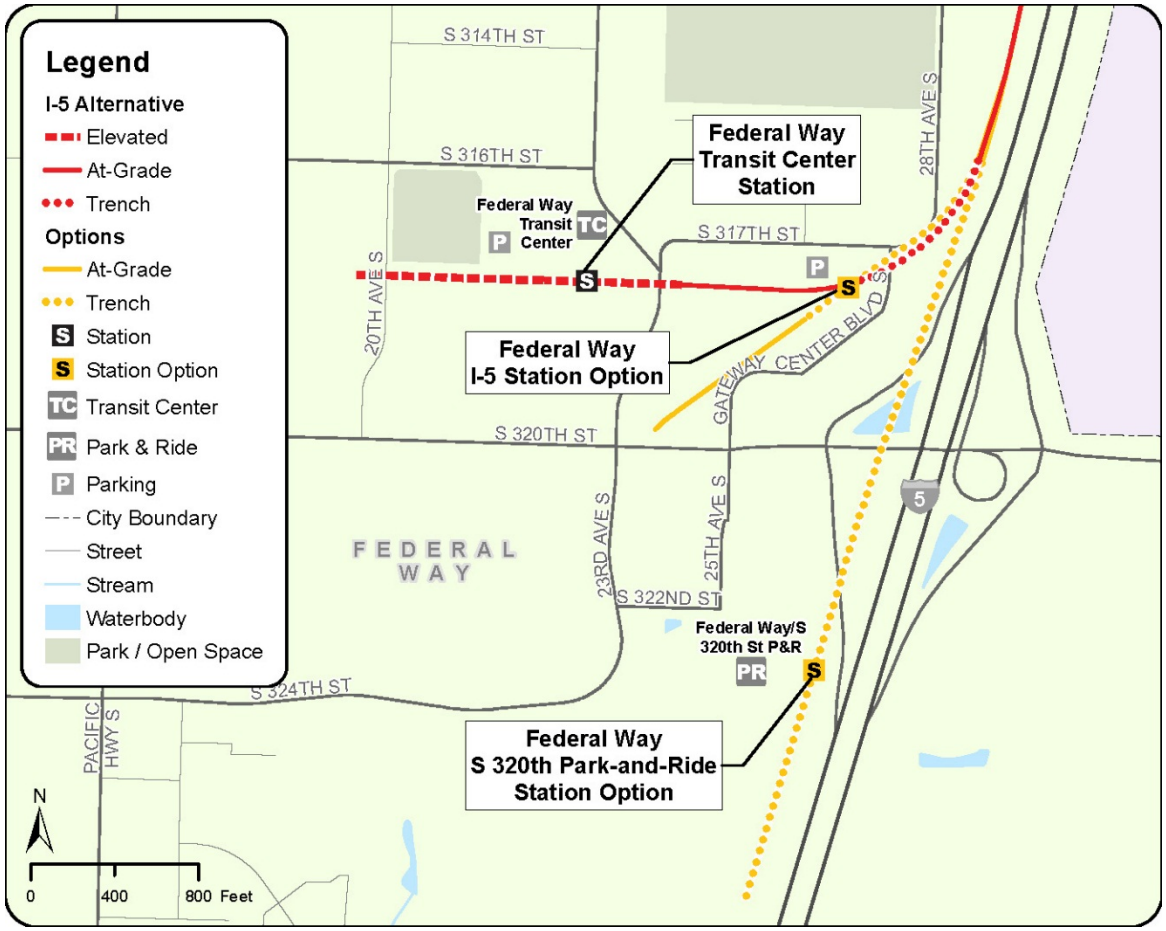


EXHIBIT 2-22
Federal Way City Center Station Options

2.2.5 SR 99 to I-5 Alternative

The SR 99 to I-5 Alternative (Exhibit 2-23) would have the same alignment as the SR 99 Alternative from the Angle Lake Station to just north of Kent-Des Moines Road (Exhibit 2-1C). The alignment would then transition to 30th Avenue S with a station north of S 240th Street (shown in blue). After leaving the station, the alignment would transition to the I-5 right-of-way and be the same as the I-5 Alternative to the Federal Way Transit Center (shown in red). Stations at S 272nd Street and the Federal Way Transit Center would be the same as the I-5 Alternative. This alternative would be elevated except for areas shown as at-grade in Exhibit 2-23.

Station Options

This alternative could have the following station options associated with the I-5 Alternative south of Kent-Des Moines Road:

- Federal Way I-5 Station Option
- Federal Way I-5 S 320th Station Option

Potential Additional Stations

This alternative could have the following potential additional station options associated with the SR 99 Alternative north of Kent-Des Moines Road:

- S 216th West Station Option
- S 216th East Station Option

2.2.5.1 Kent/Des Moines 30th Avenue East Station

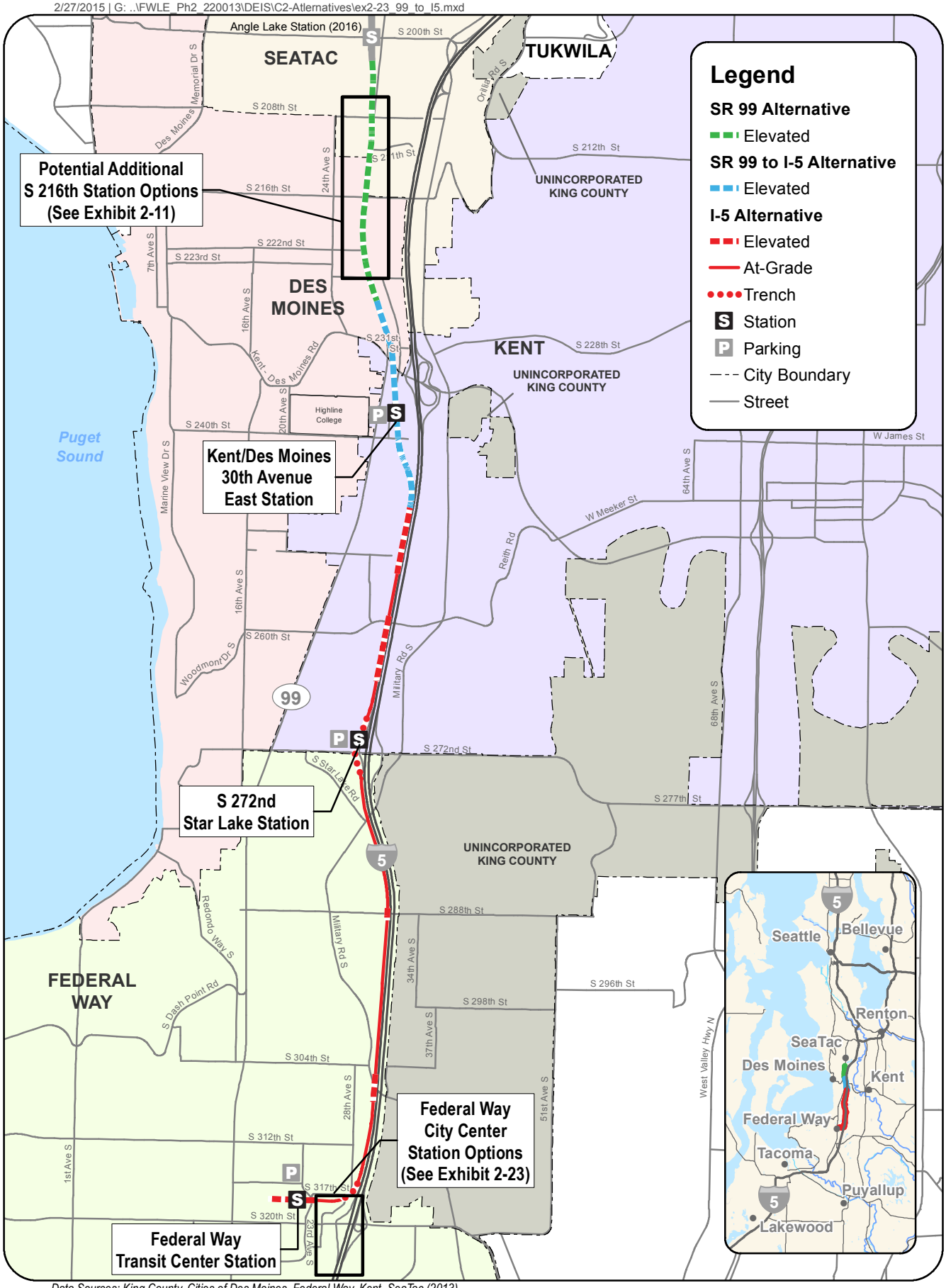
This elevated station would be just east of 30th Avenue S between Kent-Des Moines Road and S 240th Street. It would have approximately 1,000 parking spaces (500 surface, 500 structured) if used as an interim terminus, reduced to 500 spaces when the system is extended south and additional system parking is made available at other stations.

2.2.5.2 S 272nd Star Lake Station

This trenched station would be at the Star Lake Park-and-Ride and have approximately 1,240 parking spaces in structured parking, about 700 more than the existing parking.

2.2.5.3 Federal Way Transit Center Station

This station would be elevated on the south side of the existing Federal Way Transit Center. It would add about 400 new parking spaces to the 1,200 existing ones.



Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

N

0 0.5 1 2 Miles

EXHIBIT 2-23
SR 99 to I-5 Alternative

Federal Way Link Extension

2.2.6 I-5 to SR 99 Alternative

The I-5 to SR 99 Alternative (Exhibit 2-24) would have the same alignment as the I-5 alternative from the Angle Lake Station to just north of Kent-Des Moines Road (Exhibit 2-1D). The alignment would then transition to 30th Avenue S with a station north of S 240th Street (shown in blue). After leaving this station, the alignment would transition to the SR 99 median and be the same as the SR 99 Alternative to the Federal Way Transit Center (shown in green). Stations at S 272nd Street and the Federal Way Transit Center would be the same as the SR 99 Alternative. This alternative would be elevated except for from S 211th Street to S 216th Street, and from S 218th Street to S 231st Street, where it would be at-grade.

Station Options

This alternative could have the following station options associated with the SR 99 Alternative south of Kent-Des Moines Road:

- S 272nd Redondo Trench Station Option
- Federal Way SR 99 Station Option

Potential Additional Stations

This alternative could have the following potential additional station options associated with the SR 99 Alternative south of Kent-Des Moines Road:

- S 260th West Station Option
- S 260th East Station Option

2.2.6.1 Kent/Des Moines 30th Avenue West Station

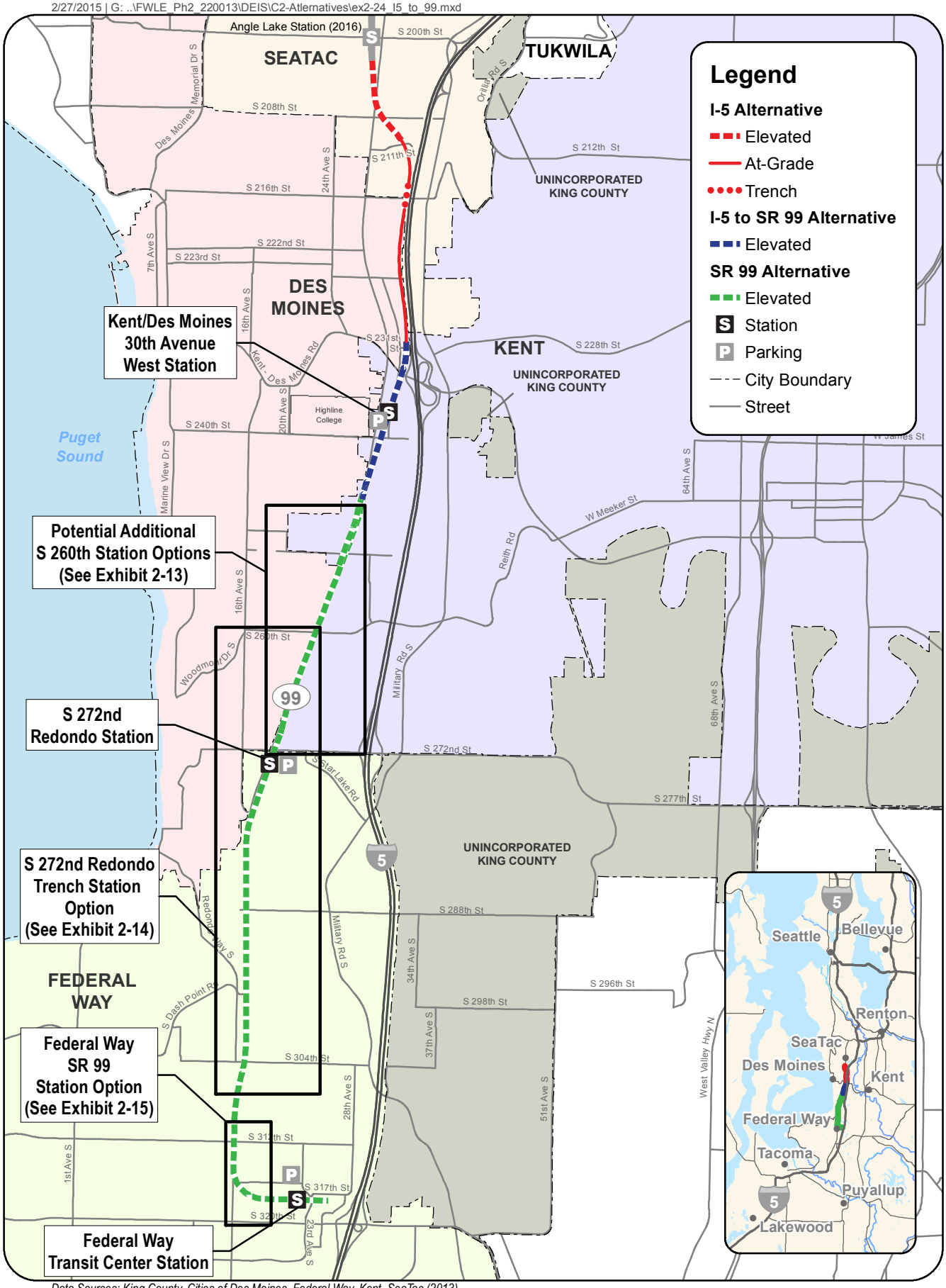
This elevated station would be just west of 30th Avenue S between Kent-Des Moines Road and S 240th Street. It would have approximately 1,000 parking spaces (500 surface, 500 structured) if used as an interim terminus, reduced to 500 spaces when the system is extended south and additional system parking is made available at other stations.

2.2.6.2 S 272nd Redondo Station

The alignment would transition to the east side of SR 99 north of S 272nd Street before entering an elevated station at the existing Redondo Heights Park-and-Ride. This station would have approximately 1,400 combined surface and structured parking spaces, about 700 more than are currently provided. The alignment would transition back to the SR 99 median near S 279th Street.

2.2.6.3 Federal Way Transit Center Station

The alignment would exit the SR 99 median north of S 316th Street and head east to an elevated station on the south side of the existing transit center. This station would add approximately 400 new surface parking spaces to the 1,200 existing ones.



Data Sources: King County, Cities of Des Moines, Federal Way, Kent, SeaTac (2013).

N

0 0.5 1 2 Miles

EXHIBIT 2-24
I-5 to SR 99 Alternative

Federal Way Link Extension

2.2.7 Operation and Vehicle Maintenance

The FWLE would operate 20 hours per day Monday through Saturday and 18 hours on Sunday. Service levels (train frequency) would vary during the day based on ridership demand or other service standards. Table 2-2 shows the proposed service schedule for weekdays. Trains would operate with up to four cars during peak and off-peak periods. Sound Transit currently has one Link operations and maintenance facility (OMF) in Seattle that was constructed as part of Central Link and opened in 2009. Sound Transit is evaluating alternatives for a satellite operations and maintenance facility for the Link system outside of the FWLE corridor. The construction of this satellite facility, which voters approved as part of ST2, is expected to be complete by 2023 when Sound Transit begins operating extensions to Lynnwood, Redmond, and Kent/Des Moines. These two facilities will meet the operation, storage, and maintenance needs for the fleet of light rail vehicles that will serve the expanded regional light rail system under ST2 (i.e., service north to Lynnwood, east to Overlake Transit Center, and south to Kent/Des Moines). Storage, maintenance, inspection, and repair of light rail vehicles serving the FWLE would occur at the OMF in Seattle. Trains serving the FWLE would be deployed primarily from the OMF in Seattle, although any terminus station (either interim or the Federal Way Transit Center) could provide overnight storage of up to four four-car trains. Two trains could be stored on the tail tracks and two at the station platform areas at the close of service each night. These stations may provide parking for light rail operators and office space for operator check-in facilities. They may also have space for maintenance personnel and materials to allow daily vehicle inspections and interior cleaning of vehicles. Overnight storage at a terminus station would allow deployment of northbound trains at the beginning of service each day.

TABLE 2-2
Weekday Service Periods

Service Period	Time Period	Service Type	Train Frequency (minutes)
Early morning	5:00 a.m. to 6:00 a.m.	Early/late	15
Morning peak	6:00 a.m. to 8:30 a.m.	Peak	8
Midday	8:30 a.m. to 3:00 p.m.	Base	10
Afternoon peak	3:00 p.m. to 6:30 p.m.	Peak	8
Evening	6:30 p.m. to 10:00 p.m.	Base	10
Evening late night	10:00 p.m. to 1:00 a.m.	Early/late	15

Vehicle, track, and systems maintenance occurs between 1:00 a.m. and 5:00 a.m. daily, outside of normal hours of light rail service.

Based on preliminary operating plans, about two trains may be deployed between approximately 4:30 and 5:00 a.m. to be staged for

the beginning of morning service at FWLE stations. Similarly, about two trains may operate between approximately 1:00 and 1:30 a.m. along the FWLE as they return to the OMFs at the close of service each day.

If Sound Transit identifies funding to extend light rail south of the Federal Way Transit Center, it would evaluate the need for an additional operation and vehicle maintenance facility for south King County. This Draft EIS does not evaluate locating an OMF in the FWLE corridor.

2.3 Alternatives Development and Scoping

In 2004, Sound Transit began planning for the next phase of investment to follow Sound Move. This included updating Sound Transit's Long-Range Plan and associated environmental review. Following several years of system planning work to define, evaluate, and prioritize the next round of regional transit system expansion, voters in 2008 authorized funding to extend the regional light rail system south to Federal Way as part of the ST2 Plan. The ST2 Plan also called for Sound Transit to extend light rail from downtown Seattle to Bellevue and Redmond to the east, and to Northgate and Lynnwood to the north. Additional history of planning in the FWLE corridor is provided in Chapter 1, Purpose and Need for Federal Way Link Extension. (Until September 2013, the project was referred to as the Federal Way Transit Extension.)

Screening Details

The Level 1 and Level 2 alternatives screening reports in Appendix C detail the specific measures used and the results of the evaluation.

The FWLE underwent an early scoping and Alternatives Analysis process in 2012 and 2013 to identify reasonable alternatives to be evaluated further in the Draft EIS.

The Alternatives Analysis process began with early scoping, an opportunity for the public and agencies to provide input on the preliminary Purpose and Need statement and on the potential alternatives to be evaluated during the Alternatives Analysis. The 30-day early scoping period was held in October and November 2012, and included two public open houses, an agency meeting, and an online survey. Opportunities to provide written comments were provided at the open houses, online, or via postal mail. The public open houses had interactive opportunities for attendees to provide input, including a large map of the project corridor where attendees could draw alignment and station suggestions. Overall, feedback received during the early scoping period was positive and generally

supported improved transit service in the project corridor, with noticeable support for light rail (see Appendix B). Based on input received during this period and on information in previous regional and local planning studies, Sound Transit established an initial range of alternatives to be evaluated in the alternatives evaluation process. The alternatives included different travel modes, such as bus rapid transit (BRT) and light rail; different profiles, such as elevated, tunneled, and at-grade; and alternative alignments on SR 99, I-5, 30th Avenue S, and 24th Avenue S (Exhibit 2-25). A Transportation System Management (TSM) alternative, which would have included lower-cost improvements to the transportation infrastructure to improve efficiency, was also considered.

The Alternatives Analysis included Level 1 and Level 2 evaluations. Seven of the initially identified alternatives did not make it to Level 1 because they did not meet the project purpose and need or clearly had impacts and/or costs that outweighed any benefits. These included BRT, tunnel profiles on either SR 99 or I-5, and specific alignments in the SR 99 and I-5 corridors that would have high environmental impacts, costs, or design challenges without providing measurable benefits when compared to other potential alignments. TSM was shown unlikely to improve conditions, as the most effective TSM components have already been implemented in the corridor, such as high-occupancy vehicle (HOV) lanes on SR 99 and I-5, direct-access ramps from I-5 to the Federal Way Transit Center at S 317th Street, and ramp metering and HOV bypass lanes on most I-5 interchange ramps to help control the flow of traffic onto the freeway. Bus and BRT alternatives were not advanced because they would have a slower travel time and less ridership capacity than light rail, and would not accommodate future population growth and transit demand in the corridor as effectively. Sound Transit evaluated the remaining 14 alternatives in Level 1.

The Level 1 and Level 2 evaluations measured each alternative against the criteria described below. The criteria and measures were derived from project objectives and purpose and need.

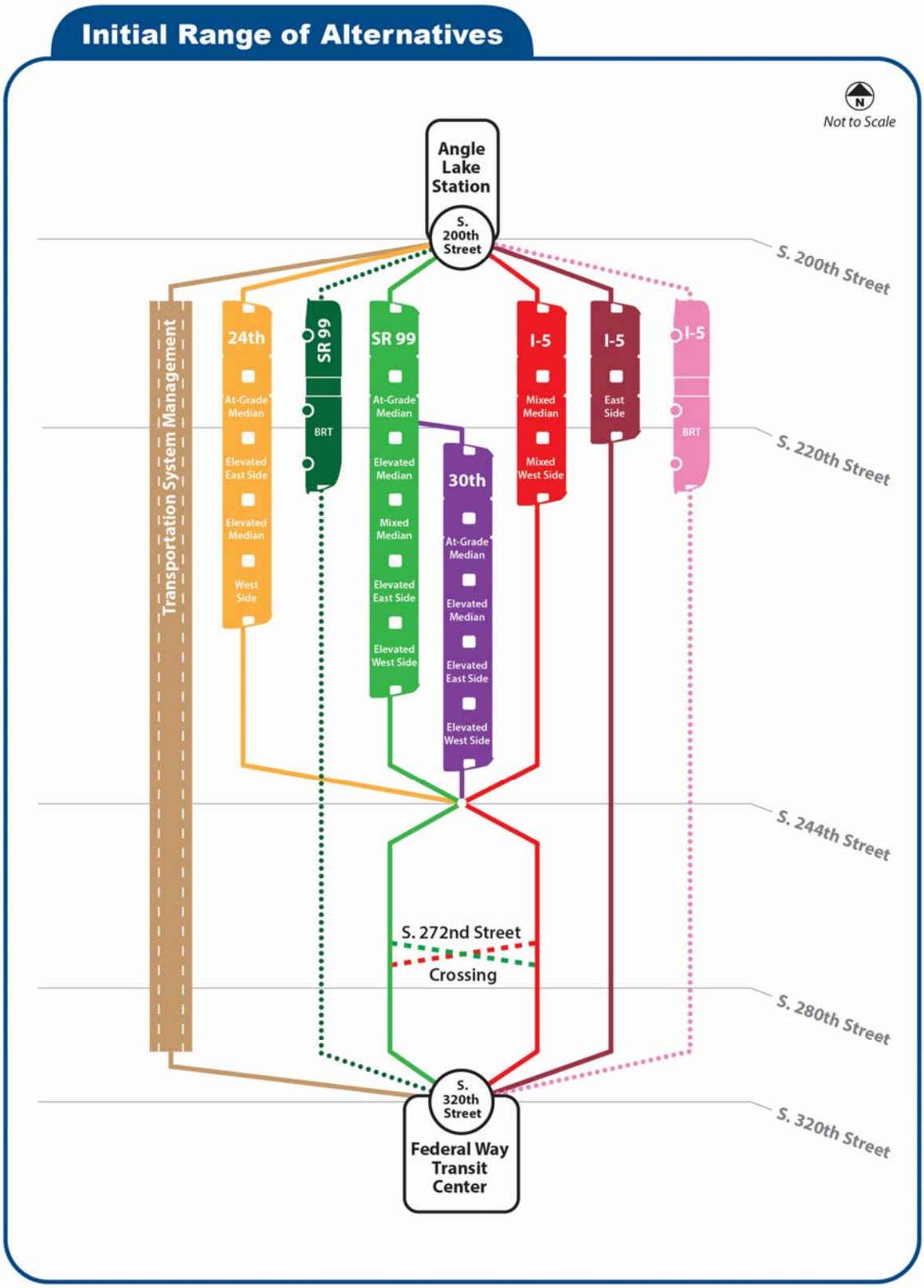


EXHIBIT 2-25
Initial Range of Alternatives

2.3.1 Criteria for Evaluation and Screening Results

Table 2-3 lists the criteria used for Level 1 and Level 2 alternatives evaluations. For each criterion, specific measures were defined, with 25 separate measures in Level 1 and 33 measures in Level 2. Measures increased in level of detail from Level 1 to Level 2. Level 2 screening omitted criteria that did not differentiate between alternatives in Level 1.

TABLE 2-3
FWLE Alternatives Analysis Evaluation Criteria

Purpose and Need Objective	Evaluation Criterion	Level 1 Measures	Level 2 Measures
Provide Effective Transportation Solution to Meet Mobility Needs	Ridership potential (year 2035)	M1: 2035 daily project riders and 2035 annual project riders	Daily and annual project ridership
			Station boardings
		M2: Travel time in study area	Travel time
	Connections to regional multimodal transportation systems	M3: Transit integration with Link system	Integration with Link system
		M4: Transit integration with facilities in the study area	Integration with bus facilities and services
Support Equitable Mobility	Transit-dependent and environmental justice populations	EM5: Low-income population within ½ mile of station	Does not differentiate between alternatives; not considered in Level 2
		EM6: Elderly population (age 65 or older) within ½ mile of station	Does not differentiate between alternatives; not considered in Level 2
		EM7: Youth population (age 16 or younger) within ½ mile of station	Does not differentiate between alternatives; not considered in Level 2
		EM8: 0-car households within ½ mile of stations	Does not differentiate between alternatives; not considered in Level 2
			Student poverty
			Subsidized housing
			Cost of commuting
			Access to express transit
			Minority populations
Support Land Use Plans and Economic Development	Transit-supportive land use and economic development policies	LU9: How well an alternative provides enhanced mobility to existing high-density land use centers	Existing land use
			Planned land use
			High density/TOD zoning
			Underutilized parcels
			Population
			Employment
			Households
			Parking opportunities
			Non-motorized access
		EN10: Impacts on wetlands	Wetlands

TABLE 2-3
FWLE Alternatives Analysis Evaluation Criteria

Purpose and Need Objective	Evaluation Criterion	Level 1 Measures	Level 2 Measures
Preserve a Healthy Environment	Effect on natural environment	EN11: Potential to affect streams (crossings)	Streams
	Effect on built environment	EN12: Visual and aesthetic impacts of alternative	Visual effects
		EN13: Potential property acquisition	Potential displacements
		EN14: Impacts to known parks	Does not differentiate between alternatives; not considered in Level 2
		EN15: Number of community facilities affected	Community facilities
		EN16: Impacts on known or eligible historic or other sensitive properties access	Does not differentiate between alternatives; not considered in Level 2
		EN17: Number of potentially impacted noise receptors	Noise
			Vibration
		EN18: Level of service (LOS) at intersections; evaluation of capacity/flow (existing conditions)	Traffic
		EN19: Traffic circulation and access; number of mid-block turning opportunities	
			Construction effects
Design an Affordable and Constructible Project	Design considerations	DC20: Potential utility effects	Utilities
		DC21: High-risk hazardous materials within ¼ mile of alternative	Hazardous materials
		DC22: Geologic hazards	Geologic issues
		DC23: Park-and-ride lot locations	Combined with parking measure under "Transit-supportive land use and economic development policies"
	System costs	DC24: Estimated capital cost ($2013)	Estimated capital cost
		DC25: Estimated annual operation and maintenance cost ($2013)	Estimated operation and maintenance cost

The following light rail alternatives were screened out based on how they performed against the Level 1 criteria; in general, they had less ridership, a longer travel time, or greater right-of-way impacts:

- SR 99 At-Grade Median
- SR 99 Mixed Median
- SR 99 Elevated West Side
- SR 99 Elevated East Side

- 30th Avenue S At-Grade Median
- 30th Avenue S Elevated Median
- 30th Avenue S Elevated East Side
- 24th Avenue S At-Grade Median
- 24th Avenue S Elevated Median
- 24th Avenue S Elevated East Side

The Level 2 analysis further refined the remaining alternatives to determine which ones should be studied in the Draft EIS. The evaluation studied the following alternatives:

- SR 99 Median
- SR 99 Hybrid
- 30th Avenue S Elevated West Side
- I-5 Mixed West Side
- I-5 Mixed West Side/Median

All of these alternatives would have similar ridership and travel times. The SR 99 Hybrid Alternative was a new alternative that was developed based on information learned during the Level 1 evaluation and designed to avoid impacts to key intersections and community facilities. Its alignment was informed by considerations such as topography and good access to park-and-ride lots.

The Level 2 evaluation included more than 30 different measures to help distinguish the pros and cons of the remaining alternatives. A number of the measures yielded results that were similar among all the alternatives, including daily ridership and travel time, and the number of people, jobs, and households currently located within a half mile of each alignment. Measures that differentiated alternatives included residential and business displacements, traffic impacts, potential for transit-oriented development (TOD), utility conflicts, proximity to hazardous material sites, and cost.

Using the same criteria as for the alternative alignments, Level 2 evaluated potential additional station locations in the following areas: S 216th Street, S 260th Street, S 288th Street, and Dash Point Road (SR 99 only). The stations included in ST2 (Kent/Des Moines, S 272nd Street, and Federal Way Transit Center) ranked the highest, followed by stations on SR 99 at S 216th Street and S 260th Street. Stations at SR 99 and S 288th Street and Dash Point Road ranked lower, along with all potential additional station locations on I-5. All Level 2 alignment and station alternatives were carried forward into the scoping process for the EIS, as shown on Exhibit 2-26.

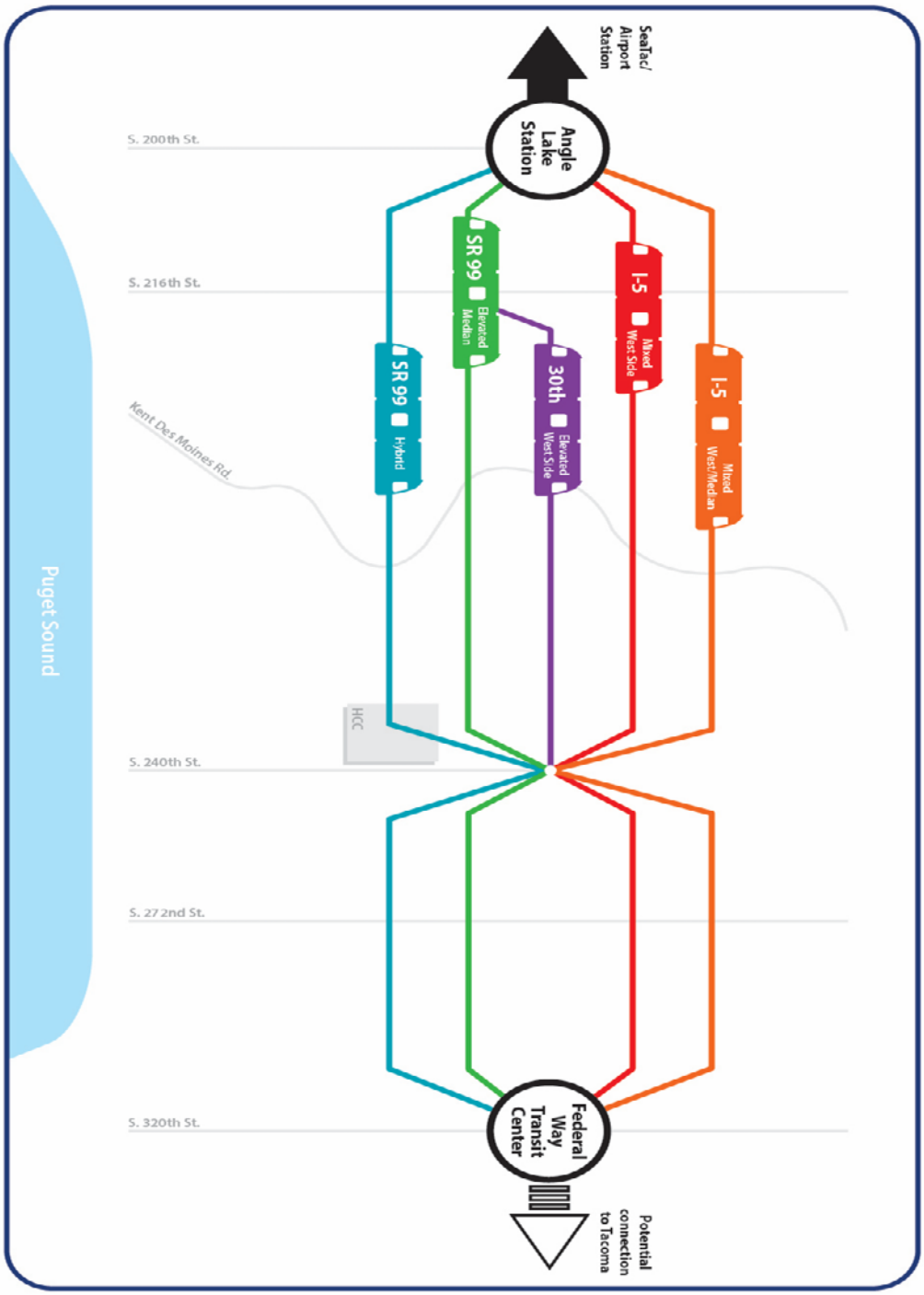


EXHIBIT 2-26
Alternatives Presented During Scoping

2.3.2 NEPA and SEPA Scoping Process

After the Alternatives Analysis, Sound Transit conducted another scoping process under NEPA and SEPA to solicit further input on the

project Purpose and Need statement and on the alternatives and elements of the environment for study in the Draft EIS.

Scoping included a 30-day public comment period from June 17 through July 17, 2013. Sound Transit gathered public comments about the project via an online survey, at two public meetings, by email, and by postal mail. Sound Transit also hosted an agency scoping meeting for federal, state, regional, and tribal governments.

The scoping process generated some new alternative suggestions that were considered but not carried forward in the Draft EIS for the reasons shown in Table 2-4.

TABLE 2-4
Alternatives Suggested During Scoping and Not Carried Forward

Alternative Suggested	Reason not Evaluated in Draft EIS
24th Avenue South corridor.	The 24th Avenue S Alternative was evaluated in the Level 1 evaluation but was not selected for further evaluation in Level 2 due to high environmental impacts and few benefits over SR 99 alternatives.
A line down SR 167 that could join the southbound eastside line before a South Center station that continued to Vashon and Gig Harbor.	This alignment would not meet the purpose and need for the project and would be outside the project study area.
329th Place South in the neighborhood where Waterbury Park Apartments are.	The southern limit of the project is the Federal Way Transit Center at approximately S 317th Street. S 329th Street is outside the study area for the project.
Run the rail down SR 99 to 25th and run it down that street just to the east of Highline College.	This alternative is similar to the HC Campus Station Option, which is evaluated in the Draft EIS. 25th Avenue S would be farther west than the HC Campus Station Option and would result in a longer route with greater neighborhood impacts.
A bridge at 240th over the freeway.	Roadway improvements, such as extending S 240th Street over I-5, are not currently proposed as part of the project. The City of Kent's *Midway Subarea Plan* (City of Kent, 2011) does call for this extension in the future.
Station at S 288th and Pacific Highway.	S 288th Street was a potential station location evaluated during the Alternatives Analysis, but it was not chosen to be studied in the Draft EIS because of the lower population and employment within ½ mile as well as limited access.

2.3.3 Alternatives Carried Forward

Following the public scoping period, the Sound Transit Board of Directors reviewed the comments received and the Alternative Analysis findings. In September 2013, the Board approved Motion 2013-77, which directed Sound Transit staff to study the following alternatives in the Draft EIS:

- SR 99 Alternative
- I-5 Alternative
- SR 99 to I-5 Alternative
- I-5 to SR 99 Alternative

It also called for potential design options on SR 99 and I-5, and established the stations at Kent/Des Moines, S 272nd Street, and Federal Way Transit Center as baseline stations and stations at S 216th Street and S 260th Street as potential additional stations for the SR 99 Alternative.

Since that time, Sound Transit has continued to coordinate with agencies and local jurisdictions to refine the conceptual design of these alternatives for evaluation in the Draft EIS. This resulted in the refined alignment option (the S 272nd Redondo Trench Station Option on SR 99) and station options at Kent/Des Moines, S 272nd Street, and the Federal Way Transit Center. It also resulted in potential additional stations at S 216th Street and S 260th Street.

2.4 Environmental Practices and Commitments

As an agency that has now built and operated light rail, commuter rail, and regional express bus service in multiple Puget Sound communities, Sound Transit has established programs, best practices, and policies that are incorporated in the FWLE. These include the agency's environmental and sustainability program and a commitment to satisfying all applicable laws and regulations and mitigating significant adverse environmental impacts responsibly and reasonably. In addition to meeting environmental commitments, Sound Transit will avoid and minimize impacts where possible. Where adverse impacts cannot be avoided, this Draft EIS identifies potential measures to mitigate the adverse impacts of the FWLE.

The key goals of Sound Transit's sustainability and environmental management program are to protect the environment and create a healthy community and economy. The agency's core mission of moving people on transit is the most important action the agency can take to improve the local environment, connect communities, reduce sprawl, and enable citizens to thrive within their means by saving dollars on transportation. As the agency delivers transit projects and services, it is also working to conserve resources and incorporate sustainability into everyday operations.

In 2004, the Sound Transit Board adopted an Environmental Policy for the agency that applies to all activities, from planning and design to construction and operations. The policy commits Sound Transit to

protect the environment for present and future generations, and directs the agency to:

- Be in full compliance with all environmental laws and regulations and strive to exceed compliance by continually improving environmental performance through cost-effective innovation and self-assessment.
- Restore the environment by providing mitigation and corrective action, and monitor to ensure that environmental commitments are implemented.
- Improve the ability to manage and account for environmental risk.
- Avoid environmental degradation by minimizing releases to air, water, and land. Prevent pollution and conserve resources by reducing waste, reusing materials, recycling, and preferentially purchasing materials with recycled content.
- Continue to educate the public about the environmental benefits of the transit system and build relationships with contractors, vendors, consultants, and transit partners during planning, design, construction, and operation to protect and enhance the environment.

Sound Transit's Board adopted a Sustainability Plan in 2011. Its targets and performance measures include areas such as energy use, water use, stormwater management, wetland mitigation, air quality improvements (including greenhouse gas emissions), toxic materials, materials consumption, and solid waste. These areas are to be considered in all of the agency's activities, including planning, design, operation, and maintenance of investments.

Sound Transit's design and operation standards incorporate guidelines from the United States Green Building Council's Leadership in Energy and Environmental Design (LEED) certification system. The agency design criteria include a checklist of required and voluntary measures with specific, measurable standards to help maximize sustainability opportunities for the project during design, construction, and operation. While some of these sustainability opportunities may also support permit requirements or help mitigate environmental impacts, others can help maximize and extend the environmental and public benefits of the project.

The Sustainability Plan is implemented through Sound Transit's internationally certified Environmental and Sustainability Management System. Since 2007, Sound Transit has been one of a select number of transit agencies nationwide to achieve certification to the international ISO 14001 standard. The system holds the agency accountable for identifying and controlling environmental impacts, setting and achieving objectives and targets, and demonstrating continual improvements in performance.

2.5 Estimated Project Costs and Funding

2.5.1 Project Funding

In 2008, voters approved funding for ST2. The ST2 plan identified funding to construct the portion of the FWLE from the Angle Lake Station in SeaTac to S 272nd Street. Since then, the recession has lowered Sound Transit's revenue forecast through 2023 by 30 percent. Sound Transit has responded by taking steps to control costs and realign the ST2 program to ensure that it can deliver the majority of the ST2 program, including portions of FWLE, by 2023. However, financial challenges remain. The current projection of ST2 tax revenue only allows for construction to Kent/Des Moines. Additional funding sources to complete the project could include FTA grants and/or additional voter-approved tax revenue.

Sound Transit Funding

Sound Transit's regional transit programs and projects are typically funded through a combination of voter-approved taxes collected in a three-county district, Federal Transit Administration (FTA) grants, bonds, and fare box revenue.

2.5.2 Project Cost Estimates

The current conceptual design includes uncertainties regarding the project scope, engineering data, mitigation requirements, schedule, and project delivery methods. Therefore, cost estimates at this stage are conceptual. They focus on the project elements that are defined consistently across alternatives, that capture the essential physical features of alternatives, and that help distinguish alternatives from one another. They do not include cost of additional light rail fleet vehicles needed to operate the FWLE.

Estimated project costs are shown in Table 2-5. Table 2-6 reflects the potential costs to construct from the Angle Lake Station to each potential interim terminus. The estimated project cost includes construction costs, right-of-way acquisition costs, engineering costs, and contingency.

TABLE 2-5
Estimated Project Cost For Full Project (Angle Lake to Federal Way Transit Center)

Alternative	Estimated Cost (2014$)
SR 99 Alternative	$1.77 billion
S 216th Street Potential Additional Station (West Option)	+ $70 million
S 216th Street Potential Additional Station (East Option)	+ $70 million
Kent/Des Moines HC Campus Station Option	No change
Kent/Des Moines HC Campus Station Option from S 216th West Station Option	+ $160 million
Kent/Des Moines SR 99 Median Station Option	+ $20 million
Kent/Des Moines SR 99 East Station Option	+ $10 million
S 260th Street Potential Additional Station (West Option)	+ $50 million
S 260th Street Potential Additional Station (East Option)	+ $70 million
S 272nd Redondo Trench Station Option	- $20 million
Federal Way SR 99 Station Option	- $70 million
I-5 Alternative	$1.42 billion
Kent /Des Moines At-Grade Station Option	- $100 million
Kent /Des Moines SR 99 East Station Option	+ $20 million
Landfill Median Alignment Option	- $10 million
Federal Way I-5 Station Option	- $40 million
Federal Way S 320th Park-and-Ride Station Option	+ $120 million
SR 99 to I-5 Alternative	$1.48 billion
I-5 to SR 99 Alternative	$1.72 billion

TABLE 2-6
Interim Termini Estimated Cost (Cost from Angle Lake Station)

Terminus	SR 99 Alternative	I-5 Alternative	SR 99 to I-5 Alternative	I-5 to SR 99 Alternative
Kent/Des Moines Station	$530 million	$490 million	$540 million	$480 million
S 272nd Street Station	$1.07 billion	$950 million	$1.01 billion	$1.02 billion

Sound Transit estimated operating and maintenance costs for the FWLE during the Alternatives Analysis. This cost is expected to be approximately $11.4 to $12.2 million annually (in 2014 dollars) between Angle Lake and Federal Way Transit Center. Operating and maintenance costs would range from $4.7 to $5.2 million annually for the Kent/Des Moines interim terminus, and $6.9 to $7.4 million annually for the S 272nd Street interim terminus. The major determinants of maintenance and operating costs are service levels,

running time, and trackway profile. These estimates will be refined in preliminary design and final design.

2.6 Interim Terminus Stations

Interim Terminus Station

The southernmost station of the FWLE that could operate if the project were built in phases. It represents the "end of the line" for the project that could be successfully operated on an interim or long-term basis if necessary until the project were built to the Federal Way Transit Center.

The FWLE might be built in phases, depending on available funding. Sound Transit has therefore identified two interim terminus stations that could operate before it builds all the way to the terminus at the Federal Way Transit Center. They are:

- Kent/Des Moines Station
- S 272nd Station

Each interim terminus station would have a tail track beyond the station platform; parking for operators; and office and storage space for light maintenance activities, such as cleaning interiors of vehicles.

2.7 Relationship to Other Transportation and Transit Projects

The FWLE would intersect with several existing and planned roadway and transit projects. Two that warrant special consideration are the RapidRide A Line operated by King County Metro and the SR 509 Extension Project (Exhibit 2-27) planned by WSDOT.

FWLE operations would complement RapidRide's service. As part of the conceptual bus service plan, RapidRide A Line would continue to serve along SR 99 with the project and would provide local service between the stations and offer an opportunity for people to access the Link system. The RapidRide A line would continue to serve points between the FWLE stations, and would provide access to the stations for transit-dependent populations along SR 99. All riders using the RapidRide A Line would have more opportunities to transfer to light rail and the regional transportation system, either at the Kent/Des Moines Station or Federal Way Transit Center Station, than they do now. If the SR 99 Alternative is selected, they would also be able to transfer at the S 272nd Redondo Station. There would be at least one more opportunity for transfer connections at the S 272nd Redondo Station if an alternative on SR 99 is selected, and the Kent/Des Moines and the Federal Way Stations provide similar transfer potential for riders transferring to and from the RapidRide A Line.

EXHIBIT 2-27
WSDOT's Proposed SR 509 Extension
Source: WSDOT

The SR 509 Extension Project, proposed by WSDOT, received a federal ROD in 2003, but funding since that time has been limited

to right-of-way acquisition. If it secures funding, this project would extend SR 509 from its current southern terminus at S 188th Street in SeaTac east to I-5. It would connect to I-5 between S 208th and S 216th streets, and would include additional collector/distributor lanes from the new SR 509/I-5 interchange to the S 320th Street interchange. Appendix F, Conceptual Design Plans, shows the proposed SR 509 Extension in relation to the FWLE. Although no transportation plans include or identify funding to build this project, the FWLE alternatives have been designed to accommodate its full build-out. WSDOT plans to revisit the proposed design and NEPA documentation for this project this year. Options include phasing it or combining it with other freight improvements in the south Puget Sound area such as the SR 167 Project and I-5 Puget Sound Gateway Project, which could also include lane management options such as tolling.

SR 509 Extension

This project is sometimes known by other names: "State Route 509: Corridor Completion/I-5/South Access Road Project" (2003 Record of Decision), and "SR 509 Corridor Freight and Congestion Relief Project" (WSDOT website).

Because of these uncertainties regarding the SR 509 Extension project, the No Build Alternative does not include the SR 509 extension in the regional transportation network. By assuming that the FWLE is constructed before the SR 509 Extension Project, this Draft EIS captures the reasonable worst-case impacts that could occur. However, this Draft EIS does include this project in the cumulative impacts analysis (Chapter 6) as a reasonably foreseeable future action. Chapter 6 also discusses changes in impacts if the SR 509 extension were built first, or if the projects were constructed at the same time. If the SR 509 Extension Project is constructed first, it would reduce the FWLE's impacts on some resources.

2.8 Next Steps and Schedule

The next steps in the development of the FWLE are described below.

2.8.1 Draft EIS Review and Comment Period

Sound Transit and FTA are circulating the Draft EIS to affected local jurisdictions, state and federal agencies, tribes, community organizations, other interest groups, and interested individuals. The document is available at Sound Transit offices, public libraries, community centers, and online. A 45-day formal public comment period from the date of issuance of the document is being provided. Sound Transit will provide project information and take written comments and oral testimony at upcoming public hearings. Please see the Fact Sheet at the beginning of this Draft EIS for details.

2.8.2 Identification of Preferred Alternative

The Sound Transit Board will identify a Preferred Alternative after it considers the information in the Draft EIS, and public and agency comments. The Preferred Alternative will include one station in each station area and may include one or more station or alignment option. The board will not make a final decision on the project alternative to be implemented until after it considers the Final EIS.

2.8.3 Final EIS and Project Decision

Sound Transit and FTA will prepare a Final EIS that analyzes the Preferred Alternative along with the other alternatives evaluated in the Draft EIS. The Final EIS will include and respond to the comments received on the Draft EIS. It will also describe proposed commitments to mitigate project impacts. The Sound Transit Board will then make a final decision on the project alternative to be built. FTA is also expected to publish a ROD for the project, which will document its findings that the project has met the requirements of NEPA and related environmental regulations. The ROD will describe FTA's environmental determination on the project, the alternatives considered, the basis for the decision to approve the project, and the required mitigation measures. Issuance of the ROD completes FTA's NEPA process and is a prerequisite for federal funding or approvals.

FTA is directed to issue a combined Final EIS and ROD document pursuant to Public Law 112-141, 126 Stat. 405, Section 1319(b) unless it determines, for statutory criteria or practicability reasons, that separate documents are appropriate. For this project, the EIS is a joint NEPA and SEPA document that will support decision-making by Sound Transit, FTA, and other agencies. Because SEPA requires that the Sound Transit Board's final decision on the project be informed by the Final EIS, the Final EIS must be issued independent of the ROD, so that Sound Transit's decision can later be incorporated into the ROD. As a result of these regulatory requirements under SEPA and NEPA, it will not be practical to issue a combined Final EIS and ROD, and they will be issued as separate documents.

2.8.4 Project Schedule

Exhibit 2-28 shows the anticipated schedule milestones for construction to Kent/Des Moines and start-up. However, the duration would likely change somewhat depending on available funds and construction costs.

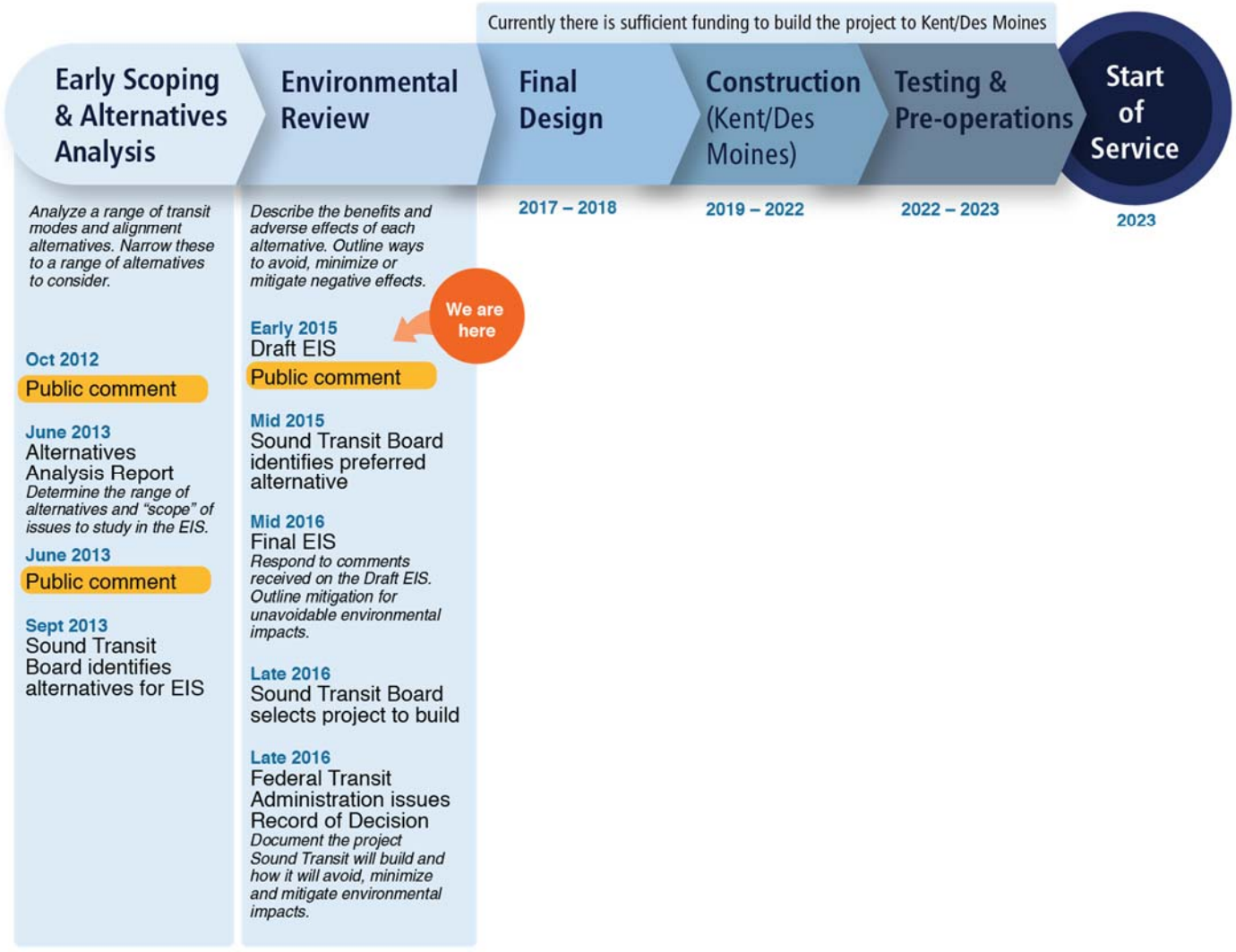


EXHIBIT 2-28
Project Milestones

2.8.5 Benefits and Disadvantages of Delaying Implementation

As required by SEPA, this section discusses the benefits and disadvantages of reserving for some future time the implementation of the proposed project, as compared with possible approval at this time.

The primary benefit to delaying the project would be to postpone impacts associated with project construction. The primary

disadvantage of delaying the project would be the inability to realize a major component of the region's long-range plans for managing growth and transportation. Delays would also limit economic development as influenced by the movement of people and goods and lost opportunity of linking neighborhoods and Puget Sound

regional employment centers. Delay could also allow projects to develop that would preclude or increase the cost of the FWLE.

A substantial delay in implementing FWLE would inhibit the region's ability to accommodate growth, as articulated repeatedly in local and regional plans. This would trigger a number of other consequences including changed development patterns and steadily increasing corridor congestion, with consequent air quality issues and higher energy usage.

Delaying the project due to funding limitations could cause further delays in project construction. This is because construction and right-of-way costs would rise due to inflation. If the project is built to an interim terminus, impacts at the terminus station could also increase. However, waiting until the entire project could be funded would delay the transportation improvements and other benefits that would be provided by the first interim segment.

Additional benefits and disadvantages related to delaying implementation of the FWLE may be identified during the Draft EIS comment period.

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