1. Executive Summary – Sound Transit Final SEIS on the Long-Range Plan Update

1.1 LONG-RANGE PLAN UPDATE ENVIRONMENTAL REVIEW

The Central Puget Sound Regional Transit Authority (Sound Transit) is updating its 1996 *Regional Transit Long-Range Vision*, which functions as and is referred to in this Final Supplemental Environmental Impact Statement (SEIS) as the agency's Long-Range Plan. Sound Transit is updating its Long-Range Plan to make the plan consistent with updated local and regional plans. The updated plan will also identify projects and establish priorities for the agency's future efforts to provide additional high-capacity transit (HCT) service and transit facilities within the regional transit district of urban Pierce, King, and Snohomish Counties. This SEIS addresses the potential environmental effects of an updated Long-Range Plan and supplements the original Regional Transit System Plan Final EIS, completed in 1993. The updated plan will be consistent with the region's most current metropolitan transportation plan, *Destination 2030* (PSRC 2001), which calls for expansion of the regional transit system to help meet increased transportation demand resulting from population and employment growth in the region. The analysis in this SEIS will also support planning for the second phase of HCT investments (Sound Transit 2), consistent with the updated Long-Range Plan.

The plan and this environmental review are regional in scope and are designed to consider a range of actions and the environmental effects of an expanded network of regional transit improvements. The plan focuses on the functional elements of the regional network—how regional express bus/bus rapid transit (BRT), commuter rail, light rail, and other transit technologies and facilities will help meet the needs of future growth by better connecting communities in urban Pierce, King, and Snohomish Counties. Individual project decisions such as specific routes, locations, facilities, and operating characteristics are not determined in this analysis but will be addressed, as appropriate, in subsequent project-level environmental review.

This SEIS is part of a phased environmental review. Phased review helps agencies and the public focus on issues that are ready for decision (such as the Long-Range Plan update and selection of projects for Sound Transit 2 analysis and funding) and exclude issues already decided (such as *Sound Move*) or issues not yet ready for decision (specific projects to be implemented). Phased review begins with broader plan-level environmental documents that are generally followed by site-specific or project-level documents. The project-level documents usually reference prior plan-level work and decisions and concentrate on issues specific to implementation of each project. In the case of Sound Transit 2 projects, their selection will be informed by the analysis in this plan-level SEIS and, as appropriate, other planning and technical analyses.

This SEIS is divided into four chapters and several appendices. Chapter 1 is the Executive Summary. Chapter 2 explains the purpose of and need for the updated Long-Range Plan and provides background information on its principles, goals, and objectives. Chapter 3 describes the plan alternatives and options under consideration. It also discusses other alternatives that have been proposed and explains why they are not being analyzed in detail in this document. Chapter 4 analyzes the environmental impacts of the alternatives at the plan level, by element of the environment. Chapter 4 discusses each element of the environment as it exists today, the impact of constructing the alternatives, and potential measures that could be taken to mitigate adverse impacts. The sections in Chapter 4 also summarize any significant adverse impacts of the alternative or options that would potentially be difficult or impossible to mitigate. Background and supplemental information, such as the Environmental Justice Study, are included in the Appendices.

1.2 HISTORICAL CONTEXT FOR UPDATING THE LONG-RANGE PLAN

The extensive planning history for HCT in the Central Puget Sound region, including engineering, environmental analysis, and public outreach efforts conducted up to 1993, is detailed in the 1993 Final EIS. The basic purpose of the 1993 Final EIS was to evaluate the environmental impacts of a range of HCT system alternatives to support decisions on what kind of system would best address the region's mobility needs and support growth management objectives. In the decade since issuance of the 1993 Final EIS, Sound Transit and other transit agencies in the region have implemented many transit projects to increase transit capacity and

improve speed, frequency, reliability, and access to transit. These actions and decisions were based on the 1993 Final EIS and other environmental documents, and they continue to affect the course of future regional transportation decisions and investments. This SEIS builds on the 1993 Final EIS and on other prior environmental reviews and decisions, and it identifies the environmental impacts of alternative future actions.

Major decisions made since the 1993 Final EIS include Sound Transit's 1996 adoption of the *Regional Transit Long-Range Vision* (see Figure 1-1) and the *Regional Transit System Plan* (known as *Sound Move*). Through these planning efforts and documents, Sound Transit selected an HCT system for the region. The system is a combined rail and regional express bus network that includes a mix of light rail, commuter rail, bus and high-occupancy vehicle (HOV) investments (transit centers, access ramps, park-and-ride lots), and regional express bus/BRT service. In 1996, Sound Transit committed to a system that included electric light rail lines linking the four major regional centers—Everett, Seattle, Tacoma, and Bellevue. The HCT system selected was based largely on the Rail/Transportation Systems Management (TSM) alternative analyzed in the 1993 Final EIS.

1.3 PURPOSE AND NEED FOR THE PLAN UPDATE

Sound Transit is updating its Long-Range Plan to make the plan consistent with updated local and regional land use and transportation plans and to identify projects and establish Sound Transit's priorities for the next phase of HCT improvements. An updated Long-Range Plan is needed to develop and implement future regional transit improvements, consistent with the region's adopted comprehensive plans. HCT, as part of an integrated transportation system, supports a long-standing strategy to focus growth in urban areas connected by high-quality transportation. VISION 2020 (PSRC 1990) defined this strategy in 1990, linking long-range land use and transportation plans throughout the urban Puget Sound region. VISION 2020 was updated in 1995 (PSRC 1995) to meet State Growth Management Act requirements. Since that time, the region has repeatedly affirmed this strategy in its adopted regional, county, and city comprehensive plans. The latest metropolitan transportation plan, *Destination 2030* (PSRC 2001), calls for the region's HCT system to continue to develop and expand to help meet growing demand, together with the expansion of all forms of transportation—local transit, carpools and vanpools, ferries, airplanes, automobiles, freight, bicycling, and walking.

Sound Move, Sound Transit's initial phase of regional HCT investments, is addressing many regional mobility needs. The investments of *Sound Move* will continue to provide benefits in the years to come. However, *Sound Move* was not intended to be the only phase of regional transit investment; it was meant to be the first. The region still faces transportation problems, and there is a continued need to address HCT planning and investment.

Many of the transportation conditions described in the 1993 Final EIS still exist, although *Sound Move* and the land use strategies now in place are helping the region better manage its population and employment growth. In 1993, congestion, slower and less predictable travel, and a lack of alternatives to driving alone were the key concerns. Today, *Sound Move* and the region's other investments in transportation are helping provide more competitive alternatives to driving alone. However, our mobility problems persist and, as the number of people and jobs grows in the coming decades, there will be greater demands for travel.

From 1990 to 2000, population in the region grew by nearly 20 percent, while the amount of travel in the region grew almost twice as fast. Between now and 2030, population growth is expected to be nearly 40 percent, with a projected 45 percent growth in employment and vehicle miles traveled. While this will be a more moderate rate of travel growth in comparison to population growth than in the past—in part because of the land use and transportation decisions of the last decade—transportation conditions will worsen. Many of the region's roads and freeways are already at capacity for many hours during the day. With more vehicles on the road, congestion and delay will be more severe and trips will be slower and more unpredictable. Because of this, an expanded HCT system will be needed to provide an effective and reliable alternative to driving and an efficient way for people to move throughout the region.

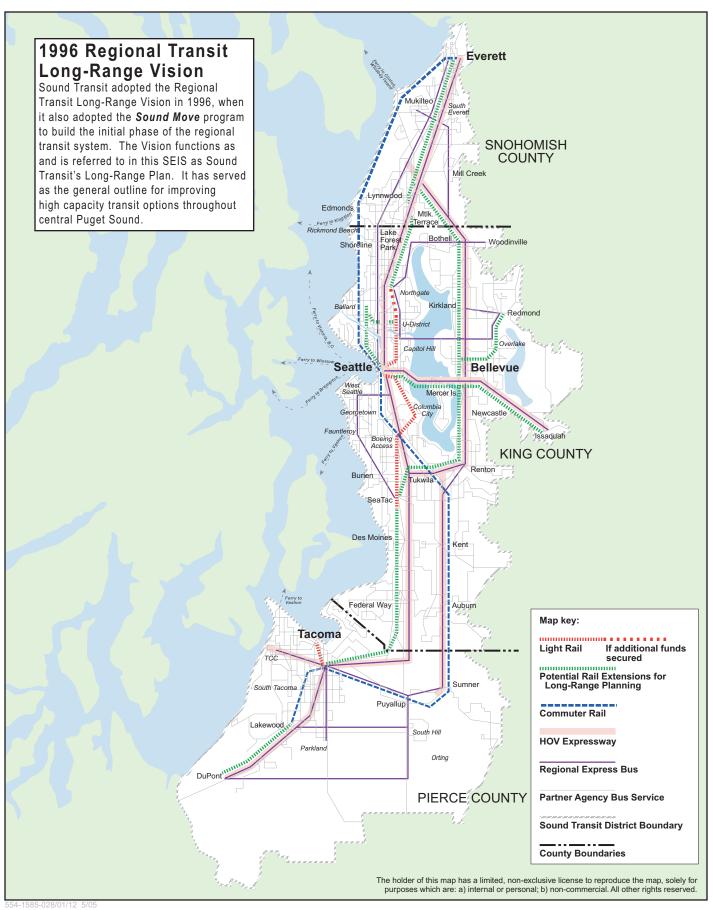




Figure 1-1 1996 Regional Transit Long-Range Vision

Finally, increased regional transit is necessary to protect the environment and improve the quality of life. The benefits of transit to the environment and for quality of life are central themes in the integrated growth management and transportation strategies of VISION 2020, *Destination 2030*, and Sound Transit's adopted 1996 Long-Range Plan for regional transit. In all of these plans, preserving the environment and quality of life are reasons for making transit an effective alternative to driving alone.

More information on the Long-Range Plan's purpose and need, guiding principles, goals, and objectives is provided in Chapter 2.

1.4 SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT PROCESS

Following a public scoping process and environmental analysis, the Draft SEIS on the Long-Range Plan was issued for public review on December 2, 2004 (see Chapter 3 for more detail on the scoping process and Appendix C for information on the public involvement process). The official public comment period closed on January 31, 2005. During the public comment period, Sound Transit held 10 public hearings at locations throughout the Sound Transit District to solicit comments on the Draft SEIS. Public hearings were held in Seattle, Bellevue, Shoreline, Everett, Tacoma, Lakewood, Federal Way, Lynnwood, Issaquah, and Auburn. At each public hearing, comments were received on the Draft SEIS from hand-written comment forms, a computer terminal, and through a court reporter transcription of verbal comments. Public comments on the Draft SEIS were accepted until January 31, 2005. The comment period was 60 days in length, compared to 30 days required under the State Environmental Policy Act (SEPA). Sound Transit staff were available at the public hearings to answer questions on the contents of the Draft SEIS for the Long-Range Plan and the Sound Transit 2 planning process.

All comments received at the public hearings and through e-mails and letters on the Draft SEIS are included or summarized in Volume 2 of this Final SEIS. Sound Transit received 242 letters, emails, and forms with over 1,000 comments on the Draft SEIS. Most comments received reflected preferences for specific transit projects. The original comment letters and forms are generally printed in Volume 2 in half size with corresponding responses to each comment on the other half of the page. This SEIS is revised to reflect comments and update information from the Draft SEIS.

1.5 ALTERNATIVES CONSIDERED IN THE SEIS

The updated Long-Range Plan will define regional transit improvements that Sound Transit and the region will consider making through the next several decades. For the SEIS, Sound Transit has evaluated two primary alternatives that encompass the probable range of actions for the plan update: the No Action Alternative and the Regional Transit Long-Range Plan Alternative (Plan Alternative). The No Action Alternative involves no change from current management direction and assumes completion of *Sound Move*. The Plan Alternative is based primarily on the existing Long-Range Plan, adopted in 1996, and includes actions to expand regional transit facilities and services beyond the current commitments of *Sound Move*. The SEIS also evaluates a set of technology and corridor options that represent a "menu" of other actions that could be implemented, individually or in combination, as part of the Plan Alternative. The Options do not stand alone as an alternative, but rather potentially modify or add to the Plan Alternative. More detailed information on the Plan Alternative and Options is provided in Chapter 3.

1.5.1 No Action Alternative

Under both the State and National Environmental Policy Acts (SEPA/NEPA), the appropriate No Action Alternative for planning documents consists of "no change from current management direction." Accordingly, the No Action Alternative in the SEIS represents the actions Sound Transit will pursue if it does not make any changes to its current long-range plan or set of planned projects. The No Action Alternative assumes the completion of *Sound Move*, but no further extensions of the regional transit network. *Sound Move* constitutes the agency's existing system plan under its enabling legislation and identifies the first phase of projects to be implemented under the 1996 Long-Range Plan. The *Sound Move* program for light rail, commuter rail, regional express bus, and transit facilities is shown in Figure 1-2. The major elements of *Sound Move* are as follows:

- Central Link light rail
- Tacoma Link light rail
- Sounder commuter rail
- ST Express regional express bus/HOV access

In addition to the *Sound Move* projects, the No Action Alternative includes other approved or fully funded transportation projects sponsored by other agencies. These include, for example, the Seattle Monorail Project's Green Line and the voter-approved "Nickel Package" of WSDOT highway improvements.

1.5.2 Regional Transit Long-Range Plan Alternative (Plan Alternative)

The Plan Alternative is based on the existing Long-Range Plan, adopted in 1996, and it includes improvements and expansions beyond the No Action Alternative commitments. It is shown in Figure 1-3. The lines depicting light rail and regional express/BRT corridors on Figure 1-3 represent broad corridors as opposed to specific alignments. The Plan Alternative includes all the elements of *Sound Move*, plus:

- Light rail (Northgate to Everett, Seattle to Issaquah, Seattle to Bellevue to Redmond, SeaTac to Bellevue to Totem Lake to Lynnwood, SeaTac to Tacoma, University District to Ballard, and Ballard to Downtown Seattle).
- Commuter rail (additional service, service extensions from Lakewood to DuPont, additional stations, additional station facilities).
- Regional express bus/BRT (expanded regional express bus services, HOV direct access facilities, transit priority treatments, transit centers and park-and-ride lots, grade or barrier separation).
- For any of the light rail corridors included in the 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 along the entire corridor.

1.5.3 Adding Options to the Plan Alternative – A "Menu"

This SEIS also analyzes the environmental impacts of potential options that have been suggested to expand or modify the system. The Plan Alternative Options are shown in Figure 1-4. The lines depicting light rail or monorail, regional express bus/BRT, and streetcar corridors on Figure 1-4 represent broad corridors as opposed to specific alignments. Options include adding to or modifying the elements of the Plan Alternative as follows:

- Light rail (new corridors/connections: Northgate to Bothell, Northgate to Everett via SR 99 and/or Paine Field, Redmond to University District, Downtown Seattle to North Downtown, SeaTac to Burien, Burien to Renton, Downtown Tacoma to West Tacoma, Downtown Tacoma to East Tacoma).
- Streetcar (Westlake Station to University District via South Lake Union, International District to Central Area, Seattle Waterfront to Prospect Street). Streetcar options are included in this Final SEIS in locations where they could be an initial segment of a longer rail HCT line (similar to Tacoma Link), or where they connect to another rail HCT line in the system. Impacts of any streetcar lines in urban areas not specifically listed in Appendix I of this SEIS would be similar to the impacts identified for streetcar lines in Seattle.
- Monorail (in all corridors being evaluated as light rail extensions in the Plan Alternative and Options).
- Commuter rail (additional station facilities at existing stations; new rail service, stations and track improvements on existing rail corridors, Tacoma to Frederickson, and Sumner to Orting).
- Regional express bus/BRT (additional speed, reliability, frequency, passenger facilities/amenities on routes in the Long-Range Plan [e.g., Seattle to Everett on SR 99], plus potential new corridors [e.g., Issaquah to Redmond via Sammamish]).

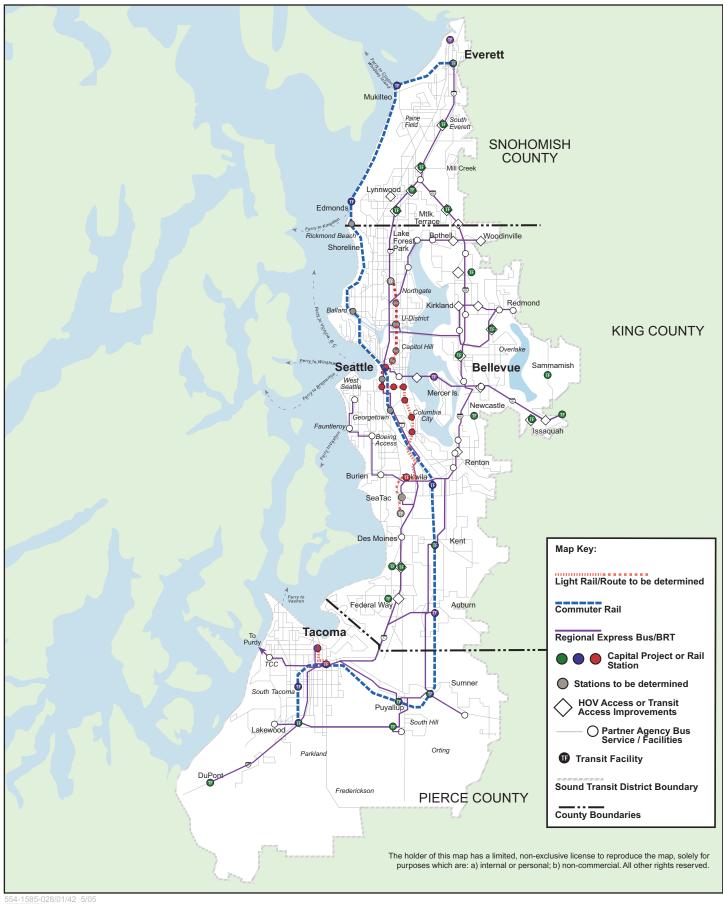




Figure 1-2 No Action Alternative: Assumed Regional Transit Network with Sound Move

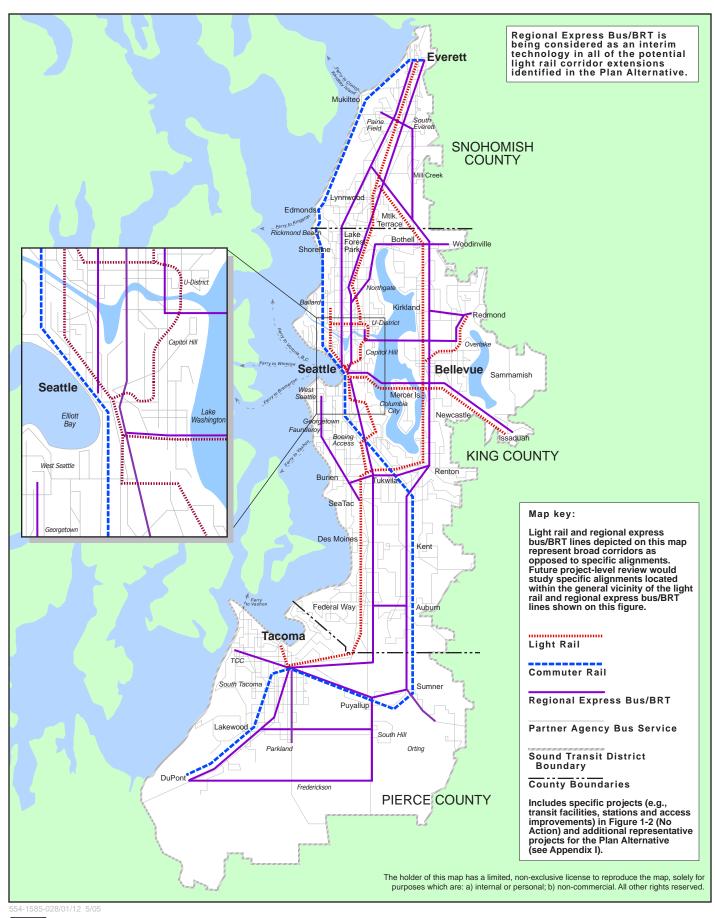




Figure 1-3
Regional Transit
Long-Range Plan Alternative

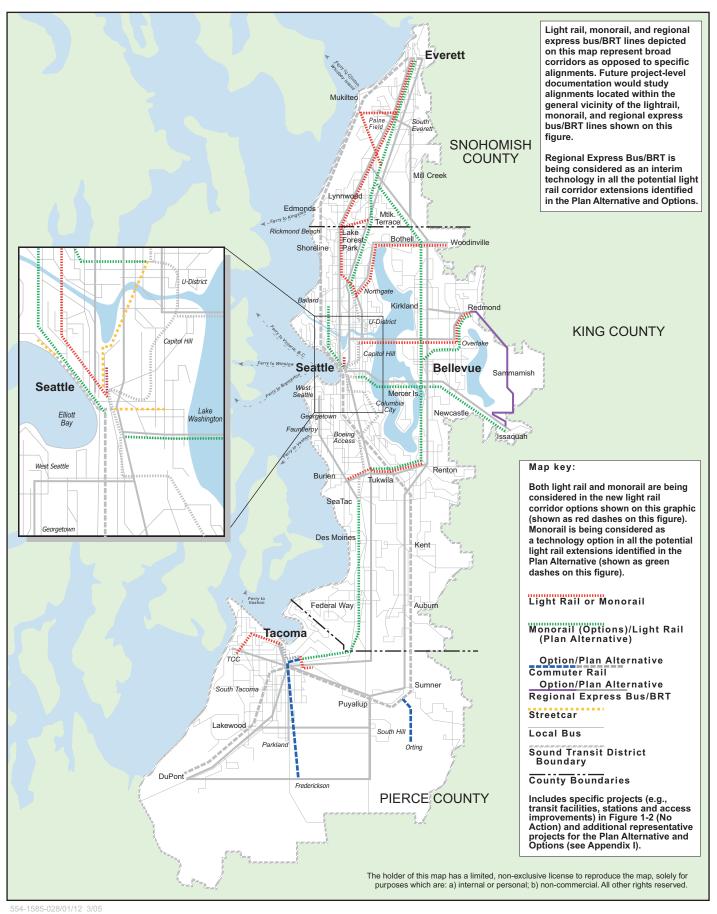




Figure 1-4
Regional Transit Long-Range
Plan Alternative Options

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1.5.4 High-Capacity Transit Technologies Evaluated in the SEIS

As described in Sections 1.5.2 and 1.5.3, Sound Transit is evaluating several different technologies for providing HCT in the corridors identified and evaluated in this SEIS. Table 1-1 summarizes the technologies being evaluated for each SEIS corridor shown in Figures 1-3 and 1-4.

Table 1-1
High-Capacity Transit Technologies Evaluated in the SEIS

SEIS Corridor Designation (as shown on Figures 1-3 [Regional	Technologies Evaluated in SEIS				
Transit Long-Range Plan Alternative] and 1-4 [Plan Alternative Options])	Light Rail	Commuter Rail	Regional Express Bus/BRT*	Monorail*	Streetcar
Figure 1-3: Plan Alternative Light Rail	X		X		
Figure 1-4: Plan Alternative Options Light Rail or Monorail	X		X	X	
Monorail			X	X	
Figures 1-3 and 1-4: Plan Alternative and Plan Alternative Options Commuter Rail		X			
Figures 1-3 and 1-4: Plan Alternative and Plan Alternative Options Regional Express Bus/BRT			X		
Figure 1-4: Plan Alternative Options Streetcar					X

^{*} Regional express bus/BRT is considered as an interim technology, and monorail is considered as an optional technology, in all light rail corridor extensions identified in the Plan Alternative (Figure 1-3) and Plan Alternative Options (Figure 1-4) (i.e., all light rail corridors other than Northgate to S. 200th).

1.5.5 Environmental Impacts and Potential Mitigation Measures

The purpose of this SEIS is to analyze plan-level environmental impacts from implementation of an updated Long-Range Plan. For the analysis, the study area was defined as within the boundaries of the Sound Transit District, which roughly includes the urbanized areas of Pierce, King, and Snohomish Counties. This is the area that receives Sound Transit services and pays Sound Transit taxes, and the area within which potential impacts of the updated plan were evaluated at the broad plan level. Future project-level planning and environmental review for projects identified to move forward in Sound Transit 2 will provide more detailed project-level information on specific projects, such as specific routes, locations, facilities, and operating characteristics, and more detailed environmental impact assessment and mitigation plans.

Table 1-2 summarizes the broad operational and construction impacts from implementing an updated Long-Range Plan. It also describes potential mitigation measures, which are detailed in Chapter 4. Generally, the construction of the infrastructure projects contained in the Plan Alternative would result in higher levels of direct impacts—some of which may be significant—as compared with taking no further action. Balancing those impacts, however, would be direct and quantifiable benefits in transportation availability, air quality, energy use, and other potential areas of benefit resulting from augmenting the regional HCT system and the public's choice of transportation modes with the Plan Alternative. It is also possible that the No Action Alternative could result in

negative indirect effects, such as increased urban sprawl and pressure to increase highway construction to attempt to alleviate traffic congestion, all of which would increase adverse impacts to the natural and built environment.

Table 1-2 Summary of Environmental Impacts and Potential Mitigation Measures

Element of the Environment	Plan Alternative and Options	Potential Mitigation Measures	No Action Alternative
4.1 Earth	 Projects are in a seismically active area. Projects may pass through areas with steep slopes with the potential for landslides. Construction impacts include potential settlement from vibration or dewatering. Potential for erosion from construction activities exists throughout the project area. Subsurface construction work would have the greatest potential for geologic impact. The Options would have similar impacts to Plan Alternative projects. Monorail, light rail, and regional express bus/BRT options in new corridors not included in the Plan Alternative would increase overall impacts. 	 Ground modification and structural modification could be implemented to avoid long-term impacts. Site selection, minimization of clearing and grading, drainage improvements, prompt revegetation, and ground movement monitoring could be used to minimize potential for landslides. Detailed impact/site analyses, construction planning and sequencing, standard construction best management practices (BMPs), and installation of recharge wells could be used to mitigate potential dewatering and erosion impacts. 	Fewer projects would be developed, reducing direct geologic long-term and construction impacts. The types of impacts would be similar to those for the Plan Alternative.
4.2 Air Quality	 Regional motor vehicle emissions would be reduced approximately 1 to 5 percent by 2030 compared to No Action due to a reduction in vehicle use and vehicle delay. Nitrogen oxide and particulate matter emissions (from dieselpowered commuter rail) would increase, but would be more than offset by reductions in automobile use. Localized emissions would increase around park-and-ride lots and stations in the long term. Localized emissions would increase near construction areas due to stalled traffic and construction equipment. 	Multiple measures could be used to control particulate matter less than 10 micrometers in size (PM ₁₀) during construction. Mitigation to reduce regional long-term emissions should not be needed under the Plan Alternative and Options, as a result of expected air quality improvement over the No Action Alternative and because no exceedances of the National Ambient Air Quality Standards (NAAQS) would result from improvements or projects.	Regional air quality conditions would be worse under the No Action Alternative than under the Plan Alternative because automobile use would be higher.

Table 1-2 Summary of Environmental Impacts and Potential Mitigation Measures (continued)

Element of the Environment	Plan Alternative and Options	Potential Mitigation Measures	No Action Alternative
4.2 Air Quality (continued)	The Options would have similar effects, with new corridors having the potential to further reduce vehicle emissions. Localized impacts may occur in different areas.	A detailed assessment and mitigation plan could be developed during project-level environmental review. Where needed, localized emissions could be reduced by reducing vehicle delays or volumes at major intersections.	
4.3 Noise and Vibration	 Light rail can create noise impacts for residences and other sensitive land uses within 50 to 100 feet of tracks. Elevated tracks are likely to have greater noise impacts than at-grade tracks. Commuter rail can create noise impacts for land uses within 25 to 50 feet of the rail line. Transit centers and park-and-ride lots can create noise impacts for land uses within 50 to 150 feet. Individual projects would generate some temporary noise disturbances near construction activities and may require nighttime noise variances. Vibration impacts may occur to sensitive land uses within 60 feet of light rail tracks with frequent service and within 80 feet of commuter rail lines used during peak periods. Noise and vibration impacts under the Options would be similar to those discussed under the Plan Alternative. The location of impacts would depend on the options selected. Regional express bus/BRT and monorail impacts would be similar to light rail impacts. 	 Potential measures could include acquisition of land for buffer zones, realignment, track and wheel design for rail systems, maintenance, sound insulation, and construction of noise wall or other barriers. Mitigation for construction impacts could include noise barriers, time restrictions, noise-reducing devices on equipment, positioning stationary equipment away from receptors, selection of quiet equipment, and frequent equipment maintenance. 	Several transportation improvement projects would be implemented as a result of Sound Move under the No Action Alternative. Existing and currently planned transit services and facilities would create vibration and noise levels similar to, but slightly less than, those discussed under the Plan Alternative. Fewer locations would be affected by the construction and operation of transit facilities.
4.4 Water Quality	Transit facilities could involve long-term impacts such as additional impervious surfaces; new pollution-generating impervious surface; wetland, stream, or floodplain fill; and culvert extensions. Guideways exclusively for light rail would not generate pollutants. Parkand-ride lots, transit stations, regional express bus/BRT, and commuter rail facilities would involve the impacts listed above.	BMPs related to erosion and sedimentation, staging, culvert extensions or replacement in perennial streams, and dewatering could be implemented to reduce and minimize construction and long-term impacts.	Direct water quality and hydrologic impacts would be similar to but less than impacts under the Plan Alternative.

Table 1-2 Summary of Environmental Impacts and Potential Mitigation Measures (continued)

Element of the Environment	Plan Alternative and Options	Potential Mitigation Measures	No Action Alternative
4.4 Water Quality (continued)	Runoff could affect waterbodies downstream in the long term and during construction. The Options would have general impacts similar to those discussed under the Plan Alternative. Monorail guideways would not add pollutants. The Options can affect different watersheds, and the addition of options would increase overall impacts.	Another potential mitigation measure would be to avoid or minimize filling of wetlands, streams, and floodplains.	
4.5 Ecosystems	 Potential long-term and short-term impacts could include noise and visual disturbance to wildlife; pollution; and habitat fragmentation, degradation, and loss. Projects that require new rights of way and facilities, such as light rail and park-and-ride lots and commuter rail track, are most likely to have ecosystem impacts. Ecosystem impacts for the Options would be similar to those discussed under the Plan Alternative. The location and extent of impacts may vary, and the addition of options would increase overall impacts. 	Potential mitigation measures could include the following: Incorporate erosion and construction-related BMPs. Minimize the size of construction staging areas and promptly replant with native vegetation. Avoid or minimize construction activities and facility placement near wetlands, streams, and other high-quality habitats. Enhance existing habitats in selected priority areas and consider additional land acquisition for restoration or enhancement. Time construction to avoid nesting season where nest sites for sensitive species are in close proximity. New mitigation recommended could also be reviewed and considered during project-level analysis.	Direct long-term and construction ecosystem impacts would be less than under the Plan Alternative.
4.6 Energy	Regional energy consumption would decrease, based on lower levels of automobile use compared to the No Action Alternative. The Plan Alternative would save 36,680 gallons of gasoline daily over the No Action Alternative. Energy demand would increase during construction.	None required.	 Regional, long-term energy use would be higher than under the Plan Alternative. Transit project-related construction energy consumption would be lower than under the Plan Alternative.

Table 1-2
Summary of Environmental Impacts and Potential Mitigation Measures (continued)

Element of the Environment	Plan Alternative and Options	Potential Mitigation Measures	No Action Alternative
4.6 Energy (continued)	The Options would likely have greater benefits than the Plan Alternative and No Action Alternative by decreasing energy consumption from automobile use.		
4.7 Environmental Health	 Fluids from fuel or maintenance could leak during operation. Persons living or working near construction sites may inhale, ingest, or have skin contact with soil particles, dust, vapors, or aqueous solutions. During construction, previously contaminated sites may be encountered. The cleanup of contaminated sites would improve environmental conditions and possibly other pollutants. The Options would be similar to those discussed under the Plan Alternative. Different sites may be affected, and more previously contaminated sites may be improved during construction. 	Potential mitigation measures could include the following: Meet health, safety, and hazardous waste regulations. Segregate hazardous wastes. Protect employee health through ventilation, fire protection, and other measures. Treat contaminated runoff with oil/water separator and stormwater detention facilities. Use nontoxic substances. Use property investigation and remediation and environmental site assessments (phase I, II, or III) to identify opportunities to remediate contaminated property or avoid contamination by rerouting the alignment. Handle all hazardous materials encountered during construction according to applicable law.	Direct environmental health impacts would be similar to but less than under the Plan Alternative. Beneficial effects due to the cleanup of contaminated sites would be less.
4.8 Visual Quality and Aesthetic Resources	 Projects may alter or add features to the landscape, including stations, park-and-ride lots, and overhead power s ources. Light rail may require elevated guideways, which would be more visible than at-grade rail. When near residential areas, the localized impacts can be substantial. Light and glare could increase around park-and-ride lots and along new HCT corridors. Views may be impacted. Projects may also improve aesthetic conditions by improving streets, sidewalks, and landscaping. 	Potential mitigation measures could include the following: Select and modify routes to avoid or minimize the need to acquire and clear new right of way. Modify structure designs to integrate scale and character with surroundings. Replant vegetation. Shield light sources. Screen views of construction areas.	Direct visual impacts would be similar to but less than under the Plan Alternative.

Table 1-2 Summary of Environmental Impacts and Potential Mitigation Measures (continued)

Element of the Environment	Plan Alternative and Options	Potential Mitigation Measures	No Action Alternative
4.8 Visual Quality and Aesthetic Resources (continued)	 Temporary visual impacts could occur from construction equipment, materials, signage, etc. Temporary lighting may be required for nighttime construction. The Options would have similar effects to those discussed under the Plan Alternative. Variations, such as substitution of light rail with monorail or more extensive use of light rail, may increase impacts because more elevated guideways may occur, and new corridors would be affected. 	Potential mitigation measures	. Transit sarvicas
4.9 Transportation	 The transit system would provide important choices for travel in the region, providing reliable, fast, and frequent service to and from major urban centers. Transit services, access, and ridership would increase compared to No Action because the Plan Alternative would substantially increase transit frequency, geographic coverage, parking, access, speed, and reliability. Regional traffic volumes for single-occupancy vehicles would be lower than under the No Action Alternative, including noticeable reductions in peakhour traffic to and from major urban centers. Transportation opportunities would increase for the elderly and people with disabilities. Parking demand by transit users may increase near station areas, reducing supply for other nearby uses. However, transit-specific commuter parking often serves other nearby land uses, especially those whose peak parking demand occurs on evenings or weekends. Streets and intersections near stations may have increased traffic and delays. 	Potential mitigation measures could include the following: Use signage and/or flaggers to guide traffic through detours. Send out advanced construction notifications and implement a construction location hotline. Phase construction activities. Prepare a detailed traffic impact mitigation plan. Close lanes during off-peak times. Provide special transit services through some construction areas. Implement residential parking zones and develop parking management plans. Increase the number of feeder buses. Improve pedestrian and bicycle facilities. Provide additional parking at selected stations.	 Transit services, access, and ridership would be less than under the Plan Alternative. Regional traffic volumes would be greater than under the Plan Alternative. Construction impacts would be similar to but less than under the Plan Alternative.

Table 1-2 Summary of Environmental Impacts and Potential Mitigation Measures (continued)

Element of the Environment	Plan Alternative and Options	Potential Mitigation Measures	No Action Alternative
Transportation (continued)	 Projects along existing streets, highways, and rail lines may reduce roadway capacity or change local access or circulation. These effects would likely be greater for light rail and regional express bus/BRT service operating in exclusive rights of way when they require taking existing lanes or adding new lanes, than for commuter rail and regional express bus/BRT projects operating on existing facilities. Construction of the Plan Alternative elements could take place in all three counties at the same time and regional traffic congestion and speeds in certain corridors could be negatively affected. Specific impacts would be determined in conjunction with future project-level planning and environmental review. The Options may result in higher ridership levels regionally. Monorail and streetcars may require alterations of existing roadways, with general impacts as described above for light rail. Construction of the options could have a similar effect as the Plan Alternative, but different areas 		
4.10 Land Use	 The Plan Alternative would be consistent with land use plans, policies, and legislation, including VISION 2020 and <i>Destination 2030</i>. The Plan Alternative would promote development that is supportive of plans and policies for higher-density multi-use areas. Land acquisition could result in displacement of residences, businesses, and public facilities. Plan Alternative projects would decrease dependence on automobile travel and increase transit- and pedestrian-friendly development. 	 Individual projects could be designed to minimize displacements and encroachment on surrounding land uses. When acquiring real property and relocating people and businesses, Sound Transit would provide relocation advisory services and monetary compensation in accordance with state and federal laws and Sound Transit policy. 	The No Action Alternative would be consistent in part with land use plans, policies, and legislation. Under the No Action Alternative, Sound Move would be completed; however, the HCT system would not grow to continue to support the region's adopted growth and land use strategy.

Table 1-2 Summary of Environmental Impacts and Potential Mitigation Measures (continued)

Element of the Environment	Plan Alternative and Options	Potential Mitigation Measures	No Action Alternative
4.10 Land Use (continued)	 New development, redevelopment or infill, and land use intensification surrounding transit stations could replace some dispersed automobile-oriented land uses. Construction may temporarily disrupt local traffic patterns and access to residences and businesses. Some businesses may close or relocate due to construction activities. Impacts to land use under the Options would be similar to those discussed under the Plan Alternative. Variations in impacts would occur depending on the number of projects and specific options selected for implementation. 	Mitigation for site-specific land use impacts would be identified during future project-level planning and environmental review.	 Implementation of projects under the No Action Alternative as a result of <i>Sound Move</i> would result in similar direct land use impacts relative to the Plan Alternative, but to a lesser extent. The No Action Alternative could result in increased pressure for suburban sprawl and growth outside urban growth areas. In addition, there could be increased pressure to build highway improvements.
4.11 Public Services and Utilities	 The increased transit opportunities would generally increase access to public services such as libraries, health care centers, and community centers in the long term. Some emergency services may be impeded by new rights of way in the long term and by construction activities (traffic congestion and detours) during construction. Additional emergency response services and training could be necessary. Access to some public services may be reduced due to traffic restrictions in the long term and during construction. Relocations of utilities during construction could cause temporary disruption of service. Public service and utility impacts for the Options would be similar to those discussed under the Plan Alternative. Monorail impacts would be similar to those for elevated light rail. The areas affected would vary. 	Potential mitigation measures could include the following: Review traffic restrictions by local jurisdictions to ensure adequate service levels. Minimize waste generation and promote recycling, including recycling of construction waste and materials. Meet design criteria to minimize impacts on emergency services and minimize need for additional security. Install an emergency communication system. Follow applicable codes, criteria, and policies for construction activities. Closely coordinate construction with affected utilities and services.	For regional transit projects currently committed to under Sound Move, the direct long-term and construction impacts would be similar to but less than impacts of the Plan Alternative.

Table 1-2 Summary of Environmental Impacts and Potential Mitigation Measures (continued)

Element of the Environment	Plan Alternative and Options	Potential Mitigation Measures	No Action Alternative
4.12 Parks and Recreation	 Some projects may require the use of parks and recreational lands. Projects near parks and recreational resources may impact access, noise, air quality, traffic, aesthetics, or use of the resource. Views of parks could be obstructed. Construction activities may decrease park access, public safety, and usability. Projects that would add bicycle lanes or trails would increase recreational opportunities. The Options would have similar impacts to those of the Plan Alternative. Different locations may be affected, and if more rights of way are required, impacts may increase. 	 Potential mitigation measures could include the following: Design HCT projects to avoid or minimize potential adverse effects where possible. Use design that is sensitive to neighborhood context, character, architectural styles, scale, and views to reduce the level of impacts. Restore facilities to pre-project conditions and provide comparable replacement facilities if acquisition of parks and recreation facilities is necessary. Maintain access during temporary road and trail closures, and screen views of construction sites during construction. Provide signage explaining the nature and duration of construction. Use n oise and light barriers or shields during construction and for system operation. 	 The No Action Alternative could result in increased pressure to develop open space on the urban fringe. Direct long- and short- term impacts to parks would be similar to but less than under the Plan Alternative.
4.13 Historic and Cultural Resources	 Vibration, noise, visual setting, and access impacts to historic properties could occur in the long term and during construction. The acquisition of property may alter or destroy existing historic or cultural properties. Tunneling options would have the greatest potential for impacts to archaeological sites during construction, particularly in areas near lakes, rivers, and shorelines. Construction may involve vibration impacts that have the potential to damage fragile buildings. Impacts to historic and cultural resources for the Options would be similar to those discussed under the Plan Alternative. Variations in impacts could occur depending on the options selected. 	Potential mitigation measures could include the following: Consult with agencies, tribes, and local governments. Perform archaeological testing and monitoring in high-probability areas prior to and during construction. Design and locate facilities to be compatible with his torically sensitive areas. Provide landscaping elements to lessen long-term visual and noise impacts. Modify construction methods to avoid or limit construction-related impacts (dust, noise, access, vibration, emissions, visual). Fully document historic properties and relocate or remove them if necessary.	Direct impacts under the No Action Alternative would be similar to but less than under the Plan Alternative.

Table 1-2 **Summary of Environmental Impacts and Potential Mitigation Measures (continued)**

Element of the Environment		Plan Alternative and Options	Potential Mitigation Measures	No Action Alternative
4.14 Cumulative Impacts	•	Other transportation projects and the continued growth and development of the urban area may increase the direct impacts to the elements of the environment listed above, although the types of impacts are expected to be similar. Many elements of the environment (air quality, land use, transportation) already consider the effects of future growth and other major project developments. When the Plan Alternative and <i>Options</i> and other projects are in close proximity to each other, localized impacts may increase. However, the combined benefits of the Plan Alternative with other transportation projects, such as the development of the Green Line monorail, Washington State Department of Transportation (WSDOT) HOV lanes, and other improvements to local and regional transportation, could also provide greater cumulative benefits.	See each element of the environment for potential mitigation measures. Sound Transit could also work with other project proponents to identify and address cumulative impacts through coordinated mitigation measures.	With fewer regional transit projects being implemented, the No Action Alternative would have fewer direct impacts to the environment, but benefits due to reduced automobile use and improved mobility also would not accrue. Transportation conditions would worsen, and if increased roadway capacity is needed, overall environmental conditions would worsen.
Appendix B Environmental Justice	•	The Plan Alternative and Options would provide substantial benefits to low-income and minority populations, such as greater access to transit and employment as well as improved travel times (see Appendix B). The Plan Alternative and Options would not have disproportionately high and adverse impacts on low-income or minority populations.	None required.	The No Action Alternative would not have disproportionately high and adverse impacts on low- income or minority populations; however, it would provide fewer benefits than the Plan Alternative.

1.6 RELATIONSHIP OF THE SEIS TO THE 1993 FINAL EIS

The 1993 Final EIS examined a wide range of alternatives to improve regional transportation in the Sound Transit District. It was the primary environmental analysis supporting Sound Transit's adoption of the existing Long-Range Plan and Sound Move. This 2005 SEIS, together with the 1993 Final EIS it supplements, fully discloses the broad plan-level environmental effects of an updated Long-Range Plan and related implementation decisions, such as selection of Sound Transit 2 projects for which funding will be sought. It addresses changes in policy, local and regional plans, and environmental conditions since 1993. To make review easier, applicable information from the 1993 Final EIS has been directly incorporated into this SEIS. In cases where alternatives examined in the 1993 Final EIS were not part of the system adopted in the 1996 Long-Range Plan, those alternatives are not reevaluated in this SEIS.

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General format, elements of the environment, and approach of analysis between this SEIS and the 1993 Final EIS remain similar. Additional areas of study and appendices presented in this SEIS, but not in the 1993 Final EIS, address a broader spectrum of factors that could affect the plan. These additional areas of study and appendices are outlined in Section 3.3.3 (Table 3-2).

1.7 AREAS OF CONTROVERSY AND UNCERTAINTY

As it considers updates to the Long-Range Plan and identifies projects for Sound Transit 2, the Sound Transit Board will balance many issues. Understanding the need for the projects, achieving balance among the various service areas of the region, and obtaining funding to make the plans reality are all issues the Board will face. Other unresolved regional issues that may affect the implementation of the projects likely to be considered for implementation based on the updated Long-Range Plan are discussed below. The areas of controversy and uncertainty identified below are not intended to be all-inclusive.

As part of the Long-Range Plan update, Sound Transit will review the previously designated HCT corridors and consider additional designations. Sound Transit will also consider whether new technologies should be considered for some existing HCT corridors and/or the potential new corridors.

Sound Transit may determine which technology options are best for corridors that are identified as HCT corridors in the updated Long-Range Plan. Options evaluated in this SEIS include light rail, monorail, streetcar, commuter rail, and regional express bus/BRT. Each of the technology options has distinct advantages and disadvantages. In some corridors, the technology decision could include two or more possibilities. For example, a corridor may be identified as an HCT corridor and designated a potential future rail extension in the Long-Range Plan, but Sound Transit may later decide that regional express bus/BRT is the most appropriate technology for the next phase of investments.

In the 1996 Long-Range Plan, the I-90 corridor was designated as a potential future rail extension, and regional express bus improvements were implemented as part of the first phase (Sound Move). In a corridor analysis conducted for Sound Transit by the Puget Sound Regional Council (PSRC) in 2004, this corridor was identified as being most ready for higher-capacity transit investments, beyond those being implemented as part of Sound Move. Expanded regional express bus/BRT, light rail, and monorail technologies were evaluated in the I-90/East King County corridor between Seattle and Bellevue, along with possible extensions to Overlake, Redmond, Totem Lake, and Issaquah. Sound Transit is conducting additional technical analyses of light rail, regional express bus/BRT, and monorail options in the East King County area, focusing on comparative differences in system development, performance, and cost. The Sound Transit Board may identify a technology for project-level review for the I-90 corridor as part of the updated Long-Range Plan. The conversion of the I-90 center roadway between I-5 and Bellevue Way to two-way HCT service is identified as an area of controversy and uncertainty in comments by the City of Mercer Island and Mercer Island residents. Implementation of HCT service in the I-90 center roadway would displace Mercer Island single-occupancy vehicles to the outer roadway. See the I-90 Corridor/East King County High Capacity Transit Analysis Issue Paper for more information (Sound Transit 2005a). Availability of the I-90 Corridor/East King County High Capacity Transit Analysis Issue Paper and other issue papers is described below in Section 1.8.

In the 1996 Long-Range Plan, the I-405 corridor was designated as a potential future rail extension. Regional express bus improvements were implemented as part of *Sound Move*. In 2002, the Washington State Department of Transportation (WSDOT) and Sound Transit completed a 3-year plan-level EIS for multimodal redevelopment of I-405. The I-405 Corridor Program EIS describes a Master Plan for the corridor. WSDOT and Sound Transit adopted the I-405 Master Plan following the release of the Final EIS, and a Record of Decision was issued by the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) in October 2002. The participants of the I-405 Corridor Program EIS concluded that BRT was the most appropriate transit investment for this corridor through 2020. The I-405 plan would construct a BRT line with stations, HOV direct access ramps, park-and-ride lots, and bus service. Full funding is not yet available for the BRT portion of the implementation plan, but could become available if funded as part of Sound Transit 2 and/or with additional state funding. The ability of WSDOT to obtain the funding to build the I-405 improvements specified in the Record of Decision, which include freeway-to-freeway HOV interchanges, is uncertain. This SEIS considers the potential

for rail on I-405, in addition to regional express bus/BRT, recognizing that the long-range needs of the corridor may require high levels of transit service.

The SR 520 Evergreen Point Bridge is nearing the end of its useful life according to WSDOT and must be replaced within the next several years. In the Trans-Lake Washington Project, WSDOT and Sound Transit led a regional study effort to identify the transit features of replacement alternatives. The project's Executive Committee concluded that bus/HOV was an appropriate near-term solution but that the replacement of the bridge should be designed to accommodate construction of HCT in the future. With the conclusion of that study, WSDOT is now preparing an EIS for that project. The project's Executive Committee has chosen to analyze a bridge pontoon design that would support HCT in the future. During scoping for this SEIS, some suggested that Sound Transit consider constructing light rail on SR 520, specifically from the University District to Redmond. Others suggested that regional express bus/BRT or monorail is a more appropriate technology for this corridor. This SEIS evaluates the environmental impacts of all three potential technologies for the SR 520 corridor.

Another area of potential controversy and uncertainty is whether streetcar systems or local transit services should be included in the list of possible projects in the updated Long-Range Plan. While these are generally not considered HCT, Sound Transit will consider whether such supporting services or facilities are critical to the effectiveness of the regional HCT system.

Another area of uncertainty is the degree to which WSDOT can successfully manage the HOV lane system to achieve a minimum average speed of 45 miles per hour (mph) 90 percent of the time, per state policy, which is necessary to ensure speed and reliability for transit vehicles operating on the HOV system. Failure to achieve fast and reliable travel speeds for buses would result in lower ridership forecasts.

Additional areas of controversy and uncertainty were identified in comments on the Draft SEIS. Some comments expressed concern about the current status of transportation funding in the state and the legislative debates about appropriate forms of governance structures to assist with transportation funding and regional project implementation. While the transportation funding measures adopted by the Legislature in 2005 (gas tax) address funding and governance issues, some uncertainty remains regarding these issues and implementation of the 2005 legislation. Other comments expressed concern about the appropriateness of regional population and employment forecasts used to estimate transit ridership in the future. As described in Section 4.9 of this SEIS, current adopted population and employment forecasts for the year 2030 from PSRC were used as the basis for estimating HCT system ridership for the No Action Alternative and Plan Alternative. These forecasts are the best available information to use at this time. A related issue and area of controversy is whether proposed Sound Transit projects need to be consistent with adopted local comprehensive plans.

Other possible areas of controversy and uncertainty mentioned in comments on the Draft EIS include:

- Whether the Sound Transit Board should revisit the technology decisions it made previously (e.g., light rail from downtown Seattle to Everett, or Northgate to Everett).
- Regional express bus/BRT: What is it (intensity of service) and where should it be studied (corridors)?
- Interim vs. permanent regional express bus/BRT.

Other comments expressed concern that the No Action Alternative is too expansive in assuming that some projects will be built. They argue, for example, that the Seattle Monorail Project Green Line might never be built, and that Sound Transit should have a backup plan if that occurred. Other comments expressed concern that the completion of portions of Link light rail was uncertain, because current funding only covers the initial segment from downtown Seattle to the Seattle-Tacoma International Airport and not the portions from downtown Seattle to the University District or from there to Northgate. It is not unusual for there to be some degree of uncertainty about the implementation of future projects, given the myriad issues that can arise in the development of any project. If some of the projects in the existing *Sound Move* plan were not able to be implemented—just as if some of the projects in the proposed Long-Range Plan update were not able to be implemented—the transportation benefits would be delayed. Section 3.6 of this SEIS discusses the consequences of delaying action. If the delay proves not to be acceptable, or if need for that particular project element is not met by the remainder of the system, the plan can be amended at that time.

To address the uncertainty with delaying certain elements of *Sound Move*, the consultant team qualitatively analyzed how the impacts of the Plan Alternative and Options would change if the No Action Alternative were modified by deleting the North Link light rail line from the University District to Northgate. The result of the consultant team's qualitative analysis of this modification to the No Action Alternative follows below. In short, the analysis concludes that reducing the scope of the No Action Alternative would increase the relative impacts of the Plan Alternative and Options (while also increasing their benefits), but that the type and nature of those impacts would be similar to the impacts evaluated in the SEIS.

The North Link Draft SEIS provides a detailed analysis of the light rail transit project's effects on transit level of service. Ridership forecasts and transportation impacts of several North Link interim termini were also considered. The full North Link project is predicted to generate 108,000 daily rail boardings in 2030. Year 2030 North Link ridership for the interim termini are:

- 94,000 riders with a Roosevelt Station terminus.
- 87,000 riders with a Brooklyn Station terminus.
- 76,900 riders with a University of Washington Station terminus.

The net decrease in total transit ridership resulting from the North Link interim terminus options would be lower than indicated above since bus transit ridership north of the terminus station would be higher and would partially offset somewhat the lower rail boardings. However, the benefits of travel time savings, reliability, hours of service, and passenger comfort north of the interim terminus would be deferred.

If the No Action Alternative definition for North Link was changed in the Long-Range Plan SEIS to reflect one of the interim terminus options, some information shown in Section 4.9 for the No Action Alternative would change by a small amount. These changes, however, would not result in a different characterization of impacts for the No Action Alternative and the Plan Alternative and Options. Most of the travel time, transit volumes/trips, and other information in Section 4.9 is regional in nature and would not be largely affected by a change in the northern North Link terminus definition.

With lower overall transit ridership on North Link for the No Action Alternative, the comparative difference between the two alternatives evaluated in the SEIS would be slightly greater. This would result in greater overall environmental impacts and benefits of the Plan Alternative and Options compared to the No Action Alternative.

1.7.1 Consequences of Delaying a Long-Range Plan Update

If implementation of projects under an updated Long-Range Plan were delayed substantially, the primary potential benefit would be to delay adverse construction and operating impacts of the project. However, there are substantial disadvantages of delaying implementation. Delay could create transportation and land use concerns due to failure to realize the projects' benefits and implement a major component of the region's long-range vision for managing growth and transportation. There are also potential funding implications associated with delaying plan implementation.

Comments on the Draft SEIS identified additional benefits and advantages of delaying action on the Long-Range Plan. These comments are discussed and more information is provided in Section 3.6.

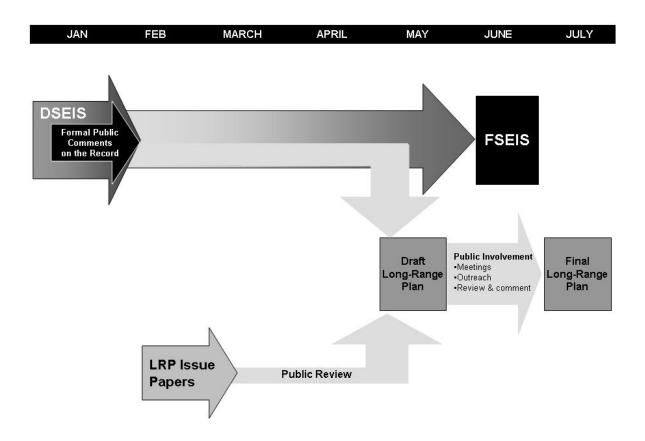
1.8 NEXT STEPS - PLAN ADOPTION AND IMPLEMENTATION

With this Final SEIS, Sound Transit is presenting the results of the plan-level environmental impact analysis on updating and implementing the Long-Range Plan, as well as responses to comments on the Draft SEIS. Following the issuance of the Final SEIS, the Sound Transit Board will make final decisions on updating the Regional Transit Long-Range Plan. The updated Long-Range Plan will then provide the basis for defining the improvements in Sound Transit 2.

Sound Transit's decision-making process for updating and implementing the Long-Range Plan has two major components: the environmental review component, and the planning component. The environmental review component is reflected in this SEIS, which evaluates environmental impacts of the updated Long-Range Plan and Options, as well as potential mitigation measures. The planning component is reflected in other documents and

analyses, such as the series of issue papers published by Sound Transit in March and April 2005. Figure 1-5 illustrates these two parallel decision-making components and the related opportunities for public involvement.

Figure 1-5. Environmental Review and Long-Range Plan Processes



The issue papers are designed to inform the Sound Transit Board in its decision making on the Long-Range Plan update. Each issue paper provides information about a specific element or area of the Long-Range Plan and potential options. These reports focus on issues such as costs, engineering feasibility, and operations, which are not required in SEPA environmental review. Issue papers published to date include the following:

- Issue Paper E.1: I-90 Corridor/East King County High Capacity Transit Analysis (Sound Transit 2005a)
- Issue Paper N.1: Bus Rapid Transit on SR 99 (Sound Transit 2005b)
- Issue Paper N.2: I-5 Corridor Northgate to Everett HCT Assessment (Sound Transit 2005c)
- Issue Paper N.2.S: I-5 Corridor Northgate to Everett HCT Assessment Supplement (Sound Transit 2005n)
- Issue Paper N.3: Seattle Streetcar Options (Sound Transit 2005d)
- Issue Paper N.4: SR-522 Corridor HCT Assessment (Sound Transit 2005e)
- Issue Paper N.5: Convertibility of BRT to Light Rail (Sound Transit 2005f)
- Issue Paper S.1: Tacoma Link Integration with Central Link (Sound Transit 2005g)
- Issue Paper S.2: Potential Rail Extensions to Frederickson and Orting (Sound Transit 2005h)
- Issue Paper S.3: HCT System Development Issues in the South Corridor (Sound Transit 2005i)
- Issue Paper S.4: Potential Tacoma Link Extension West (Sound Transit 2005j)
- Issue Paper S.5: Rail between Burien and Renton (Sound Transit 2005k)

• Issue Paper S.6: Potential Tacoma Link Extension – East (Sound Transit 2005l)

The issue papers can be found on Sound Transit's website at: http://www.soundtransit.org/projects/longrange/issuepapers.asp. They are also available for review in the Sound Transit library at the address provided in the Fact Sheet.

Sound Transit anticipates continued public outreach and involvement in Sound Transit Board decisions updating the Regional Transit Long-Range Plan, as well as Board decisions reviewing and selecting improvements to include in Sound Transit 2. As shown in Figure 1-5, this includes public outreach associated with the Sound Transit Board's adoption of a draft Long-Range Plan update on April 28, 2005. The draft plan can be found on Sound Transit's website at: http://www.soundtransit.org/projects/longrange. The draft plan is also available for review in the Sound Transit library.

The Board will adopt the final updated Long-Range Plan after receiving public input and comments on the draft plan and after weighing and balancing alternatives in light of those comments, the environmental review contained in this SEIS, and other planning considerations, including the analysis contained in the issue papers. It is possible that the Sound Transit Board will also identify preferred technologies for certain corridors in the updated Long-Range Plan.

Sound Transit's updated Long-Range Plan will then provide the basis for defining Sound Transit 2 projects. As occurred with funding for *Sound Move* in 1996, voters will have the opportunity to approve funding for Sound Transit 2 projects. After funding is approved, project-level planning and environmental review will be prepared, as appropriate.