Sound Transit Expert Review Panel

September 12, 2007

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Dear Madams and Sirs:

This is the eighth and final letter from the Sound Transit Expert Review Panel (Panel) providing comments on key assumptions and methodologies being used by Sound Transit to prepare recommendations for the second phase of their proposed high capacity transportation system, referred to as the Sound Transit 2 (ST2) plan. The proposed ST2 improvements will be submitted to the voters in November of 2007.

The authority to create the Panel, and the description of its purpose, is described in State law, RCW 81.104.110. This law states that the Panel's role is:

"To assure appropriate system plan assumption and to provide for review of system plan results, an expert review panel shall be appointed to provide independent technical review for development of any system plan which is to be funded in whole or in part by the imposition of any voter-approved local option funding sources enumerated in RCW 81.104.140."

The Panel was created in late 2004 and held its first meeting in February 2005. It has met a total of eight times, including most recently on June 28 and 29, 2007. All meetings were open to the public and were two-day sessions. At each meeting Panel members received briefings from members of the Sound Transit ST2 staff/consultant team, and on occasion from Washington State Department of Transportation staff. Panel members took several tours during their deliberations to see first-hand the progress of construction on the Central Link light rail system currently under construction (as part of Sound Move), and to view potential alignments for bus, rail and light rail improvements considered for ST2. Testimony was received from the general audience at most of the two-day meetings.

Panel members represent a distinguished group of individuals from all regions of the country with a broad range of expertise. Panel members were selected with experience in the following disciplines: capital finance, transit operations and maintenance, project cost estimating, State legal and political architecture, modal analysis, design and constructability, ridership forecasting and environmental review. See the attachment for a brief summary of each Panel member's relevant experience.

RCW 81.104.100 also establishes high capacity transportation planning requirements for agencies like Sound Transit. The Expert Review Panel is directed to "review all reports required" by the system planning section of the law, with particular emphasis on "service modes and concepts, costs, patronage and financing evaluations". In previous letters to you, the Panel commented on planning methodologies used by Sound Transit, how those methodologies were applied to develop Sound Transit's recommended ST2 improvements, and whether Sound Transit was meeting the planning requirements as specified in State law.

This final letter summarizes the Panel's previous comments regarding each of the specific requirements of state law and provides the Panel's final comments from the June meeting. The letter is organized based on those requirements for high capacity transportation system planning.

SUMMARY OF FINDINGS

The Panel conducted review of the methodologies and key assumptions used by Sound Transit to prepare the ST2 ballot measure. The Panel concludes that Sound Transit has carried out an extensive and detailed planning process to develop ST2. This process meets applicable planning requirements described in state law. During meetings and deliberations that stretched over thirty months, the Panel suggested numerous adjustments to Sound Transit's planning methodologies and assumptions, many of which were incorporated into the final ST2 plan. Some of the key findings include:

- The definition of roles of various state and local agencies that will be involved in the implementation of ST2 projects is appropriate for the current stage of project planning. Formal collaborative agreements for all of these multiple agency projects defining the roles of each agency have not been established, since most of the projects are at the planning stage, with less than 5% of the engineering and design work completed.

- The Panel reviewed the Regional Transit Long-Range Plan, adopted by Sound Transit in 2005, and concluded that it provided the foundation for the next phase of work to create recommendations for new regional transit capital investments (ST2).

- The methodologies for estimating capital and operating costs are sound, and consistent with industry standards.

- Ridership projections are reasonable. In many previous forecasts for light rail New Starts projects around the nation, the ridership estimates have chronically been too high. However, this does not appear to be the case for the Sound Transit ridership forecasts.

- The key financial assumptions included in the ST2 Financial Plan are reasonable. The Financial Plan is more accurately characterized as a consolidated plan for the capital programs of both Sound Move and ST2. That is, the plan assumes the continuation of existing Sound Move revenue sources, along with the adoption of new ST2 revenue sources, both of which will be used to fund ST2 projects.

- The evaluation methodology, used by the Sound Transit Board for making decisions about which projects to include in the ST2 package, was appropriate for the types and level of decisions being faced by the transportation decision makers and the public in Puget Sound.

- Sound Transit has adequately fulfilled legislative requirements for assessment of social, economic and environmental impacts to select the projects that comprise ST2.

In addition, the Panel noted several cautions with respect to implementation of the ST2 program:

- Additional work is needed to manage the impacts of the potentially unprecedented level of construction activity in the region if the ST2 and RTID measures are approved. The Panel has expressed concern about the potential impact on the local bidding climate. Although significant ST2 construction activity is not scheduled to occur until approximately 2014, strategies for managing this issue should be developed.

- Considerable effort has been made to reduce the uncertainty of the unique application of light rail on a floating bridge. The Panel saw nothing in the analysis completed to date to suggest that light rail cannot operate well on the floating bridge. However, Sound Transit is encouraged to continue analysis of the light rail operation on the I-90 floating bridge prior to significant expenditures on the rest of the corridor. As the Panel has commented previously, if there would be a major problem with the operation of light rail on the floating bridge (i.e. the operation of the transition joints, weight considerations, or other factors determined as design work progresses) the function of the entire corridor would be affected.

- One of the clear lessons learned from Sound Move was that substantial increases in some projects costs were directly related to requirements resulting from agreements

with other local jurisdictions and institutions. The Panel is pleased to see the level of effort to reach agreement on the project scopes at this early planning stage. Sound Transit is encouraged to continue pushing for more formal adoption of project scopes where possible.

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 – Local governments in the central Puget Sound area created and designated the Puget Sound Regional Council (PSRC) as a regional transportation planning organization (RTPO). Sound Transit is located within the PSRC geographic area. There are various federal, state and local requirements with which plans for high capacity transit improvements, such as ST2, must conform, including consistency with the land use and transportation plans approved by the PSRC. Two PSRC plans apply to Sound Transit – Vision 2020, a regional long-range growth strategy, that was adopted in 1995 and Destination 2030, a regional transportation plan, that was adopted in 2001. In May of 2007 the Puget Sound Regional Council Executive Board unanimously found that the proposed ST2 plan conforms with both Vision 2020 and Destination 2030.

Local Transit Providers – Sound Transit also has contractual relationships with transit agencies in the region (King County Metro, Community Transit in Snohomish County, and Pierce Transit) to provide bus and rail services. These contracts define roles and establish rates of payment for the provision of express bus service, light rail operations, and Sounder rail operations.

Regional Transportation Investment District – Recently enacted legislation requires that a single ballot proposition be submitted to voters in the central Puget Sound area at the November 2007, general election that both: (a) Authorizes Sound Transit's ST2 plan and the taxes necessary to finance this plan; and (b) authorizes the creation of a regional transportation investment district (RTID), approves a regional transportation investment plan for the RTID, and approves the taxes necessary to support this plan. (RCW 36.120.190 and 81.112.030(10).) Sound Transit, and the regional transportation investment district planning committee that developed the RTID proposal, were required to coordinate their efforts to provide for this multi-faceted ballot measure.

Sound Transit has coordinated its efforts with the RTID at both the public official and staff levels. A joint Executive Committee was created to discuss coordination issues between the

two measures, and a staff interagency steering committee met twice a month. Sound Transit and RTID had several joint public meetings throughout the region to present the draft transit and roads packages to the public. Sound Transit staff indicated that they had conversations with the RTID to discuss the potential sequencing of projects and coordination of construction. However, the Panel did not review a detailed schedule describing the project sequencing and timing for both RTID and ST2 projects, which will be essential in coordinating the two programs.

Other Agencies – Specific project plans for some ST2 projects involve multiple agencies defining their respective roles. Formal collaborative agreements for all of these multiple-agency projects which define the roles of each agency have not been established, since most of the projects are at the planning stage, with less than 5% of the engineering and design work completed. However, the Panel believes that the definition of roles for partner organizations is appropriate for the current stage of project planning.

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 ST2 plan. This process has involved a review of relevant background information and extensive public involvement.

Briefings on Sound Transit's public involvement activities were presented at most of the Panel's meetings. A thorough description of the ST2 public involvement process is contained in a document entitled "Sound Transit 2, Compliance with HCT System Planning Requirements, Technical Memorandum on Public Involvement and Outreach", prepared in May 2007 by Parsons Brinckerhoff. 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 March of this year the Panel wrote that it "*has been impressed with the level of commitment Sound Transit has made to provide opportunities for the public to make their views known about the appropriate direction of transit investment in the region.*" The Panel noted that at times the decision-making schedule established by the Board created challenges for the public review process. For example, when Sound Transit reduced the list of potential ST2 projects from approximately 80 to approximately 60 (see below), the schedule for public review and comment was accelerated, with limited time for thorough discussion of the projects being set aside.

Sound Transit developed and followed a detailed work plan leading to the Sound Transit Board adopting its ST2 plan. The detailed work plan involved steps to first develop a Regional Transit Long-Range Plan (an update of the Regional Transit Long-Range Vision adopted in 1996), then the development of the ST2 plan with specific project recommendations. 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 one final point with respect to communication with the public. Later in this letter, the Panel points out that the ST2 funding proposal includes: (a) A continuation of the full rate of the general sales and use taxes that were authorized for Sound Move; (b) the use of some of the Sound Move revenues for ST2 projects, and (c) the imposition of additional, new

general sales and use taxes, which will be applied to ST2 projects. 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 Panel suggests that Sound Transit communicate this in a clear manner to voters during the next several months, so that voter expectations are clear. As of our June 2007 meeting, the Panel had not seen any public communications that illustrated this point.

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. A multi-step process was used to develop options.

First, Sound Transit prepared a Regional Transit Long-Range Plan, analyzing the following alternatives: no action, light rail, streetcar (within the City of Seattle), commuter rail, bus rapid transit (BRT), and monorail. This Long-Range Plan included corridor studies in the north, south and east corridors that evaluated each alternative. Much of the Panel's focus in evaluating the options was centered on the east corridor. After review of the analysis prepared for the Long-Range Plan, the Panel concluded that "*...based on the analysis we have seen, we believe that LRT and the BRT alternatives remain valid alternatives for further study in the I-90/East King County corridor.*" In addition, the Panel concluded that "*The Regional Long-Range Plan provides the foundation for the next phase of work to create recommendations for new regional transit capital investments (ST2)...In general, the various corridor studies conducted by Sound Transit provide the Board, and the broader community, with a good foundation for considering transit options in the three-county region.*

Once the Long-Range Plan was adopted, the Sound Transit Board narrowed its choice of technologies to light rail, BRT/convertible to light rail, commuter rail, streetcar, and express bus service, and work began on developing a package of capital improvements for ST2. An initial list of more than 500 potential candidate ST2 projects was taken from the Long-Range Plan, and then reduced to approximately 80 potential projects. After further analysis that list was reduced to about 60 projects. Sound Transit staff then developed different investment scenarios that combined five technologies (light rail, BRT/convertible to light rail, heavy rail, express bus, and streetcar) in five different alternatives: Do-Nothing, Bus/Sounder Emphasis (Low), Bus/Rail Emphasis (Medium), Fixed Guideway Emphasis (Medium-high), and Fixed Guideway Emphasis (High). The low scenario was described as "low-cost enhancements to the existing system."

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.

A. Estimating Capital Costs

The Panel reviewed Sound Transit's proposed methodology for estimating capital costs at four different meetings. In its first review in October 2005, the Panel concluded that "*in general, the methodology is sound and consistent with industry standards.*" However, the Panel raised two issues: the appropriate level of contingencies and the impact of third party agreements on capital costs.

Contingencies – The Panel initially suggested that the proposed level of contingencies might not be adequate, given that engineering and design for most ST2 projects will be less than 5% completed when the plan is submitted to the voters. The Panel encouraged Sound Transit to consider "*using contingency cost ranges that allow estimates to be adjusted for project complexity and other factors.*" At the Panel's July 2006 meeting, the Panel noted that the contingency methodology had been revised, and that all projects had high and low cost estimates.

Third Party Agreements – The Panel noted that experience in other jurisdictions suggests that for large capital projects involving multiple jurisdictions, agreements with participating agencies that are made at a late stage in the planning process often result in higher than anticipated costs. In addition, the Panel examined Sound Transit's experience in estimating costs for Sound Move projects in order to better understand the lessons that were learned and can be applied to planning for ST2 projects. This examination revealed that one of the major contributing factors to higher than anticipated costs for Sound Move projects is that after voter approval of Sound Move the negotiations with third party governments and other public and private entities resulted in changes to project scopes and subsequent increases in project costs. In December of 2005, the Panel encouraged Sound Transit at an early stage of planning to "*secure more formal adoption of the project scopes by jurisdictions and major institutions to better manage unanticipated third party costs.*" Again in March 2006, we suggested *that "Sound Transit's goal should be to make the third party agreements at this early stage of planning as formal as possible. For example, to secure approval of planning scopes..."*

At the Panel's July 2006 meeting, Sound Transit staff reported that they were working with every local jurisdiction within the Sound Transit Service area where an ST2 project would be located, to create an initial letter of understanding regarding the scope and definition of all ST2 projects. The letters were not legally binding agreements, but they spell out expectations regarding what will be included, and not included, in the ST2 project scopes. The Panel also noted that the contingency methodologies had been revised, and that all projects had high and low cost estimates.

In its October 2006 letter, the Panel stated "*we are pleased to see the level of effort to reach agreement on the project scopes at this early planning stage.*" The Panel encouraged Sound Transit to continue pushing for more formal adoption of project scopes where possible. The October 2006 letter reconfirmed the Panel's view that the cost estimating methodology "*is sound and consistent with industry standards.*"

Review Process for Developing Estimates – The Panel reviewed the process used both inside and outside of Sound Transit to review the project scopes and budgets for the potential ST2 projects. Sound Transit created a series of internal working teams (capital estimates, operating estimates, construction feasibility, project control, and finance) to review each project. Sound Transit staff members were asked to use their respective experiences with Sound Move projects to provide comments on the ST2 project scopes and budgets. Sound Transit also wanted to encourage review and discussion across disciplines, so a consolidated review team was created. The external review process consisted of discussions with each of the sub-area forums and their technical committees, as well as numerous interactions with state, municipal and county officials, and business and civic organizations, in the three-county region. The Panel concluded that "*the internal teams used by Sound Transit enabled staff to utilize experience on Sound Move, and to create ownership among staff that will ultimately have to construct and manage the projects...*"

Application of Cost Methodology – The Panel also examined application of the methodology in the creation of cost estimates for specific ST2 projects. The Panel analyzed a large, complex sample project, the East Link light rail project from downtown Seattle to Redmond, to determine whether the methodology was applied appropriately, what cost-factors were used (i.e. assumptions about cost and quantities of materials), and the reasonableness of the cost estimate. In its January 2007 letter the Panel concluded, "*That the cost estimates for the projects examined have been based on a consistent application of the approved cost estimation methodology and that the resulting cost estimates provide a good sense, at this stage of system planning, of the likely costs for ST2 candidate projects.*"

The Panel suggested several modifications to project cost estimates that were incorporated into Sound Transit's work. At the April 2005 meeting, the Panel raised questions about the cost estimates included in the Long-Range Plan for the HOV/BRT option. In particular, the Panel questioned whether it was appropriate to assume the entire cost of reconstruction of the I-90/I-405 interchange in the cost of the BRT alternative. As the Panel commented in June 2005, "*...only the costs associated with the respective BRT operations should be included...*" Sound Transit responded to this comment by revising the BRT cost estimate. In another example, in April of 2007, the Panel raised questions about the cost for the two proposed ST2 light rail maintenance facilities. In response to the Panel's comments, Sound Transit revised its cost estimates for these facilities.

B. Operating and Maintenance Costs

The Panel reviewed the methodology for estimating maintenance and operating costs for the ST2 projects, and concluded that "*the methodology represents industry practice for estimating costs for transit services...*" The Panel suggested that sensitivity analysis on potential increases in operating costs should be conducted as part of the analysis of the ST2 Financial Plan to assess the level of risk associated with future M&O costs. As mentioned below, Sound Transit staff did prepare sensitivity analysis using several factors, including higher than

anticipated Consumer Price Index (which is used as the basis for M&O inflation), but not specifically on M&O costs.

C. Ridership Forecasting

Early in its deliberations, the Panel examined the methodology used to forecast ridership. In particular, the Panel analyzed three key aspects of ridership forecasting -- population/employment forecasts, specification of the ridership-forecasting model and the manner in which different technologies are represented in the modeling approach. Each of these factors can have important influences on resulting ridership estimates. The Panel reviewed and commented on each of these three elements.

Population/Employment Forecasts – The most important inputs for future ridership estimates relate to the Puget Sound Regional Council (PSRC) forecasts for population and employment in the transit service area, which include both the overall magnitude of population and employment increases, and the spatial distribution of this new growth. The Panel used a very simple rule-of-thumb to determine the reasonableness of the population and employment forecasts--the ratio of the two. Dividing employment by population provides an approximation of the proportion of the population that is in the labor force. The ratio in the Seattle area forecasts is projected from an already high base. This trend conforms with the recent experience in the Seattle-area over the last decade. However, this recent trend in the Seattle area contrasts with the trend in most metropolitan areas where the current comparable ratio is lower than that in the Seattle area and where the ratio has been declining over the past decade.

The Panel investigated whether the forecast ratio is too high, and thus a source of concern. The Panel concluded that, "*...given what we have seen of the PSRC population and employment forecasts, we believe that they are reasonable as a basis for the planning that has been conducted.*" Further, if the population projections are correct and the Seattle area follows the national trend, then the ridership forecasts may be low. In many previous forecasts for New Starts projects around the nation, the ridership estimates have chronically been too high. However, this does not appear to be the case for the Sound Transit ridership forecasts.

Model Specification – The Panel reviewed the components of the forecast model that predicts mode choice. These include parameters relating to the importance of travel time and travel cost to individual trip-makers that lead to the trade-off of whether a trip-maker chooses transit or some other mode of travel. The model's values attached to the importance of trip time and cost are very similar to those used in other cities.

The Panel also reviewed the model specification regarding the "costs of travel" which will likely influence whether a trip-maker selects one mode versus another. The cost of parking is one of the most influential in this regard. Not surprisingly, if the cost of parking goes up, the likelihood that a traveler will seek another means of reaching the destination also goes up.

Initially, Sound Transit based its ridership forecasts on an assumed 3% annual growth rate in "parking costs," which was defined as a variable that acts as a proxy both for parking cost increases and for possible parking policies that discourage auto travel. The net result of this growth rate was an approximate 11% transit share of all commute trips in 2030. The Panel

felt that this assumed cost of parking was high and would create a tendency to overestimate transit commute trips for all transit modes. During the course of our work, the PSRC developed a new travel demand model which separates parking costs from other types of parking policy variables that might reduce auto travel. This new model assumed a 1.5% annual growth rate in just parking costs, which would result in an approximate 8.6% transit commute share in 2030. Sound Transit adopted the new PSRC approach for incorporating parking costs into the demand model for analysis of the ST2 recommendations. The Panel concluded that this was a more reasonable value for parking costs.

The Panel confirmed that the Sound Transit model was subjected to a validation process in 2002 when modeled results were compared to existing ridership counts by route/segment and by time of day. This validation indicated that the model results replicated real world 2002 conditions to a large extent. In June 2005, the Panel commented that "*...validation exercises are important to gain a level of comfort with such a model. However, they do not necessarily imply that the model accurately reflects what may occur 20 to 25 years in the future.*" The Panel also examined previous ridership forecasts for both Sound Transit's Sounder and Regional Express Bus service and noted that the forecasts over-predicted what has actually occurred. That same June 2005 letter noted that, "*we believe that to a large extent these historical estimations are the result of assumed modal availability and frequencies of service that were used in the forecast, but that have not materialized in actual operations. This conclusion was also supported by the recent eight-year report from the Citizen Oversight Panel.*"

Technology Representation – The Panel also examined how the different travel modes are represented in the modeled network. This is important since travel time and cost are critical factors in a modeled trip decision. The assumed availability of the different modes, the average speed of each mode, the frequency of service, the different ways of accessing the mode (i.e., walking, timed transfers, park and ride, etc.), and the fares, can each have an important influence on the ridership expected to use a particular transit mode.

The Panel spent considerable time assessing the average speeds and system integration issues with respect to the light rail and HOV/BRT alternatives in the I-90 corridor. For example, at full light rail system build-out, it is projected that peak-period headways in the downtown Seattle transit tunnel would be 2.5 minutes (7 minute off peak). Initially, during the review of the Long-Range Plan, the Panel commented that this operating plan assumption may be ambitious, especially when operations for a portion of the Initial Segment line occur on surface streets. Sound Transit indicated that the 2.5-minute headway is a long-term maximum frequency. It would not likely be approached in the near term and the system is designed for higher frequency, 1.5-minute headways. Sound Transit also indicated that they would continue to examine this point as more detailed analysis occurs.

The Panel concluded that the assumptions regarding average speeds used to compare one mode of high capacity transit with another seemed reasonable, given the expected delays that would occur for different technologies in operation. The model inputs regarding average speeds did not give one technology an advantage over the other. Sound Transit has generally made reasonable assumptions concerning system integration issues, i.e., access to transit stations and connections to other transit modes.

The Panel commented that ridership forecasts assume light rail transit will be extended to Northgate. From a systems ridership perspective, assuming light rail to Northgate is important in that, as a terminus location, the Northgate station would attract many potential light rail trips from the I-5 North corridor. Sound Transit is now planning to construct light rail to the University Stadium (known as University Link) in its first phase of construction (Sound Move). Extension of the light rail system to Northgate, and beyond to Snohomish County, will occur as part of ST2. Planning for the University Link project is now in final design, and Sound Transit has stated that with remaining revenues from Sound Move and an anticipated federal New Starts grant, there is sufficient funding to extend the light rail line to the stadium. Since the Panel's charge was to review planning for ST2, it did not conduct independent review of the University Link project.

D. Financial Plan

Our comments on the Sound Transit ST2 Financial Plan are somewhat more detailed than other comments in this letter because the Panel did not see a completed plan until its meeting in June 2007.

Developing the Financial Plan – A comprehensive Financial Plan integrates information about both funding sources and funding uses and must estimate the timing and amount of each to assess whether a capital plan can be implemented. The most commonly applied tool to develop a financial plan is a quantitative model, capable of manipulating vast amounts of information and running scenarios to assess the impact of changes in the input variables. The model should be governed by sound financial policies, which shape many of the decisions upon which the quantitative analyses are prepared.

Sound Transit developed a financial model to prepare the ST2 plan and has a staff member dedicated to running it. Staff told the Panel that the model has been peer reviewed, which means it has been examined by experts in the field to ensure the validity of the model's structure, but not the validity of the inputs. The financial model was used to assess the agency's capacity to fund ST2. It was also used to prepare various sensitivity analyses which tested the impact of changes in the input variables. The agency has also adopted financial policies, which the Panel has reviewed and found to be sound and in conformance with industry standard.

Using its quantitative model, Sound Transit developed the ST2 Financial Plan (the "Plan"), dated June 20, 2007, which was reviewed by the Panel. The Plan covers a 20-year horizon between 2008 and 2027. For ST2, funding sources include: (1) A continuation of Sound Move sales and use taxes; (2) additional ST2 sales and use taxes; (3) federal grants; (4) bonds; and (5) farebox revenues. Funding uses include (1) operating and maintenance costs; (2) capital costs; (3) contributions to reserves and (4) debt service on bonds. The Panel reviewed the methodology for each of these sources and uses and comments on them in this letter.

Contents of the Financial Plan – From a financial perspective, the Plan is more accurately characterized as a consolidated plan for the capital programs of both Sound Move and ST2, $23.6 billion (year-of-expenditure dollars) for ST2, and $13.1 billion (year-of-expenditure dollars) for Sound Move. That is, the Plan includes the continuation of existing Sound Move revenue sources, along with the adoption of new ST2 revenue sources, both of which will be used to fund ST2 projects. The financial capacity of Sound Transit to fund ST2 projects using

just ST2 revenues and debt, was not modeled separately. However, the model estimated the timing and amount of the proposed *combined* sources of funds and *combined* uses of funds. The Panel did not review the financial modeling methodology used for Sound Move, but Sound Transit staff indicated that there are only minor differences between assumptions used for Sound Move and those used to develop the ST2 plan.

The Plan indicates that extending Sound Move sales and use taxes through the ST2 implementation period will generate $3.379 billion (year-of-expenditure dollars) to fund a portion of ST2. The Plan states that additional ST2 revenues will fund a portion of Sound Move, particularly in the early years of ST2 when revenues are collected ahead of the cash demands of ST2 capital projects; however the amount of such funding was not made available. Sound Transit staff indicate that ST2 revenues will be applied to Sound Move projects only for cash flow purposes (i.e. to reduce the level of borrowing required to complete Sound Move), and will be offset by using Sound Move revenues on ST2 projects. Sound Transit staff further indicate that the Sound Move plan can be completed with the application of only Sound Move taxes, but the Panel did not review this analysis, as it was not part of its defined role. Given the combined nature of the financial model, it is worth noting that the estimate of Sound Move revenues available for ST2 capital projects is dependent upon the successful completion of Sound Move projects (such as University Link) based on current construction cost estimates.

From a financial perspective, combining Sound Move and ST2 capital programs is prudent and affords the agency the greatest financial flexibility to apply revenues where needed and to build projects as they are ready. However, combining both Sound Move and ST2 revenues for both capital programs may create challenges for Sound Transit's goal of being open and transparent on the reporting and implementation of the ST2 capital program. It will be important to create management reporting tools that provide clear reports on the use of the Sound Move and ST2 revenue sources.

In its April 2007 letter, the Panel commented on the potential confusion over the use of cost estimates in 2006 dollars versus year-of-expenditure (YOE) dollars. The Panel noted that many of the numbers used in the ST2 planning documents use 2006 dollars, while the RTID draft financial plan used year-of-expenditure dollars. The letter stated that "*...it would be helpful for Sound Transit to use materials showing the total program cost in both 2006 and YOE dollars as well. That would permit residents of the region to review comparable data between the two programs.*"

Funding Sources – There are three primary funding sources in the Plan – revenues, borrowing and federal grants. The Panel reviewed these funding sources and believes the assumptions underlying them are essentially sound, although there is some risk, as described below.

Revenues – Revenues, or "pay-as-you-go" funding (i.e. taxes, fares, interest income), represent an estimated 68% of the funding (year-of-expenditure dollars) for Sound Move and ST2 projects. The primary revenue categories are discussed below:

> *Sales and Use Taxes* represent an estimated 83% of the total agency revenues. This revenue stream has a solid performance history and is considered to be a stable revenue source, which supports the viability of the Plan. Using forecasts provided by its independent revenue consultant, Sound Transit is assuming annual sales and use tax

growth rates of 5.2% through 2030. Staff reported that the historic growth of this revenue during the period between 1987 and 2004 was 5.3% per year, although growth between 1998 and 2004 was 3.35%. The projected rate of growth in the Plan is reasonable, but it should be noted that if actual future growth rates are closer to performance during the latter six-year period, using a 5.2% growth rate may present a risk to ST2 plan completion.

Motor Vehicle Excise Taxes (MVET) represents an estimated 10 % of the total agency revenues. This revenue stream also has a solid performance history and is considered to be a stable revenue source. Staff reported that the historic growth rate of this revenue between 1998 and 2004 was 6.98% per year. It is projected to grow by 5.3% per year through 2028. which is a reasonable projection, although it is assumed to cease after 2028, reflecting the possibility that no further amounts may be legally collected following the repayment of existing bonds. As a result of state voter initiative action, the MVET is not available for ST2. However, the Washington State Supreme Court recently held that Sound Transit may continue imposing the MVET as part of its Sound Move program, and use these tax revenues to retire bonds issued for Sound Move, until these bonds have been redeemed. (*Pierce County v. State of Washington*, Docket No. 76534-1, December 7, 2006).

Fares and Other Operating Revenues only represent an estimated 1.5% of total revenues. This includes fare revenues from all Sound Transit operations. As is typical with transit agencies, farebox recovery ratios are low - estimated to be 37% (in 2030), with individual ratios ranging from 16% (ST express bus) to 47% (Link light rail).

Borrowing – Borrowing, or "debt funding", represents 24% of the funding for the Sound Move and ST2 capital projects. This is a reasonable amount for a program of this size and scope.

The agency's capacity to borrow depends upon its financial condition. One of the most commonly used indicators of debt capacity is the debt service coverage ratio, which illustrates the amount of funds available to the issuer to pay principal and interest payments owing on bonds, after covering agency operating costs. Debt service coverage projections in the model are strong throughout the forecast period (2008 – 2027), ranging from a high of 11.35 times (2008) to 1.84 times (2027). The declining coverage levels are to be expected as debt is undertaken to fund capital projects. The underlying senior lien credit ratings of Sound Transit, are Aa3 (Moody's) and AAA (S&P). Sound Transit does not currently plan to issue bonds on this lien, which pledges the MVET revenues. Therefore, it has established a junior lien, which does not pledge MVET revenues, which is rated Aa3 (Moody's) and AA+ (S&P). These strong ratings support the assumption that Sound Transit will be able to issue debt at the levels included in the Plan.

The financial model assumes borrowing rates of 5% through 2009 and 6% thereafter. These rates are reasonable, mid-range assumptions. However, the Panel notes that ST2 debt is expected to be "back loaded," with more principal amortized in the later years. This structuring assumption typically results in higher overall interest rates and can limit future flexibility.

Federal Grants – The Plan assumes federal funding of $2.5 billion (year-of-espenditure), which represents 6.9% of the total Plan sources. The large majority of that total ($1.6 billion) is associated with federal grants for Sound Move projects. Approximately $900 million in federal grants is assumed for ST2 projects. Given Sound Transit's historic success in securing federal funds, this assumption appears reasonable.

Other Funding Sources - The model does not include any funding from third parties, such as public-private partnerships. The Panel has commented in previous letters that other funding sources should be pursued. However, it is appropriate to ignore those other funding sources in the Financial Plan until agreement(s) are in hand.

Funding Uses – The model incorporates capital and operating cost estimates for the Sound Move and ST2 plan. Several items warrant discussion.

Capital Costs – As with any agency implementing a long-term, large capital program, one risk factor in the Plan is that Sound Move and ST2 capital costs could escalate beyond engineers' estimates. This is a particular concern in light of the building environment that could be created with the passage of the combined ST2 and the RTID capital programs. In addition to these plans, the State of Washington has projected that state-level construction spending is expected to rise over the next several years, peaking in 2011. As discussed later in this letter, availability of contractors and labor could become an issue in the region. While commodity prices will undoubtedly vary during the life of the capital program, the Panel notes the effect of recent escalations in steel, gas, concrete and copper prices on project bids and total cost.

Sound Transit uses the Building Cost Index (BCI) to forecast capital construction costs for the ST2 plan, and the Consumer Price Index (CPI) to forecast capital costs other than construction and right-of-way. For the ST2 construction period (2008 – 2027) the assumed average annual rate of growth for the BCI is just over 3%. In addition, Sound Transit has applied contingencies to the BCI inflation forecasts – 1% in 2006, 0.75% in 2007, and 0.5% from 2008 - 2030. For the CPI, the assumed average annual growth rate is forecast at 2.6%, with an additional 1% contingency applied by Sound Transit. The addition of contingency factors to the base BCI and CPI forecasts, with higher BCI contingencies in the near term, is a reasonable response to the recent, and likely future, short-term spikes in construction materials costs and other capital costs.

At several meetings the Panel reviewed inflation forecasts regarding right-of-way costs for ST2. In the Panel's letter of October 20 2006, we commented that "*although the Panel does not have expertise in Puget Sound area real estate values, the assumed [right-of-way inflation rate] does appear low considering significant increases in real estate values in other West Coast cities*". The Panel asked Sound Transit to conduct sensitivity analysis on right-of-way costs. As a result of that analysis the Panel learned that right-of-way expenses are approximately 12% of the total capital cost for the ST2 plan. Based on the sensitivity analysis, the Panel made the following comment in its April 12, 2007 letter, "*If the assumed [right-of-way costs] were to double (from 4.5% per year to 9.0% per year) the total capital costs would increase by $1 billion in YOE dollars. This is not considered material by the agency, because the agency would still be able to meet its 1.5 debt service coverage ratio. However, given the volatility of real estate values over the past two decades, the panel notes*

that higher than anticipated ROW costs represents a risk to the ST2 program that will need to be carefully managed."

Operating and Maintenance (O&M) Costs - The financial model includes projected operating costs for Express Bus service, Sounder Commuter Rail, and Link Light Rail. For bus service the model projects an average annual growth rate of O&M costs of 5% (including 3.6% for inflation and 1.4% for a ridership growth factor). Sound Transit believes this projection is in line with its historic "fully loaded" cost 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% annually since 1999. This is a reasonable assumption for the Plan, but there are several risks that that Panel would like to describe.

First, imbedded in the O&M forecast is an assumption that there will be reductions in express bus services that duplicate light rail lines as the light rail is brought into service. The Sound Transit Citizen Oversight Panel, in its analysis of the O&M inflation forecast, expressed concern that it will be difficult for the Sound Transit Board to reduce or eliminate service on popular bus routes. Panel members note that experience in other regions suggests that express bus service must be reduced when light rail begins operation because: (a) It has a significant effect on the ridership of the light rail system, and (b) the expense of operating "competing" transit routes is prohibitive. The Panel believes it is important for the Sound Transit Board to understand the importance of making difficult decisions to cut popular bus routes when light rail is completed.

Second, although the average annual "fully loaded" rate of O&M cost increase has been 4.7% during the past eight years, the average annual rate of increase in the past three years has been nearly 7.9%. Again, the Citizen Oversight Panel has raised questions about the validity of the inflation assumption. Sound Transit's explanation for this three year increase in O&M costs is that: (a) fuel prices have increased substantially in the past several years, and (b) decisions were made to focus more service on some productive routes operated by King County Metro, which has the highest cost of service among Sound Transit's express bus operators. Sound Transit staff stated that this latter point is a short-term issue, not a longer-term issue. The Panel believes that for the long-range Financial Plan it is reasonable to use the eight year historical trend, but that O&M costs should be monitored very carefully over the next several years. It should also be noted that the Board has approved creation of a "Service Enhancement Fund" as part of the ST2 package which will set aside funds for potential service additions, new fleet or provide a cushion for cost growth.

Third, the Panel notes that contracts with the regional operators for express bus service expire in 2009. Since these contract costs comprise 85% of the total O&M expense for bus service, the pending expiration poses some financial risk to Sound Transit.

Sensitivity Tests – As previously noted, Sound Transit's financial model permits it to perform "what if" scenarios, to test the impact of changing variables. The strength or weakness of any financial plan can be illustrated by testing its ability to withstand reductions in revenues and/or increases in costs. At the July 2006 meeting, Sound Transit staff presented the results of initial sensitivity analyses, which combined the capital programs for Sound Move and ST2. Three variables were tested – capital cost growth, inflation growth and a 1-year schedule delay. At the January 2007 meeting Sound Transit staff presented the results of further sensitivity analyses.

Based on the sensitivity analyses of single factors, the following conclusions were reached:

- *Higher Capital Costs* - The agency can sustain a capital program cost increase of approximately $1 billion (2006 dollars) and meet its minimum debt service coverage target. A $1 billion increase would represent an estimated 10-15% of the total baseline cost for Sound Move and ST2 combined.
- *Higher Inflation* – The Sound Move and ST2 projects could sustain annual increases in inflation of 0.5% above the projected rate of inflation in all project areas and Sound Transit can still meet its minimum debt service coverage target.
- *Schedule Delay* - The Sound Move and ST2 project schedule can absorb a one year schedule delay, without any negative financial effects, as long as the revenue growth rate exceeds the construction cost inflation rates.
- *Sufficiency of Contingencies* – Staff evaluated how the removal of contingency factors affects the results of the model when applied to the Sound Move and ST2 program. The primary conclusion was that it is important to maintain the estimated $1 billion in contingencies imbedded in the ST2 plan.
- *Right of Way* - Staff indicated that estimated right-of-way (ROW) costs are the least certain portion of the analysis. At the April 2007 meeting, staff indicated that ROW costs are 12% of the total ST2 capital costs. Staff has indicated that doubling the assumed ROW growth rate increases the overall capital costs by $1 billion in YOE dollars; this is approximately 4% of the total ST2 program costs (YOE dollars). In other words, a substantial increase in this factor alone will not affect Sound Transit's financial capacity to carry out ST2, although a sustained, significant increase in ROW costs could affect the amount of contingency available for construction.

Multiple Variable Sensitivity Analyses – Sound Transit staff tested changes in inflation, revenue growth and interest rates simultaneously – what Sound Transit termed an unlikely worst case scenario (the panel notes they did not include higher than anticipated M&O growth or right-of-way costs). The results revealed that for this scenario there is very limited flexibility in the Financial Plan for fairly small changes in these factors. For example, if cost inflation increases by 0.25, sales tax growth decreases by 0.20 and interest rates rise by 0.25, projected debt service coverage in several subareas falls below the debt service coverage level established in the financial policies.

The Panel notes that there are some additional revenue sources which may be available to Sound Transit, which have not been incorporated in the Plan. This includes a sales tax on car rentals (authorized in the Sound Move vote) and, as stated above, possible private contributions (public-private partnerships) in the form of direct private contributions and special assessments imposed within a local improvement district. Because these are funds which may be applied in the future, they partially offset some of the risks noted above.

The Panel believes that Sound Transit must, and will be able to, monitor and manage cost overruns in both capital costs and operating costs. Such changes, if they occur, are likely to result in a longer capital program schedule and higher overall costs.

Debt/Equity Ratios - Sound Transit is legally required to establish a debt/equity ratio for the agency (RCW 81.104.130). It is unusual for a public agency to adopt a debt to equity ratio so

there are not good comparisons with other transit agencies. Based on research Sound Transit conducted, the Financial Plan adopts a 40:60 debt to equity target. This is a reasonable level.

E. Evaluation Methodology

The Panel spent considerable time evaluating the proposed evaluation methodology used by the Sound Transit Board for making decisions about which projects to include in the ST2 package.

In our initial review of the methodology in October 2005, the Panel made a number of suggestions for modifying the draft criteria that were proposed for use to evaluate projects. Those comments included suggestions to "*test the usefulness with selected board members*", "*consider weighting the criteria, or providing a sense of relative importance*", and "*quantify as many of the criteria as possible.*"

Sound Transit incorporated those suggestions into their evaluation criteria. As an example, when the Board was narrowing the list of potential ST2 projects from 80 to 60 it identified four key evaluation criteria to accomplish that task: (1) Ridership (using 1,000 riders per day as a minimum for further consideration); (2) cost; (3) risk avoidance; and (4) system integration (defined primarily as building on Sound Move).

In the March 2006 letter, the Panel suggested adding impact on congestion (especially at the corridor level) as an evaluation criterion. The Panel pointed out that "*use of this measure usually includes an analysis that describes the level of congestion in a particular corridor with and without the proposed investment, taking into account growth in travel.*" Sound Transit did not include this criterion in the evaluation methodology, stating that they did not intend to claim congestion relief as a significant outcome of the ST2 investments, and that at the corridor and system levels, the likely differences between the alternative modes would be minimal.

The Panel concluded in its letter of October 2006 that, "*...the evaluation methodology ... was appropriate for the types and level of decisions being faced by the transportation decision makers and the public in Puget Sound. Sound Transit staff has incorporated changes previously suggested by the Panel.*"

F. Benefit Cost Analysis

In compliance with PSRC requirements the Sound Transit staff conducted a benefit-cost (B/C) analysis of the proposed ST2 plan. The Panel reviewed the B/C analysis at its June, 2007 meeting. Benefit-cost analysis is widely used but rarely is there agreement regarding the method and the conclusion. For example, one can argue with the method applied to the environmental benefits and safety benefits (e.g., more congestion typically leads to fewer serious accidents), but Sound Transit's analysis properly shows that these two areas together account for only about five percent of total benefits. The analysis also identifies factors that would act to increase likely benefits, but that should not be included in a B/C ratio itself, such as the greater reliability of fixed guideway transit over travel in the general highway lanes and the increased value of land near rail stations.

Still there are reasons to remain cautious about the result that indicates that the benefits exceed the costs by a ratio of 2.7. Much of the benefit in this ratio may be traced to the value of an hour of travel time and the corresponding changes in travel times experienced by users of the transportation system. The use of 50% and 60% of the region's average hourly wage as the value of time for off peak and peak travel respectively may overstate the benefits. While this does not deviate from the approach used by other analogous studies, it may well be high. There is evidence in the literature that the value of time (that is, the benefit actually accruing to a new rider) is lower. Also, the analysis assumes, without elaboration, that 90% of the reduction in vehicle miles traveled is attributed to less vehicle usage and 10% to a reduction in automobile ownership due to the existence of new transit service. The latter accounts for substantial savings (benefits), and, although plausible, seems high. A reduction in automobile ownership could well occur because of reliable and effective transit service; indeed, it would likely be prerequisite for any substantive change in such a regional characteristic. But similar results could be attained through land use, urban design and taxing policies, not attributed to new transit service.

As is usual for benefit-cost analyses associated with investments at the scale of ST2, the resultant B/C ratio represents in some sense a return on investment and reduces a very complex and interrelated result of public investment down to dollar terms. It is very clear that there are many benefits to transit investment that cannot be represented in monetary form, and thus the B/C ratio would under represent the "benefits" associated with public investment. Likewise, there are often assumptions made when calculating benefits that can be argued either way, such as the 10% reduction in auto ownership. Therefore, we 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 2.7 B/C ratio should be considered an estimate and not as a guaranteed return on public investment in the proposed transit improvements.

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 May 24, 2007, the Sound Transit Board adopted its ST2 final plan and its appendices, "Making Connections, Sound Transit 2; 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 ST2 plan describes the types of high-capacity transit services that will be provided. These descriptions are clear and consistent with the Panel's review of the materials.

The levels of service are described in the ST2 plan appendices. The level of additional express bus service is described in Appendix A (defined as "additional on-going annual service hours by the end of ST2"), and in Appendix D (defined as "with half-hour headways or better, from about 6:00 in the morning or earlier until about 10:00 at night").

The level of service for Sounder commuter trains is described in Appendix D as being "six daily round trips between Tacoma and Seattle, and three daily round trips between Seattle and Everett" in 2007. The ST2 plan states that "eventually, trains will operate approximately every half hour during the morning and afternoon weekday peaks." The Panel notes that the schedule for enhanced service on the Sounder line has not been established in the plan.

The level of service provided by proposed light rail is defined in several ways in the plan, and in Appendices C and D. The ST2 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 also provides a summary of anticipated daily and annual ridership in 2030, compared to existing ridership, for Sound Transit's entire regional transit system. In Appendix D light rail service levels in 2009 (when the central link segment opens) are described as, "...trains will run approximately every 6 minutes during peak hours and every 10 to 15 minutes off-leak and at night." This Appendix does not describe the anticipated headways for the light rail trains, or the anticipated travel times, for the planned ST2 light rail projects.

B. A plan for high occupancy vehicle lanes to be constructed

The ST2 plan does not include projects for the construction or improvements of HOV lanes. Sound Move included projects for HOV improvements.

C. Identification of route alignments and station locations with sufficient specificity to permit calculation of costs, ridership, and system impacts

The 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, as the Panel pointed out in several earlier letters, the locations for light rail alignments and station locations are "representative", since selection of final locations will require further Environmental Impact Statement (EIS) analysis, and additional engineering and design work. As an example, EIS work is currently underway for the proposed East Link light rail project. Several alignments are under consideration for the light rail segment that will be constructed through downtown Bellevue. These include surface, aerial, and tunnel designs. The cost and ridership estimates for the segment are based on an aerial design on a representative alignment. 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.

D. Performance characteristics of technologies

Appendix D addresses 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 of the performance of each mode considered. As noted in Section III.C, 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. In particular, the speed, capacity, and alignment issues (as they relate to acceleration and allowed degree of curvature) associated with the different technologies met industry standards. The application of these characteristics in the network definitions and in the performance functions associated with the modeled network links was appropriate.

E. Patronage forecasts

The 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 ST2 plan does not provide ridership or use projections for individual ST2 projects. However, the Panel has reviewed the more detailed descriptions for each ST2 project and reasonable ridership estimates are included in those documents.

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 differentiate 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 ST2 Financial Plan and addressed most of the issues described above. The following provides additional comments on the topics not covered previously.

Phasing of investments – The ST2 plan outlines three stages of development for the proposed projects. By 2018 Sound Transit is proposing that it will complete and open eight projects for operation, including the University of Washington to Northgate light rail segment (the design and engineering work for that projects is already 30% completed), the First Hill streetcar, and six parking garages. Three years later, by 2021, two more segments of light rail (downtown Seattle to Bellevue, and SeaTac Airport to Des Moines), Sounder parking and track improvements, and transit center improvements will be completed. The remaining ST2 projects will be completed by 2027.

The Panel believes this phasing plan is reasonable, but has expressed concern about the potential impacts on both project costs and schedules as a result of a saturated construction market. See comments on page 22.

Cost effectiveness represented by a total cost per system rider and new rider estimates – This projection is provided in Appendix C of the ST2 plan. The ST2 capital cost per new system rider is estimated at $21.08 per rider in the year 2030 (when ST2 projects will be completed). 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 $21.08 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 (also in Appendix C of the ST2 plan). Based on the farebox recovery ratios of other transit systems, the Panel feels that the estimates were reasonable.

G. Relationship between high capacity transportation system plan and adopted land use plans

At the Panel's June 2007 meeting, it reviewed a Conformity Report from the Puget Sound Regional Council (PSRC) regarding the analysis of the conformity of the ST2 plan with Destination 2030, the regional transportation plan, and VISION 2020, the regional long-range growth strategy. As stated earlier in this letter, the Panel reviewed a letter from Bob Drewel, the Executive Director of the PSRC, stating that the ST2 plan is in conformance with those long-range plans.

H. Assessment of social, economic, and environmental impacts

Environmental analysis was conducted by Sound Transit at the regional transportation system level of detail – on the Regional Transit Long-Range Plan (referenced on page 5). The analysis findings were useful in comparing generalized environmental characteristics of mode alternatives for corridor segments to which high capacity transit extension is being considered and for comparison of representative guideway alignment alternatives in corridor segments wherein distinct alignment alternatives exist. Sufficient environmental analysis was completed to satisfy State Environmental Policy Act (SEPA) requirements, even though no decisions on which projects to include in the ST2 package turned on social, economic or environmental impact issues. Public notice and the opportunity for public and agency review were included in the process. The Final Supplemental Environmental Impact Statement on the Regional Transit Long-Range Plan (Sound Transit, June 2005) (Final SEIS) was a key documentary basis for proceeding with preparation of the ST2 project package.

The Final SEIS clearly states that project level environmental reviews will need to be performed on each project in the ST2 package that is advanced from conceptual definition toward implementation. If federal funding is anticipated or if there is federal nexus for other reasons, the project level environmental review would have to comply with requirements of the National Environmental Policy Act (NEPA), and the Federal Transit Administration (FTA) and/or Federal Highway Administration (FHWA) would likely be the lead federal agency in the review. Sound Transit would coordinate with the lead federal agency to determine the scope of each project level NEPA review undertaken subsequent to approval of the ST2 package.

Given the regional transportation system level of review to date and given that there has been no federal nexus in development of the ST2 projects package, the 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.

There are no ongoing issues with respect to assessment of social, economic and environmental impacts.

I. Mobility characteristics

RCW 81.104.100 requires a high capacity transportation system plan to address system mobility using a variety of factors, including 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 ST2 proposed projects. The statement of philosophy is included in Appendix D of the ST2 plan. The fundamental philosophy of the ST2 plan is to "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's review of travel time between selected centers is described on page 8 of this letter, and in our June 2005 letter. The Panel concluded that the 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 work and college trips via transit at seven activity centers across the region, with the percentage of transit trips in 2030 when the ST2 plan is projected to be complete. There is an estimated 40% increase in transit trips to work and college by 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

In addition to the preceding comments regarding the requirements of State law, the Panel provided comments on several other topics that are summarized below.

A. Construction Bidding Climate

In several previous letters the Panel has expressed concern about the potential impact on the local bidding climate from the passage of both the ST2 and RTID ballot measures. Recently, prior to the potential infusion of $17.8 billion (2006 dollars), or $27.2 billion (year-of-expenditure dollars), in ST2 and RTID capital construction projects, Sound Transit has found

it challenging to attract sufficient bidders for several recent projects. While it is impossible to predict the strength of the local, regional or national economy during the period of peak construction for ST2 and RTID, there is no question that the level of construction activity in the Seattle metropolitan area from those two measures alone will be considerable. As previously noted, the State of Washington is also planning to embark on a major capital spending program. Although significant construction activity from the ST2 measure is not scheduled to occur until approximately 2014, the Panel has suggested that Sound Transit be prepared with sufficient strategies to manage the impacts of this potentially unprecedented level of construction activity. In our October 2006 letter, the Panel suggested a number of strategies for Sound Transit's consideration.

B. Light Rail on the I-90 Floating Bridge

The Panel has focused considerable attention on the siting of light rail across the I-90 floating bridge. Panel members pointed out in previous letters that there is no precedent anywhere in the world for constructing light rail across a floating bridge structure. Sound Transit and its consultant team reviewed studies of rail operations on other suspension bridges with the Panel. Those studies were instructive and helpful. The Panel saw nothing in the analysis completed to date to suggest that light rail cannot operate well on the floating bridge, but it provided the following cautions. In the Panel's March 2007 letter we stated that, "*The work conducted by the Sound Transit team indicates that considerable effort is being made to reduce the uncertainty in this unique application of light rail on a floating bridge. However, until the project moves further into the design process there will continue to be some remaining unanswered questions about this important segment of the proposed east side light rail line.*" We concluded that portion of our March letter by stating that, "*We encourage continued analysis of the light rail operation on the I-90 floating bridge prior to significant expenditures on the rest of the corridor. As we have stated before, if there would be a major problem with the operation of light rail on the floating bridge the function of the entire corridor would be affected.*"

C. Agreements with Third Party Jurisdictions

Earlier in this letter we discussed the potential impact of third party agreements on project cost estimates. One of the clear lessons learned from Sound Move was that substantial increases in some project's costs were directly related to requirements resulting from agreements with other local jurisdictions and institutions that had involvement in, and some control over, the implementation of Sound Move projects.

As stated above, the Panel was pleased with Sound Transit's efforts to clarify project scopes with jurisdictions where ST2 projects will be located. However, for much of the past year the Panel has been encouraging Sound Transit to go even further in solidifying agreements with third parties.

Our most recent suggestions were captured in our April 2007 letter. The Panel suggested that Sound Transit take further steps to create initial agreements with jurisdictions, even prior to EIS work and further engineering and design. For example, "*For light rail projects where a final alignment has not been selected, term sheets that describe the type and level of certain capital improvement (i.e., light standards, curbs and gutters, utility relocation, etc.) would help limit future scopes. Alternatively, if formal term sheets are not developed, Panel*

members have found that keeping written records that document the informal agreements, or disagreements, with local jurisdictions assist in the future negotiation of project scopes as further design work is completed."

D. Public and Private Partnerships

Finally, during the past two and-a-half years Panel members have had numerous conversations with Sound Transit staff regarding the potential to secure private funding, and perhaps local funding from municipalities, to increase revenues for ST2. Public and private partnerships include direct payments by private parties and other local governments, as well as the imposition of special assessments on benefited property within a local improvement district. The Panel was briefed at our last meeting about Sound Transit's efforts to encourage transit-oriented development (TOD) adjacent to a number of its station projects. However, the Panel continues to believe that Sound Transit could be more aggressive in working to create opportunities for additional private and public investment in the development of its regional transit system. Our letter of January 2007 describes several suggested strategies.

CONCLUDING COMMENTS

We have been honored to serve on the Sound Transit Expert Review Panel. It has been an enjoyable process, and one that we hope has added value in your assessment of Sound Transit's work. We thank you for the opportunity to serve on this Panel.

With each letter we have thanked the staff at Sound Transit and the Washington State Department of Transportation for their work with the Panel. They were responsive to our questions and requests for information, and provided access to any staff or consultants that could assist our deliberations. Their staff support has been professional and thorough.

We would be happy to answer any questions you may have about our work and this final letter.

Sincerely,

Siim Sööt

Siim Sööt
Chair

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

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*Note: Dr. Meyer resigned from the Panel in June 2007.