

Chapter 2

Alternatives Considered

As described in Chapter 1, Sound Transit is preparing this Draft Supplemental Environmental Impact Statement (SEIS) to support Sound Transit’s current planning and decision-making efforts for an updated Long-Range Plan and future transit system plan. This is a programmatic SEIS that is considering broad actions throughout the region—transit modes, corridors, types of supporting facilities, programs, and policies.

The Long-Range Plan Update is not reconsidering project-level decisions already made through the *Sound Move* or ST2 programs.

Federal action is not required for the Long-Range Plan Update and Draft SEIS, but these documents are being prepared consistent with federal rules for linking local planning with future federal environmental review under the National Environmental Policy Act (NEPA). It is Sound Transit’s intent to rely on decisions made during the Long-Range Plan Update process and any future system planning process to support future project-level NEPA review for individual projects that could be implemented if funded. This could include decisions on choice of transit mode in specific corridors. The last two federal transportation funding authorization acts (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and Moving Ahead for Progress in the 21st Century Act (MAP-21)) specifically encourage local agencies to link local planning with NEPA by considering environmental factors when they are planning transit systems that could ultimately seek federal funding or approvals.

This Draft SEIS, along with other information developed through the update process, will help ensure that the Long-Range Plan continues to meet Sound Transit goals and supports the decisions of Sound Transit’s Board. In turn, the updated plan will support Board decisions about future high-capacity transit investments. If and when there is voter funding approval, any capital projects that make up the next system plan would be subject to project-level environmental review that meets state and federal requirements. Project-level environmental review would evaluate specific alignments, station locations, and other project details, and would include additional public involvement prior to implementing the project.

Scoping and screening activities held in fall and winter 2013/2014 are described in Section 2.2. Based on comments received, reviewed, and screened during that process, two alternatives have been developed for evaluation in this Draft SEIS:

- **Current Plan Alternative (No Action)**—The No Action Alternative, referred to in this Draft SEIS as the Current Plan Alternative, is the existing 2005 Long-Range Plan plus the subsequent Sound Transit Board actions implementing the plan as part of Sound Transit 2 (ST2). The Current Plan Alternative is described further in Section 2.3.

No Action Alternative

WAC 197-11-440(5)(ii) states that: the “no action” alternative shall be evaluated and compared to other alternatives. In this SEIS, the No Action Alternative reflects a continuation of current management direction and is referred to as the *Current Plan Alternative*.

- Potential Plan Modifications Alternative (Action)**—The Action Alternative, referred to in this Draft SEIS as the Potential Plan Modifications Alternative, is a menu of options that the Sound Transit Board could choose from when updating the Long-Range Plan. The menu of options developed during the scoping and screening steps of the EIS is described in Section 2.4.

These alternatives include a wide range of actions and modes for purposes of updating the Long-Range Plan, which is fiscally constrained (see section 2.2, below). This chapter further defines the alternatives and describes the planning process for the Long-Range Plan Update.

2.1 High-capacity transit technologies evaluated

This section defines the HCT technologies being studied in this Draft SEIS.

2.1.1 Light rail

Sound Transit currently operates two light rail lines. Tacoma Link operates from the Tacoma Dome to S. 9th Street and Commerce Street, making stops at 6 stations. Central Link currently operates from Sea-Tac Airport to Westlake Station in downtown Seattle, making stops at 11 stations. Light rail service under the two alternatives being considered here would be similar to that currently operated by Sound Transit.



Light rail design considerations

At-grade guideways are best suited for areas where the grade is 5 or 6 percent or less and where there is sufficient right-of-way available. While “at-grade guideway” typically refers to ground level, it also includes retained cut-and-fill structures that are used to maintain a consistent grade.

Elevated structures are appropriate where the topography varies more widely or creates barriers, where the light rail system must cross over other physical barriers, such as cross streets and freeway lanes, where the available right-of-way is limited, or where grade separation is required for higher train frequencies.

Tunnels may be appropriate in areas with slopes of more than 5 or 6 percent, where physical barriers must be crossed, where the right-of-way is inadequate, or where there is high building density or high train frequency. Tunnels may also be appropriate where major ridership centers cannot be served in any other way.

Light rail can operate in a mix of surface (at-grade), elevated, or tunnel configurations depending on terrain. Different profiles also allow the light rail guideway to cross over or under highway bridges, streets, or other physical obstacles. Sound Transit would determine the profile during project-level reviews based on criteria that consider (1) topography, (2) physical barriers, (3) available surface right-of-way, (4) operating needs, (5) development density, and (6) cost. Environmental impacts associated with those profiles would also be considered at that time.

Figure 2-1 shows typical types of light rail guideways. Light rail guideways are typically about 30 feet wide, with room for two sets of tracks. This width also includes room for the poles and overhead catenary (contact wire) needed to power the trains. The footprint also contains space for emergency access as well as walls or barriers to restrict other access (e.g., to discourage pedestrians from crossing the guideway).

Stations have many common features regardless of the guideway profile. The boarding platforms are approximately 380 feet long to serve four-car trains. The platform is either on the outer side of the

tracks or in the center with tracks on both sides. Escalators, elevators, and stairs provide access to the platforms. All stations are accessible as required under the Americans with Disabilities Act (ADA). They include features for pedestrian and bicycle access, transit connections, ticket vending machines, and general street/network access. Some stations have parking areas for transit patrons in either a structure or a surface lot.

Sound Transit currently has two light rail operations and maintenance facilities. The Forest Street operations and maintenance facility, located in the industrial district south of downtown Seattle, serves the Central Link light rail trains. The Tacoma operations and maintenance facility, located on E. 25th Street east of the Tacoma Dome Station, services the Tacoma Link light rail trains.

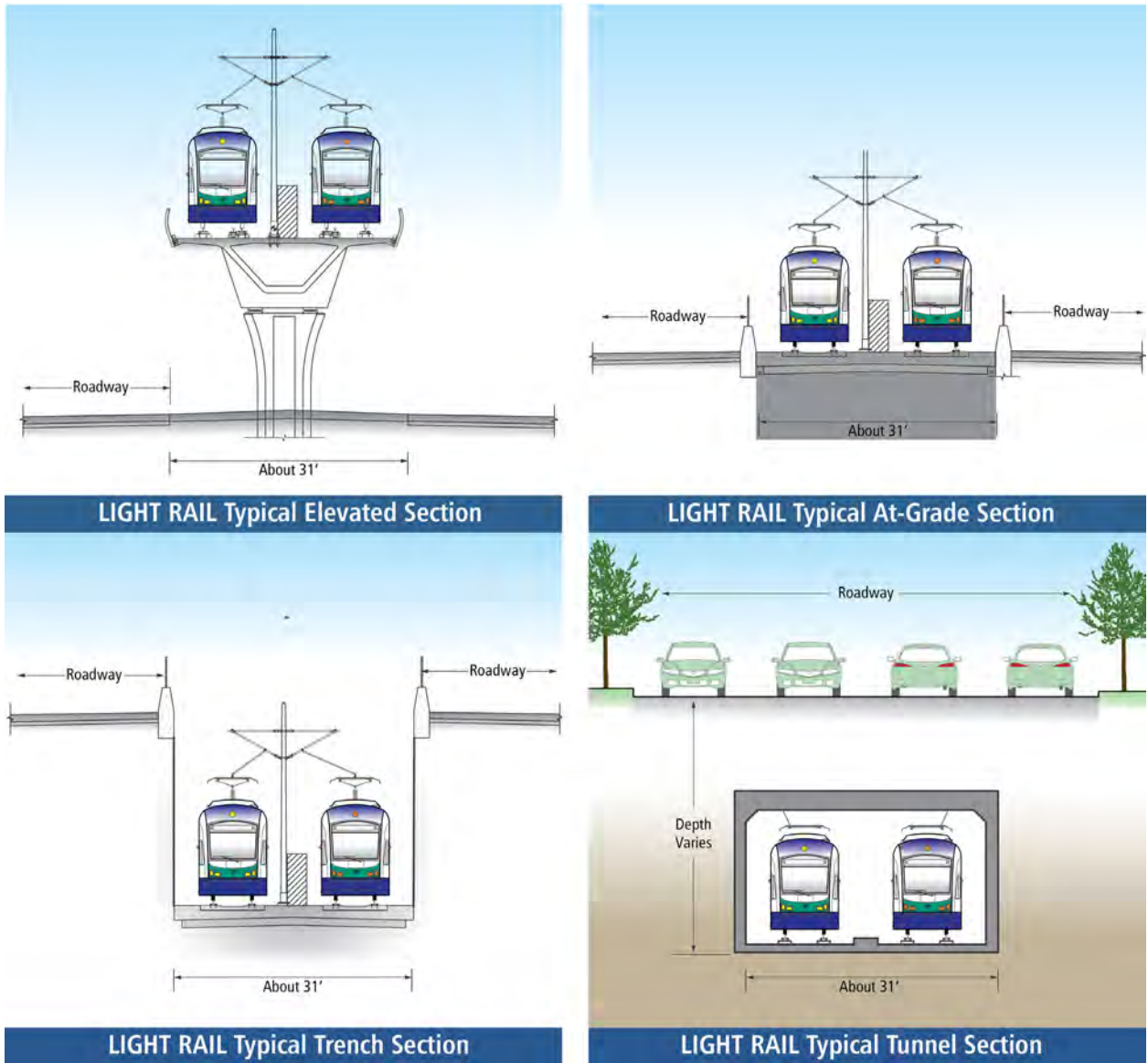


Figure 2-1. Typical light rail guideways

Commuter rail

Sound Transit operates Sounder commuter rail service from downtown Seattle south to Lakewood with stops at nine stations, and from downtown Seattle north to Everett with stops at four stations. Both of the lines stop at King Street Station in Seattle. Sounder



Typical Commuter Rail

commuter rail service operates on existing rail infrastructure owned by Burlington Northern Santa Fe (BNSF) between Everett and Tacoma. Sound Transit owns the rail line and right-of-way between Tacoma and Lakewood. Amtrak and freight railroad services also run on the BNSF line. The existing railroad right-of-way varies throughout the region, but at a minimum is generally 50 feet wide, 25 feet on each side of the tracks.

Stations have many common features. The boarding platforms are generally about 500 to 600 feet long serving eight-car trains. The platforms are located on the outer side of the tracks. All stations are accessible as

required under the ADA. They include features for pedestrian and bicycle access, transit connections, general street/network access, and ticket vending machines. Stations could have parking areas for transit patrons in either a structure or a surface lot.

Terminus stations have storage tracks or yards for trains. As the number of daily trips expands, additional storage tracks are needed. Areas with storage tracks include Lakewood, Everett, and south of the King Street Station in Seattle. Maintenance for Sounder vehicles is currently conducted in a yard and shop facility south of King Street Station. Sound Transit is working to determine the feasibility of building a new Sounder Yard and Shop for operation and maintenance by 2020.

In commuter rail service, conventional rail passenger coaches can either be pulled by a locomotive or diesel multiple unit (DMU). A DMU is a train that is powered by diesel engines that are incorporated into one or more of the train carriages and does not require a separate locomotive for propulsion. Sound Transit commuter rail trains currently use locomotives for propulsion. For the purposes of this Draft SEIS, new commuter rail corridors and expanded services are assumed to consist of the same commuter rail trains being used to operate the current Sounder service. However, given the long-term nature of the Long-Range Plan, other types of passenger coaches and traction could be used as rail technology advances, service levels increase, or operational plans change.

Current commuter rail service operated by Sound Transit

- Conventional rail passenger coaches are pulled by a locomotive
- Average station spacing is large, enabling higher average speeds compared to other transit services
- Service levels and periods reflect the direction of the majority of commuters' travel

The average station spacing is large enough to allow for higher average speeds and distances traveled compared to other transit services. Typical service levels and periods reflect the direction of the majority of commuters' travel.

Commuter rail service under the two alternatives being considered would be similar to that currently operated by Sound Transit. Rail lines would generally be shared with existing rail traffic for freight and Amtrak intercity rail. In some cases, such as spur lines or other facilities, existing rail rights-of-way that have little to no existing rail traffic could be used.

2.1.2 Regional express bus/bus rapid transit

Regional express bus and bus rapid transit (BRT) are bus systems that provide faster and more reliable service between and to regional centers than local buses. They also provide more flexibility to adjust to a variety of transit demand and corridor conditions than rail systems. Sound Transit currently provides 26 ST Express bus routes, with many of these routes operating in high-occupancy vehicle (HOV) lanes on I-5, I-405, I-90, and SR 520, and in business access and transit (BAT) lanes on SR 522. Many of these ST Express bus routes use direct access ramps from freeways to connect to park-and-rides and transit centers, such as the Eastgate Transit Center off of I-90. As part of the *Sound Move* program, Sound Transit has worked closely with WSDOT to build HOV direct access ramps throughout the region to improve transit access to the HOV lane system.



Typical Regional Express Bus

ST Express buses are currently operated and maintained by local transit operators (Pierce Transit, King County Metro, and Community Transit). Sound Transit is also studying the feasibility of building a new bus base.

As shown in Figure 2-2, BRT systems operate in a variety of rights-of-way, including dedicated busways (such as along freeways), on HOV lanes, and on arterials partly or fully outside general traffic lanes. BRT also has the flexibility to mix these approaches within a given corridor. BRT that operates principally on exclusive rights-of-way with a high degree of grade separation can be considered as regional HCT, while other forms of BRT and Regional Express bus service that do not operate principally on exclusive rights-of-way may in some cases be considered interim services to HCT.

BRT service within the Sound Transit district could range from low-cost priority treatments for buses operating on arterial roadways and BAT lanes, to higher cost fully grade-separated busways. Sound Transit's current ST Express bus service is an example of BRT that currently operates on freeway HOV lanes or managed lanes outside of general traffic lanes for at least a portion of their route.

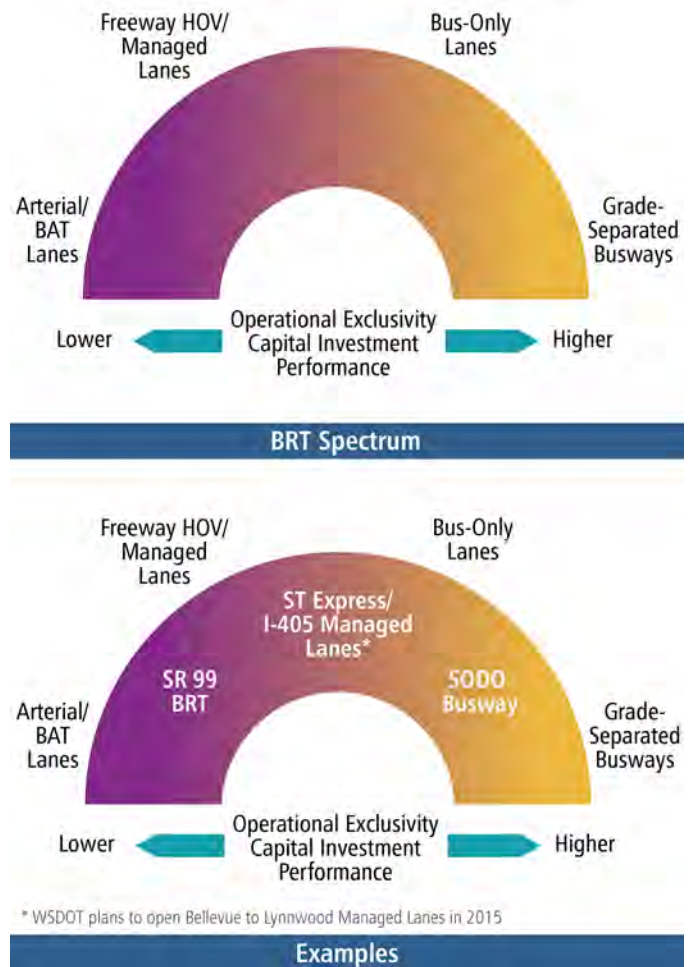


Figure 2-2. BRT spectrum of improvements

At the lower end of the spectrum, buses share lanes with general purpose traffic or other HOVs, and turning traffic and can be impacted by operations in adjacent general purpose travel lanes. At the higher end of the spectrum, busways feature buses operating in exclusive rights-of-way that are not impacted by operations in adjacent general purpose lanes. Figure 2-3 depicts a typical arterial BRT configuration.

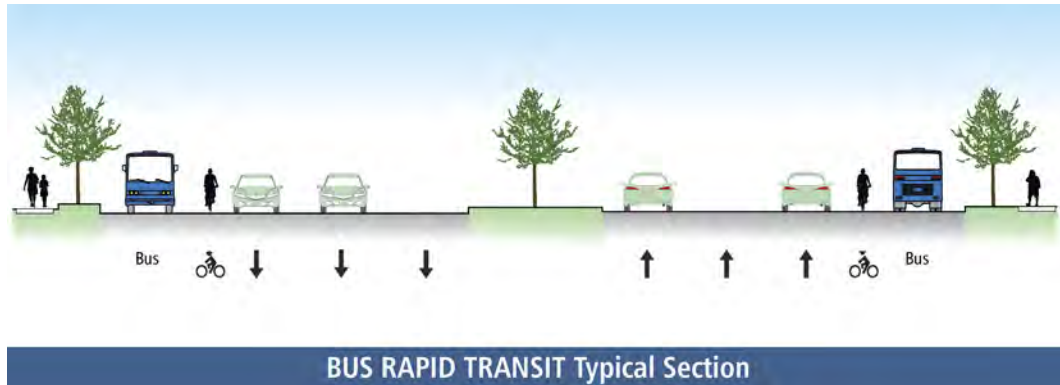


Figure 2-3. Typical arterial BRT configuration

FTA’s primary grant program for funding major transit capital investments, such as new and expanded BRT services, is under the New Starts and Small Starts program as authorized by 49 USC 5309. BRT projects eligible for New Starts or Small Starts funding include projects that:

- Operate on a separate right-of-way (such as new or extended fixed guideways)
- Operate BRT in mixed traffic and invest in features such as park-and-ride facilities, transit stations, signal priority, and other features that support the corridor
- Improve capacity

For purposes of this Draft SEIS, the term “regional express bus/BRT” for both alternatives encompasses the full spectrum of BRT, from all forms of regional express bus currently operated under *Sound Move* and ST2 to BRT that would operate in exclusive rights-of-way without other vehicles. Regional express bus/BRT services and facilities could be similar to the existing programs that deliver transit service and direct connections between urban centers throughout the region. Many BRT services build upon the core system of HOV lanes in place or planned by WSDOT. BRT services typically offer a limited number of stops within a given community and provide two-way services all day long. BRT facilities could also include transit centers for convenient connections to rail or local transit. Some stations may also provide park-and-ride facilities.

Regional express bus/BRT services that do not operate principally in exclusive right-of-way may be considered as an interim HCT mode.

2.1.3 Streetcar

The First Hill Streetcar, currently under construction in the City of Seattle between Pioneer Square and Capitol Hill, is a cooperative effort between Sound Transit and the City of Seattle. This line was funded under ST2 because a preferred extension of Central Link as identified by the Sound Transit Board in May 2004 included a First Hill light rail station. However, later technical studies found considerable engineering, geologic, and construction risks at the First Hill Station site. The Sound Transit Board authorized technical work on a potential First Hill transit connector (streetcar and bus), and the ST2 Plan adopted by the Board in 2008 included funding for the First Hill Streetcar to connect downtown Seattle, First Hill, and the future Capitol Hill light rail station. The City of Seattle is planning additional streetcars in accordance with its Transit Master Plan (Seattle 2012).

While streetcars have some similar characteristics to at-grade light rail, typically streetcars operate with less exclusivity than at-grade light rail; stations are typically located closer together; and platforms can be smaller. Streetcars often operate within mixed traffic in non-exclusive rights-of-way. Overhead power and supporting systems for the trains are also needed, along with maintenance and control facilities. Figure 2-4 depicts a typical streetcar configuration.



Typical Streetcar



STREETCAR Typical Section

Figure 2-4. Typical streetcar configuration

2.2 Planning process

Sound Transit is updating its Long-Range Plan to establish a long-term vision of transit modes, corridors, and supporting facilities and programs that is consistent with updated local and regional plans. Initial input on that vision was received during the SEIS scoping process, resulting in a wide array of options that are evaluated in this Draft SEIS and that the Board could choose from when updating the Long-Range Plan. An updated plan could incorporate some or all of the suggestions made during scoping.

The Long-Range Plan is “fiscally unconstrained,” which means that the transit options contained in the plan are *not* limited by funding availability. In contrast, the system plan that may ultimately be developed by the Sound Transit Board from the Long-Range Plan will be fiscally constrained, with funding subject to voter approval.

The Long-Range Plan is scheduled to be updated by the Sound Transit Board by the end of 2014. If so directed by the Board, the updated Long-Range Plan would then be used as a guide for developing the next system-level plan that builds upon ST2. As noted above, the system plan would be fiscally constrained with funding to be approved by voters. The Board would decide if and when to initiate a ballot measure for a proposed new Sound Transit system plan.

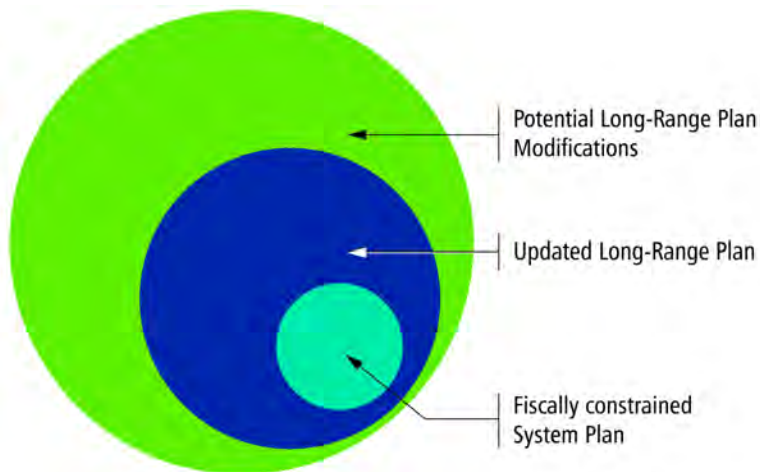


Figure 2-5. Relationship of all proposed modifications to a fiscally constrained system plan

As with previous system plans (*Sound Move* and ST2), the next system plan would encompass a specific set of projects, services, and policies and programs designed to build upon previous phases, consistent with the Long-Range Plan. As shown in Figure 2-5, the potential Long-Range Plan modifications that would be included in a future system plan is small compared to all the suggestions received during the SEIS scoping process.

2.2.1 Scoping

To begin the environmental review process for the Long-Range Plan Update, a scoping notice was issued by Sound Transit on October 18, 2013. Notice was given to federal, state, and local agencies, tribes, and the public to provide an opportunity to participate in the planning process. The public scoping comment period was held between October 25 and November 25, 2013 to:

- Give the public, local jurisdictions, public agencies, tribes, and other stakeholders a chance to learn more about the Long-Range Plan Update and to provide comments
- Help Sound Transit identify a range of HCT improvements to consider in the Draft SEIS and which environmental topics to address when evaluating those improvements

The scoping period was designed to support Washington State Environmental Policy Act (SEPA) review, but the Long-Range Plan Update and subsequent system plan could be relied upon during future project-level NEPA review as well.

Comments made during the scoping process helped Sound Transit determine which improvements and environmental issues would be studied in the Draft SEIS. Those potential Long-Range Plan modifications studied could be selected, in whole or in part, by the Board for inclusion in an updated Long-Range Plan.

Comments made during the official scoping comment period were collected by Sound Transit via mail, email, comment form, and an online survey. Verbal comments were also collected by a court reporter at the public scoping meetings. More than 5,000 scoping comments were received from jurisdictions, agencies, tribes, stakeholder organizations, and the public. Common themes during scoping included:

- **Service**—Commenters expressed support for an enhanced HCT system, integration with other modes and service providers, and enhanced service hours, and they offered bus-related service and route suggestions. Several cities suggested adding or expanding parking at stations.

- **Mode**—Commenters expressed a general preference for rail in the long-term and using BRT as a precursor to light rail.
- **Corridors**—Commenters suggested specific corridors where they would like Sound Transit to consider adding HCT or a supporting service. This included suggestions for extending existing corridors and adding support services or HCT in new or additional corridors.
- **Access**—Commenters expressed a desire for improved access to the Sound Transit system, such as new and expanded park-and-ride facilities, bicycle and pedestrian facilities and circulation improvements, local transit connections, and roadway and direct access connections.
- **Environment**—Commenters shared support for transit-oriented development and focused on sustainability, land use, energy, environmental justice, noise, and air quality/greenhouse gases.

Many suggestions made during scoping were related to services or facilities within corridors that are part of the Current Plan Alternative. These suggestions were presumed to be developable under the Current Plan Alternative. Suggestions for new transit corridors were put through a screening process to develop the Potential Plan Modifications Alternative.

Comments were also received on other topics such as roads and highways, funding, and agency cooperation. The *Scoping Summary Report* for the 2014 Long-Range Plan Update presents additional details about the comments received. These comments have been considered in the screening and alternatives development processes.

Scoping Summary Report

The *Scoping Summary Report* can be found on the Sound Transit website at www.soundtransit.org/Projects-and-Plans/Long-range-Plan-update

2.2.2 Screening

The input received during scoping was used to develop the Potential Plan Modifications Alternative evaluated in this Draft SEIS.

The suggestions received during scoping were reviewed and consolidated to identify new ideas for purposes of modifying the Long-Range Plan. Suggestions that were either (1) not already in the existing Long-Range Plan or (2) could not be implemented under the framework of the existing Long-Range Plan were carried forward into the screening process for evaluation to determine if they could become potential plan modifications for an “Action” alternative. The screening criteria used during this process were based on the purpose and need for the Long-Range Plan Update and the goals and objectives described in Chapter 1 of the Draft SEIS.

The following screening criteria were used to determine if a suggestion should be included in the Action alternative:

- Does it meet the statutory definition of HCT or necessary supporting facility or service?
- To what extent does it provide public transportation services to regional growth centers and help facilitate an integrated system of transit services?

- To what extent is it consistent with earlier decisions or actions made as part of *Sound Move* or ST2 and does it avoid duplication of Sound Transit service?
- Is it within the Sound Transit district or represent a reasonable next step for extending HCT service or connecting to the regional HCT system?
- Is it defined in enough detail to be analyzed?

The suggestions that met the screening criteria were included in the Potential Plan Modifications Alternative. Suggestions that did not meet the screening criteria are not evaluated in this Draft SEIS and are discussed in Section 2.6.

2.2.3 Other high-capacity transit system studies

To help inform future decisions for the next phase of HCT system expansion by its Board of Directors, Sound Transit is currently conducting five high-capacity transit corridor studies that will also be completed in 2014. These corridors were all included in the 2005 Long-Range Plan (with the exception of downtown Seattle to West Seattle) and planning-level studies for all corridors are a part of the ST2 Plan:

- Ballard to downtown Seattle HCT Corridor Study
- Central and East HCT Corridor Study
 - Ballard to University District
 - Redmond to Kirkland to University District
 - Kirkland to Bellevue to Issaquah
 - I-405 BRT
 - Eastside Rail Corridor
- Federal Way to Tacoma HCT Corridor Study
- Lynnwood to Everett HCT Corridor Study
- South King County HCT Corridor Study
 - Downtown Seattle to West Seattle to Burien
 - Renton to Tukwila, SeaTac, and on to Burien

All of the corridors listed above are also evaluated in this Draft SEIS. However, the HCT corridor studies and the Long-Range Plan Update Draft SEIS are evaluating potential transit improvements at a different scale. The HCT corridor studies are evaluating options within a more localized area and in greater detail; this Draft SEIS generally identifies its plan-level alternatives and evaluates their impacts at a broader regional level. For example, this Draft SEIS identifies potential HCT improvements in terms of general corridors and considers potential ridership in terms of a large regional system. Alternatively, the HCT corridor studies are evaluating a variety of alternative alignments and mode options within corridors, and considering potential ridership for those specific alternative alignments and mode options. Preferred alignments or modes are not being identified as part of the HCT corridor study process.

The information for the HCT corridor studies is being developed to inform the Sound Transit Board during the Long-Range Plan Update process and future system planning efforts. To the extent possible, this Draft SEIS incorporates information available from these HCT corridor studies, all of which are in progress. After the Long-Range Plan Update

is adopted, information from the HCT studies will be used as Sound Transit develops the next system plan.

2.3 Current Plan Alternative

The Current Plan Alternative constitutes the “no action” alternative required by SEPA. SEPA requires that the “no action” alternative be evaluated and compared to other alternatives (WAC 197-11-440(5)(ii)). It provides the basis for comparing benefits and impacts in the SEPA analysis. The “no action” for non-project proposals is the existing plan with no changes to current management direction. The No Action alternative is referred to in this Draft SEIS as the Current Plan Alternative. This alternative is comprised of:

1. The current 2005 Long-Range Plan, and
2. Sound Transit Board actions implementing the plan as described below.

Subsequent to adoption of the 2005 Long-Range Plan, the Sound Transit Board developed the system plan known as Sound Transit 2 (ST2), financing for which was approved by voters in November 2008. As part of the development and implementation of the ST2 Plan, a number of decisions were made by the Sound Transit Board that affected certain corridors in the 2005 Long-Range Plan. These Board actions implementing the Plan are considered as part of the Current Plan Alternative for this Draft SEIS. Key Board decisions that affected corridors listed in the Long-Range Plan included the following:

- In 2006 the Sound Transit Board selected light rail (LRT) as the mode from Seattle to downtown Redmond as part of the East Link project. (In the 2005 Adopted Long-Range Plan this segment was listed as “LRT or LRT Convertible BRT.”)
- In 2011 the Sound Transit Board selected light rail as the mode from Northgate to Lynnwood as part of the Lynnwood Link project. (In the 2005 Adopted Long-Range Plan this segment was listed as “Potential Rail Extension.”)
- In 2013 the Sound Transit Board selected light rail as the mode from SeaTac to Federal Way as part of the environmental review for the Federal Way Link Extension project. (In the 2005 Adopted Long-Range Plan this segment was listed as “Potential Rail Extension.”)
- In 2013, the Sound Transit Board selected light rail as the mode and the north downtown Central Corridor (Hilltop via Stadium District) as the preferred corridor for the potential expansion of Tacoma Link.

Primary modes or types of service for HCT in the current Long-Range Plan



Light rail



Commuter rail



Regional Express/
Bus rapid transit

Primary north-south corridors in the Current Plan

- SR 99 and I-5 from Everett to Tacoma
- SR 167 from Renton to Tacoma
- I-405 from Lynnwood to Tukwila
- Eastside Rail Corridor
- BNSF railway from Everett to Seattle and Tacoma, with a spur to Lakewood and DuPont

Primary east-west corridors in the Current Plan

- I-90 from Seattle to Issaquah
 - SR 520 from Seattle to Redmond
 - SR 522 from north Seattle to Woodinville
-

Figure 2-6 displays Sound Transit’s envisioned network of transit services at a corridor-wide level based on the 2005 Long-Range Plan and subsequent Board actions described above. This map includes corridors where service is already operating, under construction, or in project-level design and environmental review. These include corridors that were in *Sound Move* and ST2. The Current Plan Alternative (Figure 2-6) also reflects that—with implementation of light rail generally paralleling I-5 from Lynnwood through Seattle to Federal Way—grade-separated BRT operating in its own exclusive right-of way is no longer included along I-5 in this same corridor.

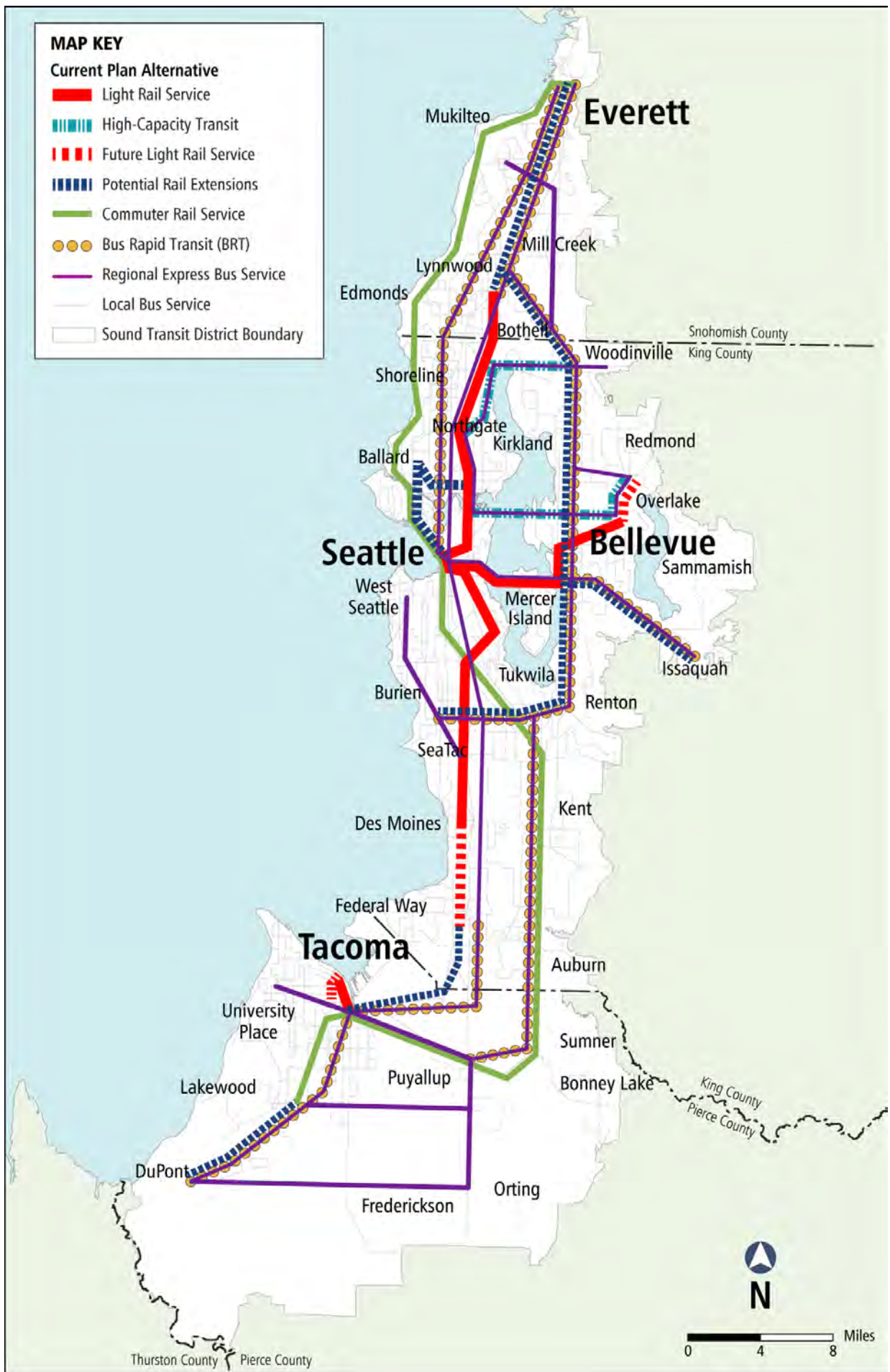
For purposes of analyzing potential impacts on transportation and transit ridership associated with the Current Plan Alternative, the Draft SEIS includes all of those corridors shown in Figure 2-7. The map also includes the types and general location of future regional transit services that, based on the current Long-Range Plan, could be provided in future development phases if they are funded. The 2005 Long-Range Plan explicitly states that “the lines on the map representing future service investments are intended to show general corridors that would be served, and do not represent specific routings or alignments.”

On Figure 2-7, the corridors in operation, under construction, or in project-level environmental review are screened back because they have already been or are currently subject to project-level environmental review. This Draft SEIS addresses potential impacts that could occur in the future if infill stations, park and rides, new track, maintenance facilities, or other infrastructure were built along those corridors already in service or some level of implementation. The remaining corridors—those that have not yet advanced—are labeled and further described below. For the Current Plan Alternative, Chapter 4 of this Draft SEIS focuses primarily on potential environmental impacts associated with the development of new transit facilities within the remaining corridors shown in Figure 2-7.

To accommodate additional capacity and service into or through downtown Seattle, additional dedicated transit facilities could be needed. Options could include designating additional surface streets as transit-only, aerial guideway, or a new tunnel under downtown Seattle.

2.3.1 Light rail

Light rail is the highest capacity mode included in the Current Plan Alternative and is intended to serve the core of the regional system where transit ridership is the highest. Light rail is included in the Long-Range Plan to connect and serve the four major regional centers: Everett, Seattle, Tacoma, and Bellevue.



Source: Sound Transit 2014

Figure 2-6. Current Plan Alternative



Source: Sound Transit 2014

Figure 2-7. Current Plan Alternative—corridors analyzed in this Draft SEIS

Many of the light rail elements included in the 1996 and 2005 Long-Range Plans were subsequently funded through *Sound Move* and ST2 and are currently operating, in final design, under construction, or in project-level environmental review as described below. Most of these elements have a service target date no later than 2023, as shown in Figure 2-8.

- **Central Link**—The approximately 16-mile rail line from Sea-Tac Airport to downtown Seattle serves 13 stations. Service on Central Link light rail began in 2009.
- **S. 200th Link Extension**—This 1.6-mile extension from Sea-Tac Airport south to S. 200th Street will serve the new Angle Lake Station. Construction is underway and service is expected to begin in 2016.
- **University Link Extension**—The 3.15-mile extension from downtown Seattle to the University of Washington is under construction. It includes two underground stations, one located on Capitol Hill and the other at Husky Stadium. Service is expected to begin in 2016.
- **Northgate Link Extension**—The 4.3-mile segment will extend north from Husky Stadium and have three stations in the University District, Roosevelt, and Northgate. This extension is under construction with service expected to begin in 2021.
- **Lynnwood Link Extension**—The 8.5-mile extension from Northgate to Lynnwood, authorized by ST2, is undergoing environmental review and preliminary design. The extension could have four to six new stations. The start of service is targeted for 2023.
- **East Link**—This 14-mile extension is in final design and is targeted to begin service in 2023. East Link will connect from the International District Station in Seattle across I-90 to Bellevue and Overlake Village with ten stations. An additional 3.7-mile extension to downtown Redmond with two stations is not funded for construction.
- **Federal Way Link Extension**—Sound Transit is preparing an EIS to evaluate extending light rail about 8 miles from South 200th Street to the Federal Way Transit Center with three to five stations. ST2 included this project; however, funding is only available for construction to the Kent/Des Moines station with service beginning in 2023.
- **Tacoma Link**—The 1.6-mile Tacoma Link line from Tacoma Dome Station to downtown Tacoma serves six stations. ST2 authorized an extension to the west of the current line to the Stadium and Hilltop districts. Environmental review and preliminary design is underway for this potential expansion; however, it would require funding partners and additional funding from federal and other grant sources before it can be built.
- **Operations and maintenance facilities**—Sound Transit has two light rail operations and maintenance facilities. The Forest Street operations and maintenance facility, located in the industrial district south of downtown Seattle, serves the Central Link light rail trains. Sound Transit is currently evaluating four sites (one in Lynnwood and three in Bellevue) for an operations and maintenance satellite facility. This satellite facility is needed to accommodate the expansion of the light rail system. The Tacoma operations and maintenance facility, located on E. 25th Street east of the Tacoma Dome Station, serves the Tacoma light rail trains. The Tacoma Link facility would be expanded as part of the Tacoma Link expansion.

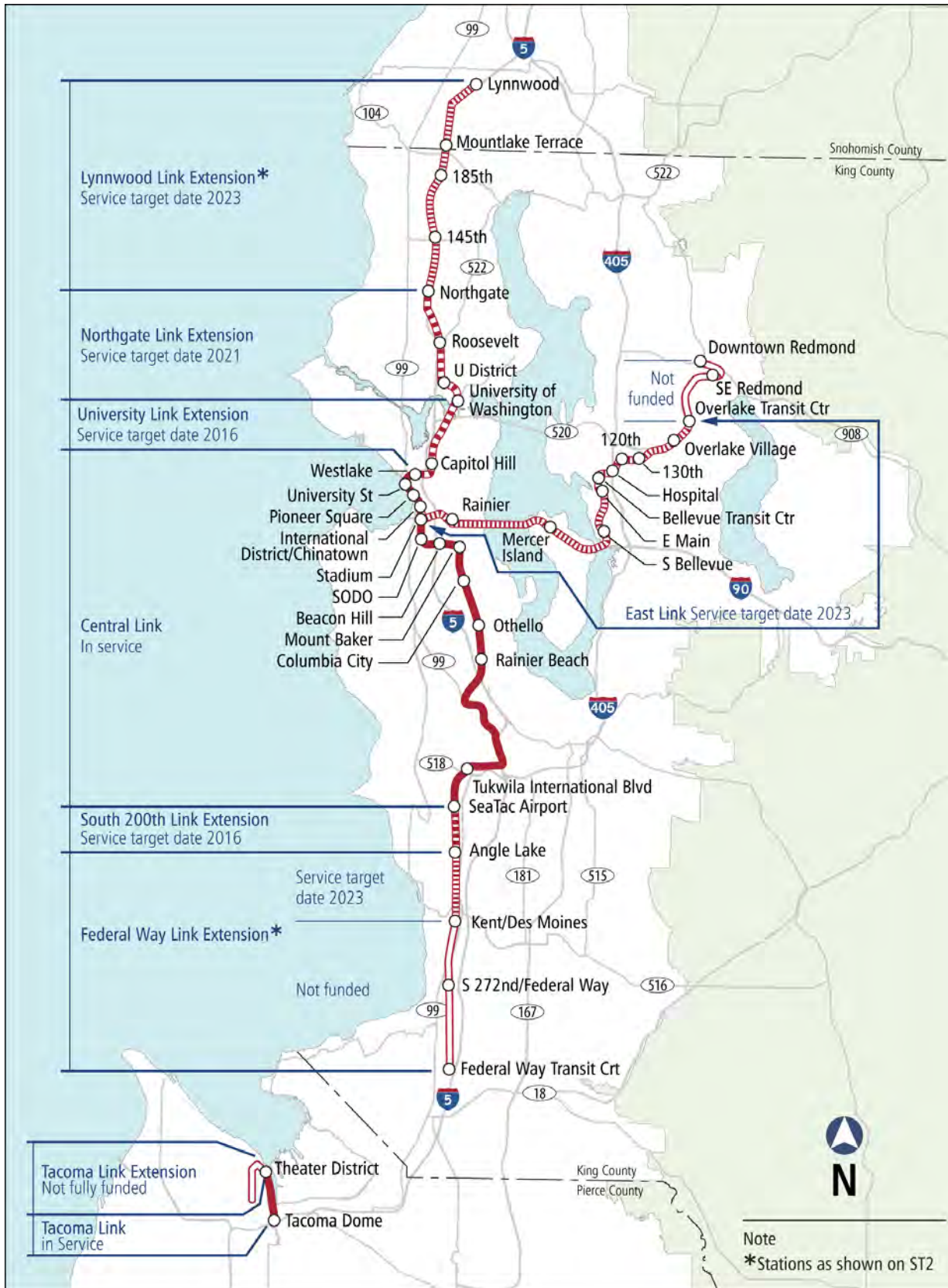


Figure 2-8. Current Plan Alternative—light rail elements

For the above listed corridors, project-level environmental reviews have either been completed or are underway. Therefore, potential environmental impacts within these light rail corridors are only discussed relative to additional infrastructure or service needs that could be implemented in the future (e.g. new infill stations, operations and maintenance facilities, or park-and-ride facilities—see Section 2.3.5 below).

Some of the remaining corridors in the Current Plan Alternative were identified as “Potential Rail Extensions” in the 2005 Long-Range Plan but have not yet been included in a system plan for project development or construction. Therefore, decisions on mode in those corridors have not yet been made but could be light

rail. For purposes of analyzing potential impacts associated with the Current Plan Alternative, corridors A through H reflect potential rail extensions that were analyzed as light rail corridors (see Table 2-1 and Figure 2-7). Some of these corridors were also evaluated for commuter rail and/or BRT (see “Commuter rail” and “Regional express bus/bus rapid transit” sections below).

These potential rail extension corridors are described below.

Table 2-1. Potential light rail corridors in the Current Plan Alternative

ID	Corridor location
Potential rail extensions, assumed light rail	
A	Tacoma to Federal Way
B	Burien to Renton
C	Bellevue to Issaquah along I-90
D	Renton to Lynnwood along I-405
E	Renton to Woodinville along Eastside Rail Corridor
F	Downtown Seattle to Ballard
G	Ballard to University of Washington
H	Lynnwood to Everett

A Tacoma to Federal Way—A potential rail extension corridor from the Federal Way Transit Center to the Tacoma Dome Station.

B Burien to Renton—A potential rail extension corridor connecting Burien, Tukwila, and Renton along SR 518 and I-405.

C Bellevue to Issaquah—A potential rail extension corridor along I-90 from Bellevue to Issaquah. This corridor could include tunnel segments.

D Renton to Lynnwood—A corridor connecting Renton, Bellevue, Totem Lake, Woodinville, and Lynnwood along I-405. Also identified in the 2005 Long-Range Plan as a BRT corridor, this “potential rail extension” could be light rail.

E Renton to Woodinville—A corridor connecting Renton, Bellevue, Totem Lake, and Woodinville along the Eastside Rail Corridor (ERC) corridor. This “potential rail extension” could either be a light rail, commuter rail, or BRT corridor. The Central and East HCT Corridor Study is evaluating light rail and commuter rail on the ERC.

Sound Transit has an HCT easement on the Eastside Rail Corridor from Woodinville to Renton.

F Downtown Seattle to Ballard—A potential rail extension corridor from downtown Seattle to Ballard (currently being studied in partnership with the Seattle Department of Transportation). Tunnels could be used along segments or the entire route.

G Ballard to University of Washington—A potential rail extension corridor from Ballard to the University District. A tunnel could be used along the entire route.

H Lynnwood to Everett—A potential rail extension corridor that would continue light rail north from the Lynnwood Link Extension to Everett.

Light rail segments under consideration as part of the Current Plan Alternative are assumed to have substantially the same service characteristics as the Link light rail system implemented as part of *Sound Move* and ST2. Specifically, they are assumed to operate primarily on exclusive rights-of-way (on the surface, below ground, or on elevated structures) or on surface streets with protected rights-of-way. Light rail features two- to four-car trains operating on dual trackways with overhead power sources. Stations, park-and-rides, and supporting facilities, such as vent shafts, traction power substations, storage tracks, and operations and maintenance facilities, could be added to the existing segments currently operating or in implementation and would also be required for future extensions.

For any of the light rail corridors included in the Current Plan Alternative, regional express bus/BRT service could be implemented as an interim HCT mode for all or portions of each corridor until funding becomes available to construct a continuous light rail system in the corridor. This is similar to the current Sound Transit system operating today, where some regional express bus routes are operating in corridors identified for transition to light rail when funding becomes available.

2.3.2 Commuter rail

The Everett–Seattle–Tacoma–Lakewood Commuter rail line (Sounder train) provides peak-period major commute-oriented connections and transit centers on 82 miles of existing rail corridor between Everett, downtown Seattle, Tacoma, and Lakewood. Under the Current Plan Alternative, passenger rail services using existing rail rights-of-way could include increased service levels within and beyond the current commuter-oriented services operated by Sound Transit (up to all-day service). Additional stations and improved station facilities could also be provided along the existing lines, along with related parking and transit transfer facilities (see Section 2.3.5). Increasing the frequency or extending commuter rail service hours could require additional investment in rail infrastructure, such as operations and maintenance facilities, control and communication systems, and expanded rights-of-way for safety and operating efficiency. This could include adding storage tracks or other track capacity improvements such as line extensions to connect to or upgrade existing rail lines. Chapter 4 of the Draft SEIS addresses potential impacts that could occur in the future if new infill stations, new track, or other supporting rail infrastructure were built along the existing Sounder line already in service.

Some of the corridors in the Current Plan Alternative identified as “Potential Rail Extensions” in the 2005 Long-Range Plan have not yet been included in a system plan for construction or the project development phase. These corridors, shown on Figure 2-7 and listed in Table 2-2, could be commuter rail and were evaluated as such for purposes of analyzing potential impacts associated with the Current Plan Alternative.

Table 2-2. Potential commuter rail corridors in the Current Plan Alternative

ID	Corridor location
Potential rail extension, assumed commuter rail	
I	DuPont to Lakewood
J	Renton to Woodinville along Eastside Rail Corridor

These corridors are briefly described below.

- I Lakewood to DuPont**—Commuter rail service could be extended 9 miles south from Lakewood, the southern terminus of the existing Sounder commuter route, to DuPont.
- J Renton to Woodinville**—In the 2005 Long-Range Plan, this is a broad corridor that includes I-405 and the ERC. The ERC is a former BNSF rail corridor. The portion of the ERC identified by Sound Transit as a potential rail corridor stretches from Renton to Woodinville, generally following I-405. Commuter rail, light rail, and BRT could be considered as the HCT mode in the ERC.

2.3.3 Regional express bus/bus rapid transit

The Current Plan Alternative identifies numerous corridors for regional express bus, BRT, or in most cases both. Sound Transit currently operates 26 regional express bus (ST Express) routes, many of which operate in HOV lanes. The corridors they operate on are:

- Seattle to DuPont on I-5
- Seattle to Everett on I-5
- Burien to Bellevue to Lynnwood on I-405
- Seattle to Bellevue to Issaquah on I-90
- Seattle to Woodinville via SR 522
- Federal Way to Auburn to Puyallup on SR 167
- Puyallup to Renton on SR 167

Some of these corridors are also shown as BRT corridors in the 2005 Long-Range Plan and could also be considered for higher performing BRT operating within exclusive rights-of-way where feasible. For example, as part of the Central and East HCT Corridor Study, BRT is being evaluated for I-405 based on the adopted 2002 I-405 WSDOT Master Plan. As part of the same study, BRT is also being evaluated in the adjacent Eastside Rail Corridor. The 2005 Long-Range Plan also shows SR 99 between Seattle and Everett as a BRT corridor. The Current Plan Alternative evaluates higher performing BRT service along portions of I-5, I-405, the Eastside Rail Corridor, I-90, SR 99, and SR 167. BRT was also evaluated along sections of SR 520 and SR 522, where those corridors were identified in the 2005 Long-Range Plan as “HCT corridors” (see section 2.3.4 below).

Six corridors specifically identified exclusively as regional express bus service (no BRT) in the 2005 Long-Range Plan, but not yet in service are:

- Puyallup to DuPont via SR 162 and Cross Base Highway
- Puyallup to Lakewood on SR 512
- Puyallup to Tacoma on SR 167
- West Seattle (near the West Seattle Junction) to SeaTac on arterial roadways
- Kirkland to Redmond on NE 85th Street-Redmond Way (this was in service as Express Route 540 from Redmond to Kirkland to the U-District but was truncated to serve the Kirkland Transit Center to U-District)
- North Bothell to Mill Creek to Mukilteo on SR 527 and SR 526

These corridors are all evaluated in the Current Plan Alternative as regional express bus service only.

For purposes of analyzing most potential impacts associated with the Current Plan Alternative, this Draft SEIS focuses primarily on the potential regional express bus/BRT corridors listed in Table 2-3 and shown on Figure 2-7. The Draft SEIS also discusses potential impacts associated with new supporting bus facilities along existing bus corridors.

Table 2-3. Regional express bus/BRT corridors in the Current Plan Alternative

ID	Corridor location
Bus rapid transit (BRT)	
M	Federal Way to DuPont along I-5
N	Renton to Puyallup along SR 167
O	Bellevue to Issaquah along I-90
P	Renton to Woodinville along Eastside Rail Corridor
Q	Renton to Lynnwood along I-405
R	Seattle to Everett along SR 99
S	Lynnwood to Everett along I-5
Regional express bus	
T	Puyallup to DuPont via Cross Base Highway
U	Puyallup to Lakewood
V	Puyallup to Tacoma
W	SeaTac to West Seattle
X	Redmond to Kirkland
Y	North Bothell to Mill Creek to Mukilteo

Under the Current Plan Alternative, regional express bus/BRT services and facilities could continue to provide and expand transit service and direct connections between urban centers throughout the region. They could build upon the core system of HOV lanes in place or planned by WSDOT, or they could be implemented

Sound Move and ST2 projects have implemented improvements increasing the speed, reliability, and capacity of regional express bus/BRT service. Several expansion and access improvements have also been completed at park-and-ride lots served by regional express bus/BRT.

within their own exclusive rights-of-way. Regional express bus/BRT services could also increase frequencies as well as add more services as future demand warrants. They could also include additional or expanded stations, new or expanded park-and-rides, or transit centers. New or expanded operations and maintenance bases would also be needed to serve larger bus fleets as the system grows. Some of these facilities could be shared or developed in partnership with local transit operators, such as King County Metro, Community Transit, or Pierce Transit.

In the Current Plan Alternative, some of the regional express bus/BRT services could ultimately transition to light rail. This is similar to the current Sound Transit system operating today, where some regional express bus routes are operating in corridors where light rail will be constructed as part of ST2.

2.3.4 High-capacity transit corridors

The Current Plan Alternative includes two corridors identified in the 2005 Long-Range Plan as “HCT,” without specifying a particular mode. These corridors could be implemented as light rail or as regional express bus/BRT. For purposes of analyzing potential impacts associated with the Current Plan Alternative, this Draft SEIS evaluates these two HCT corridors, listed in Table 2-4 and shown on Figure 2-7, as both light rail and BRT.

Table 2-4. HCT corridors in the Current Plan Alternative

ID	Corridor location
HCT (mode not specified)	
K	University of Washington to Redmond via SR 520
L	Northgate to Bothell on SR 522

These HCT corridors are briefly described below.

K University of Washington to Redmond—An HCT corridor across SR 520 connecting the University District to Redmond. This corridor could include a short tunnel segment west of Lake Washington.

L Northgate to Bothell—An HCT corridor along SR 522 around the north end of Lake Washington to connect Northgate, Bothell, and Woodinville.

2.3.5 Representative projects, programs, and policies

The Current Plan Alternative assumes that stations, operations and maintenance facilities, access improvements, and other supporting transit facilities may be implemented along any of the transit corridors shown on Figure 2-7. The 2005 SEIS referred to these as “representative projects” since they represent the types of projects that could be built along any existing or future corridor. Building from the list in the 2005 Long-Range Plan SEIS, Appendix A to this Draft SEIS includes an updated list of representative projects for the Current Plan Alternative. This list is not inclusive of all possible projects within the Current Plan Alternative. New or different projects not on the list, but similar to the types of representative projects listed, could be implemented at the project level. Specific projects, locations, operating characteristics, and levels of service would be evaluated and determined during future project-level planning and environmental reviews.

The types of representative projects are further discussed by mode below.

Light rail

Representative infrastructure improvements, services, and supporting facilities associated with light rail include the following:

- **Service expansion**—Expanding service within future corridors such as in Seattle, north of Seattle to Everett, south of SeaTac to Tacoma, and on the Eastside
- **Transit stations and park-and-ride facilities**—New stations along corridors yet to be built or adding new stations where there is infill or expansion of service, including locations such as the Boeing Access Road Station. New stations could create additional opportunities for transit-oriented development. Station modifications could occur at existing facilities such as the International District/Chinatown Station. New park-and-ride facilities or expanded capacity could be added at existing facilities, such as the Tukwila/International Boulevard Station
- **Pedestrian and bicycle access and safety**—Adding or improving pedestrian and bicycle connections could include sidewalks, bike lanes, pedestrian bridges, and bicycle storage. These improvements could occur in any station area
- **Operations and maintenance facilities**—Expanding operations and maintenance capacity by constructing additional regular or satellite facilities to support expanded light rail operations

Commuter rail

System-wide representative projects for commuter rail include the following:

- **Service expansion**— Expanding service to additional locations, such as to DuPont, or adding express service, increasing the number of trains operating per day, or expanding service to operate all-day in both directions
- **Transit stations and park-and-ride facilities**— Adding rail stations in locations such as Shoreline, Georgetown, Ballard, and north downtown Seattle (Broad Street vicinity). Improving existing stations, such as extending station platforms to accommodate longer trains (10 cars), additional surface and structured parking, pedestrian bridges, additional platform canopies, or other access improvements
- **Pedestrian and bicycle access and safety**—Adding or improving pedestrian and bicycle connections could include sidewalks, bike lanes, pedestrian bridges, and bicycle storage. These improvements could occur in any station area
- **Operations and maintenance facilities**—Improving tracks and signals, and expanded or new storage yards and maintenance shops for Sounder

Regional express bus/bus rapid transit

Representative projects or service for regional express bus/BRT facilities include the following:

- **Service expansion**— Expanding service to additional locations and increasing service along existing bus routes
- **Transit stations and park-and-ride facilities**—Adding new or expanding existing transit stations, transit centers, and park-and-ride facilities
- **HOV direct access**—Building direct access ramps or other improvements linking transit facilities to regional freeway HOV system improvements, in accordance with the

long-range HOV system plan defined in PSRC's *Transportation 2040*, including I-405, I-5, I-90, SR 167, SR 522, and SR 520

- **Transit priority treatments**—Implementing signal improvements, arterial HOV lanes, or other transit-priority investments at key intersections or arterials throughout the region to improve transit speed and reliability
- **Rider amenities**—Investing in technologies to provide real-time “next bus” and “next stop” information to customers, off-vehicle fare payment, and level boarding of vehicles
- **Grade or barrier separation**—Separating sections of freeway/arterial transit lanes with grade- or barrier-separation to provide fully exclusive busway facilities

The plan includes representative projects with additional speed, reliability, service frequency, safety, operations and maintenance facilities, and passenger facilities/amenities, as well as vehicle fleet expansion and replacement.

Policies and programs

The Long-Range Plan also addresses policies and programs that the Sound Transit Board has adopted. Appendix A lists some of the programs and policies included in the 2005 Long-Range and those that have subsequently been adopted by the Board. Examples of the policies and programs currently in effect include the following:

- Transit-Oriented Development (TOD) Policy (December 2012)
- Transit-Oriented Development Program Strategic Plan Update (April 2014)
- Sustainability Plan (June 2011)
- System Access Policy (March 2013)
- Updated Bicycle Policy (April 2010)
- Environmental Policy (April 2004)

The Current Plan Alternative assumes that these policy initiatives and other programs that support major lines of transit service would remain in effect. For example Sound Transit and its partners would continue to work together to make it convenient and easy to move about the region through programs like the ORCA card, which integrated and simplified fare collection among disparate transit agencies. For purposes of this Draft SEIS, these programs and policies are broadly considered.

2.4 Potential Plan Modifications Alternative

The Potential Plan Modifications Alternative assumes implementation of all the elements of the Current Plan and then it adds HCT corridors and services that are potential modifications to the Current Plan. The modifications are suggestions made by jurisdictions, agencies, tribes, stakeholder organizations, the public, and Sound Transit that passed the screening criteria listed in Section 2.2.2. New corridors and modes that comprise the Potential Plan Modifications Alternative are shown in Figure 2-9 and Figure 2-10 and listed under each mode below.

Sound Transit Policies

Policies and plans are available on Sound Transit's website:
www.soundtransit.org

TOD Policy

www.soundtransit.org/Projects-and-Plans/In-Your-Community/Transit-oriented-development

Sustainability Plan and Environmental Policy

www.soundtransit.org/Documents/pdf/about/environment/SustainabilityPlan.pdf

System Access Policy

<http://reconnectingamerica.org/news-center/half-mile-circles/2013/sound-transit-system-access-policy/>

Updated Bicycle Policy

www.soundtransit.org/About-Sound-Transit/Board-of-Directors/Board-archives/Motions-archive/2010-Motions



Source: Sound Transit 2014

Figure 2-9. Potential Plan Modifications Alternative—light rail, commuter rail, and high-capacity transit



Source: Sound Transit 2014

Figure 2-10. Potential Plan Modifications Alternative—regional express bus and bus rapid transit

2.4.1 Light rail

New light rail service lines included in the Potential Plan Modifications Alternative are listed in Table 2-5 and shown in Figure 2-9.

Table 2-5. Potential light rail corridors in the Potential Plan Modifications Alternative

ID	Corridor location
Potential rail extensions, assumed light rail	
1	Downtown Seattle to Magnolia/Ballard to Shoreline Community College
2 ¹	Downtown Seattle to West Seattle/Burien
3	Ballard to Everett Station via Aurora Village, Lynnwood
4	Everett to North Everett
5	Lakewood to Spanaway to Frederickson to South Hill to Puyallup
6	DuPont to downtown Tacoma via Lakewood, Steilacoom, and Ruston
7	Puyallup/Sumner to Renton via SR 167
8	Downtown Seattle along Madison Street or to Madrona
9	Tukwila to SODO via Duwamish industrial area
10	North Kirkland or University of Washington Bothell to Northgate via SR 522
11	Ballard to Bothell via Northgate
12	Mill Creek, connecting to Eastside Rail Corridor
13	Tacoma to Ruston Ferry Terminal
14	Tacoma to Parkland via SR 7
15	Lynnwood to Everett, serving Southwest Everett Industrial Center (Paine Field and Boeing)

¹ A potential new tunnel under downtown Seattle could also or alternatively support a Ballard-to-Seattle light rail line, which is included in the Current Plan Alternative.

Where new corridors or light rail extensions are being considered, they would have the same characteristics as light rail segments in the Current Plan Alternative. For any of the light rail lines, BRT could be implemented as an interim HCT mode for all or portions of each corridor until funding becomes available. This is how the current Sound Transit system operates today, where some regional express bus routes operate in corridors identified for transition to light rail when funding becomes available.

To accommodate additional capacity and service into or through downtown Seattle, additional dedicated transit facilities could be needed. Options could include designating additional surface streets as transit-only, aerial guideway, or a new tunnel under downtown Seattle.

2.4.2 Commuter rail

Souder service extensions included in the Potential Plan Modifications Alternative are listed in Table 2-6 and shown in Figure 2-9. There are existing rail lines along Corridors 16 and 18, while there are none along Corridor 17.

Table 2-6. Potential commuter rail corridors in the Potential Plan Modifications Alternative

ID	Corridor location
Potential rail extension, assumed commuter rail	
16	Puyallup/Sumner to Orting
17	Lakewood to Parkland
18	Tacoma to Frederickson

The additional rail segments would have similar physical and operating characteristics to the existing Souder line.

2.4.3 Regional express bus/bus rapid transit

Additional regional express bus/BRT routes included in the Potential Plan Modifications are listed in Table 2-7 and shown in Figure 2-10.

Table 2-7. Regional express bus/BRT corridors in the Potential Plan Modifications Alternative

ID	Corridor location
Bus rapid transit (BRT)	
22	Puyallup vicinity, notably along Meridian Avenue
23	Madison Street in Seattle
Regional express bus	
24	Issaquah to Overlake via Sammamish and Redmond
25	Renton to downtown Seattle
26	University of Washington Bothell to Sammamish via Redmond
27	Titlow Beach to downtown Tacoma
28	Renton (Fairwood) to Eastgate via Factoria
29	145th Street from I-5 to SR 522
30	North Kirkland to downtown Seattle
31	Woodinville to Bellevue
32	Woodinville to Everett
33	Connection to Joint Base Lewis-McChord
Regional express bus/BRT (mode not specified)	
34	Tacoma to Bellevue
35	Kent to Sea-Tac Airport
36	Puyallup to Rainier Valley

2.4.4 High-capacity transit corridors

Some suggestions for new HCT corridors or service did not specify a mode. These corridors are listed in Table 2-8 and shown in Figure 2-9. Similar to HCT corridors in the Current Plan Alternative, these new HCT corridors were evaluated as both BRT and light rail corridors.

Table 2-8. HCT corridors in the Potential Plan Modifications Alternative

ID	Corridor location
HCT (mode not specified)	
19	Tukwila Sounder station to downtown Seattle via Sea-Tac Airport, Burien, and West Seattle
20	Downtown Seattle to Edmonds via Ballard and Shoreline Community College
21	West Seattle to Ballard via Central District and Queen Anne

2.4.5 Streetcar

Streetcars are an option to connect areas to regional transit hubs. Potential streetcar corridors in the Potential Plan Modifications Alternative are shown in Figure 2-11 and include increased service to locations such as Phinney Ridge, Lake City, Roosevelt, Ballard, E. Marginal Way, and West Seattle.



Figure 2-11. Potential Plan Modifications Alternative—streetcars

2.4.6 Representative projects, programs, and policies

Projects

Appendix A includes a list of representative projects that could be implemented along the corridors that comprise the Potential Plan Modifications Alternative. Similar to the list for the Current Plan Alternative, this list reflects the types of projects or support facilities that could be implemented in the future if, and when, any of the HCT corridors (as shown in the Potential Plan Modifications Alternative map) are implemented.

Representative light rail and commuter rail projects associated with these new corridors could include new rail transit service, adding express tracks, new stations, new operations and maintenance facilities, new park-and-ride facilities, and access improvements to stations. New service lines into or through downtown Seattle would require additional capacity, which may include a tunnel, aerial guideway, or designating space on surface streets as transit-only.

Representative projects along regional express/BRT corridors could include new bus bases, park-and-ride facilities, modifying or extending routes, increasing service frequency, expanding service, and adding stops.

Policies and programs

The Potential Plan Modifications Alternative would build upon the existing program and policies and could include new initiatives for the following:

- System access
- Demand management
- Research and technology

2.5 Annexation and extension of Sound Transit services

Sound Transit must follow legislatively mandated steps before annexing areas into the Sound Transit District or extending services beyond the current district boundary. Extensions of service can occur without changing or annexing the district boundary. The Long-Range Plan describes the process and requirements, which are summarized in Sections 2.5.1 and 2.5.2.

Annexation and service extensions can occur under the Long-Range Plan Update alternatives as long as the requirements set forth below are met. During the scoping process, Sound Transit received suggestions both to expand the district boundary and to extend service outside the current boundary, including the following:

- Expand the district boundary to the east and southeast of Kent
- Expand the district boundary between Woodinville and Snohomish to incorporate communities around the northern portions of the Eastside Rail Corridor
- Expand the district boundary to the north to include more of Snohomish County
- Extend Sounder commuter rail to Olympia to the south and to the City of Snohomish to the north
- Extend HCT east to North Bend

Sound Transit would work with interested jurisdictions to annex or extend service beyond the current boundary if a proposal is made.

2.5.1 Annexation

According to state law, the Sound Transit Board could approve resolutions calling for elections to annex areas outside, but contiguous with, the Sound Transit district after consultation with affected transit agencies and concurrence of the local legislative authority. Only those areas that would benefit from the services provided by Sound Transit may be included, and services or projects proposed for the area must be consistent with the regional transportation plan (RCW 81.112.050). Citizens in annexed areas would vote on annexation and the imposition of the taxes that are applied within the district boundaries. If the Sound Transit district changes, a change in the make-up of the Sound Transit Board may be required.

Because no jurisdictions are proposing annexations at this time, Chapter 4 of the Draft SEIS does not review the potential environmental effects of suggestions made for annexing the Sound Transit district.

2.5.2 Service extension beyond district boundary

Sound Transit can extend new services beyond its boundaries to make connections to significant regional destinations if it can reach agreements with local government agencies on how such service extensions would be funded through intergovernmental partnerships (RCW 81.104.050). This would allow areas outside the Sound Transit district to function as part of the regional system. Examples of service beyond the district boundary that are in operation today are ST Express routes 592 and 595, which partially serve and are partially funded by areas outside the Sound Transit district.

Sound Transit can also enter into agreements with agencies beyond the district boundary to integrate fares and allow flexible transfers between various transit operators. This would prevent citizens who live outside the district from being penalized for making regional trips via transit instead of an automobile. A current example would be Sound Transit's participation in the ORCA program, which provides a one-card pass/payment system covering rides on Sound Transit, Community Transit, Pierce Transit, Metro Transit, Everett Transit, Washington State Ferries, and Kitsap Transit.

During scoping for the SEIS a number of suggestions were made for extending service beyond the existing Sound Transit district boundary. Of these, reasonable locations for extending HCT service within PSRC's urban growth areas could include:

- Black Diamond
- Buckley
- City of Snohomish
- Covington
- Enumclaw
- Gig Harbor
- Gold Bar
- Kitsap County
- Lake Stevens
- Maple Valley
- Marysville
- Monroe
- North Bend
- Redmond Ridge/Novelty Hill/Union Hill

Reasonable locations for extending HCT service to areas that are not within the PSRC urban growth areas but have an existing rail corridor near the Sound Transit district could include:

- Cottage Lake in Woodinville
- Communities adjacent to the ERC in southeast Snohomish County between Woodinville and Snohomish
- Olympia

High-capacity transit service extensions could be in the form of light rail, commuter rail, or BRT. The potential environmental effects of such extensions would be consistent with those described for each mode in Chapter 4. More detailed analyses of potential impacts would be assessed during future project-level environmental reviews as appropriate.

2.6 Other alternatives considered but not carried forward

A wide variety of transit corridors and technology alternatives have been evaluated for the Central Puget Sound region, ever since regional transit planning began in the 1970s. Both the 1993 Final EIS on the Regional Transit System Plan and the 2005 Final SEIS on the Regional Transit Long-Range Plan reviewed a wide range of alternatives before screening the alternatives for detailed evaluation. Many of these same alternatives were suggested again during the scoping process for this SEIS. Most were not carried forward for detailed review in the SEIS because they were not a reasonable means for meeting the goals and objectives of Sound Transit's Long-Range Plan.

The screening criteria described in Section 2.2.2 were used to consider suggestions from the SEIS scoping process in order to identify reasonable actions for achieving the objectives of the Long-Range Plan Update. For example, one of the criteria considered the extent to which a suggestion was consistent with previous Sound Transit Board decisions. Sound Transit is not reconsidering the actions and commitments already underway with *Sound Move* or ST2, financing for which were approved by the region's voters in 1996 and 2008. Actions or alternatives inconsistent with *Sound Move* or ST2 would not be consistent with the Purpose and Need for the Long-Range Plan Update. For example, some scoping comments were focused on re-doing elements of projects already underway or replacing services already in place as part of *Sound Move* or ST2, such as replacing East Link light rail with BRT. These suggestions were considered but were not carried forward into this Draft SEIS because they were not consistent with the objectives of the Long-Range Plan update.

Application of the screening criteria to suggestions pertaining to different transit technologies or new transit corridors is discussed below.

2.6.1 Alternative technologies

The 2005 Long-Range Plan Update reaffirmed earlier findings from the 1996 Long-Range Vision, which concluded that the most viable HCT technologies for the Sound Transit regional transit system were light rail, regional express bus/BRT, and commuter rail. After reviewing HCT technologies, Sound Transit found the most viable HCT options to connect regional centers are light rail and BRT, along with commuter rail and possibly DMU in selected corridors. Additionally, streetcars could also be considered as an HCT option if it operates primarily in its own right-of-way and it meets the corridor capacity.

As part of this Long-Rang Plan Update, a qualitative assessment and review of potential HCT technology options and current issues was conducted by Sound Transit in 2014 so that the most appropriate technology options are included (*High-Capacity Transit Technologies Issue Paper* (Sound Transit 2014e)) in the Long-Range Plan. Transit technologies not carried forward are summarized in Table 2-9. Sound Transit’s assessment of technology alternatives updated the work of the Puget Sound Regional Council, which was originally prepared in 2004.

Table 2-9. Summary of transit technologies not carried forward

High-capacity transit technology	Application	High-capacity transit capability	Reason not carried forward
Monorail	Regional	Moderate	Requires grade separation; capacity and operational limitations
SkyTrain	Regional	High	Requires grade separation
Heavy rail	Regional	High	Requires grade separation
High-speed rail/Maglev	Interregional	High	Not regional HCT service, requires grade separation
People movers/airport circulators	Local/Circulation	Low	Not regional HCT service
Gondola/aerial tram	Local/Circulation	Low to Moderate	Not regional HCT service
Personal rapid transit	Local/Circulation	Low	Not regional HCT service

An important measure of effectiveness of the regional HCT system is the degree to which the various components interact with one another. For riders, reducing the number of transfers and improving the quality of transfers can increase ridership and satisfaction with a transit system. For Sound Transit, well designed and implemented system integration can result in more efficient maintenance and operations and administration of transit services. Adding new technologies that are not part of Sound Transit’s current operations would require separate new operations and maintenance facilities.

Technologies were carried forward if they allowed Sound Transit to maintain, operate, and expand regional HCT services in an efficient manner, or if they supported and built upon the existing regional HCT system. The technologies that failed to do so were not carried forward for further consideration.

2.6.2 Alternative corridors or locations

Scoping comments suggested specific new corridors or other project-specific locations where Sound Transit could consider adding or extending HCT or supporting services. Corridors, service, and projects that were not already in the Current Plan Alternative and that met the screening criteria described in Section 2.2.2 were added to the Potential Plan Modifications Alternative and are listed in Appendix A.

Some suggestions did not provide enough detail to be analyzed, for example, a request to add a streetcar in Bellevue that did not include a specific location. Examples of suggested corridors that were not carried forward include ones that duplicate connections that can be made using corridors already in the Current Plan Alternative, such as rail service from

Ballard to Capitol Hill; and ones that revisit corridors previously considered, such as rail service across Lake Washington from Sand Point to Kirkland (examined during the Trans-Lake Washington Study). Proposals that called for reconsideration of projects already underway as part of *Sound Move* or ST2 (e.g., replacing East Link light rail with BRT) were also not considered further because these decisions and commitments have already been made and are not the subject of the Long-Range Plan Update.

During the scoping process, Sound Transit also received suggestions both to expand the district boundary and to extend service outside the boundary. Annexation and service extensions can occur under the Long-Range Plan Update alternatives as long as certain requirements are met. Annexations and service extensions are described in Section 2.5, including reasonable locations for extending HCT service. Suggested locations that are not considered reasonable for extending HCT service include the following:

- Anacortes
- Ellensburg
- Portland, Oregon
- Skykomish
- Tulalip
- Vancouver, B.C.

These locations are well beyond the Sound Transit service district and do not represent a reasonable next step for extending HCT service or connecting to the regional HCT system at this time.

2.7 Environmental commitments and sustainability

As an agency that has 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 assumed as part of the Long-Range Plan Update. These include the agency's environmental and sustainability program and a commitment to satisfying all applicable laws and regulations and to mitigate significant adverse environmental impacts responsibly and reasonably. In addition to meeting environmental commitments, Sound Transit will continue to avoid and minimize impacts where possible. Where adverse impacts cannot be avoided, this Draft SEIS identifies potential measures to mitigate the adverse impacts of the Long-Range Plan.

The key goal of Sound Transit's sustainability and environmental management program is 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:

1. Be in full compliance with all environmental laws and regulations and strive to exceed compliance by continually improving its environmental performance through cost-effective innovation and self-assessment.
2. Restore the environment by providing mitigation and corrective action, and monitor to ensure that environmental commitments are implemented.
3. Improve the ability to manage and account for environmental risk.
4. 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.
5. 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.

In 2007, the Board approved a Sustainability Initiative directing the CEO to integrate sustainable practices and strategies throughout the entire agency. In addition to setting yearly targets for sustainability, in 2011, Sound Transit adopted a Sustainability Plan establishing long-term and short term priorities. The plan's environmental-focused targets and performance measures included 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.

One aspect of Sound Transit's sustainability program is its design and operation standards that incorporate guidelines from the United States Green Building Council's Leadership in Energy and Environmental Design (LEED) certification system. The agency design criterion includes 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. This system holds the agency accountable for identifying and controlling environmental impacts, setting and achieving objectives and targets, and demonstrating continual improvements in performance.

2.8 Benefits and disadvantages of delaying action

It has been almost 10 years since the Long-Range Plan was last updated. In that time conditions described in the 2005 plan have changed, such as those related to ST2 decisions. In addition, ten more years of economic and population growth have occurred, along with accompanying changes in the regional transportation system. Many local and regional governments have also updated their long-term land use and transportation plans, and revised their forecasts for future growth. If Sound Transit delayed an update to the Long-Range Plan, the changed conditions since 2005 would not be reflected in the Long-Range Plan. This could influence development of the next system plan and make it more difficult for other jurisdictions to coordinate their planning to focus growth on centers that would ultimately be served by future high capacity transit investments.

This Long-Range Plan Update will also help inform Sound Transit and its partners as they prepare future transit system plans, including potential funding measures for voter approval. The Long-Range Plan is part of the central Puget Sound region's *Transportation 2040* strategy. The strategy is based on a vision of urbanized centers linked by a regional rapid transit system. Substantial delay in implementing the Long-Range Plan could inhibit the ability of the region to accommodate growth as planned. Economic development goals also could be affected, including those related to the development of convenient housing and employment opportunities. Related decisions about transportation improvements by other parties could also be delayed, which could worsen transportation conditions. In addition, development pressure could increase on available rights-of-way or rights-of-way could be used for other purposes, resulting in an increased impacts and cost of implementing the regional transit system.

Potential funding implications would be associated with delaying plan implementation. Sound Transit could miss the opportunity to obtain federal funding or receive a lower amount of federal funding. In addition, any delays in plan implementation would likely result in higher construction costs as a result of inflation. Given the high likelihood of increased development in the region, delays in implementation could result in more impacts to surrounding properties where increased development may occur.

If implementation of projects under an updated Long-Range Plan were delayed, the primary potential benefit would be to delay adverse construction and operation impacts of HCT projects identified in the plan. However, delays would have the disadvantage of slowing the development of HCT projects and their associated benefits. Delay could create transportation and land use concerns as a result of the failure to realize the benefits of HCT projects and not implementing a major component of the region's long-range vision for managing growth and transportation.

