## Sound Transit Expert Review Panel

October 30, 2008

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Dear Madams and Sirs:

This letter represents the Sound Transit Expert Review Panel's (Panel) final comments on our work to review the work completed by Sound Transit to prepare a high-capacity transit proposal for the November 4, 2008, ballot. This is the Panel's eleventh letter to you, dating back to 2005. This is our third letter in 2008 focused on the creation of the new and revised Sound Transit (ST2) proposal.

The Panel met on July 21, 2008, just prior to the Sound Transit Board's final decisions regarding the proposed ST2 Plan. Because the ST2 Plan had not been finalized at that time, the Panel felt it was important to meet a final time in October to review the impact of Board decisions on the ST2 program and finance plans, and to review the final report of the Joint Transportation Committee's Independent Review Team (IRT) regarding the potential construction of light rail on the I-90 Bridge. The Panel met on October 10, 2008, to conduct its final review of the 2008 ST2 Plan.

With this letter the Panel will provide both our final comments on the 2008 ST2 Plan, as well as comments on the requirements of RCW 81.104.100, which describes the requirements for planning for a high-capacity transit system that requests voter approval for funding.

**The Requirements of State Law**

Sound Transit developed an earlier proposed ST2 Plan that was submitted to voters in November 2007. The Expert Review Panel found that the detailed and comprehensive planning process used to develop that plan met statutory requirements. This finding was expressed in a detailed letter dated September 12, 2007. As mandated by state legislation, a single ballot proposition was submitted to voters at the November 2007 general election authorizing both the ST2 Plan and a proposal to finance regional highway improvements. The combined proposal was not approved by voters.

After the defeat of the combined proposal, Sound Transit continued its planning process and developed a new and modified proposed 2008 ST2 Plan that will be submitted to voters at the November 2008 general election. As a continuation of the prior planning process, much of the statutorily required planning process to develop the new 2008 ST2 Plan was completed in 2005 – 2007 as part of the prior 2007 ST2 Plan. Some additional planning steps were taken to develop the new and revised 2008 ST2 Plan.

The following summary makes note of new work completed by Sound Transit, but does not repeat descriptions of the planning process completed in 2007, as those may be found in our September 12, 2007 letter. This letter is organized using the requirements outlined in state law.

## I. ORGANIZATION AND MANAGEMENT

RCW 81.104.100(2)(a) provides that a transit agency proposing to provide high-capacity transportation system must "define roles for various local agencies, review background information, provide for public involvement, and develop a detailed work plan for the system planning process."

### A. Defining Roles

Planning and developing a regional high-capacity transit system requires interactions with a great many local agencies. The Panel discussed those relationships with Sound Transit staff at many of its meetings.

***Puget Sound Regional Council* –** The Panel's comments remain the same as for the September 12, 2007 letter. The Puget Sound Regional Council (PSRC) recently adopted VISION 2040, a regional long-range growth strategy. In September of 2008 the PSRC determined that the proposed 2008 ST2 Plan conforms with both VISION 2040 and Destination 2030, the regional long-range transportation plan.

***Local Transit Providers* –** The Panel's comments remain the same as for the September 12, 2007, letter. In addition, Sound Transit reached agreement on a memorandum of understanding with Burlington Northern Santa Fe Railroad (BNSF) for the use of rail track between Seattle and Tacoma for additional Sounder rail service. This agreement will provide greater certainty about the timing and level of rail service proposed in the 2008 ST2 Plan. Sound Transit is also negotiating with local transit providers to establish interim maintenance and storage facilities to enable the implementation of 100,000 hours of new express bus service in 2009 and 2010.

***Other Agencies* –** Specific project plans for some of the 2008 ST2 projects involve multiple agencies defining their respective roles. The formal collaborative agreements for all of these multiple-agency projects that define the roles of each agency have not been established, since most of the projects are at the planning stage, with less than 5 percent of the engineering and design work completed. Sound Transit has worked closely with the Washington State Department of Transportation (WSDOT) in the analysis of construction of light rail on the I-90 floating bridge. Sound Transit and WSDOT have begun to define their respective responsibilities with respect to maintenance and construction on the bridge. Sound Transit is also working with the Puget Sound Regional Council and the Port of Seattle to complete a feasibility study of potential passenger rail service on an existing BNSF rail corridor between the cities of Renton and Snohomish.

## B. Review of Background Information, Provide for Public Involvement, and Develop a Detailed Work Plan for the System Planning Process

Sound Transit has engaged in an extensive and detailed planning process to develop its new ST2 Plan. This process has involved a review of relevant background information and extensive public involvement leading to the development of the 2008 ST2 Plan.

The Panel received several briefings on Sound Transit's public involvement activities. The public involvement process included developing and widely distributing extensive public information materials, holding numerous public meetings, use of the Sound Transit web site, providing for community outreach, and engaging in extensive intergovernmental relations. In the Panel's July 23, 2008, letter we noted that Sound Transit had conducted seven open houses in May and June, and that the public involvement efforts had solicited an approximate total of 6,000 questionnaires from individuals.

Sound Transit developed and followed a detailed work plan leading to the Sound Transit Board adopting its 2008 ST2 Plan. The detailed work plan dates back to the creation of the Regional Transit Long-Range Plan (an update of the Regional Transit Long-Range Vision adopted in 1996), then the development of the 2007 ST2 Plan with specific project recommendations, and then development of the new and revised 2008 ST2 Plan. The work plans were clear and methodical, and were modified from time to time to account for decisions by the State Legislature or the Sound Transit Board.

The Panel notes that funding for the 2008 ST2 Plan includes a continuation of the full rate of the general sales and use taxes authorized for Sound Move and the imposition of additional general sales and use taxes to finance ST2 projects. Materials prepared for the 2008 ST2 Plan clearly describe this funding package. This is consistent with the Sound Move Ten-Year Regional Transit System Plan, which stated that: "*Any second phase capital program which continues local taxes for financing will require voter approval within the RTA District. If voters decide not to extend the system, the RTA will roll back the tax rate to a level sufficient to pay off the outstanding bonds and operate and maintain the investments made as part of*

*Sound Move.*" The clear description of this funding package for the 2008 ST2 Plan is an improvement over the description of the 2007 ST2 Plan.

**Conclusion: Sound Transit has met its organization and management requirements.**

## II. DEVELOPMENT OF OPTIONS

RCW 81.104.100(2)(b) provides that high-capacity transportation system planning shall include a study of options to ensure that an appropriate range of technologies and services are evaluated. The law requires the study of a do-nothing option and a low capital cost option maximizing the current transit system, along with higher capital options that consider use of other technologies.

The Panel's letter of September 12, 2007, described the multi-step process used by Sound Transit to develop the 2007 ST2 Plan. We concluded that Sound Transit had met the requirements of state law by evaluating an appropriate range of technologies and services, including do-nothing and low-cost options.

After the defeat of the combined ballot proposition in 2007, Sound Transit evaluated several alternatives: (a) not going back to the ballot in 2008 (a do-nothing option); (b) a shorter, 12-year plan with a 0.4 percent sales tax increase (a lower capital cost option); (c) a shorter 12-year plan with a 0.5 percent sales tax increase; and (d) a 15-year plan with a 0.5 percent sales tax increase. The projects included in the 2008 review were either identical to those included in the 2007 ST2 Plan, or had been identified in the 2006/07 planning process.

Sound Transit chose to adopt a 2008 ST2 plan with finances involving the continuation of the Sound Move taxes and the imposition of additional sales and use taxes, and providing an expanded array of express bus service, commuter rail service, and light rail service over a 15-year period.

**Conclusion: Sound Transit has met its requirements for development of options.**

## III. ANALYSIS METHODS

RCW 81.104.100(2)(c) requires a transit agency to develop reports describing the analysis and assumptions used for estimating capital costs, and operating and maintenance costs, developing methods for travel forecasting, preparing a financial plan, and developing an evaluation methodology.

The Panel conducted extensive review of the methodologies used by Sound Transit to develop the 2007 ST2 Plan. The Panel's letter of September 12, 2007, included detailed comments on the methodologies for capital cost estimating, operation and maintenance cost estimating, ridership forecasts, preparation of a finance plan, benefit cost analysis, and project evaluation. Each of these methodologies, with the exception of the finance plan, was unchanged for the preparation of the 2008 ST2 Plan. Therefore, the following provides comments only on the changes in methodology for the finance plan, an analysis of greenhouse gas emissions for the new and revised ST2 Plan that was not conducted in 2007, and comments on third party agreements that could affect cost estimates.

## A. Estimating Capital Costs

As mentioned above, the methodology for the 2008 ST2 Plan did not change. The Panel noted in its September 12, 2007, letter that "*in general, the methodology is sound and consistent with industry standards.*" In 2008 the Panel continued to monitor the impact of third party agreements on capital costs.

***Third Party Agreements* –** For the past four years the Panel has stressed in numerous letters the importance of reaching agreement with local jurisdictions and partner agencies regarding the scopes and budgets for projects included in any ST2 package. Sound Transit responded to these suggestions by creating letters of agreement with most of the jurisdictions where the 2007 ST2 projects would have been located. These letters of agreement are applicable to the 2008 ST2 package because most of the projects remained the same. In this most recent planning phase, Sound Transit successfully completed a memorandum of understanding with BNSF Railway regarding the use of rail tracks for additional Sounder service between Seattle and Tacoma. This was an important accomplishment and provides much greater certainty regarding proposed Sounder service.

However, there remains one project where Sound Transit has not yet reached agreement with a local jurisdiction. In our April 23, 2008 letter, the Panel commented on the fact that the City of Bellevue sent Sound Transit a letter in March stating that ""*…it is essential to Bellevue that the [Sound Transit] Board assume a funding level adequate to support all of the potential options for light rail…including the tunnel option in downtown Bellevue*." Bellevue officials have asked that all alternative alignments remain under consideration in the East Corridor environmental impact statement (currently underway), including a light rail tunnel through downtown Bellevue. The Panel has noted that the proposed 2008 ST2 East Link budget is based upon the cost of an aerial alignment. There is a $500 million gap in funding if a tunnel is determined to be the preferred alternative.

The Panel's letter of July 23, 2008, stated: "*Until agreement with Bellevue is achieved regarding the project scope and a funding plan, there will be uncertainty about the final project cost and schedule. We strongly recommend closure on this issue (i.e., agreement on a potential funding plan, should the tunnel option be selected in the Environmental Impact Statement [EIS] process as the preferred alignment).*"

The Panel was told at our October 2008 meeting that discussions with the City of Bellevue have been ongoing. We continue to encourage the Sound Transit Board to attempt to reach a written agreement with Bellevue officials regarding a funding plan should the tunnel option be selected through the EIS process. The agreement would confirm that both parties understand that if the tunnel is selected as the preferred alternative, then financing will require the collaboration and aggressive pursuit of new funding sources for the Bellevue segment, beyond the sources already included in the 2008 ST2 updated Finance Plan.

The Panel also notes that preliminary discussions between Sound Transit and WSDOT are underway regarding the acquisition of an airspace lease in the I-90 corridor. Construction of the East Link light rail project across the I-90 Bridge will require Sound Transit to acquire an airspace lease from the State of Washington, through WSDOT. The Panel understands that the discussions regarding the terms of that lease are beginning to create a preliminary framework for establishing a value for the lease. At this early stage of discussions the framework has identified a potential wide range for that value. Ultimately, the negotiations on that airspace value will likely involve both appointed and elected officials from both Sound Transit and the State. Sound Transit has identified several alternatives for funding the cost of the lease. To the extent the agreed upon value is at the lower end of the preliminary range, it would have little or no impact on the proposed East Link budget. To the extent the agreed upon value were to be at the higher end of the range a funding strategy could be required to incorporate the cost of the lease in the ST2 budget. This issue has been noted in the I-90 East Link Draft EIS.

## B. Financial Plan

Several important changes were made to the 2008 ST2 Financial Plan. In the Panel's April 23, 2008 letter, we made the following comments: "*[I]t is Sound Transit's intent to create a financial model that will separate Sound Move revenues and expenses from the ST2 program. We were also told…that the new financial plan will have a greater emphasis on year of expenditure (YOE) cost estimates to create a clearer explanation of the costs associated with the program. Panel members were pleased to hear both recommendations…and believe that those changes …will create greater clarity and transparency regarding any proposal submitted to the voters.*"

At the October 2008 meeting, the Panel was briefed on the 2008 Final Financial Plan (the "Final Plan"). The Final Plan, adopted by the Board, was based on the 15-year 0.5 percent Sales Tax Scenario presented to the Panel in mid-July 2008, and modified based on the Sound Transit Board's final decisions on July 24. The Sound Transit CFO reported that, as compared to the Draft Financial Plan, the Final Plan made no changes to the forecasts of revenue or inflation, nor to the financing assumptions or any other financial assumptions. The Final Plan included self-described small programmatic changes, the most notable being the decision to implement additional bus service in the first year of the plan, discussed elsewhere in this letter.

Despite the minor changes in the Final Plan assumptions, there are a number of important topics that came up in the Panel's discussions. These include the potential impact of the current economic contraction, the ongoing debate in the public dialogue about the total program cost, and the cost per household estimates. We address these in the section that follows.

***Forecasts and Economic Considerations* –** Since the July 2008 Panel meeting, the global economy has continued to suffer from fiscal shocks, unprecedented in their scope, magnitude and impact. The Washington state economy has also begun to show weakness, evidenced by the largely negative forecast released in September 2008 by the Washington State Economic and Revenue Forecast Council. Sound Transit has elected not to update its forecasts of sales and motor vehicle excise tax revenues from its independent consultant, Conway Pederson Economics, Inc., although the agency believes that the forecast might be aggressive in the near-term. The 2008 ST2 Plan continues to assume average annual growth rates through 2023 of 4.76 percent for sales and use taxes and 4.55 percent for motor vehicle excise taxes (MVET).

The Panel agrees with the agency's decision not to revise its forecasts just prior to the November 2008 election, as all the materials being presented are predicated on the June 2008 forecasts and changing this now would be, at best, confusing to voters. In addition, the forecasts are appropriately based on a 15-year horizon, not the peaks and valleys of any one- or two-year period. However, as we have pointed out in previous letters, in the event that any of the risk factors identified during the sensitivity analyses, which include lower than expected revenues, should vary markedly from the forecast, the agency would likely need to modify its plan to meet all its obligations. Actions to do this might include increasing revenues, greater borrowing and/or extending the build-out of projects.

With this in mind, the Panel asked for clarification on how the agency would identify and manage its risks. We believe it is critical to have a clear system for monitoring changes in key financial factors, as well as an institutionalized process for making management decisions with respect to those changes. The Panel was informed that Sound Transit tracks revenues monthly and reports results to a quarterly committee convened for the purpose of discussing financial topics. In addition, capital costs are updated on a semi-annual basis, although there are project control processes in place, and project managers oversee and provide early warning to management if projects present financial risks. The Sound Transit Board meets twice a month, at which time critical information that arises from the quarterly committee meetings and/or the semi-annual capital cost review can be discussed. Finally, the Federal Transit Administration (FTA) maintains a quarterly oversight of the agency. The Panel suggests that particularly during times of significant economic uncertainty, the Board be updated monthly with respect to both revenues and expenditures (especially capital project costs). We further suggest that a Board-level policy for monitoring, reporting and recommending action be developed and presented to the Board to institutionalize the process. Early warnings and early actions are critical elements for managing the type and magnitude of the risks faced by Sound Transit.

***Sensitivity Analyses –*** As we mentioned in our July 2008 letter, Sound Transit staff have completed sensitivity analyses on a number of variables to identify potential risk factors for the Financial Plan. We have previously commented that these analyses are important tools that reveal the degree of risk associated with the Financial Plan's key assumptions.

In earlier letters we noted that we had asked staff to test the risks associated with higher than predicted operating and maintenance (O&M) costs. The impetus for this request was partly in the ongoing dialogue between the agency and the Citizen Oversight Panel (COP). Sound Transit staff have told the Panel that the forecast growth of 5 percent per year is in line with its long-term historic "fully loaded" cost of growth for bus service (including the cost of service and administrative overhead costs associated with that service), which it calculates as an average of 4.7 percent annually since 1999. However, the COP has stated that the fully loaded average annual rate of increase in the past three years has been nearly 7.9 percent. (Sound Transit states that the fully loaded growth rate from 2005 – 2007 is 7.1 percent after adjusting for the growth in service hours.)

To complete the sensitivity analysis for O&M costs, Sound Transit staff added an additional 1 percent per year for all modes, through 2023, to the financial model's forecasted O&M

inflation rate of 5 percent per year. (This increase brings the growth factor to 6 percent per year, nearly 2 percentage points below the past three-year annual rate of increase.) The sensitivity results reveal that between 2009 and 2023, total O&M costs increase by $409 million (7%). Bonds issued increase by $465 million (6%). The minimum debt service coverage ratio decreases to 1.37x times. The sensitivity analysis on this one factor suggests that increased O&M expenses of 6 percent per year would not have a material effect on the agency's debt service coverage ratios.

While this additional scenario provides useful information, the Panel remains concerned about the impact on the Financial Plan should the recent annual increases in express bus O&M expenses continue. As a result, the Panel would suggest that Sound Transit staff conduct additional sensitivity analysis using a higher rate of inflation for O&M costs. Given the additional 100,000 hours of bus service being proposed in the first years of the Plan, additional analysis is relevant today, since new bus service has historically caused spikes in operating costs. Further sensitivity analysis on this topic would help the Board understand and manage the risks associated with this issue.

The Panel was informed that, in the course of developing the Final Plan, the agency's financial model was used to test Sound Transit's capacity to withstand the implementation of frontloading all additional bus service at the start of the plan period. The model revealed a small (0.4%) change in total program costs, which includes both capital and operating costs through 2023. We believe the small changes in total costs and annual debt service coverage are minimal and should not materially impact the agency's ability to execute the 2008 ST2 Plan.

***Capital Cost Inflation Assumptions* –** Sound Transit also uses independent forecasts to calculate inflation of capital costs. Sound Transit uses the Building Cost Index (BCI) to forecast capital construction costs, the Right-of-Way Index (ROWI) to forecast right-of-way expenses, and the Consumer Price Index (CPI) to forecast capital costs other than construction and right-of-way. A new CPI forecast was received as part of the updated Conway forecast. The new Finance Plan assumes an average annual growth rate from 2009 to 2023 of 3.3 percent. This includes an additional 1.75 percent contingency applied by Sound Transit for 2008 and 2009. Sound Transit received updated preliminary forecasts for BCI and ROWI in July 2008, which were incorporated in the Final Plans. The BCI average annual cost inflation from 2009 to 2023 is projected to be 3.6 percent. Average annual cost inflation for Right-of-Way is 4.65 percent (2009-2023). These forecasts are reasonable for the ST2 Finance Plan.

***Capital Cost Discussion* –** Over the course of the past year, there has been repeated discussion at the Panel meetings with respect to the size of the 2008 ST2 Plan. As previously reported, the Panel was told that the post-election polling and surveys suggested that the public was confused about the size of the package on the November 2007 ballot. At the Panel's July 2008 meeting, staff asked for input from the Panel on how to clarify the capital costs. Recent media coverage of the public debate about the total cost of the Final Plan has highlighted some of the confusion, as materials being circulated have blurred the line between capital costs, debt service expense, and operating costs.

The Panel notes that most transit agencies across the country identify the total cost of their capital programs as those activities related to planning, design, acquisition, and construction of the various system elements. As previously noted, the presentation of total capital cost figures as either base year or year of expenditure is consistent with the standard practice used throughout the nation, as well as with requirements of the FTA for the provision of federal funding for transit projects.

We found a handful of transit agencies[1] that include capital costs, bond financing costs and operating costs in their proposed funding plans. These agencies, like Sound Transit, select an appropriate time period over which to estimate the total costs and then clearly identify the amounts to be collected over the period. Consistent with that practice, the Panel believes it is important for voters to understand that the sales tax being proposed will be used for three basic purposes:

1. Capital Expenditures – The proposed total project costs, between 2009 and 2023, are $13.418 billion in year-of-expenditure dollars. Capital expenditures include activities related to planning, design, acquisition, and construction of the various system elements for Sounder Commuter Rail, ST Express Bus, and Link Light Rail. Total capital is the amount being proposed by Sound Transit to complete the ST2 Plan.

   There are no additional capital expenditures proposed for ST2 after 2023. No portion of the sales tax is expected to continue to be imposed after 2023 for capital expenditures, other than for mid-life maintenance and capital replacement.

2. Operations and Maintenance (O&M) Expenditures – The proposed O&M expenditures, between 2009 and 2023, are $1.871 billion in year-of expenditure costs. O&M costs refer to activities related to operating and maintaining the system.

   There will be additional O&M expenditures incurred following 2023 to pay for the costs to operate and maintain the system, and capital replacement. As described below, after 2038 the revenues to operate and maintain the system are expected to come from the collection of the Sound Move 0.4 percent sales tax measure (or from other revenue sources that may be available in the future), not from the additional 2008 ST2 revenues. Both the O&M expenditures and the collection of sales tax revenues to pay for those expenditures will continue for as long as the system operates.

3. Debt Service Expense – The proposed total debt service, between 2009 and 2023, is $1.835 billion. Debt service refers to the costs associated with repayment of the bonds issued to fund capital expenditures.

   There will be additional debt service expenses incurred following 2023, and will continue for as long as the bonds are outstanding. A portion of the sales tax will continue to be imposed after 2023 for this purpose. The additional amount of sales tax to be collected from the region depends upon how quickly bonds are repaid. The Sound Transit model currently assumes that debt repayment is accelerated,

[1] Sonoma-Marin Area Rail Transit District (July 2008 SMART Funding Plan); Metropolitan Transit Authority, Houston, TX (Fiscal Year 2008 Business Plan & Budgets); Contra Costa Transportation Authority (Measure J Sales Tax Expenditure Plan).

and all bonds are retired by 2036. An additional $6.5 billion in sales taxes will be collected for interest on outstanding bonds through 2036.

Sound Transit has provided the public with information about these three uses of funds. Their use of the $17.8 billion figure to describe the capital project costs, operating costs, and debt service costs of the program from 2009 – 2023 is appropriate. (Note: This figure includes a $700 million contribution to reserves in addition to the capital, O&M and debt service expenses described above.)

***Tax Rollback*** **–** Sound Transit has adopted a policy to roll back the sales tax rate to 0.4 percent following completion of the 2008 ST2 capital projects and repayment of the 2008 ST2 debt. Receipts from this reduced rate of sales tax would be used only to finance: (a) operations and maintenance; (b) fare integration; (c) capital replacement; and (d) ongoing systemwide costs and reserves. The additional amount of sales tax to be collected from the region depends upon how long the system operates.

In July 2008, the Panel suggested that Sound Transit add language to explain how the rollback provision would work in order to add a greater degree of transparency and clarity for voters. *The Mass Transit Guide: The Sound Transit 2 Plan* (the “Mass Transit Guide”) identifies the rollback and states that: “*The Sound Transit 2 Finance Plan estimated that by 2038 the tax increase approved by the voters in 2008 will not be needed and will no longer be collected.”* This is a good first step, but we also suggest that any additional materials, or information on the Sound Transit web site, if any, go beyond this statement and clarify that the previous sales tax approved for Sound Move is expected to remain in place and be collected for as long as the system operates (or until other revenue sources replace it).

The Panel notes that the current Sound Transit financial model assumes an ending fund balance in excess of $6 billion in the year 2040. This balance is a result of the subarea equity principal, which requires each subarea to pay off its share of outstanding bonds in 2036. As a result, the model assumes the subareas with lower levels of outstanding bonds build up substantial positive cash balances waiting for the most heavily bonded subareas to retire their share of outstanding bonds. If a decision is made to not proceed with a third phase of capital development the Board would need to make a policy determination on whether to allow these balances to accumulate or to retire the outstanding debt earlier.

***Cost per Household Discussion*** **–** The Panel notes that there appears to have been some additional public discussion regarding the cost per household of the ST2 Plan. In its March 2007 letter, the Panel commented on the estimates of the cost per household. At that time, the Panel reviewed the detailed calculations and sources of data used by Sound Transit to develop their cost per household estimate and concluded that Sound Transit’s calculations are reasonable. We noted then, and repeat here, that Sound Transit has been clear that the agency is referring to “new” costs only. The $125 estimate of annual per household costs in the ST2 Plan does not include previous obligations (the original taxes imposed for Sound Move).

***Debt/Equity Ratios*** **–** In our July 23, 2008, letter the Panel noted that Sound Transit had conducted an analysis of a debt/equity ratio (as required by State law, RCW 81.104.130). The letter stated: “*[T]he current plan assumes a borrowing ratio of 49%. This is a reasonable level.”*

## C. Evaluation Methodologies – Greenhouse Gas Emissions Analysis

Sound Transit conducted an analysis of potential impact of the 2008 ST2 Plan on greenhouse gas emissions. This analysis was not conducted for the 2007 ST2 Plan, and it is not a requirement of State law. However, the Panel reviewed the analysis and provides the following comments.

The Panel feels that Sound Transit should be commended for conducting a greenhouse gas (GHG) analysis. It is not common practice but addresses the keen interest in the environmental impacts of transit. However, there are several factors that make it difficult to provide a thorough assessment of GHG impacts.

One factor tends to underestimate the level of greenhouse gas emissions that will result from the 2008 ST2 Plan. Because final design is not yet complete, the GHG analysis cannot be complete. A thorough analysis would consider the GHG effects of construction as well as the long-term implications of using transit rather than private vehicles. Construction materials and techniques are not yet known. The analysis thus understates total GHG emissions that will result from the construction of ST2.

Conversely, a second factor tends to overestimate future GHG emissions. The Panel feels that the federal restrictions on the inclusion of future changes in land use and modifications in travel behavior preclude a complete assessment of GHG reductions in the future. Using an extrapolation of current, unchanged travel behavior into the future does not yield major reductions in vehicle miles driven by household vehicles. It is realistic to expect higher concentrations of urban activity near future rail transit stops than found currently at these sites.

In this regard, the GHG analysis again highlights the modest decreases in vehicle miles driven. We originally noticed this in examining the ridership forecasts. This modest decrease in vehicle miles traveled (VMT) may be a concern. As more mixed land-use developments are completed near rail stops and as energy supplies outpace demand, the Panel anticipates greater per capita reductions in VMT. This would decrease the GHG emissions beyond the levels described in the analysis. We have already seen significant reductions in VMT in recent months as transit ridership has increased. We are already well ahead of the projected pace of declines in VMT.

The GHG report also identified measures that may be taken to stimulate increased ridership and the general benefits that may be attributed to rail transit. Many of the measures are realistic and benefits would accrue to the region. Conversely, many are also either difficult to achieve or may not be practical in the Seattle market. It is important to read the report with this general caveat in mind. On balance, the additional beneficial impacts of: 1) land use change related to high capacity transit stations, and 2) additional measure that would allow less driving and more transit use and walking, would very likely outweigh any unanalyzed construction impacts.

## F. Benefit-Cost Analysis

In compliance with PSRC requirements, Sound Transit conducted a benefit-cost (B/C) analysis for several possible 2008 ST2 scenarios: (a) a 12-year 0.4 percent sales and use tax option; (b) a 12-year 0.5 percent sales and use tax option; and (c) a 15-year 0.5 percent sales and use tax option. The analysis for these options was also compared with the 20-year 0.5 percent sales and use tax option completed as part of the preparation of the 2007 ST2 Plan. For each of the three 2008 scenarios, as well as the 2007 Plan, benefits exceeded the costs by a factor greater than two (i.e., the benefits were twice the costs).

In the Panel's September 12, 2007, letter we commented extensively on the methodology used by Sound Transit to conduct the benefit cost analysis. We cited some of the limitations in conducting a benefit cost analysis, and concluded: "*[W]e believe that it is prudent for Sound Transit not to use the results of the benefit cost analysis as 'the' measure of return on investment, but rather as a best estimate of a plausible outcome. Are the benefits of transit investment greater than the costs? We believe that the analysis undertaken by Sound Transit supports a 'yes' answer to this question. But the…benefit cost ratio should be considered an estimate and not as a guaranteed return on public investment in the proposed transit improvements*." This remains our view of the benefit-cost analysis conducted for the 2008 ST2 Plan.

**Conclusion: Sound Transit has met its requirements for development of methodologies, detailing assumptions and methods used for ST2 plan development.**

## IV. REQUIRED ELEMENTS OF A SYSTEM PLAN

RCW 81.104.100 requires that any high-capacity transportation plan submitted to the voters must address various requirements. On July 24, 2008, the Sound Transit Board adopted its 2008 ST2 Final Plan and its appendices, "Sound Transit 2; A Mass Transit Guide; The Regional Transit System Plan for Central Puget Sound," which provides information about each of these requirements.

### A. Level and Types of High-Capacity Transportation Services to Be Provided

The 2008 ST2 Plan and appendices, and the ST2 Financial Plan, describe the types and levels of high-capacity transit services that will be provided. These descriptions are clear and consistent with the Panel's review of the materials.

***Express Bus Service* –** When the Sound Transit Board took action on July 24, 2008, to approve the 2008 ST2 Plan and place it on the November ballot, the Board adopted a number of amendments to the plan. One of those amendments calls for all of the new express bus service provided in the ST2 plan, 100,000 annual platform hours, to be provided "beginning in 2009."

The level of additional express bus service is described in several appendices. In Appendix A it is defined for the entire system as "approximately 100,000 additional on-going annual service hours beginning in 2009." Appendix A also provides the estimated hours of new bus service for each subarea (29,000 hours for Snohomish County; 49,000 hours for East King County; 7,000 hours for South King County; and 15,000 hours for Pierce County). Appendix D defines anticipated service levels as "all-day bus service on major corridors between centers, with half-hour headways or better, from about 6:00 in the morning or earlier until about 10:00 at night."

Prior to the adoption of this amendment, the draft 2008 ST2 Plan had stated that new express bus service would be added "in stages as additional buses and maintenance facility capacity becomes available." The draft plan also stated that: "[M]any of the [express bus] service expansions are contingent on purchasing more buses and expanding maintenance and operating facilities…."

At our October 10 meeting, Panel members asked Sound Transit staff about their ability to resolve the issues regarding maintenance facility capacity and acquisition of the 60 additional buses needed to provide 100,000 hours of new service beginning in 2009. Sound Transit is utilizing two strategies to acquire new buses: (a) securing options from existing bus procurement contracts with both their local transit partners and other transit agencies across the country; and (b) conducting direct procurement processes. Utilization of existing procurement contracts with partner agencies enables Sound Transit to move more rapidly to acquire new buses. However, it does raise questions about whether Sound Transit will be able to achieve the precise specifications they would expect from their own procurement process. Staff said they expect to acquire 25 to 30 new buses in 2009, and secure the remainder (30 to 35) in 2010.

With regard to maintenance base capacity, Sound Transit's Draft ST Express Regional Bus Service Plan states that transit operators in the Sound Transit service area are "out of maintenance base capacity." The draft plan goes on to state that "Sound Transit is discussing interim maintenance facility improvements with King County Metro and Community Transit to support additional ST Express service in 2009." The draft plan concludes by stating that Sound Transit "will immediately begin the process to site, design and build new permanent maintenance facilities following voter approval of the ST2 proposition." The expenditure schedule for the 2008 ST2 Financial Plan suggests that construction on the maintenance facilities will be completed by 2014.

The Panel notes that no costs to secure interim express bus maintenance and storage facilities were included in the final 2008 ST2 Finance Plan. Sound Transit staff have said they do not expect the costs of interim facilities to be significant, but if those costs are considerable, they could have an impact on the availability of funds to build permanent maintenance facilities, or the completion schedules for other projects.

The Panel believes that Sound Transit staff are working diligently to find solutions that will enable 100,000 new hours of express bus service to begin as soon after passage of ST2 as possible. But as of this writing, it seems clear that not all of the new service can be added in 2009. Sound Transit's intent is to provide the new service hours no later than 2010. However, resolution of the two key issues (maintenance base capacity and acquisition of new buses) must be achieved before all the new hours can be put in service. The Panel encourages the Sound Transit Board to monitor closely the development of the 2009 Service Implementation Plan. Decisions made through that planning process will determine the speed with which all the proposed new bus service can be implemented.

***Sounder Commuter Rail* –** The level of service for Sounder commuter trains is described in the Mass Transit Guide, and in Appendix D. The current level of service is described in

Appendix D as: "By the end of 2008, Sounder commuter rail will operate eight daily round trips between Tacoma and Seattle and four daily round trips between Seattle and Everett. Eventually, trains will operate approximately every half hour during the morning and afternoon weekday peaks." The 2008 ST2 plan states that "four round trips will be added to the [Tacoma-Seattle] service." The Panel notes that the schedule for enhanced service on the Sounder line has not been established in the Plan.

***Light Rail* –** The level of service provided by proposed light rail is defined in several ways in the 2008 ST2 Plan, in Appendices A, C and D, and the 2008 ST2 Financial Plan. The 2008 ST2 Plan will fund approximately 34 miles of new light rail. The plan states that light rail will operate "up to 20 hours a day and every few minutes during peak commuting periods." Appendix C describes projected travel times between various light rail stations, as compared to current travel times. Appendix C provides a summary of anticipated daily and annual ridership in 2030, compared to existing ridership, for Sound Transit's entire regional transit system. As we pointed out last year, anticipated light rail headways for 2009 (when the Central Link segment begins service) are described in Appendix D, but the anticipated headways for the 2008 ST2 light rail projects are not provided.

## B. A Plan for High-Occupancy Vehicle Lanes To Be Constructed

As we noted with the 2007 ST2 Plan, no provisions are made for additional high occupancy vehicle (HOV) access projects as part of the 2008 ST2 Plan. However, the 2008 ST 2 Plan does provide for the potential expansion of HOV-related projects in the Snohomish County region if sufficient additional funding and cost savings are identified.

## C. Identification of Route Alignments and Station Locations with Sufficient Specificity To Permit Calculation of Costs, Ridership, and System Impacts

The 2008 ST2 Plan provides maps and descriptions of planned routes and station locations. The Panel believes the project descriptions provide sufficient specificity to prepare credible cost, ridership and system impact analysis.

However, the 2008 ST2 Plan, like the 2007 version, identifies locations for light rail alignments and station locations that are "representative," since selection of final locations will require further EIS analysis, and additional engineering and design work. As we noted in our September 12, 2007, letter: "*This obviously represents some risk for the ultimate cost of the projects, however, the relatively high level of contingency factored into the budgets is designed to address that risk.*"

The Panel also notes that one portion of the light rail expansion, the extension of the Tacoma Link, identifies two separate extension possibilities—north to Tacoma General Hospital or east to Fife. The 2008 ST2 Plan states that Sound Transit funds will be in the form of a "capital contribution" (implying a fixed level of funding), and that the project is dependent upon matching contributions from public or private entities.

## D. Performance Characteristics of Technologies

Appendix D provides descriptions of performance characteristics for express bus service, commuter rail and light rail. The Panel's comments were provided above in response to the description of modal service levels and the assumptions regarding the performance of each mode included in the 2008 ST2 Plan. The Panel reviewed the assumed performance characteristics of the modes that were examined in the Sound Transit analysis and found that they were appropriately defined and applied in the analysis.

## E. Patronage Forecasts

The 2008 ST2 Plan provides ridership estimates for the system as a whole, and for the three basic service types (express bus, commuter rail and light rail) by the year 2030 (see Appendix C). The plan does not provide ridership or use projections for individual ST2 projects. However, as we noted in 2007, the Panel reviewed the more detailed descriptions for each 2007 ST2 project, and found that reasonable ridership estimates were included in those documents. The ridership estimates for the 2008 ST2 Plan are also reasonable.

## F. Financing Plan

State law requires the financing plan to describe the following: the phasing of investments; capital and operating costs; expected revenues; cost effectiveness represented by a total cost per system rider and new rider estimates; estimated ridership and the cost of service for each individual high-capacity line; identification of the operating revenue to operating expense ratio; and specifically differentiating the proposed use of funds between high-capacity transportation facilities and services, and high occupancy vehicle facilities. This letter has already provided the Panel's detailed comments on the 2008 ST2 Financial Plan and addressed some of the issues described above. The following provides additional comments on the topics not covered previously.

***Phasing of Investments*** – The Mass Transit Guide provides a phased schedule for the proposed projects. As mentioned earlier, Appendix A states that 100,000 annual hours of new express bus service will begin in 2009. The Panel notes that the Mass Transit Guide document states that: "Sound Transit will put new service on the street as quick as possible."

Sounder station access improvements will be completed in Tukwila, Auburn, Sumner and Puyallup by 2015. Station access improvements in Mukilteo, Edmonds, Kent, Tacoma, South Tacoma and Lakewood will be complete by 2023. The dates for implementation of new Sounder service are not described in the ST2 Plan. However, in the Memorandum of Understanding between Sound Transit and BNSF Railroad (presented to the Board on July 24, 2008), new Sounder service would be phased in "no sooner than" between 2011 and 2015.

With respect to the light rail projects, the Tacoma Link extension would be the first to begin operation, in 2015. Sound Transit anticipates implementing new light rail service to Northgate, downtown Bellevue, and the vicinity of Highline College by 2020. Service to the Overlake Transit Center is scheduled to begin in 2021, with service to Lynnwood and Redondo/Star Lake expected to begin in 2023. The First Hill streetcar connector service will be open in 2016. In addition to the descriptions provided in the 2008 ST2 Plan and Appendices, the Financial Plan includes a 15-Year Program Expenditure Schedule that provides anticipated annual expenditures between 2009 and 2023.

In general, the Panel believes this phasing plan is reasonable. However, in our July 23, 2008, letter, the Panel expressed concern about Sound Transit's ability to meet current proposed schedules in light of the anticipated peak periods of construction. As we reported in that July letter, Panel members requested and received program expenditures for each line of business for 2004 to 2007. The peak total annual program expenditure for the Link, Sounder and Express Bus programs occurred in 2007, with total expenditures that year at $697 million.

The Panel reviewed the anticipated expenditure schedules for the 15-year, 0.5 percent plan in the final ST2 Finance Plan. The highest annual total construction cost (Link, Sounder and Express Bus) is $1,143 million (2007 dollars) in 2017.

Therefore, the highest annual total construction in the 2008 ST2 Plan is $446 million more than that of actual 2007 annual total expenditures. Even with the assistance of excellent consultant and contractor support, it could be challenging to achieve this schedule of expenditures.

In addition to the expenditure schedules, Panel members have had an opportunity to review Sound Transit's first draft proposed construction schedules for the 15-year, 0.5 percent plan. The Panel also reviewed the more detailed ST2 Program Schedules for the East Link and North Link (to Northgate) light rail projects. The project schedules for these two projects are more refined than for other ST2 light rail projects because EIS work is further along in these two corridors. The schedules include phasing for planning, environmental studies, preliminary engineering, final design, right-of-way acquisition and construction.

In reviewing these schedules, the Panel believes that the schedules are achievable, but aggressive in several areas. For example, final design of the light rail segment from downtown Seattle to Overlake Transit Center is scheduled to take 30 months. With all of the bridge structures required for design, the schedule appears to be challenging, although not outside Sound Transit's current experience with light rail projects on the Initial Segment and University Link. In addition, if the alignment through the City of Bellevue is determined to be a tunnel, the design schedule could lengthen. Staff estimate that a tunnel alignment would add a year to the schedule, assuming the issues regarding the need for additional funding can be resolved expeditiously.

In conclusion, the Panel believes it will be a challenge, but doable with proper planning, for Sound Transit to meet their 15-year construction schedule. Reviewing the schedule of the three Link extensions, each one of the project activities (planning, environmental studies, preliminary engineering, final design and right-of-way acquisition) are aggressive. The Panel encourages Sound Transit to make sure that the schedules allow sufficient time for federal, state and local reviews.

The Panel suggests that Sound Transit staff carefully review their 15-year Program Schedule and Expenditure Plan in a peer review with several other Transit Agencies, such as Tri-Met in Portland, and the Regional Transportation District in Denver.

***Cost Effectiveness Represented by a Total Cost Per System Rider and New Rider Estimates*** – This projection is provided in Appendix C of the 2008 ST2 Plan. The ST2 capital cost per new system rider is estimated at $19.70 per rider in the year 2030. The application of the cost effectiveness methodology was consistent with industry standards. The calculations were appropriate, and reflect what the federal government requires for similar types of cost effectiveness measures for federally supported projects. As noted elsewhere in this letter, the predicted ridership numbers and estimated costs are also considered to be reasonable, and thus the $19.70 per new system rider is a valid estimate for this evaluation criterion.

***Estimated Ridership and the Cost of Service for Each Individual High-Capacity Line* –** Appendix C provides projections for the annual transit ridership volumes in 2030, and the annual system operating costs, for each of the three new segments of light rail proposed in ST2. Based on the Panel's review of the ridership forecasting methodology and the operation and maintenance cost methodology, these estimates are reasonable.

***Identification of the Operating Revenue to Operating Expense Ratio* –** This ratio is often referred to as the farebox recovery ratio. The Panel reviewed this information (in Appendix C), and noted that the recovery ratio for the 2007 ST2 Plan was 37 percent, while the ratio for the proposed 2008 ST2 Plan is projected to be 28 percent. This percentage was changed because the transit operations costs for the 2008 plan are expected to be higher, and the operating revenues are expected to be lower than for the 2007 ST2 Plan. Based on the farebox recovery ratios of other transit systems, the Panel feels that the estimates are reasonable.

## G. Relationship Between High-Capacity Transportation System Plan and Adopted Land Use Plans

At the Panel's October 2008 meeting, we reviewed a letter from Bob Drewel, the Executive Director of the Puget Sound Regional Council (PSRC), stating that the 2008 ST2 Plan is in conformance with Destination 2030, the regional transportation plan, and VISION 2040, the regional long-range growth strategy.

## H. Assessment of Social, Economic, and Environmental Impacts

Sound Transit completed work on a Final Supplemental Environmental Impact Statement (Final SEIS) for the Regional Transit Long-Range Plan in June 2005. The Panel commented on this work in our September 12, 2007, letter. As we noted last year, project level environmental reviews will need to be performed on each project in the ST2 package that is advanced from conceptual definition toward implementation.

The Panel's conclusion about environmental review for the 2008 ST2 Plan is the same as it was for the 2007 ST2 Plan: "*[T]he Panel is satisfied that Sound Transit has fulfilled legislative requirements for assessment of social, economic and environmental impacts adequately to select the projects that comprise ST2.*"

## I. Mobility Characteristics

RCW 81.104.100 requires a high-capacity transportation system plan to address system mobility using a variety of factors. These include: a qualitative description of system/service philosophy and impacts; qualitative system reliability; travel time and number of transfers between selected residential, employment, and activity centers; and system and activity center mode splits.

Sound Transit has provided qualitative descriptions of its system/service philosophy and impacts, and system reliability for the 2008 ST2 proposed projects. The statement of philosophy is included in Appendix D of the 2008 ST2 Plan. The fundamental philosophy of the ST2 Plan has four components:

1. "Provide the Central Puget Sound with a regional network of high-capacity transit services";
2. "Service operating principally on exclusive rights-of-way and providing a substantially higher level of passenger capacity, speed and service frequency than public transit operating on highways and city streets in mixed traffic";
3. "Establish a region-wide transit system that connects regional growth centers, provides seamless connections with local transit and ferries, and supports concentrated development at and around stations"; and
4. "Continue and expand the regional high-capacity network established in Sound Move."

The qualitative description of system reliability is included in Appendix C. The Panel reported on its review of estimated travel times between selected centers in the September 12, 2007, letter: "*[T]he assumptions regarding travel time and speeds for the different mode options (light rail and HOV/BRT) seemed reasonable*."

The projected activity center mode splits are included in Appendix C. The plan compares the current percentage of commute trips via transit at five activity centers across the region, with the percentage of transit trips in 2030.

**Conclusion: Sound Transit has met its requirements for the required elements of a high-capacity transportation system plan, with the note that no HOV improvements are included in ST2.**

# V. OTHER PANEL COMMENTS

**<u>I-90 Bridge</u>**

The Panel has provided numerous comments during the past two years about the proposed construction of light rail on the I-90 Homer Hadley Floating Bridge. We were very pleased with the creation of the Independent Review Team (IRT) earlier this year to focus attention on potential impacts on the bridge from light rail construction and operation. At our July meeting the Panel was briefed on the IRT's preliminary findings. At the October 10 meeting the Panel was briefed by staff from Sound Transit and WSDOT on the IRT's final findings and recommendations.

The Panel was impressed with the IRT's analysis of issues. Both Sound Transit and WSDOT have used the independent team's work to focus their efforts on addressing the key issues requiring resolution, including: design guidelines, bridge life expectancy, stray current mitigation, impact of track installation on the bridge, design of the expansion joints connecting the fixed and floating portions of the bridge, seismic vulnerability, and the effects of wind and wave action. The Panel was pleased to hear from Sound Transit staff that they will implement all of the IRT's recommendations regarding suggested planning, staffing and mitigation measures.

The Panel strongly supports the IRT recommendation to conduct prototype testing of the expansion joints early in the design process. We have been suggesting this for quite some time to insure there are no surprises with constructing light rail on the I-90 Bridge.

With regard to seismic vulnerability, the IRT characterized potential seismic vulnerability of the I-90 approach and transition spans as being of "high importance." (Issues identified as "high" importance "have the potential to have a major installation impact or represent a potential major cost impact to the East Link Project.") Sound Transit has agreed to undertake seismic vulnerability studies in the preliminary engineering phase, and to make decisions about the necessary retrofit during preliminary engineering. In a letter of agreement between WSDOT and Sound Transit, dated July 23, 2008, Sound Transit has committed to funding certain seismic retrofits. The letter states that: "*[S]tructures assumed to be retrofitted include the columns, bridge seats, and restrainers for the light rail portions of the D2 Roadway, Rainier Avenue Overcrossing, Approach Spans to the Floating Bridge, and the East Channel Bridge, utilizing the currently known FHA/AASHTO policies, consistent with WSDOT's own practices for retrofitting existing structures.*" Sound Transit's implementation plan for the IRT recommendations states that retrofit decisions will take into account "*…seismic vulnerability, cost-effectiveness of retrofit approaches, potential disruption to traffic, and funding priorities.*" The Panel notes that the language in the Sound Transit implementation plan is somewhat less definitive than the language in Joni Earl's July 23 letter to Secretary Hammond. The East Link light rail project budget includes $18.5 million for seismic retrofits. This is a reasonable estimate for the budget, and consistent with WSDOT estimates for other seismic retrofit work.

The IRT also identified potential seismic vulnerability of the western tunnel and other structures in the corridor as "medium importance." (Issues identified as "medium" importance "will most likely not have a major impact on installing LRT [light rail transit] on the floating bridge, but should be resolved before preliminary design is complete and final design proceeds.") The Panel was told that WSDOT and Sound Transit will work together on analysis of those structures in the preliminary engineering phase. Once the results of that analysis are complete, there needs to be coordination between Sound Transit and WSDOT on what retrofit work needs to be done, what the costs are, and how any cost will be shared. Given the potential impact on the East Link budget, this work should be accomplished early in the preliminary design phase.

We note that seismic retrofitting of the western tunnel and other structures in the corridor are not included in the East Link ST2 budget. WSDOT and Sound Transit staff told the Panel that State policy with respect to tunnel structures is still being formulated and negotiations would have to occur regarding funding responsibility for seismic retrofit of these structures.

## VI. CONCLUSIONS

As the Chair of the Panel, I would like to thank my fellow Panel members for their insightful analysis and their commitment of time and effort to this volunteer activity. It has been an honor to serve with such a distinguished and thoughtful group of individuals.

Panel members would also like to thank the staffs from Sound Transit and Washington State Department of Transportation for their diligent and thorough work in responding to our questions and requests for information.

If you have any questions about our analysis or findings, we would be happy to have further discussions with you. Thank you for the opportunity to serve on this panel.

Sincerely,

Siim Sööt

Siim Sööt (JH)
Chair

cc: Expert Review Panel Members
Senator Ed Murray
Bob Drewel, Executive Director, Puget Sound Regional Council