Additional Comments for Inspector General Audit on FTA Review of Central Link Initial Segment

By John Niles

Coalition for Effective Transportation Alternatives

MAY 13, 2003

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SUMMARY

The ongoing USDOT Inspector General audit of Federal Transit Administration (FTA) oversight of the Seattle Central Link Light Rail Project has been an opportunity for many people and organizations to compile and present descriptions of problem areas with this particular transit project. Critics of Central Link have been doing this since January 2001, when Office of Inspector General (OIG) first began its audit examination. The source of this present report, CETA, Coalition for Effective Transportation Alternatives, is a voluntary citizen association in the central Puget Sound region that supports transit alternatives that could be implemented if Central Link were stopped and its resources redirected more productively. In this report, CETA recounts the evidence showing a number of problems with Central Link that have emerged despite Federal Transit Administration oversight.

The evidence presented here, some of which is newly revealed by CETA, may provide opportunities for OIG to deepen its Congressionally requested examination of the FTA oversight that has brought the Central Link Project to where it is today. We trust that most of the evidence presented here is already being considered by OIG. If not, this report provides sufficient detail for OIG, as well as any other government oversight bodies, to ask additional questions from which the answers would quickly and powerfully reinforce the need for independent professional scrutiny like that already begun by OIG.

The areas of concern detailed here fall in three categories: financial risks, schedule risks, and other problem areas that present a risk to Sound Transit taxing district citizens or the integrity of the FTA New Starts program. For CETA, the third category covering these other problem areas is most compelling, and is covered first.

The non-financial areas where FTA needs to focus due diligence in the FFGA review process are:

- First, the Central Link Light Rail Initial Segment project scope is not a complete, independent stand-alone project qualified for FTA funding. The viability of the 14 mile Initial Segment is completely and inextricably dependent upon the future determination of alignment, cost, and funding of North Link, the eight mile northward extension of the Initial Segment. Yet North Link's alignment, engineering, cost, and funding are undetermined and likely to remain so until after the Initial Segment is under construction.
- Second, the planned physical design and operation of the Central Link Initial segment likely presents a Category 1C safety hazard under the Hazard Analysis Guidelines for Transit Projects published by the Federal Transit Administration in year 2000. This Category 1C rating means that more than one fatality or serious injury is to be expected in any one million hours of system operation. Such a hazard is described as occasional, catastrophic, and unacceptable. The combination of 23 at-grade vehicle crossings and ten additional signalized pedestrian crossings exposed to the planned 272 trains per weekday is an

unsavory feature resulting from the right-of-way design and operations plan of the Initial Segment. Based on data from the 1999 Final EIS and historical light rail experience nationwide, this grade crossing feature is unlikely to reach one million hours of operation without killing several people.

- Third, FTA acceptance of the Sound Transit conclusion of future efficiency from joint bus and train usage of the Downtown Seattle Transit Tunnel (DSTT) is an oversight error. The DSTT was built with FTA funds in the 1980s, and is the premier central business district Bus Rapid Transit right of way in America. Not only is the Sound Transit claim of efficiency in converting it to partial light rail use completely undemonstrated, the exact opposite is shown in this report. Adding the planned light rail to the DSTT will reduce both its capacity and ridership.
- Next, FTA acceptance of the Central Link Light Rail No Build alternative used for comparison purposes in the FTA New Starts funding qualification is unwarranted. This report shows that the Sound Transit "no build baseline" bus plan is inferior in capacity and forecast ridership to reasonable and available all-bus alternatives. In awarding Sound Transit an FFGA for the Initial Segment, FTA would move the Seattle region backward in mass public transit capability compared to obvious alternatives.
- Finally, there are other minor but telling examples of FTA carelessness found in erroneous statements about Central Link Light Rail found in the FY 2004 New Starts Report transmitted to Congress in February. As an example, for the second year in a row, the New Starts Report has stated in a summary table that the "new riders" forecast for Central Link Initial Segment is 29,000 daily out of 42,500 total. The correct number in the environmental record is 16,000. CETA members are shocked and outraged that Sound Transit and FTA have let that number be presented to Congress as a compelling "fact" for two successive editions.

The financial risks that FTA needs to assess in the FFGA review process fall under cost issues and funding sources:

There are several areas of Central Link Light Rail Initial Segment cost where there is risk that the Initial Segment project budget may be exceeded, or else costs added to budgets of other agencies.

- The cost of the mile long Beacon Hill Tunnel is sufficiently uncertain that FTA has authorized Sound Transit digging a two million dollar, 18 foot diameter deep "test shaft" where the agency hopes the main elevator shaft will someday be viable to construct. CETA assumes that this test shaft is indeed a "pre construction" soils examination exercise and not a way of moving dirt before the FFGA is executed.
- The size and hence cost of the initial Seattle Link rail car vehicle fleet and associated maintenance base shows a curious relationship to the operating schedule and 2020 ridership forecast. The 31 rail cars budgeted for the Initial Segment are only sufficient to run two-car trains, and yet the projected ridership and even stated intentions of Sound Transit call for the possibility of four-car trains. The Maintenance Base is budgeted for a capacity of 40 rail cars, but running four-car trains on a rush hour schedule could mean 60 rail cars are needed.
- Cost overruns for expanding and operating other Sound Transit lines of business, namely express buses and commuter rail, may impact the overall cash needs of the agency and hence force more issuance of bonds sooner to pay for light rail construction, instead of the planned use of inter-subarea loans. Recent year-over-year forecasts for Sounder Commuter

Rail and Regional Express Bus consistently show cost growth. The costs of railroad track enhancements necessary to implement commuter rail north to Everett from Seattle jumped over one hundred million dollars in just the past year.

- Bus system costs have been insufficiently examined for the King County Metro bus transit agency that will someday have to rearrange routes and redeploy buses to feed the majority of the Initial Segment's riders into train stations. The long-standing claim that the advent of 14 miles of light rail in a revamped transit corridor creates bus redeployment opportunities that lead to cost savings needs closer examination by FTA.
- Transit activists and light rail neighbors who are disturbed at the prospect of 272 two- or four-car trains per day crossing the path of tens of thousands of motor vehicles daily at 18 grade crossings have been developing a growing understanding of the FTA-mandated safety hazard assessment processes. With new found expertise in conjunction with USDOT's top priority interest in safety, these activists may be able to force design changes in the Link Initial Segment that could add significant cost.

Areas of risk to Central Link Light Rail funding sources:

- The Washington statewide transportation funding climate presents some future risk of tax rollback initiatives that could pinch light rail funding. The I-776 Initiative, for example, could be rewritten and resubmitted by light rail opponents if it fails to be supported in the State Attorney General's appeal this summer to the Washington State Supreme Court.
- Funding shortfall risks to Central Link could come from reaction to suburban concerns over the long-term strength of policy firewalls that now prevent three of the five Sound Transit subareas from permanently contributing any revenue to Central Link. Temporary contributions are now authorized through subarea lending, and this kind of cash flow could potentially be successfully attacked and repealed.
- There are funding risks to Central Link arising from the fact that City of Seattle citizens living in the North King Sound Transit subarea are about to enter a period of high taxation and disruption for a 14 mile monorail construction project that shares some of the characteristics of light rail.

Schedule risks that FTA needs to assess in the FFGA review process:

- The single biggest schedule risk to the Initial Segment comes from as of yet undisclosed details about the route to the North for Central Link. Since there are powerful downtown Seattle interests who do not want the Downtown Bus Tunnel converted to light rail unless the extension of the Initial Segment is planned, funded, and set for early construction, the many remaining issues in the design and cost of North Link are positioned to disrupt the Initial Segment construction. Many disruptive scenarios are conceivable.
- Future state legislative changes to Sound Transit's authority and governance structure may be disruptive. Several changes passed through one of the two legislative chambers in the Spring 2003 session.
- Another potential source of delay that needs to be assessed is the stance of official opposition to the Initial Segment alignment taken by the City of Tukwila city council in a vote June 2001. This resistance could potentially be turned into additional measures by this elected Council that would be contrary to the interests of Sound Transit in timely processing of city permits.

- While the Sane Transit and I-776 lawsuits before the Washington State Supreme Court may very well be settled by the date of FFGA execution, two light rail opposition lawsuits on appeal in Federal Court (Citizens for Mobility and Save Our Valley) may not be.
- Awareness of the problems with and alternatives to light rail in the Puget Sound region is continuing to grow. The pro-transit opposition is becoming more broad based and well organized, and will continue to represent a schedule risk to the Initial Segment even if an FFGA were to be executed.

At the conclusion of this report, CETA presents specific recommendations of conditions that should be met before FTA executes a Central Link Initial Segment FFGA with Sound Transit, in order to protect the interests of the Federal Government and the citizens of the Sound Transit taxing district. The most important of these is that FTA should require Sound Transit Board approval of the selected alignment, budget, funding plan, environmental clearance, and necessary third party agreements for constructing North Link from CPS to Northgate. CETA's position on Board approval of North Link is that significant changes from the 1996 Sound Move Plan need to be put before voters in a new election.

There are other recommendations related to findings and conclusions of this report.

Unless and until FTA assesses and responds to all of the risks and concerns detailed in the following report, CETA must conclude that FTA's eagerness to be a "partner" with Sound Transit in the construction of Link Light Rail Initial Segment is overwhelming its statutory oversight role. FTA must be a steward of America's Federal public transportation resources, and make these resources available only to the worthiest projects around the nation.

This summary of issues was prepared for CETA by John Niles, with assistance from Maggi Fimia, Ruth Korkowski, Emory Bundy, Jim MacIsaac, John Bruns, Tom Heller, Rich Harkness, Ron Lamb, and many others. Questions or comments about any statement in this report should be directed to John Niles at 206-781-4475 or jniles@alum.mit.edu, who takes full responsibility.

INTRODUCTION

In response to a request from Rep. Hal Rogers, Chairman of the House Appropriations Subcommittee on Transportation and Related Agencies, USDOT Office of Inspector General in early 2001 conducted an audit of the January 2001 decision by the Department of Transportation to approve a $500 million grant application for the Seattle Central Link Light Rail Project. In April 2001, OIG reported the finding that Federal Transit Administration (FTA) did not perform satisfactory due diligence in the grant application review process. OIG recommended the Secretary of Transportation direct FTA to hold funds and funding decisions for Central Link in abeyance until (1) Sound Transit identifies and discloses all issues that could materially impact cost, schedule, and scope; (2) FTA and its project management oversight consultant validate the estimated completion cost; (3) FTA and its financial management oversight consultant validate that funding sources are sufficient to complete the Project; and (4) Congress has the necessary 60 days to review the Project's grant agreement. The Secretary concurred with these recommendations. He did not release $50 million in previously appropriated FTA New Starts funds for Central Link Light Rail until August 2002, when he apparently determined that the conditions set by OIG were sufficiently met.

Meanwhile, in response to a further request in June 2002 from Rep. Rogers, the Office of Inspector General started in September 2002 a follow up audit of the Seattle Central Link Light Rail Project

that continues through this writing. The new audit scope is to ensure that the recommendations of the earlier audit are implemented, that the new 14 mile Initial Segment of Link Light Rail is qualified for an FFGA, and two additional issues: (1) review safety and other issues related to running buses and trains in the downtown bus tunnel, and (2) review FTA's determination that this project constitutes a stand-alone system and would not require additional segments. Currently, Sound Transit is in the process of applying for a new version of the $500 million Full Funding Grant Agreement (FFGA) blocked in 2001 as a result of the first audit. Execution of this new FFGA for a 14 mile Initial Segment would set the stage for Congress appropriating $75 million in FY 2004 New Starts funds, with an additional $334 million to be made available over the next few years as the Initial Segment is being constructed, on top of the $91 million already received in anticipation of the FFGA.

The current OIG audit of FTA oversight of the Central Link Light Rail project is an opportunity for many people and organizations to compile and present descriptions of problem areas with this particular transit project. Opponents of the Central Link project have been doing this since January 2001, when IG first began its audit examination. The source of this report, CETA, Coalition for Effective Transportation Alternatives, is a voluntary citizen association that supports transit alternatives that could be implemented if Central Link were stopped and its resources redirected more productively. In this report, CETA presents a number of problems with Central Link that have emerged despite Federal Transit Administration oversight.

The areas of concern detailed here fall into three categories: financial risks, schedule risks, and all other problem areas that present a risk to Sound Transit taxing district citizens or the integrity of the FTA New Starts program. For CETA, the third category covering these other problem areas is most compelling, and is covered first. As shown later, some of these problems also bear on financial and schedule risk that need to be assessed in FTA's due diligence before issuing an FFGA to Sound Transit.

PROBLEMS REQUIRING ADDITIONAL FTA OVERSIGHT

The non-financial areas where FTA needs to focus due diligence in the FFGA review process are:

- Project scope definition
- Hazard assessment
- Efficiency of joint bus and rail use of the DSTT
- No Build Baseline Alternative
- Additional errors in the New Starts report

Central Link Light Rail project scope is not properly defined for purposes of FTA funding

Summary: The Central Link Light Rail Initial Segment project scope is not a complete, independent scope of activity qualified for FTA funding. As its name implies, the Initial Segment is not a stand-alone system and it would require additional segments The viability of the 14 mile Initial Segment is completely and inextricably dependent upon the future determination of alignment, cost, and funding of the eight mile northward extension of the Initial Segment.

As described in the 2004 New Starts Report to Congress, Sound Transit is planning to build a 24-mile light rail transit line running north to south from the Northgate urban center through downtown Seattle and Southeast Seattle to the cities of Tukwila and SeaTac. Called Central Link, the system would operate on existing and new rights-of-way, including the existing 1.3-mile

Downtown Seattle Transit Tunnel (DSTT). Sound Transit plans to construct the entire system in phases.

The Sound Transit Board formally adopted a 7.2-mile initial Minimum Operable Segment, known as the MOS-1, for Federal participation in November 1999. After Congress and the USDOT IG raised significant questions about project costs, the Sound Transit Board directed staff to re-examine the entire MOS-1 project to determine if a portion of the proposed line between University District and SeaTac could be identified as a new MOS. During the re-examination, the Sound Transit Board maintained its commitment to build the entire 24-mile alignment.

In November 2001 the Sound Transit Board decided to implement as a new MOS the Central Link Initial Segment, a 14-mile, 11-station line extending from Convention Place through downtown Seattle and terminating at South 154th in Tukwila.

The May 2002 Record of Decision for Central Link Initial Segment in Attachment F, page 13 reaffirms, "the Initial Segment is a Minimum Operable Segment (MOS), which is a stand-alone portion of the project that has independent utility."

This definition is derived from Federal regulations at 23 CFR Part 771.111(f) which state the requirements for projects like the Initial Segment that are evaluated under NEPA rules. Three requirements are stated for projects like the Initial Segment of Link Light Rail: (1) Connect logical termini and be of sufficient length to address environmental matters on a broad scope; (2) Have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and (3) Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements."

However, by these conditions, the Initial Segment is not a stand-alone portion of the 24 mile Central Link project, and the Initial Segment does not have independent utility. There are several ways in which the Initial Segment fails the test, but two stand out.

First, critically important light rail supporters do not want any possibility that Central Link runs a shorter length than Northgate to SeaTac Airport. As a key articulation of and agreement with this reality, the Sound Transit Board committed to the public at the behest of the Seattle Chamber of Commerce that the conversion of the DSTT to rail and joint operations with buses will not commence until the full northward route to Northgate is defined, committed, and funded. However, the alignment and funding of the tracks north is not scheduled to be determined until 2004 or later, and there are serious doubts about the feasibility of an affordable alignment being found.

Second, the physical design of the right of way between the Westlake Mall Station and the Convention Place northern terminus where trains reverse direction is dependent on the choice of northern alignment. To repeat, the alignment of the tracks beyond the northern terminus of the Initial Segment will not be determined until 2004 or later, assuming a feasible and affordable alignment can be found.

These two interdependencies created by Sound Transit mean that completing construction of the Initial Segment is dependent upon the existence of a committed, feasible plan to fund and build an eight mile northward extension of light rail to the Northgate urban center.

(With regard to extending Central Link the remaining distance three miles southward to the eventual planned southern terminus located south of Sea-Tac Airport, the interdependency is less severe. Sound Transit would undoubtedly assert, and FTA would probably agree, that the Initial Segment's southern terminus at S 154th Street could serve as an interim terminal for "reaching the airport" that Sound Transit, and citizens of the region could live with for an indefinite period of

time. It remains to be seen whether City of Tukwila, City of SeaTac, and Port of Seattle would agree.)

It is the northern extension that is most problematic and the focus in this report.

Before the abandonment of the original MOS-1 to University District, the construction of light rail to Northgate was planned as a two-stage process that was originally conceived in 1996: first to University District, then to Northgate. The original commitments made in the 1996 Ten-Year Sound Move Plan approved by voters were distinct for two project phases: to reach the University District in Phase One with existing authorized revenues, and to reach the Northgate Transit Center as soon as revenues could be secured to cover the costs. Political efforts to establish new local taxes to cover light rail construction costs from University District to Northgate began in Summer 2000 by King County councilmembers, but the efforts have not yet succeeded.

By November 2001, the two separate commitments of University Link and Northgate Link were melded into a combined project called North Link. Sound Transit began claiming despite the April OIG report that the revenues to cover the costs to build to the University District were achievable with some new financial tactics recommended by the Link Project Review Committee of distinguished citizens chaired by former Seattle Mayor Charles Royer. Revenues for building to Northgate could be raised separately through increased taxes after the 21 miles from University District to S 200th were completed, or at least under construction.

In September 2001, the ST Board set in motion a process by Sound Transit staff that would specify an alignment northward from Convention Place Station to Northgate, a cost and funding plan, a Supplemental Environmental Impact Statement, another FFGA in 2005, and construction to begin in 2006, ahead of closing the DSTT for rail conversion. The environmental scoping report for North Link issued in January 2002 had the schedule as:

(1) Complete the Draft Supplemental EIS by November 2002,

(2) Board identification of the preferred alternative by January 2003,

(3) Complete the Final SEIS by July 2003 with

(4) Board adoption of the preferred alignment by July 2003.

This schedule would have had the plan for Link North nailed down prior to the FFGA being executed in summer 2003. However, by March 2003, the completion of the Draft SEIS had slipped from November 2002 to at least Autumn 2003 because Sound Transit staff found that "additional work" was required to deal with a number of substantial issues:

- I-5 structural, construction mitigation issues
- West Tunnel geo-technical issues
- University of Washington vibration and electromagnetic field mitigation issues
- Further third party discussions
- Peer review of route evaluation process

Thus, the planning and confirming of a financial commitment for North Link is now scheduled to go to mid 2004, well beyond the planned execution date of the Initial Segment FFGA, even though this commitment is a Board-required pre-condition for a key task in the Initial Segment's construction, namely, closing the DSTT for two years to prepare it for use by light rail trains as well as buses.

Continuing to push ahead with this overlapping phasing of the Central Link Project's construction creates uncertainty and confusion about the Federal Government's funding commitment, because North Link itself will require a substantial FFGA in addition to the one now being considered for the Initial Segment. The record is clear that an extension of Link light rail from Convention Place to Northgate will require Federal New Starts funding beyond the first $500 million now being requested and reviewed by FTA for the Initial Segment, downtown Seattle to Tukwila.

However, at the moment, there is no alignment plan, no budget, and no funding source for the North Link extension of Initial Segment. The "additional work" items described above hint at some of the remaining issues to be determined.

Under a previous negotiated third party agreement, the University of Washington has veto rights over the route north until the University is satisfied that vibration and electromagnetic interference with the work of its laboratories caused by light rail construction and operations is fully understood and mitigated.

The extraordinary costs of tunneling under Capitol Hill, the cause of the abandonment of the first Link Light Rail FFGA for the old MOS-1 to University District, remain a key issue in the determination of the revised costs to go north. The Link Project Review Committee of distinguished local citizens that monitored and advised Sound Transit during 2001 as the Initial Segment was developed, recommended repeatedly to drop the Capitol Hill tunnel alignment as unaffordable. On the other hand, the Capitol Hill routes requiring the most funding are the routes that generate the most riders among the limited choices available to Sound Transit light planners. CETA estimates the full cost of Link North in the range $3.5 to $4.5 billion, which for eight miles would make this segment the most expensive light rail per mile in world history.

The local funding share of the route north, even assuming an additional $500 million Federal New Starts match, is going to be challenging. At this writing, there is a very visible controversy in King County between light rail proponents who want to dedicate $1.3 billion from a new source of local taxes to building North Link, and those who believe that Sound Transit should raise additional light rail funding only from within its own authorized sources and levels.

Furthermore, returning to the second interdependency mentioned above, the construction details of the light rail right of way between Westlake Station and Convention Place cannot be determined without knowing the route north.

A statement in the February 2002 Initial Segment Environmental Assessment, Section 2.2, page 6 describes the problem: "If the project north of the Initial Segment changes from the current original project as a result of the North Link Supplemental EIS study, the design of Convention Place Station and the north end of the DSTT and Pine Street tail track could change. The final decision on the north alternative is scheduled for 2003, and any modifications to the Initial Segment design will be made prior to construction of the Pine Street tail track and DSTT retrofit in 2007. However, if the tail track is constructed and the original project route is not selected to the north, the tail track would have a limited life span. The Initial Segment northern terminus does not influence the choice of alternatives to the north. However, the uncertainty about the north alternative could affect KC Metro Transit's ability to make a decision about possible development of the Convention Place site."

The juxtaposition of two statements above, “the tail track would have a limited life span” and “the Initial Segment northern terminus does *not* influence the choice of alternatives to the north” is remarkable. It cleverly deflects attention from the obvious reverse point that the choice of

alternatives to the north should influence the design of the Initial Segment. Sound Transit is admitting that they will not recognize this influence, despite the obvious potential for expending local and Federal resources for infrastructure with a "limited life span."

As issued by Sound Transit, the aerial photograph below with superimposed light rail alignments illustrates the interdependency of the Initial Segment design with the alignment choice for Link North. If the choice is either the red or light blue line going under Interstate 5 into Capitol Hill, the Pine Street stub tunnel has an orientation that sends the trains downward under the foundations of that highway. If the North Link alignment choice were the dark blue line that proceeds along the west side of I-5 in parallel with it, the geometry of the stub tunnel would need to be quite different.

Aerial View of Convention Place Station with Alternative Alignments for North Link

Source: Sound Transit

In the Sound Transit Staff Report for Motion number M2003-29 authorizing a Final Design Contract for the Pine Street Stub Tunnel, it was noted, "This scope of work is on the critical path of the Central Link Project Master Schedule. Delay in Finance Committee approval could cause a delay in the schedule for construction of this segment."

This design contract was authorized by the Board in March 2003, and the dependency of this work on the Pine Street Stub Tunnel to the selection of the alignment of North Link suggests an important area of FTA diligence, and a possible justification of delaying the Initial Segment FFGA until the plan for North Link is defined.

CETA notes with approval the comment in the April 2001 OIG interim audit report that the 24 mile Central Link Light Rail project needs to be considered as a whole. As stated then, "The Project endorsed by the voters in 1996 includes completing a 21 mile system from North East 47th Street to South 200th Street and local funding was secured on that basis. Since FTA and Sound Transit intend to finance two additional segments that complete this 21 miles, plus three additional miles to Northgate, they should be up front about this and ensure the Project is justified and approved on that basis and that adequate Federal and local financing sources are identified."

The Seattle Times of April 28, 2003 quoted an apparently similar sentiment from Rep. Ernest Istook, Chairman of the House Appropriations Subcommittee that oversees Federal Transit Administration spending. The article noted that Rep. Istook "wanted to know whether a $500 million grant for the first segment [of Central Link] would obligate the government to contribute more for extensions, and mentioned the possibility of '$1 billion' in total requests." The article further stated that "[Rep.] Istook pressed for cost estimates to reach the University District and Northgate and was told the full amount isn't known yet. 'It's important we look at it as a total project,' he said."

The idea of an FFGA for the Initial Segment Minimum Operational Segment (MOS) is that in the worst case of no further funding being available, the Initial Segment MOS would be completed and put into operation, and it would provide functional service. However, in the case of the present Initial Segment, Sound Transit has agreed not to close the DSTT for rail conversion – a key stage of Initial Segment construction – unless an extension of the MOS is ready to go. At the same time, Sound Transit is now proceeding to design the northernmost part of the Initial Segment under Pine Street when they need to know where the tracks go next, but don't.

CETA therefore concludes that the 14 mile Initial Segment from CPS to S 154th is not by itself qualified for an FFGA and the start of construction. A qualified minimum operating segment must be a portion of the full 24 miles that could stand alone indefinitely. Northgate to Lander would probably qualify in this regard. The locally-funded Tacoma Link light rail is perhaps another example of a stand-alone segment with independent utility. Despite these available examples, Sound Transit has not yet designated a proper Minimum Operational Segment for Central Link.

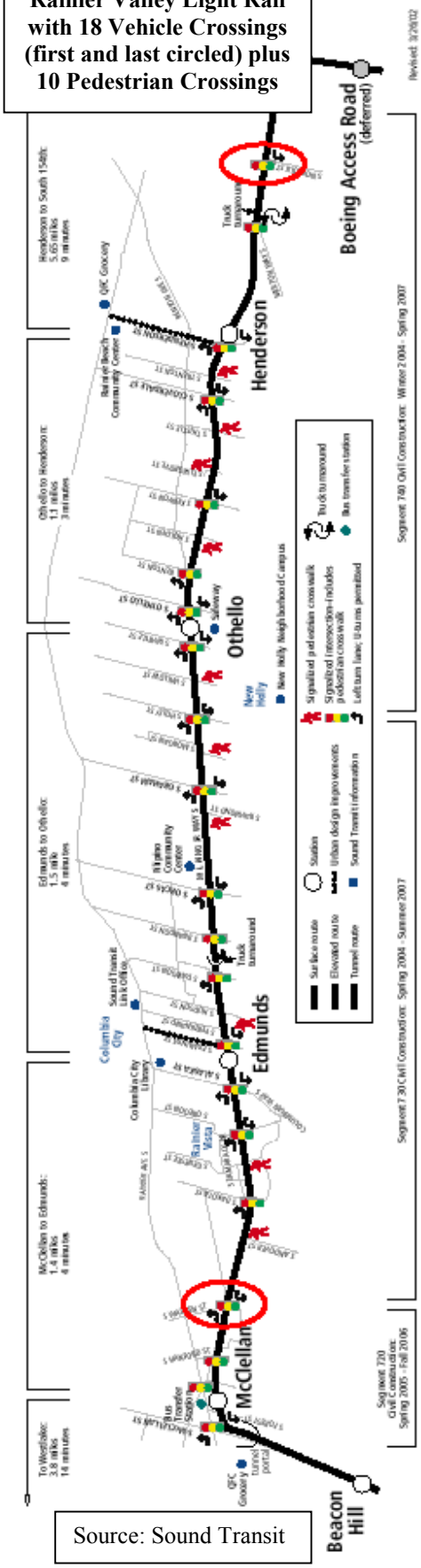
The Initial Segment design of at-grade crossings presents unacceptable safety hazards

Summary: The planned physical design and operation of the Central Link Initial segment presents a Category 1C safety hazard risk under the guidelines published by the Federal Transit Administration in year 2000. This category rating means that more than one fatality or serious injury is to be expected in any one million hours of system operation. The combination of 23 at-grade vehicle crossings and ten additional signalized pedestrian crossings exposed to the planned 272 trains or more per weekday is the particular design and operations combination that is unlikely to reach one million hours of operation without killing somebody.

The physical design of the Central Link Light Rail Initial Segment right of way in conjunction with planned train headways (spacing between trains) and speeds present potential safety hazards from collisions with motor vehicles and pedestrians in two sections:

- Within the Downtown Seattle Transit Tunnel (DSTT), during the peak period of weekdays in each of two directions, 10 trains will pass through per hour, interspersed with 60 buses. The mixture of trains and buses in a tunnel with station stops is not operated anywhere else in the world. Sound Transit plans to separate vehicles by use of a newly designed signaling system and relying on the judgment of vehicle operators. At each end of the tunnel, buses

Rainier Valley Light Rail with 18 Vehicle Crossings (first and last circled) plus 10 Pedestrian Crossings



Source: Sound Transit

will be required to cross railroad tracks at grade in order to enter or depart the DSTT right of way.

➢ At 18 ungated grade level crossings along Martin Luther King Jr. Way in the Rainier Valley, each weekday 272 trains in two directions will cross the paths of tens of thousands of motor vehicles, including cars, buses, and trucks. See map of Rainier Valley alignment at left. The 1999 Environmental Impact Statement for Central Link Light Rail revealed that 29 collisions per year between trains and vehicles are expected in this corridor based on the history of similar systems.

The required mitigation measures in the Amended Record of Decision (May, 2002) for the Central Link Light Rail Initial Segment, in combination with the FTA *Hazard Analysis Guidelines for Transit Projects* (January, 2000), require Link to be safety certified for no more than one expected fatality per one million operating hours. Sound Transit converts this many hours to 131 years of operation.

However, based on FTA statistics, light rail in America now generates in the range of three to six fatalities per one million operating hours, mostly from trains colliding with people and motor vehicles by accident. Combining the light rail grade crossing collision estimated occurrence rates cited in the 1999 *Final EIS Transportation Technical Report* for Central Link (29 per year with motor vehicles, 3 per year with pedestrians) with the fatality rates for low speed light rail collisions (at less than 35 mph, 1% for motor vehicle collisions, 18% for pedestrian collisions) cited in *Light Rail Service: Pedestrian and Vehicular Safety* (TCRP Report 69, National Academy Press, 2001) yields an estimate of four fatalities every five years.

In response to inquiries from CETA, on March 27, 2003, Sound Transit staff reported to a Sound Transit Board meeting that the Link Initial Segment can be certified to operate for at least 131 years with no chargeable accidents that result in severe injury or death. A "chargeable accident" is one that Sound Transit could have prevented through a better system design, or some other agency action that influences human behavior, such as signals, signs, and educational programs.

Sound Transit's use of a "chargeable accident" definition is a method of avoiding the changes in the system design that could make some kinds of fatalities literally impossible. Stated differently, by its "chargeable accidents" approach, Sound Transit demonstrates a willingness to ignore certain

types of fatalities likely to be connected with operation of their planned light rail system. Their design includes many opportunities for collisions with drivers and pedestrians who are distracted, confused, impaired, careless, lacking knowledge, or reckless.

There is no reference to "chargeable accidents" in Federal Hazard Guidelines. CETA concludes that the dependence on this concept in Sound Transit's hazard analysis as reported on March 27 provides sufficient justification for the construction of the Initial Segment to be blocked until a new hazard analysis is performed without reference to whether an accident is chargeable.

FTA acceptance of the Sound Transit conclusion on joint bus and light rail use of the Downtown Seattle Transit Tunnel is an error.

Summary: FTA acceptance of the Sound Transit conclusion of future efficiency from joint bus and train usage of the Downtown Seattle Transit Tunnel is an error. The DSTT was built with $197 million FTA funds in the 1980s, a 45% share of the project cost. It is the premier Central Business District right of way for Bus Rapid Transit in America. The Sound Transit claim of efficiency in converting it to partial light rail use is false, and the expansion of its use as a BRT facility is much more aligned with present FTA policy.

The Link Project Review Committee of distinguished citizens that worked throughout 2001 under the chairmanship of former Seattle Mayor Charles Royer concluded in a letter to the Sound Transit Board in the Summer of 2001 that the Link Initial Segment should not be extended into the Bus Tunnel in its first stage of construction. Rather, this Committee recommended that the bus routes operating in the DSTT be immediately expanded to use the tunnel's bus-only capacity more extensively. Sound Transit, they said, should wait until light rail is ready to be built to Northgate before introducing trains into the DSTT. Another former Seattle Mayor, Paul Schell, in conjunction with a former Metro Transit Director and a former newspaper publisher, concluded more recently in a newspaper op-ed that light rail should not be installed in the DSTT.

In sharp contrast to the opinion of these two former mayors, Sound Transit – fully supported by one of its board members, the present Seattle Mayor Greg Nickels – asserts in its Initial Segment Environmental Assessment (EA) of February 2002 that bringing light rail into the downtown tunnel would be "the most efficient use" of the DSTT. As stated in the Record of Decision Response to Comments page 34, Sound Transit bases this conclusion on the fact that joint bus-rail operations in the DSTT would "maximize ridership in the tunnel, compared to rail only operations."

The numbers provided in the EA in support of this claim show that the Initial Segment of light rail under joint bus-rail operations in 2020 would provide 68,500 daily DSTT boardings. In contrast, under the 1999 FEIS covering light rail running exclusively in the DSTT to University District in the north and to S 200th toward the airport, there would be only 63,500 daily boardings in 2020, that is, 5,000 fewer. To obtain this rather startling result, Metro would have to route different, more productive bus routes into the DSTT than are now deployed in the Tunnel now.

This ridership comparison thus makes the interesting point that Metro and Sound Transit now believe they are capable of creating a joint bus and rail vehicle deployment into the DSTT that could carry more riders than their former 1999 best effort at maximizing riders with purely light rail. This is a ridership comparison that compares combining up to 60 buses and 10 two-car trains in each direction in the peak hour, against the former limit in the 1999 FEIS of 12 four-car trains operating without any buses on the right-of-way. That is, buses plus trains carry 68,500 daily to beat pure trains carrying only 63,500.

CETA understands the calculations, but the assumptions are faulty.

In line with former Mayor Royer's Project Review Committee recommendation, the same ridership numbers used by Metro also show that truly superior ridership results for the DSTT come from replacing the 10 trains per hour in Metro's comparison with an extra 60 buses. Thus, CETA recommends that FTA compare the ridership assuming Metro's stated maximum of 125 buses per hour (94,375 daily boardings by estimating bus riders proportional to buses) with the ridership maxed in 60 peak hour buses plus 10 trains (68,500 daily boardings). Pure bus beats trains plus bus, because trains need significant spacing in between vehicles.

Daily Boardings in the 2020 Downtown Seattle Transit Tunnel Under Different Scenarios

	Sound Transit 1999 Light Rail Plan	Sound Transit 2001 Initial Segment Joint Operations	Bus Rapid Transit Alternative Operating at Bus Capacity
Trains in peak hour	12 four-car	10 two-car	0
Buses in peak hour	0	60	125
Light rail daily boardings	63,500	23,200	0
Bus daily boardings	0	45,300	94,375
Total daily boardings	63,500	68,500	94,375

Source: Initial Segment Environmental Assessment; BRT ridership is CETA estimate

Sound Transit also uses calculations to show that the ultimate capacity of the DSTT is greater with a *future* level of high frequency light rail train service than it would be with buses deployed under the *present* Metro operating rules. When Metro and Sound Transit officials were questioned by a King County Councilmember in October 2001 about the logic and sensibility of comparing light rail capacity resulting from billions of dollars in public investment with the all-bus capacity of the DSTT under present operating rules and infrastructure limits, one of the officials responded that they "assumed no improvement to the operating environment; no one said 'Assume you have billions to build a whole new bus system.'"

CETA suggests that the fair comparison to make with a *future* level of high frequency light rail train service is not present bus service but rather a future BRT configuration of buses operating more like trains. This capacity comparison, as FTA knows full well, shows that buses or trains would provide approximately the same ultimate capacity. The efficiency battle, then, moves beyond the confines of the DSTT, to a discussion of which mode is more efficient, trains or buses, given equality in capacity. At this point CETA refers to the GAO report *Bus Rapid Transit Shows Promise* (September 2001) making an overall comparison of light rail versus BRT operating and construction cost, where buses came out very well.

The issue for FTA is whether the Federal Government should use New Starts money to in effect reward Sound Transit for comparing the prospective capacity of the most expensive future light rail line in America with the capacity of an incompletely developed bus rapid transit system begun successfully with FTA money from an earlier era. The DSTT was built with $197 million FTA funds in the 1980s, a 45% share of the project cost. It is the premier central business district right of way for Bus Rapid Transit in America. The Sound Transit claim of efficiency in converting it to partial light rail use is contrived through the use of an analysis that simply ignores the cost of alternatives.

The potential expansion of the DSTT's continued use as an all-bus facility is much more aligned with present FTA policy emphasizing the benefits of Bus Rapid Transit. As noted by Inspector General Kenneth Mead for a Congressional Subcommittee on March 13, 2003, "With the demand for transit funds, a greater emphasis on lower cost options may help expand the benefits of Federal funding for mass transit. FTA can help expand awareness of alternatives, such as bus rapid transit, … that in the right circumstances can be more cost-effective."

FTA acceptance of the Central Link Light Rail No Build comparative alternative used in FFGA qualification is unwarranted.

Summary: FTA acceptance of the Central Link Light No Build alternative used for the required comparison in the New Starts funding qualification is unwarranted. Sound Transit's No Build Baseline bus plan is portrayed to be inferior in capacity and forecast ridership to the Initial Segment alternative. However, a reasonable deployment of the buses in the No Build Baseline would show superior capacity and ridership. The Central Link Initial Segment would move the Seattle region backward in mass transit compared to a different deployment of buses in the No Build alternative.

Using information obtained through the Washington State Public Disclosure Act, CETA has determined that the Initial Segment would produce lower mass transit capacity and lower ridership than a No Build alternative that is defined according to FTA guidelines. The No Build is compared to the Initial Segment as part of the justification for FTA New Starts funding. The No Build as well as the Initial Segment plan include a core fleet of buses. The core fleet for both alternatives includes 200 tunnel buses as well as 1,700 additional non-tunnel buses to cover other express and local service throughout the Sound Transit three-county district.

Sound Transit's suggested No Build alternative would employ that same core fleet of 200 tunnel buses, plus 232 additional tunnel buses to supplement the core regional fleet. The contemplated tunnel buses would likely be hybrid powered, low floor for rapid boarding, and capable of operating both through the DSTT and on the regions' freeways. The No Build, inexplicably, also has about 200 hundred fewer non-tunnel buses than the bus fleet associated with the Initial Segment. This analysis focuses on the tunnel buses.

In the data submitted to FTA, Sound Transit claims that 31 light rail cars intermixed with the 200 tunnel express buses operating in the Downtown Bus Tunnel will provide the region with more capacity and more ridership than keeping the trains out of the DSTT and simply expanding the tunnel bus fleet to 432 buses and operating the DSTT at its full all-bus capacity. Specifically, Sound Transit says that it can deliver 16,000 more daily regional transit riders to the Seattle CBD on two-car trains from the Tukwila terminus and the Rainier Valley than by deploying 232 additional tunnel buses that could serve both the Initial Segment corridor and other parts of the region.

CETA's analysis shows that the diametric opposite is true, as even a superficial comparison of 232 buses with 31 light rail cars would suggest. Our calculations focus on the marginal impact of alternative transit resources moving people into or out of Seattle CBD in the weekday 3.5 hour peak. We compared the capacity and ridership of the 31 rail cars of the Initial Segment Light Rail against the alternative of an additional 232 tunnel buses. For light rail, we use Sound Transit's New Starts reported estimates of light rail peak loadings to calculate 12,000 light rail riders in the 3.5 hour peak period, peak direction. We calculate light rail capacity using two-car trains at six minute headways as only 10,000 using the published schedule, which comports with some people getting off the train before others get on in the peak direction. For the No Build alternative of 232 extra

tunnel buses making two round trips in the peak direction in many corridors including but not limited to the Initial Segment corridor, we estimate ridership at 21,000 and seated capacity at 27,000. The No Build incremental ridership is 75% greater than for Initial Segment, and the capacity is 170% greater.

The conclusion of CETA's analysis is that whether using new hybrids or electric trolley buses, the 232 additional tunnel buses in the No Build could be readily deployed to carry more mass transit riders than 31 light rail cars in one corridor. Furthermore, as shown in the summary table above, the capital cost of the no build is $1.2 billion less.

Peak Period, Peak Direction Comparison of Capacity and Ridership
Link Initial Segment in Comparison with No Build Alternative

	Core Vehicle Fleet to be used in the DSTT	Incremental Peak Period, Peak Direction Vehicle Flow over 3.5 hour peak period	Vehicle capacity in the Peak Period, Peak Direction	Estimated Ridership in the Peak Period, Peak Direction	Capital Costs from the New Starts Submission	Corridors Served
Light Rail Initial Segment	31 light rail cars plus 200 tunnel buses	The 31 rail cars deployed as 35 two-car trains with six minute headways.	9,590 passengers seated and standing	12,250 passengers seated and standing (short trips)	$2.8 billion	One 14 mile corridor Seattle CBD to Tukwila
No Build Alternative	432 tunnel buses	The 232 extra tunnel buses making two one-way peak period trips.	26,448 passengers seated only	20,880 passengers seated (long trips)	$1.6 billion	The Initial Segment Corridor *plus* any other corridors to CBD
Advantage of No Build			176% more capacity	70% more ridership	$1.2 billion lower capital cost	Additional corridors served

Underlying data from Sound Transit documents. Estimates and chart prepared by CETA

Sound Transit may even have inflated costs in its self-defined No Build alternative to make that alternative appear less attractive. As an economical No Build alternative, some of Metro's existing fleet of electric trolley buses could be used for tunnel service. The trolley bus routes running south of downtown approximate large parts of the Initial Segment light rail route. In other words, with fairly minor improvements King County Metro transit could carry the passengers in the Initial Segment corridor on enhanced trolley bus service at a small fraction of the cost of light rail. Trolley buses run just as clean as LRT, can use the DSTT with little or no modification, and will last for about twenty years before needing replacement or remanufacturing. The trolley buses can be deployed anywhere along Metro's extensive electrified system, including lines that already go from the University to downtown to south Seattle.

Both NEPA and the FTA's own governing statutes and regulations emphasize the critical importance of studying reasonable project alternatives before proceeding with a light rail project. However, Sound Transit claim that its "single no-build/TSM alternative" includes "all reasonable cost-effective transit improvements within the Link light rail study area short of the proposed New Starts project" is contradicted by the fact that Metro has excluded Bus Rapid Transit as an option in the light rail study area. In its November 2001 policy paper proposing BRT plans for 2002-2007, Metro explains how much future potential there is for BRT in the Seattle area, but then emphasizes

that: "Corridors that do or would compete [with light rail] were eliminated" from study. In other words, Metro has never studied BRT as a solution in the proposed light rail corridor itself. Yet this type of analysis is exactly what FTA's "baseline" alternatives definition calls for.

CETA therefore concludes that Sound Transit's No Build alternative, as they have defined and described it, is not a proper TSM Baseline alternative. No Build is not the "best" that can be done short of a New Start, as FTA regulations require. A properly defined and described No Build would demonstrate larger projected ridership and than the Central Link Initial Segment at a lower cost than Sound Transit's No Build shows.

CETA understands that FTA does not favor any one technology over another, but rather seeks to support transit projects--of whatever technology-that pass successfully through the competitive qualification process. We believe the evidence shows that Sound Transit has insisted on light rail regardless of its comparative merit and without properly comparing alternatives to light rail as required. FTA oversight has failed to discern this violation of the rules for determining whether Link Initial Segment is qualified for FTA New Starts funding.

FTA careless oversight of Sound Transit's rail planning shown in the New Starts Report

Summary: There are other minor but telling examples of FTA carelessness shown in erroneous statements about Central Link Light Rail found in the FY 2004 New Starts Report transmitted to Congress in February. For example, for two years running the New Starts Report submitted to Congress has stated in a summary table that the "new riders" forecast for Central Link Initial Segment is 29,000 out of 42,500. The correct number in the environmental record is 16,000. CETA members are shocked and outraged that Sound Transit and FTA have let that number be presented to Congress as a compelling "fact" for two successive editions.

In the New Starts Report describing the Central Link Initial Segment, Seattle, Washington (November 2002):

FTA New Starts Report: "The entire Link system will extend approximately three miles northward to Northgate and approximately eight miles southward to South 200th Street."

Correction: FTA reversed the mileage. It's eight miles north from CPS to Northgate and three (or two) miles southward to South 200th Street.

FTA New Starts Report: "The Link LRT system is one element of Sound Transit's voter-approved ten-year $3.9 billion (in 1995 dollars) Sound Move regional transit plan,"

Correction: Sound Transit's stated position to voters is that the 1996 regional transit plan election approved Resolution 75, which allows Sound Transit to take longer than ten years and spend more than $3.9 billion on its transit plan.

FTA New Starts Report: "The proposed light rail project will connect several of the region's major activity centers."

Correction: The Initial Segment project connects the CBD major activity center with a point in Tukwila that is located outside of the official boundary of the SeaTac Airport major activity center.

FTA New Starts Report: "The project will expand transit capacity within the region's most dense and congested corridor,"

Correction: The Initial Segment does not cover the most dense and congested corridor of the region, and it does not expand transit capacity compared to the no-build alternative.

FTA New Starts Report: "Ridership Forecast (2020): 42,500 Average Weekday Boardings 29,000 Daily New Riders"

Correction: The Record of Decision and the New Starts data submission both indicate 16,000 daily new riders. This serious error was repeated by FTA Administrator Jenna Dorn in her "Dear Colleague" letter transmitting the New Starts Report. The error and the correct number have been confirmed to CETA by Sound Transit staff.

FTA New Starts Report: "The proposed 14-mile Central Link LRT Initial Segment runs south from downtown Seattle through the Rainier Valley in southeast Seattle to the Cities of Tukwila and SeaTac."

FTA New Starts Report: "Plans by the Cities of Seattle and SeaTac promote higher-density, mixed-use, and pedestrian-friendly development in transit station areas."

FTA New Starts Report: "Finally, the City of SeaTac has negotiated agreements with landowners around stations to make developments more transit-supportive."

Correction: The Initial Segment does not enter the City of SeaTac, but rather ends in Tukwila short of the SeaTac city limit.

FTA New Starts Report: "Major trip generators include professional and college sports stadiums and SeaTac International Airport (served by a one-mile shuttle)."

Correction: The Initial Segment station at Royal Brougham near the two Seattle professional sports stadiums has been deferred. The Initial Segment goes nowhere near a college sports stadium, presumably University of Washington. The shuttle bus distance from the southern terminus of the Initial Segment to the SeaTac Airport is two miles, not one mile.

FTA New Starts Report: "The voter approval of Initiative 776 in November 2002 is not anticipated to affect project funding."

Consideration: The Washington State Attorney General is defending I-776 on behalf of voters in an appeal to the Washington State Supreme Court.

FTA New Starts Report: "The project budget also includes $605 million in uncommitted bonding capacity that could be made available."

Correction: The uncommitted bonding capacity in the two subareas of the taxing district where the Link Initial Segment will be constructed will be used up. Under existing policy, uncommitted bonding capacity in the other three subareas cannot be used for Central Link since its costs have not been allocated to those subareas.

FTA New Starts Report: "The agency has a "non-voted debt limit" of $3.4 billion, and anticipated debt is not expected to exceed $2.4 billion, which is well below that threshold."

Correction: The two subareas -- North and South King -- where Central Link is being constructed have a policy-set debt limit that Sound Transit financial plans show will be exceeded by 2009. Leaders in the East King subarea who are on record objecting to any use of their tax resources for Seattle's light rail have until 2006 to further strengthen through state legislation the financial firewalls. Even under present policy, tax collections in this suburban area are not to be used to secure North King and South King bonding needs for building light rail, although FTA implies they could be.

In two sections of the New Starts Report describing North Link and Airport Link Seattle, Washington (November 2002)

FTA New Starts Report: "Through FY 2002, Congress has appropriated $90.97 million for the Link LRT. This amount includes the FY 2002 appropriation of $49.53 million, which FTA has suspended based on recommendations from the USDOT Office of Inspector General. These funds will not be awarded until satisfactory resolution of the issues raised by the OIG and Congress."

Correction: USDOT awarded the $49.53 million to Sound Transit in August 2002, even before the Inspector General began the follow-up audit to verify that the issue raised by Congress were resolved.

Finally, a misstatement on page 42 in the October 2001 Link Light Rail New Starts data submission report turned in to Sound Transit to FTA: "A Project Review Committee, chaired by former Seattle Mayor Charles Royer, was formed in 2001 to provide an independent review of the light rail project."

Correction: The review was not independent of significant Sound Transit influence. CETA has documents that show Sound Transit's public relations firm Cocker Fennessy was inappropriately involved in setting up non-public meetings with selected Committee members in drafting the final report.

REMAINING FINANCIAL RISKS

Two categories of financial risk that FTA needs to assess in the FFGA review process are of course costs and revenues

COST RISKS

The IG audit plan in the area of Central Link costs that CETA seeks to:

(1) Review and validate that the estimated cost to complete the revised project is accurate and complete.

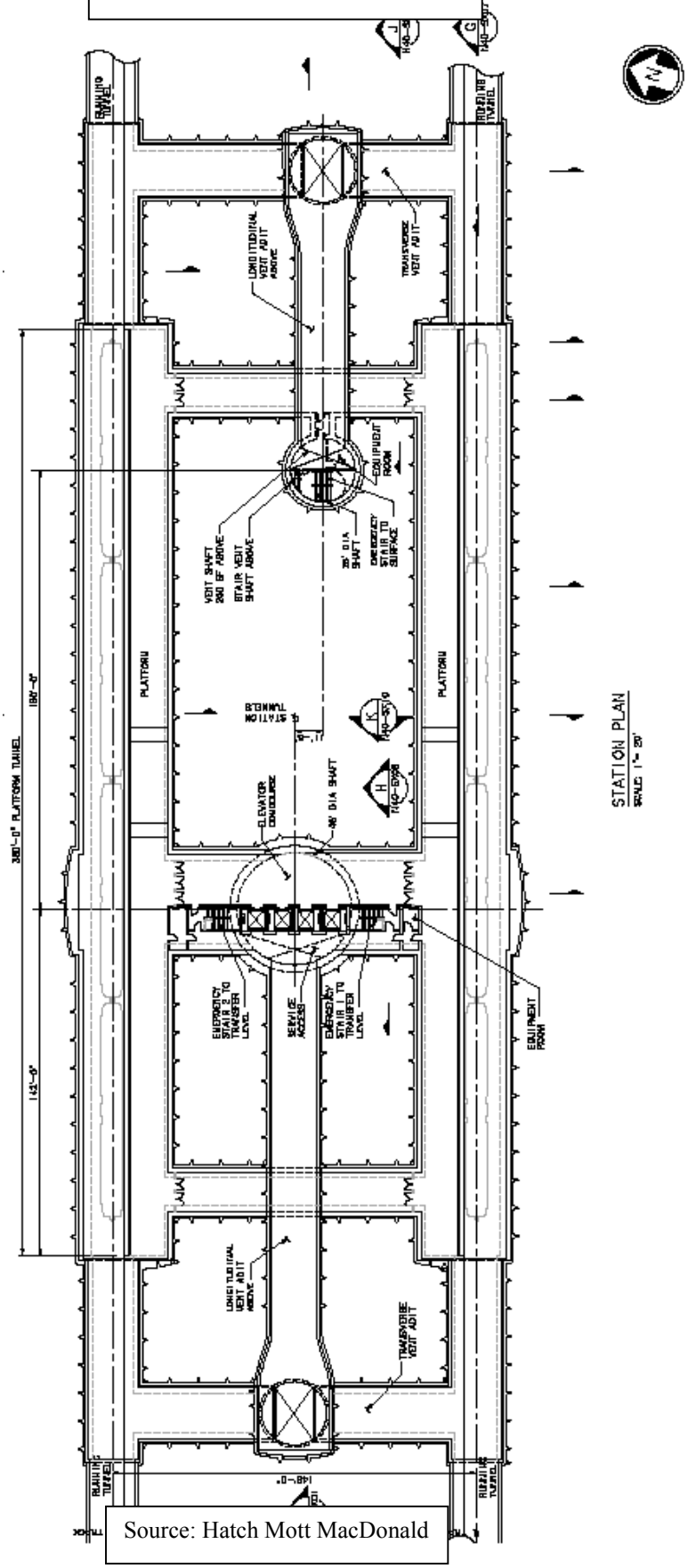
(2) Assess the associated risks to the cost estimate coming from any factors that could substantially increase project and operational/maintenance costs.

CETA understands that the budgeted costs for the Initial Segment have been a focus for intense attention by Sound Transit, FTA, and oversight contractors since cost estimation problems came to full public attention in the closing months of 2000. The right of way for the Initial Segment is on exposed surfaces for the most part, except for the two tunnel segments that need to be completed, the Pine Street Stub where trains will reverse direction at the north end of the segment, and under Beacon Hill. Exposed surfaces on public property reduce cost uncertainty. Some of the Initial Segment route requires right-of-way acquisitions that need to be negotiated with existing owners.

Areas of Central Link Light Rail Initial Segment cost where there is risk that transit agency budgets may be exceeded are these:

- Beacon Hill Tunnel
- Right of way acquisition
- Size of rail car fleet and size of Maintenance Base
- Design changes from hazard assessment
- Administrative Costs

Plan for Link Light Rail
Beacon Hill Underground Station



Source: Hatch Mott MacDonald

- Cost of the Bus System

Beacon Hill Tunnel

Summary: The cost of the mile long Beacon Hill Tunnel and an associated underground station is sufficiently uncertain that FTA has authorized Sound Transit digging a two million dollar, 18 foot diameter deep "test shaft" where the agency hopes the main elevator shaft will someday be viable to construct. CETA finds the Beacon Hill station size and the "pre construction" soil testing exercise to be extraordinary, and Sound Transit admits to complexity. CETA urges audit examination for future cost expansion potential of what was in September 2001 a $27 million addition to project scope.

The Beacon Hill tunnel, as shown below in a diagram copied from a publication of the design contractor, is an extensive civil engineering work of underground construction. The station design consists of platforms for four car trains in two separate tubes, with three cross connections between the platforms and two shafts to the surface, one with four elevators plus stairs, and one with emergency stairs. The year 2020 boardings at this station are estimated in the Environmental Assessment to be 3000 daily.

In the summer of 2001, the completion of the Beacon Hill Station was presented as an option for the Board, a proposed scope addition from the baseline Initial Segment. The completion of the underground Beacon Hill station was presented in the September 13, 2001 Board Briefing Book as a $27 million addition. The Board decided

to make this addition, and deferred the above ground Boeing Access Road station, which was presented as a compensating saving of $22 million.

The estimated cost of the tunnel and station has already risen from about $90 million in 1996 to $335 million today, all YOE. A two million dollar 148 foot deep, 18 foot diameter test shaft is as of spring 2003 being dug as a pre-construction, cost-estimating exercise that is widely understood in the neighboring community atop Beacon Hill to be the start of station construction. According to the *Daily Journal of Commerce*, "In addition to the vertical shaft, two horizontal test tunnels will be built to test specific soil layers. Joe Gildner, Sound Transit's deputy director for light rail, said a layer of silt at what would be the station's mezzanine needs more investigation." Presumably this digging will exactly match the location of some digging that would be required for the construction of the station itself. While CETA understands that all of the design work has been the subject of value engineering, we regard the massive design of the station and the construction of a large test shaft to be extraordinary, especially if there is any likelihood of underground anomalies. We urge further cost-conscious professional oversight by FTA and audit examination by IG or other oversight bodies.

Link right of way costs in the Rainier Valley

Summary: Since the beginning of light rail planning for the Rainier Valley, the upward cost escalation trend for right-of-way acquisition costs has been unrelenting, rising approximately ten-fold since 1996. CETA urges continuing FTA oversight of cost growth, and audit examination by IG and other responsible agencies.

The April 18, 2003 *Seattle Times* reports, "The [Initial Segment Light] rail line, scheduled to open in 2009, requires a budgeted $229 million for real-estate acquisitions and related costs such as relocation payments to landowners, as part of a capital budget of $2.07 billion." This right-of-way figure is a ten-fold increase over the budget established in 1996.

A simple look at the trend of escalation is provided by data in the Sound Transit Quarterly Financial Reports for the fourth quarter of years 2001 and 2002. In the combined accounts for Central Link and the much smaller Tacoma Link, we extracted the following metrics of right-of-way cost growth:

+ As of 2001, the budgeted total right of way (r/w) expenditures against the then current ten year light rail capital outlay plan for 1997-2006. This expresses intent as of the 2001 budget.

+ Life-to-date outlays and contract commitments for r/w as a fraction of all outlays and contract commitments as of year end 2001. This is the track record through the end of 2001.

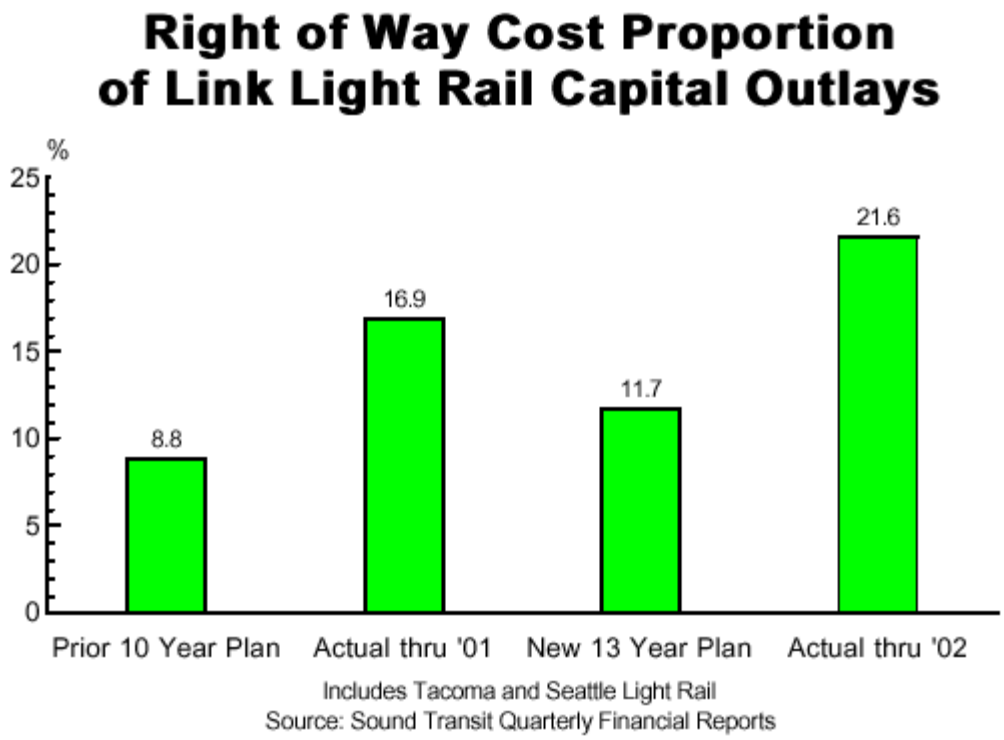
+ As of 2002, the budgeted total r/w expenditures against the then current 13 year capitol outlay plan for 1997-2009. This expresses updated intent as of the 2002 budget.

+ Life-to-date outlays and contract commitments for r/w as a fraction of all outlays and contract commitments as of year end 2002. This is the track record through end of 2002.

These four points can be presented sequentially in the order given to show a trend over time: 2001 intent, 2001 results to date, 2002 intent, 2002 results to date.

The trend shown for r/w expenses in the chart below shows category growth relative to the total. Right-of-way expenses show a year over year rise in their percentage of the total in both budget plan intent and in life to date actuals. The planned fraction of capital to be spent on right of way went from 9% to 12%. The actuals over just one year of growth went from 17% to 22%. This cost

shift in r/w acquisition along with parallel growth in the administrative expense share of capital expenditure both planned and actual, discussed below, has resulted of course in a falling percentage of capital expenditure going to design, construction, and vehicle procurement. CETA views these costs trends with suspicion and recommends attention from FTA and outside auditors.



Size of the rail car fleet and the Maintenance Base

Summary: The size and hence cost of the initial Seattle Link rail car vehicle fleet and associated maintenance base shows a curious relationship to the operating schedule and 2020 ridership forecast. The 31 rail cars budgeted for the Initial Segment are only sufficient to run two-car trains, and yet the projected ridership and even stated intentions of Sound Transit call for the possibility of four-car trains. The maintenance base is budgeted for a capacity of 40 rail cars, but running four-car trains on a rush hour schedule could mean this capacity will be exceeded by the size of a needed fleet of rail cars.

The Environmental Assessment, Appendix C, describes the planned weekday schedule for running 272 two-car light rail trains per day. The six minute peak headways described in conjunction with the stated round-trip time of 80 minutes yields the conclusion that 31 rail cars support exactly, or nearly so, the number of trains required to keep this schedule. The count of 31 could include a few spares in periodic maintenance or hot standby reserve backup. The prospect of four-car trains is held out in the EA, even though the Initial Segment budget only shows 31 rail cars being procured. Four cars on at least some of the 14 to 15 trains in motion during peak periods would require more

cars than 31. Doubling all trains to four cars would require approximately 60 rail cars. Costs would rise.

The peak hour estimated system load of passengers is described in the New Starts data submission of October 2001 as 3000 riders. Distributing those 3000 riders across all 13 trains planned to be in motion on the Initial Segment (two trains are always in layover/reversal status) yields 230 passengers per train, which have a capacity of 274 passengers sitting and standing according to the EA. But the peak to non-peak directional split on estimated riders is given in the New Starts data submission as two to one. This means that 2000 passengers in the peak load are moving in the peak direction on half the trains, and the remaining 1000 are moving in the opposite, non-peak direction aboard the other half of the trains.

Generously assigning seven two-car trains to the peak direction and distributing 2000 passengers on the 14 rail cars in those seven trains yields 143 riders per vehicle. This is an overload condition. On a 74 seat light rail train car 143 passengers is a load factor of 1.93, and this is greater than the stated design load factor of 1.85. This calculation suggests that some four-car trains may be desirable in the peak hour to meet demand. Additional rail cars beyond the planned 31 will drive up the Initial Segment costs.

Furthermore, on page 6 of the EA, the planned light rail Maintenance Facility is described as having a storage yard that would accommodate 40 rail vehicles, which may prove to be too small a facility if more rail cars are added to the Link fleet.

These calculations and observations raise the question of whether the budgeted 31 rail cars and the 40 car storage yard will be sufficient for ridership. If not, then additional rail vehicles and storage space would be a source of cost overruns.

Potential design changes resulting from new hazard assessment

Transit activists and light rail neighbors who are disturbed at the prospect of 272 two- or four-car trains per day crossing the path of tens of thousands of motor vehicles daily at 18 grade crossings have been developing a growing understanding of the FTA-mandated safety hazard assessment processes. With new found expertise in conjunction with USDOT's top priority interest in safety, these activists may be able to force design changes in the Link Initial Segment that could add significant cost.

This report covered the safety problems in the Central Link Light Rail design in an earlier section. If design changes to eliminate potential intermodal fouling of the light rail right of way are ordered by a safety-conscious authority (such as FTA, State of Washington, City of Seattle, or even Sound Transit itself following receipt of new information) *after* construction gets underway, capital cost increases will likely occur.

Administrative cost growth

Sound Transit's administrative costs across the entire agency are partially allocated to the various lines of business, one of which is light rail. Other costs are allocated to full-region projects, such as fare integration. Some of the administrative costs associated with light rail are allocated as light rail capital expenditures, and are charged against the light rail capital budget.

CETA notes that available published financial data that combine expenditures for Central Link and the much smaller locally-funded Tacoma Link program indicate that the administrative cost portion

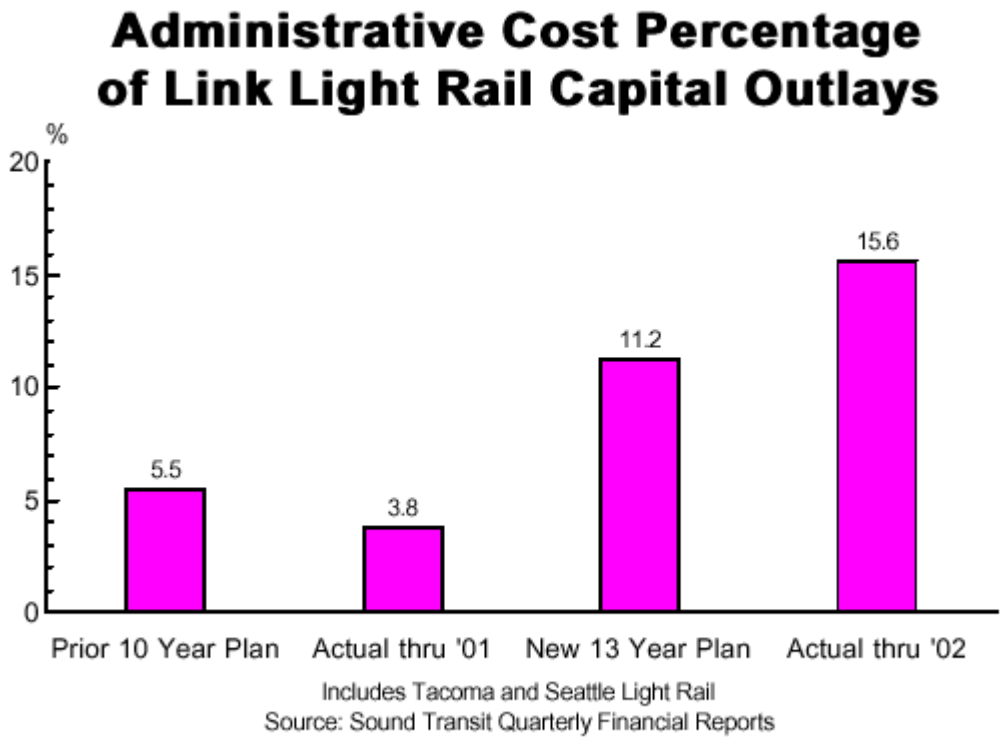
of capital expenditures is rising. The chart below indicates the share of capital that is administrative expense for four distinct agency to date expenditures metrics:

+ As of 2001, the budgeted total administrative expenditures against the then current ten year light rail capital outlay plan for 1997-2006. This expresses intent as of the 2001 budget.

+ Life-to-date outlays and contract commitments for administration as a fraction of all outlays and contract commitments as of year end 2001. This is the track record through the end of 2001.

+ As of 2002, the budgeted total administrative expenditures against the then current 13 year capitol outlay plan for 1997-2009. This expresses updated intent as of the 2002 budget.

+ Life-to-date outlays and contract commitments for administration as a fraction of all outlays and contract commitments as of year end 2002. This is the track record through end of 2002.



These four points can be presented sequentially in the order given to show a trend over time: 2001 intent, 2001 results to date, 2002 intent, 2002 results to date.

The trend for administrative expenses in the chart shown above indicates category growth relative to the total. Administrative expenses show a year over year rise in their percentage of the total in both budget intent and in life to date actuals. The planned fraction of capital to be spent on right of way went from 6% to 12%. The actuals over just one year of growth went from 4% to 16%. This cost shift toward more administrative expense both planned and actual, along with growth in the right-of-way acquisition share of capital expenditure, discussed above, has resulted in a falling percentage of capital expenditure going to design, construction, and vehicle procurement.

CETA suggests the meaning of this administrative cost growth relative to the capital construction budget for light rail be a topic for further study as to its implications for cost risk in the Initial Segment project.

Cost of the bus system

Summary: Bus system costs have been insufficiently examined for the King County Metro bus transit agency that will someday have to rearrange routes and redeploy buses to feed the majority of the Initial Segment's riders into train stations. These costs impact the cost of regional transit overall. The claim that the advent in Seattle of 14 miles of light rail leads to cost savings in the revised corridor that translate into bus redeployment to give better overall service needs closer examination by FTA and outside auditors.

The 1996 Sound Move Plan promised, "New regional transit services will free up significant bus service hours now provided by local transit agencies. The RTA will work with local transit agencies to identify local service and/or community connections such as park-and-ride lots that support the regional transit system. These local resources will be distributed to subareas based on the investment each makes in the regional service responsible for freeing local bus service hours."

The 1996 Sound Move Plan that presented light rail to voters and achieved their approval showed the annual value of regional benefits from investing in Sound Move. The Plan states that bus service replaced by RTA, available for reinvestment, would be $20 to $30 million per year.

However, to CETA's knowledge, these claims have never been audited and verified. The implementation of the full Link light rail 24 mile plan would require a massive rearrangement of local and express bus service, not only in downtown Seattle as buses are displaced from the bus tunnel, but throughout the Link service area and potentially the entire King County.

Aside from the need to maximize the efficiency of the combined bus-rail transit system, Metro bus system reroutings will make sure a large number of existing bus riders become light rail riders, a necessity if Link is to achieve its forecast patronage. The majority of light rail riders, over 60%, will be pre-rail Metro bus customers. Bus routes will be added, changed, and eliminated, and frequency of service will be changed on some routes. Many buses will stop at light rail stations with the expectation that passengers will transfer to the train. Some forced transfers to light rail will be necessary, so some bus routes will simply be truncated at Link stations, and all passengers will head for the train.

As Metro states in its Six-Year Transit Development Plan for 2002 to 2007, "Link construction and operation will ultimately result in large-scale changes to service in Seattle and northern portions of South King County. The status and possible modification of plans for Link service implementation will continue to affect the timing and nature of related Metro bus system changes throughout this period and beyond."

CETA views as unlikely the proposition that “large-scale changes” needed in bus operations that are interacting with light rail will result in reduced costs. The cost of simply planning and initially implementing such changes is likely to be significant, quite apart from ongoing operational costs. Rises in overall bus costs are more likely, and CETA recommends attention to this question by FTA and outside auditors.

FUNDING RISKS

The IG audit plan in the area of funding risk that CETA seeks to:

(1) Review the proposed funding for the project, the impacts on other regional transportation programs, and potential funding risks.

(2) Validate that funding sources are sufficient to complete the revised Initial Segment, and also assess the impact on the remaining segments of the project.

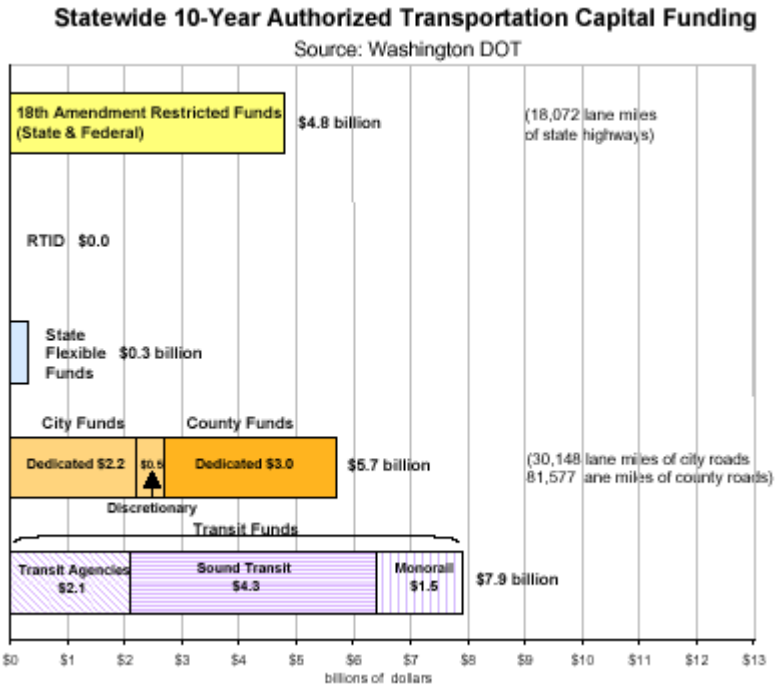
The areas of risk to Central Link Light Rail funding sources are several:

- Statewide transportation funding climate
- Concerns over lending between subareas

Statewide transportation funding climate

Summary: The regional transportation funding climate presents a future risk of tax rollback legislation or initiatives that could pinch light rail funding. Such rollbacks have already occurred in transit taxes that indirectly support Sound Transit.

Although Sound Transit's projects are locally funded with an authorized, dedicated set of general sales, vehicle excise, and rental car taxes, the turbulent transportation funding climate in Western Washington presents some ongoing risk of tax rollback action by citizen initiative or by legislation. There already exists an organized group of anti-tax activists, Permanent Offense, with a track record of achievement in petition-initiated tax rollbacks that affect transit. The elimination of a percentage-of-value statewide motor vehicle excise tax and replacement with a low flat fee was one accomplishment of this group. This action unexpectedly impacted Sound Transit projects by reducing the financial participation of local government agencies in certain Sound Transit projects.



Another effort of the Permanent Offense group, the I-776 Initiative to make further cuts in vehicle registration tax levels for selected government agencies including Sound Transit, passed statewide in November 2002. It was overturned by King County Superior Court, but as of this writing is being defended by the State Attorney General in State Supreme Court. This Initiative specifically targets Sound Transit's light rail. Even if implementation continues to be blocked after review by the Supreme Court, Initiative 776 could be rewritten and resubmitted by light rail funding opponents.

More pressure on public support for transportation taxes is beginning as of May 2003 with the first collections of a new motor vehicle excise tax of $85 for each $10,000 of value for vehicles registered in City of Seattle, in order to pay for the construction of a 14 mile monorail. City of Seattle is totally contained in the North King subarea where the spending for Link Initial Segment is heaviest. This tax is on top of the previously authorized Sound Transit motor vehicle excise tax

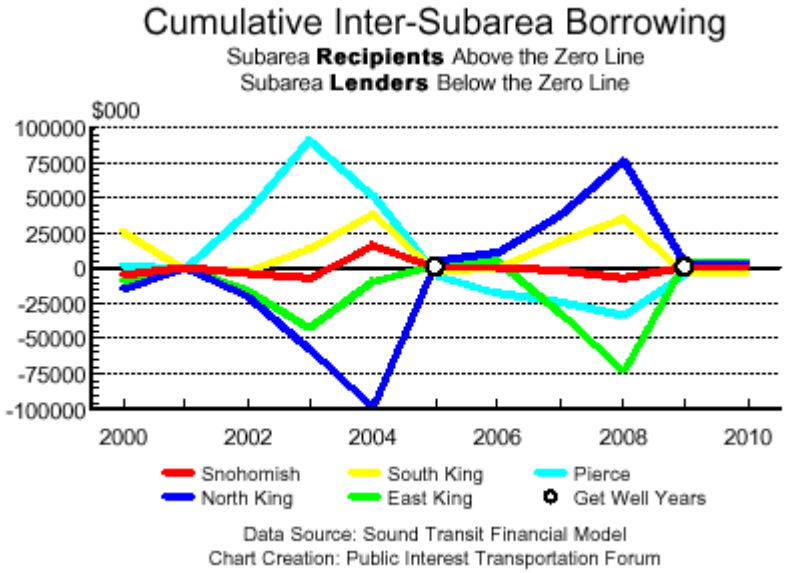
of $30 for each $10,000 of a vehicle's value. City of Seattle residents of the North King Sound Transit subarea are thus about to enter a period of high taxation and disruption for two separate 14 mile fixed-guideway mass transit construction projects.

At the same time that taxes are being collected for these two projects, Sound Transit may need to come back to the voters for more funding of its North Link or Airport Link extensions to the Initial Segment. Sound Transit Board Member David Earling was indirectly quoted in the *Seattle Times* on September 4, 2002: "A voter-approved tax increase will be required to extend the 14-mile Seattle line and likely will be sought sometime from 2004 to 2006, Earling said."

The chart shown above issued by the Washington State Department of Transportation in January 2003 indicates that on a consolidated statewide basis, the taxes collected for Sound Transit and now additionally for the Seattle monorail are quite significant when measured as a fraction of all transportation taxes. Sound Transit pulls in a 54% share of the projected ten year tax collections supporting transit capital statewide, and a 23% statewide share of all transportation taxes, including those for roads, bridges, buses, and ferries.

Concerns over lending of money between subareas

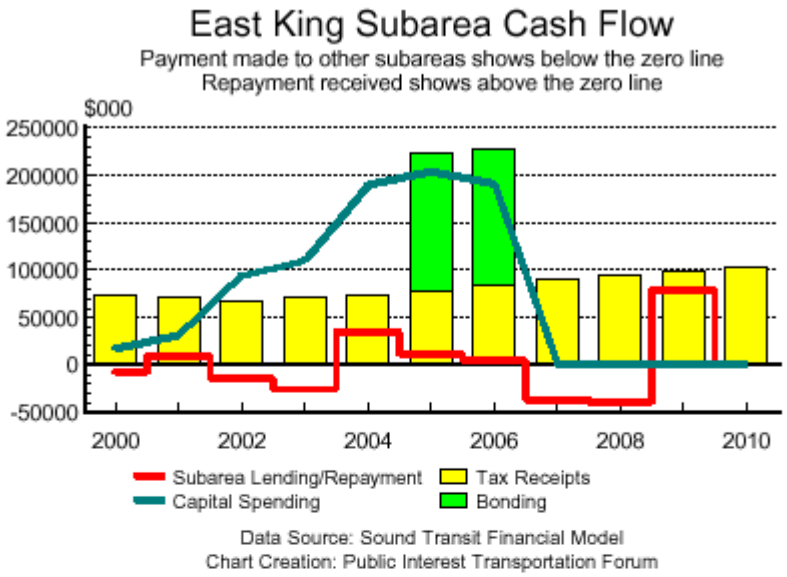
Summary: Funding shortfalls for Central Link could come from suburban reaction to concerns over the strength of the firewalls between the revenues and costs of subregions, as set by policy. When Sound Transit's light rail plan was established in 1995-96, its funding was established as coming from the subareas of the Sound Transit district where the tracks would run. Fundamental policies now prevent three of the five Sound Transit subareas from *permanently* contributing any revenue to Central Link, but *temporary* contributions are now authorized via inter-subarea lending. However, this source of cash flow to Central Link could potentially become restricted.

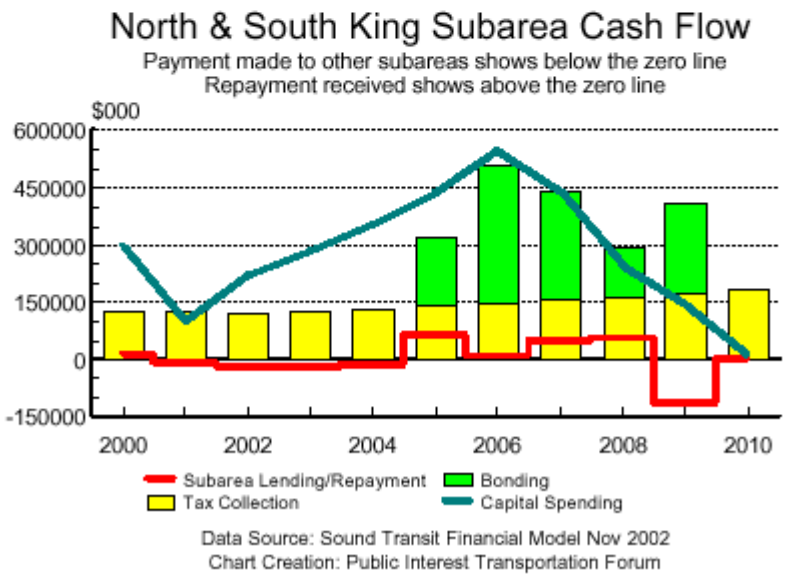


The Link Initial Segment is funded with taxes from two of the five Sound Transit subareas. Spending patterns among the subareas are quite different, as are the tax collections in each. Inter-subarea lending/borrowing is carried out by Sound Transit financial managers to avoid borrowing money through selling bonds when Sound Transit as a whole has unused cash available in one subarea that is not immediately needed by that subarea for its own projects. So for example, the Pierce County subarea with its locally funded Sounder and Tacoma Link, is borrowing recently from other subareas that have projects not so far along. As tax collections for a subarea like Pierce eventually generate sufficient surplus cash above subarea project spending, the inter-subarea loans are intended to be repaid. The complex pattern of inter-subarea borrowing is revealed in the graphic illustration above, extracted from a year 2002 version of the Sound Transit Financial Plan. While the numbers may have changed recently, the basic principle remains the same, as illustrated. Lines above the zero level indicate subareas that are

being loaned cash by other subareas. Lines below the zero level show areas that are the sources of the loans. As projects are completed, all subarea loans are intended to be repaid, and those point are programmed in future "get well" years where all lines cross the zero level, 2005 and 2009 per this version of the plan.

A funding problem for the Link Initial Segment Project in North King and South King may arrive in the period 2006-2009 when the East, Pierce and Snohomish Phase I capital programs (as authorized in the 1996 Sound Transit election) are completed. The end for these three regions will come most likely before the completion of Link Initial Segment in 2009, the main Phase I project for North King (Seattle) and South King (Tukwila and SeaTac). The expectation now is that after Phase I projects other than Central Link are completed in East, Pierce and Snohomish, cash would be loaned to North and South, which will still be in the midst of constructing the light rail Initial Segment.





Some leaders in the Eastside subarea object to the continuation of inter-subarea borrowing beyond the completion of their own Phase I projects approved in 1996. These leaders advocate that suburban subareas should be getting on with their presumed Phase II programs -- not holding Phase II projects in abeyance because Link Initial Segment needs cash. However, the Link Project Review Committee in 2001 and Sound Transit staff as well have proposed the option of extending the repayment of subarea loans to North ad South King for another ten years (to 2019) in order to finance the construction of Initial Segment extensions.

If the program of inter-subarea loans from those cash-rich subareas not building light rail gets extended, the door is opened to North King and South King obtaining unsecured loans from the other three subareas that may not be possible to repay because of light rail cost overruns that outstrip the dedicated taxes and fares. Sound Transit staff deny that this is a concern, but some critics see the problem as inevitable. In a worst case scenario for the Link Initial Segment financial plan, if costs were to rise too much, too quickly in light rail construction in North King or South King, jurisdictions may demand changes in subarea boundaries, or complete withdrawal from the overall Sound Transit taxing district.

A mirror image of this problem of cost overruns with Link Initial Segment is the possibility of cost problems with *other* Sound Transit lines of business such as Sounder. Such overruns could restrict Sound Transit's ability to move cash *from* the Pierce, Snohomish or East King subareas *to* the North and South King subareas that are building light rail.

Indeed, recent year-over-year forecasts for the budgeted lifetime cost through 2016 for the other capital programs underway in Sound Transit show a strong growth trend. For example, Sounder Commuter Rail capital cost estimates out to 2016 have gone up 29% over the three years 2001-03, and its O&M cost estimates have gone up 114%. Rider estimates have been reduced by 22%, since it is taking longer than originally planned to add more daily trains.

Regional Express Bus capital costs have been increased by 48% over the three years leading up to 2003. Most of that increase is due to "Possible Program Enhancements" that are not included in the Phase I adopted plans.

The complex nature of the inter-subarea borrowing issue is illustrated in the two charts above on the previous page derived from a Sound Transit financial plan that may have changed slightly. The East King chart shows its bonding for capital expenditures reaching a peak in 2005-2006, at the tail end of a period of capital spending. These bonds are apparently planned not only to cover East King's capital projects, but also to generate enough additional cash to loan to other subareas and projects, particularly light rail in North King and South King, in 2007-2009. The combined North and South King chart shows their bonding ramping up as the light rail construction period is winding down. Under this version of the plan, in 2009 all inter-subarea loans would be repaid, although as noted already, the Link Project Review Committee in 2001 recommended extending the time period of inter-subarea lending out an additional ten years until 2019.

Legal or cash availability restrictions on subarea borrowing as a source of financing the Initial Segment could also come because of challenges from South King representatives that the costs in North King are delaying or risking completion of the light rail to South 200th Street past SeaTac Airport to the southern terminus promised in the 1996 Sound Move plan.

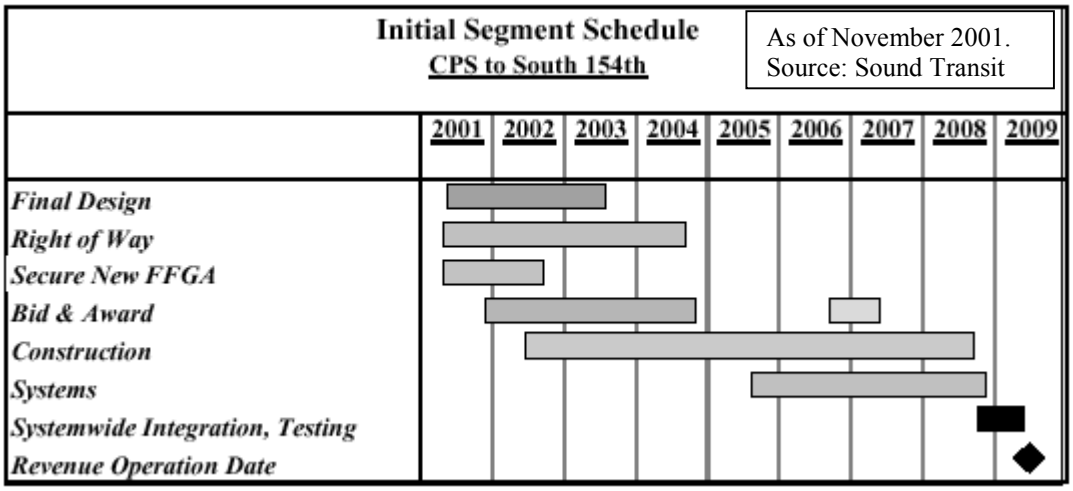
With inter-subarea borrowing as a programmed source of cash for the Link Initial Segment, cost overruns in other Sound Transit lines of business create a funding risk. These other overruns that affect the availability of surplus cash in the three subareas not building the Initial Segment would of course limit the ability of inter-subarea borrowing into North and South King to finance the Initial Segment.

In summary, the Initial Segment funding plan is risky for two reasons associated with inter-subarea borrowing. First, cost overruns anywhere within the Sound Transit array of construction projects across multiple lines of business in all subareas could lead to cash shortages that cascade to the detriment of Initial Segment cash requirements. Second, political leadership in subareas that lend

money for Initial Segment could take steps to restrict the flexibility that Sound Transit seeks in its use of this financing tool.

REMAINING SCHEDULE RISKS

Central Link Initial Segment is already at least one year behind the schedule presented to the Board at the time of Project approval in late November 2001 (see graphic following). At that time, the



Revenue Operations Date was set for July 2009, where that date remains as of May 2003. The Board was told in the briefing book in late 2001: "The current cost estimates are based on the start of construction activity in mid-2002 and substantial right-of-way acquisitions in 2002. The schedule assumes that federal concurrence can be gained prior to summer 2002 so construction can begin as planned." As of May 2003, the dictates of the timetable for remaining FFGA review steps mean that federal concurrence and the start of construction are unlikely before early September 2003. It would be remarkable if the one year schedule delay occurring up to this point in time does not impact the July 2009 Revenue Operations Date, but perhaps Sound Transit built slack into the schedule in order to provide enough time for project-related developments that are not part of the project budget and not on the critical path of the schedule.

Nevertheless, the Central Link Light Rail Initial Segment project schedule and Revenue Operations Date of July 2009 is further at risk until several outstanding issues are settled. All of the following need to be objectively assessed for their potential to delay further Sound Transit's construction of the Initial Segment:

- Extension north of Seattle CBD
- Pine Street Stub Tunnel
- Four lawsuits pending
- City of Tukwila permits
- Hazard resolution requirements
- State legislation
- Other actions by organized opposition

Extension north of Seattle CBD

The single biggest schedule risk to the Initial Segment comes from the undetermined or at least undisclosed details about the route to the North for Central Link. There are powerful downtown Seattle business interests who do not want the existing Downtown Seattle Transit Tunnel closed to bus traffic for two years of conversion to light rail unless the extension of the Link Light Rail Initial Segment to Northgate is planned, funded, and set for early construction. These details are not set to be revealed until late 2003 at the earliest. The likely problems with North Link's prospective budget, alignments, and timing were described earlier. As the remaining unresolved issues in the design and cost of North Link are revealed, the shock of a very high cost – perhaps unchanged from the high costs that sunk MOS-1 University Link in early 2001 – and the difficulty of securing revenues to cover the cost may disrupt and delay the timetable of Initial Segment construction.

Pine Street Stub Tunnel

As noted earlier, a problem with the Pine Street Stub Tunnel is that in order to achieve reasonable economy with government resources, the Stub's design must be coordinated with the design of the track routing of the required North Link extension. That routing will remain uncertain well beyond the expected time when the Initial Segment FFGA would be executed.

While authorization was voted in March 2003 for the Pine Street Stub Tunnel design, it's not clear how that design work can proceed without knowing which direction the tracks are going to point toward at the far end of that short Tunnel. Therefore, the revealed placement of the design work on the critical path of the Master Schedule suggests a source of overall schedule delay.

Four lawsuits pending

There are four lawsuits involving Sound Transit's light rail project still open with potential resolutions that could disrupt construction plans for the Initial Segment. These suits are:

- Sane Transit vs. Sound Transit: Decided in King County Superior Court in favor of Sound Transit, an appeal hearing is scheduled on June 10, 2003 before the Washington State Supreme Court. At issue is the legitimacy of Sound Transit significantly changing the ten-year plan approved by voters in 1996.
- Sound Transit et al vs. State of Washington: Decided in King County Superior Court in favor of Sound Transit, an appeal is being taken by the State of Washington Attorney General to the State Supreme Court. At issue is the validity of the I-776 tax rollback initiative passed statewide in November 2002.
- Citizens for Mobility vs. Sound Transit et al: Decided in Federal District Court in favor of Sound Transit, Citizens for Mobility has announced its intention to appeal. At issue is the adequacy of the environmental review process for the Initial Segment.
- Save Our Valley vs. Sound Transit: Decided in Federal District Court in favor of Sound Transit, an appeal by Save Our Valley is underway in the Federal Ninth Circuit Court of Appeals. At issue is whether the Rainier Valley light rail alignment is a violation of the 1964 Civil Rights Act.

While the Sane Transit and I-776 lawsuits before the Washington State Supreme Court may be settled by mid summer 2003 and thus before the likely date of FFGA execution, the two light rail opposition lawsuits being appealed in Federal Court will likely not be. Each of these four ongoing cases is a schedule risk for light rail until all appeals are concluded.

City of Tukwila dissatisfaction

Summary: Another potential source of delay that needs to be assessed is the stance of official opposition to the Initial Segment alignment taken by the City of Tukwila city council in a vote June 2001. This resistance could potentially lead to additional action by this elected Council that would be contrary to the interests of Sound Transit in timely processing of city permits.

Sound Transit's Initial Segment Project Schedule reveals that development steps for the southernmost portion of the Initial Segment alignment are on the critical path for finishing the light rail construction and testing in time for the July 2009 Revenue Operations Date declared in the FFGA application. The southern part of the Initial Segment runs through City of Tukwila.

However, the Tukwila City Council on June 17, 2002 voted against approving a memorandum of agreement (MOA) with Sound Transit related to official negotiated cooperation in implementing the approved alignment through the City. The most often declared reason for this negative vote was the belief on the part of Councilmembers and their constituents that the light rail alignment should go through the main Tukwila urban center, the Southcenter shopping district, rather than taking a shorter, more economical path to Tukwila's first and only planned light rail station at S 154th Street, the southern terminus and interim access to SeaTac Airport for the Initial Segment.

This unhappiness from Tukwila City leaders came even after the alignment of the Initial Segment route had already been changed in 2001 by Sound Transit at the request of City of Tukwila staff, to run closer to Southcenter on an elevated, less disruptive path than the grade-level alignment planned earlier. As stated later in the City of Tukwila newsletter of January 2003, "The City continues to work with the Sound Transit Board of Directors and staff to bring Light Rail to the Southcenter urban area. Though it's not there yet, we did influence the routing decision to bring it closer to that urban center, and will continue to do so."

As described by Sound Transit staff shortly after the vote, "the MOA was an agreement to encourage the city's participation in design review, to outline the process for Sound Transit to receive the permits it needs from the City of Tukwila and for the parties to continue a new era of cooperation and partnership, which Sound Transit believed started when the Sound Transit Board agreed to study and adopt the Tukwila Freeway Route. The MOA also identified a limited number of outstanding issues that the parties agreed to resolve during final design. It also described how the parties would work together to coordinate and meet objectives with clear lines of authority; described how the parties would interact to review designs; described how the parties would interact on the application and issuance of required permits; committed Sound Transit to pay $240,000 in compensation to Tukwila for the city's role in reviewing the light rail system's design and construction plans; and committed to a defined process to resolve disputes."

Shortly after the MOA was rejected, Mayor Steve Mullet of Tukwila declared, according to official city minutes from the July 1 Council meeting, "the City of Tukwila will treat any permit application submitted by Sound Transit with a straightforward and positive manner, as it treats all applicants submitting permit applications. This is how the City operates and it will not deviate from the norm. Sound Transit will not be pre-judged in light of the City's recent negative vote on the Memorandum of Agreement."

Earlier in 2001, the pending MOA with City of Tukwila was characterized by Sound Transit as a necessary Third Party Agreement required to secure Federal New Starts funding and was sought to be in place before FTA granted complete Final Design Approval for the Initial Segment. After the MOA was voted down by City Council, FTA Region 10 staff made the determination that the

failure of Sound Transit to achieve the MOA with City of Tukwila would not be an obstacle for Sound Transit in obtaining the permit(s) needed to build light rail per the Initial Segment plans, and granted Final Design Approval.

The mitigating focus of regional political leadership seems now to be on planning for an eventual light rail branch line leading down to Southcenter. Two Sound Transit Board Members representing Tukwila sent a letter to the Sound Transit executive director in early 2003 requesting that this option be considered.

However, the present reality of the process for Sound Transit building light rail tracks in Tukwila is that there are going to be future City Council votes on permits for Sound Transit's construction work. The intergovernmental relationship between Sound Transit and Tukwila has been testy over the years. The MOA was described by Sound Transit ahead of the June rejection as "a step in the process that continues building the relationship with the City after years of disagreement over the basic light rail route through the City."

Given the vote of June 2002, the FTA's best interest on behalf of U.S. taxpayers may lie in forcing Tukwila and Sound Transit back to the bargaining table to achieve a Third Party Agreement and greater certainty in the development process before committing to an FFGA for the Central Link Initial Process.

In the meantime, CETA concludes that the lack of harmony in the relationship between Tukwila and Sound Transit is a source of schedule risk.

Hazard resolution requirements

Pro-transit activists are week-by-week gaining understanding of the challenge to safety certification represented by the at-grade crossings in the Rainier Valley and the mixed bus-rail operations in the DSTT. The substance of these challenges is described earlier.

Empowered by information about hazard analysis processes and standards that have been published on the Internet, and spurred on by growing outrage at the dangerous infrastructure they perceive government is trying to build, activists are translating their growing understanding into action requests to organizations around the state and the country, including safety councils, legislative bodies, and professional associations. They are networking with others concerned about or working on the light rail safety problem in other regions of North America. A number of the monorail activists in Seattle are proving helpful because the safer characteristics of their chosen guideway technology provide a sharp contrast to the story that Sound Transit is trying to tell and sell with its light rail program.

The point to be made here is that any traction that activists achieve in their quest to gain official recognition of the light rail intermodal collision safety issues from either inside or outside the Sound Transit district could result in new requirements, new tasks, and schedule delays for Sound Transit.

State legislation

The Washington State legislature may make changes to Sound Transit's authority and governance structures, and many of these would represent a schedule risk. Several bills aimed at this intent were passed through one of the two legislative chambers in the Spring 2003 session, although as of this writing in early May 2003, none have passed. Absorbing any such legislatively-mandated changes as they may come to pass in the 2003 session or in later years (2004, 2005, 2006, etc.)

creates the prospect of interruptions in the timely completion of work needed to achieve the Revenue Operations Date of mid 2009. One legislative bill earnestly sought by elected leaders in the Eastside subarea is to put stronger, tighter legal restrictions on the use of tax dollars from one Sound Transit subarea for projects (like light rail) in another subarea. This was one of several bills passed in the Washington State Senate in the 2003 session, and only blocked on procedural grounds in the House after strong Sound Transit lobbying.

Other actions by organized opposition

The organized pro-transit opposition to light rail in the Puget Sound region is becoming stronger, and will continue to take actions that create a schedule risk even after execution of an FFGA.

Local citizen associations in western Washington State have proposed detailed alternatives to light rail, including Bus Rapid Transit (BRT), and one or more extensions of Seattle's locally approved, and locally funded, monorail system. At the same time, light rail is facing serious and unrelenting local objections because of its exorbitant costs, safety problems, technical issues (including new deep tunnel-boring and unprecedented mixed bus-train use in the existing downtown tunnel), and most notably its inability, even by Sound Transit's own admission, to alleviate any of Seattle's traffic congestion problems.

These problems may spur more lawsuits, initiatives, or legislation to block the Initial Segment. As in the City of Tukwila, there are still significant municipal permits left for Sound Transit to obtain in City of Seattle, such as one for a 24 hour/seven days construction schedule noise variance that will take four to five months to obtain.

The objections advanced by opponents to justify stopping the project are sometimes quite distinct and unrelated to the fundamental reasons they object to Link Light Rail. For example, certain legal technicalities (permit problems, for example) pursued by some opponents would not be raised if Link Initial Segment offered significant benefits for its high costs. But it doesn't for many. Leading opponents of the Initial Segment have an interest in cost-effectiveness in government programs that was honed in the past struggle to stop the construction of nuclear power plants by the Washington Public Power Supply System (WPPSS), thus trying to avert a bond default. But saying "WPPSS on Wheels" only goes so far in diverting Link resources to more productive transit purposes. When a project is disliked, any objection to slow or stop it will suffice.

Sometimes, a group that actually wants to see the Initial Segment project advance will lodge an objection based on a different principle. For example, a challenge to one outside source of taxpayer resources for Sound Transit – the tax-funded efforts of public utilities performing electric and water line relocations in association with Initial Segment construction – has been mounted by a coalition of neighborhood associations in Seattle. The safety problem with light rail grade crossings is pursued by those who want to have light rail elevated or underground, and by those who would rather see a different transit mode used instead of light rail, such as monorail or express buses.

CONCLUSIONS AND RECOMMENDATIONS

CETA concludes from the evidence presented here that the execution of a Federal Full Funding Grant Agreement for the Central Link Initial Segment would not be beneficial for the citizens of Washington State, nor in the best interests of the Federal Government. FTA has not yet completed the due diligence required in fulfilling its oversight role. FTA Region 10 in particular has been too eager to be a "partner" with Sound Transit in the construction of Link Light Rail Initial Segment.

CETA recommends that this minimal list of conditions be met by FTA and Sound Transit before an FFGA is executed for the Initial Segment:

1. Sound Transit Board approval of the selected alignment, budget, funding plan, environmental clearance, and necessary third party agreements for constructing North Link from CPS to Northgate. (CETA's position on Board approval of North Link is that significant changes from the 1996 Sound Move Plan need to be put before voters in a new election.)
2. An Initial Segment light rail plan for the short section of right of way north of Westlake Station at a level of design that is completely integrated with the physical requirement of the chosen North Link alignment in the vicinity of Convention Place Station.
3. A signed agreement from City of Tukwila, City of SeaTac, and Port of Seattle that the planned S154th is acceptable as a southern terminus for Central Link for an indefinite period of time until such time as there is sufficient funding to construct Central Link to a southern terminus at S 200th Street.
4. An independent audit of the accuracy and validity of the data submitted by Sound Transit to FTA for its Initial Segment New Starts justification with a special focus on the definition of the No Build Baseline to make sure that it represents "the best that can be done for mobility without constructing a new transit guideway" and that the costs of this Baseline are not unreasonably inflated to make the Initial Segment look better than it would otherwise.
5. Independent professional hazard analysis and safety certification of the intermodal collision risk that shows the present light rail right of way design in the DSTT and in the Rainier Valley can achieve better than Hazard Risk Index Category 1C, unacceptable.
6. Certification by Sound Transit and independent audit verification that the full 24 miles of Central Link can be constructed and operated by expending from, and pledging for the necessary bonds from, only the authorized local tax base of the North King and South King subareas of the Sound Transit district.

Unless and until FTA assesses all of the risks detailed in this report, we conclude that FTA's "partnership" with Sound Transit in the construction of Link Light Rail Initial Segment must be judged as inappropriately overwhelming its statutory oversight role. FTA must be a steward of America's Federal public transportation resources, and make these resources available only to the most worthy mass transit projects around the country.

Note: Further documentation of all findings and conclusions in this report is available from Coalition for Effective Transportation Alternatives, 1-206-365-2382 or on the web at www.effectivetransportation.org.