

How Sound Transit Abused the Planning Process to Promote Light Rail

and also

CETA Comments on DSEIS for Sound Transit's "Regional Transit Long-Range Plan"

by

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This report in its entirety is submitted as one of the Coalition for Effective Transportation Alternatives (CETA) comments on Sound Transit's DSEIS for their Regional Transit Long-Range Plan as solicited in Sound Transit's news release dated Dec. 2, 2004 and on the web as:

http://www.soundtransit.org/newsroom/releases/pr_20041202_1.asp

Abstract

Areas of weakness and apparent bias in the planning process behind Seattle's planned "Link" light rail system are identified. Problems with Sound Transit's one and only alternatives analysis – a 1993 FEIS comparing rapid rail and bus alternatives-- are documented. It is concluded that there is no valid alternatives analysis behind Link light rail. Link's performance is summarized using objective data and qualitative comments. Key advantages of BRT are described. Particular attention is given to the issue of rail versus bus capacity, and how it was mishandled in the 1993 FEIS in order to favor rail. Raw cost-effectiveness data in the 1993 FEIS is reformatted and presented in a way that better communicates the relative merits of the rail and bus alternatives. The bus alternative is modified to overcome alleged capacity deficiencies, and then re-compared with the rail alternative. It is found that a modified bus alternative would have had more than enough capacity to meet long-term needs and could have achieved the same ridership as rapid rail, at far lower cost. Results are brought forward in order to estimate the costs of the full regional light rail system envisioned by Sound Transit versus a BRT alternative. It is concluded that switching to the BRT alternative would save the Puget Sound region about \$900 million dollars a year over a 30 year period. It is argued that Link is the failed result of a faulty planning process. The effects on public trust in government are documented with newspaper quotes, as are requests made of Sound Transit to consider alternatives to light rail. Detailed recommendations are offered on how to improve the process and conduct the proper alternatives analysis that is still needed.

Funding and Sponsors

This report was written by the author as a community service. There has been no outside sponsorship or funding.

Author's Background

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Web Sites for additional information on Link light rail

<http://www.effectivetransportation.org/> (CETA site)

<http://www.globaltelematics.com/pitf/index.htm>

Copies of this report

Copies of this report can be obtained from Sound Transit since Sound Transit is required to publish comments received on the DSEIS. Copies may also be obtained from CETA. See CETA web site for contact information.

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Key Abbreviations:

- ST = Sound Transit, the agency charged with detailed planning, implementation of high capacity transit in the Puget Sound area, known officially as the Regional Transit Authority or RTA.
- RTP = Regional Transit Project, the name of the planning project taken over by RTA and whose main product was the 1993 FEIS for rapid rail (the author uses the terms RTA and RTP somewhat interchangeably)
- PSRC = Puget Sound Regional Council, the agency responsible for strategic transportation planning, and the regions official MPO
- EIS = Environmental Impact Statement, FEIS = Final EIS, as opposed to draft EIS
- DSEIS= Draft Supplemental EIS, in this case for Sound Transits “Regional Transit Long-Range Plan”

Specific requests to Sound Transit concerning its response to these CETA comments on the DSEIS

As Sound Transit knows, CETA members have almost certainly spent more effort over the last several years scrutinizing Sound Transit's light rail plans than any other organization.

Due to the importance of Sound Transit's Draft Long-Range Plan DSEIS a large amount of effort has gone into preparation of this document and CETA would appreciate a commensurately detailed and through response.

Individual and specific responses are requested to the following:

- * Parts 1.5 thru 1.15 pertaining to specific deficiencies in the 1993 FEIS
- * Parts 3.1 through 3.16
- * Each of the eight points in Part 5.4.9
- * Each of the reports three key recommendations at the beginning of Part 7.4
- * Parts 8.2.2 and 8.3
- * Each of the report's main conclusions as listed in the Executive Summary and Part 9.

In responding we would urge Sound Transit to consider not only what existing regulations may or may not require the agency to do, but also Sound Transit's moral obligation to provide citizens and public officials with the sufficient and objective information they need to make intelligent decisions about mass transit.

Executive Summary

Sound Transit's Board is increasingly committing this region to use light rail, as opposed to bus rapid transit, for the region's mass transit backbone. In 1996 voters approved spending \$1.8 billion for a 21-mile light rail system. In 2001 Sound Transit admitted their initial cost estimates were wrong and shortened the line to 14-mile miles. However ST still hopes to eventually build over 125 miles of light rail and is taking administrative steps toward doing so.

Sound Transit justified its choice of light rail technology on an alternatives analysis done in 1993 by Sound Transit's predecessor the RTP. That particular study compared a 125-mile rapid rail system costing \$11.5 billion against an express bus alternative costing \$4.7 billion.

During the course of that study RTP predicted year 2020 ridership for both alternatives, and then evaluated their capacity to handle the predicted ridership. In looking at bus system capacity through downtown Seattle the RTP assumed the bus tunnel could only carry 100 buses per hour in each direction, although six previous studies had concluded its capacity was significantly higher than that.

At this point the RTP had a choice. Either it could verify that 100 was the correct value, and if so, apply one of the remedies that staff had already identified. Or it could penalize the bus alternative. It chose the latter, and proceeded to reduce predicted ridership for the bus alternative and claim it didn't have enough capacity to meet the region's needs. In addition, because the bus alternative now had lower ridership the RTA also down-rated it on all other ridership related benefits, such as its ability to improve mobility and support land use goals.

In short, the RTP compared a robust rapid rail alternative against a deliberately hobbled bus alternative and used the results to rule-out bus technology for the region's main transit spine along I-5. In its recently released Draft Long-Range Plan Sound Transit still relies on that corrupted and now obsolete study to justify proceeding with light rail.

Fortunately, it is possible to estimate what would have happened if RTP had elected to remedy the alleged capacity problem rather than penalize the bus alternative. However, to compare apples-to-apples it was necessary to have two alternatives that are either equal in benefit or equal in cost. Therefore the author elected to modify the bus alternative so it would attract the same ridership as the rail alternative, then compare costs. The first step was to remove the alleged capacity bottleneck using –to be conservative-- the most expensive remedy identified by staff, namely building a second parallel bus tunnel costing \$600 million. This allowed the bus alternative to carry its originally predicted ridership, which was 93 % of what the rail system was predicted to carry. To get that last 7% the author used an RTP estimate for the cost of attracting extra riders.

The result is that a modified bus alternative would be \$400 million per year less expensive (in 1991\$) than the rapid rail system chosen by RTP. This is the picture that the RTP

could have produced using information available at that time. However, RTP chose not to do so because officials wanted rail to win. What can that study tell us today when we are concerned with light rail, not rapid rail?

Today there is every indication Sound Transit's Board wants to build at least 125 miles of light rail. There has never been an apples-to-apples comparison between bus rapid transit (BRT) and any of the different size light rail networks that Sound Transit is contemplating, much less a 125-mile system. However; it is possible to make an approximation.

First, it was assumed that 125 miles of Link light rail would attract as many riders as 125 miles of rapid rail. Clearly, it wouldn't because Link's slower, but this is the conservative approach. The remaining task was to estimate the cost of a 125-mile version of Link and compare that with an all-bus or BRT alternative. The 1993 cost comparison can be reused, but only after adjusting it for the facts that Sound Transit's early rail cost estimates were 44% too low and that many of the HOV lanes needed for the bus alternative have now been completed. The results show that a 125-mile light rail system would cost about \$900 million (02\$) per year more than a comparable BRT system. This cost differential would continue over the 30-year period needed to repay the construction bonds. It's also likely that BRT could replace the 14- mile Initial Segment or the 21-mile Central Link system for less than half their costs.

This information about a potential \$900 million per year savings opportunity is new, and it needs to be published widely so taxpayers can decide whether it makes better sense to abandon Sound Transit's light rail strategy and switch to an equally effective BRT alternative.

It's unfortunate that knowledge of this opportunity has been suppressed. The best explanation may be the major disconnect that exists between what most citizens of this region want (reduced traffic congestion at the lowest possible cost) versus what the members of Sound Transit's Board want (light rail regardless the cost and despite the fact it won't reduce congestion).

To paper-over the gap, Sound Transit has systematically and continually resorted to disseminating biased, misleading, and even false information about the merits of Link light rail in order to bolster public support and justify Federal funding. One result is deterioration in the public's trust in government to spend scarce tax dollars wisely. It's also evidence that the current transportation planning process in Puget Sound is broken. The process is not providing the thorough and objective information officials and voters need to make multi-billion dollar decisions.

This report finds that the very foundation of Sound Transit's Draft Long-Range Plan is invalid because it's based on one corrupted and obsolete study done in 1993. It recommends that Link be placed on hold until and unless a proper, honest alternatives analysis demonstrates it's superior to BRT and other alternatives. This report further recommends that federal and local officials take steps to fix the process.

Extended Summary

The main purpose of this report is to trigger a reconsideration of Sound Transit's light rail plans, and the FTA's willingness to fund them by challenging the fundamental basis for Sound Transit's entire rail-centric strategy including their recently released Draft Long-Range Plan. A secondary purpose is to trigger improvements to the planning process that will: 1) help ensure taxpayers get the most "bang for the buck" from their investments in transportation, and 2) eliminate deceptive and manipulative practices on the part of agencies such as Sound Transit. Still a third objective is to give planning students and citizens in other cities a case study example of ways in which a transit agency has abused the planning process in order to promote a favored outcome.

There are three key reasons Sound Transits light rail strategy should be reconsidered:

- 1) Link light rail costs too much for what little it accomplishes. At the same time there appear to be better alternatives such as Bus Rapid Transit (BRT).
- 2) Sound Transit has never proven in any logical or business-like manner that Link is superior to these other alternatives.
- 3) Decisions to approve Link have been based on incomplete, misleading, biased, and false information which Sound Transit disseminated in order to garner support for its light rail plan.

These observations are not new. Sound Transit has heard, and ignored, them many times before. What this report adds to the record is a detailed and carefully footnoted analysis of how Sound Transit has abused the planning process to promote light rail, and, for the first time, a dollar estimate of just what pursuit of Sound Transit's light rail strategy would probably cost this region in relation to a bus rapid transit (BRT) alternative.

In short, the reader of this report will be privy to information that has not been available to date. It will show that the emperor (Sound Transit) has no clothes as regards its rationale for proceeding with light rail.

The full story of Sound Transit's abuse of the planning process is beyond the scope of this report. This report focuses on the alternatives analysis and environmental impact study (EIS) that supposedly justified the choice of rail technology over bus technology for this region's mass transit backbone. The alternatives analysis and closely related EIS are equivalent to a "business case" in the transportation-planning arena. They provide just about the only cost and performance information available to those trying to decide whether or not to fund projects like Link.

Background and context—

The Puget Sound Region is becoming committed to a light rail-centric strategy. Sound Transit recently began construction on Link's 14-mile "Initial Segment". Sound Transit's Board is already committed to extending it to Northgate, although they lack the money. In addition, Sound Transit has just published a Draft Long-Range plan which envisions extending Link into a regional system over 125 miles long. Over two billion dollars are already committed to the first 14-mile miles of light rail, and it would take many billions more to construct the full system.

Unfortunately even at this late date there is no solid analysis showing that light rail makes sense. The main failing is that there has never been a proper apples-to-apples alternatives analysis that compares the merits of light rail against an all-bus alternative based on bus rapid transit or BRT technology.

Therefore, even as the region increasing commits to Sound Transit's multi-billion dollar rail strategy, neither public officials nor taxpayers know whether spending X billions on light rail would yield more benefit than spending the same amount on buses, or on other alternatives such as car and van pools, demand management, and so forth. The relevant data needed to make intelligent decisions simply does not exist.

The region is being led unwittingly into a light rail plan that will influence the quality of life in this region for decades and be the largest public works project in local history, without having done the same due-diligence homework that MBA schools teach businesses to use on far smaller investments. The public's trust in government to spend transportation dollars wisely is among the casualties.

This issue is highly relevant at present because Sound Transit is beginning to plan for a Phase 2 that would seek more federal and local money to expand Link's Initial Segment, and because it is still not too late to stop light rail and switch to a to a different strategy if new information –such as in this report-- shows that would make more sense.

The initial stimulus for this report was the fact that Sound Transit's current light rail plan didn't reduce congestion and didn't seem cost-effectiveness as an alternative to driving. Sound Transit's stubborn resistance to all criticism, its misrepresentations, and its failure to resubmit its much altered plan to a public vote of confidence –making all of us feel manipulated--have also been motivators. Perhaps most fundamental, was the knowledge that Sound Transit had abused the planning process by never having done a proper alternatives analysis. This greatly offended this planner's sense of what's right.

Link didn't just happen by accident; it emerged as the end result of a planning process. A key part of that process is the alternatives analysis.

Unfortunately, the alternatives analysis had been rigged to justify rail. In short, the process had been abused. Unfortunately that's not obvious to the casual reader of Sound Transit's 1993 FEIS and alternatives analysis report. It's an impressive and seeming well-written document. Most would assume it was competent and objective. Reluctantly

the author came to conclude that the 1993 FEIS was essentially a sham. Something that appeared objective, but wasn't. Something intended more to sell, than to inform.

Part 1: Sound Transit has never done a proper alternatives analysis

In the transportation arena the alternatives analysis is critical. It's equivalent to a business case and is supposed to identify and evaluate the most promising alternatives available to solve a given transportation problem. It's about all that elected officials and voters have to rely on, if they wish to make rational decisions.

Sound Transit maintains that the region's one and only rail/bus alternatives analysis provides adequate rationale for selecting rail rather than express bus for the backbone of the regions transit system. However, for a wide variety of reasons this study – documented in a 1993 Final Environmental Impact Statement (FEIS) prepared by Sound Transit's predecessor the RTA-- is inadequate and misleading. Nothing more up to date or more relevant has been done since, as Sound Transit recently made clear in its DSEIS for the Regional Transit Long-Range Plan.

The 1993 FEIS compared rail and bus technologies for the region's main transit corridors. Four alternatives were studied. One was the baseline or do nothing scenario called "No Build". Next was an extensive system of express buses operating on HOV lanes. This \$4.7 billion scenario was called "TSM". A second all-bus alternative – called "Transitway/TSM" and costing \$5.5 billion-- was similar to TSM but used exclusive busways in lieu of HOV lanes. Finally, there was a hybrid rail/bus alternative called "Rail/TSM". This \$11.5 billion scenario called for 125-miles of rapid rail on a 100% grade separated right-of-way. It also included many of the TSM improvements, except those that would compete with rail.

There are two broad reasons why decisions about Link should not be based on this 1993 FEIS. First, the 1993 FEIS was neither adequate nor honest at the time it was completed. Second, what we are planning today is not what the 1993 alternatives analysis studied. In addition, circumstances have changed in the intervening 12 years.

A fundamental problem with the 1993 FEIS is that it compared alternatives that differed in both cost and benefit. In theory this can be dealt with by careful focus on cost-effectiveness, but RTA botched the job. Essentially, RTA concluded that an \$11.5 billion rail alternative would perform better than a \$4.7 bus alternative. This was simple-minded, and is essentially like comparing proposals to build a brick wall costing \$20,000 with a concrete wall costing \$10,000; then deciding bricks are a better technology since the \$20,00 wall would be higher than the \$10,000 wall.

The 1993 FEIS contained very little on cost effectiveness but what it did contain was presented in a biased fashion. Essentially, it masked the high cost of using rail as a means to increase transit ridership, and thus made the cost of the rail alternative appear more competitive with the bus alternative than it really was. Also it failed to show that the high marginal cost of rail riders was reasonable, or to put them in the context of costs

in other cities or of other alternatives. In short, it didn't provide the kinds of information needed to make wise decisions. This topic is expanded in the explanation of Part 6 below.

Another serious shortcoming of the 1993 FEIS is that it didn't quantify or emphasize the impact of the alternatives on traffic congestion. This is critical because polls have repeatedly shown that the public's main transportation concern is reducing traffic congestion.

However, the main fault of the 1993 FEIS is that the bus alternatives were deliberately designed to fail. In particular, the RTA unfairly alleged they lacked sufficient capacity through downtown Seattle and then did nothing to rectify the problem. The RTA used "inadequate capacity" as their primary reason for dismissing the bus alternatives, even though they were more cost-effective. This topic is further pursued in the summary of Part 5 below. The sum, the 1993 FEIS was neither adequate nor fair at the time it was completed.

The 1993 FEIS is even less a valid alternatives analysis for Link light rail.

The 1993 FEIS was an alternatives analysis for rapid rail not light rail. This fact was stated explicitly and repeatedly in the final report, and is not just a matter of semantics. Certainly there were similarities between the rapid rail in the 1993 FEIS and Link today in that the main rail corridors and station locations were similar and the train sizes were identical. However, the train speeds, capacities, rights-of-way, and network sizes were not the same. The maximum speed of the rapid rail in the 1993 FEIS was 70 mph, whereas Link's maximum speed is 55 mph. Rapid rail had an average speed of 36 mph whereas Link's would be 26 mph. The rapid rail system in the 1993 FEIS was asserted to have a maximum capacity of 22,000 persons per hour (pph) whereas Link's maximum is 16,400. The ridership forecasts in the 1993 FEIS were based on a system that was 100% grade separated, whereas Link runs down the middle of the street in the Rainier valley and may have additional at-grade street crossings on the Eastside. These differences obviously affect ridership, reliability, and safety. In all these respects the Link system is different from, and inferior to, the rapid rail system studied in the 1993 FEIS.

In addition, the 1993 FEIS evaluated only one particular 125-mile long rapid rail network. This does not provide a comparison between the 14-mile system Sound Transit is presently constructing, or the 21-mile system approved by voters in 1996, versus BRT alternatives. Nor does it provide a comparison with any of the various networks that may emerge from Phase 2 planning: like Central Link extended to Everett and Tacoma but not to the eastside, or Central Link extended to the Eastside but not Everett and Tacoma, or to all those but not to Issaquah and Totem Lake. The 1993 FEIS did not even compare the ultimate light rail system envisioned by Sound Transit in their recent Draft Long-Range Plan. That Plan includes a curious, never before contemplated loop following the monorail from downtown Seattle to Ballard and then east to the University District. It also contains light rail along I-405 in spite of prior decisions that BRT be used in that corridor.

Since it's not clear how much light rail it makes sense to build, how much is affordable, or how much voters would ever approve, it is not adequate that the only rail/bus alternatives analysis this region has to rely on studied just one particular 125-mile long configuration. In fact, rational decision-making requires that a range of possible light rail networks –any of which might represent the optimum or final configuration—be compared against BRT alternatives.

An important circumstance that has changed dramatically since the 1993 FEIS is the assumed cost of constructing light rail. In the material handed to voters at the time of the 1996 ballot Sound Transit said: “Sound Move is based on extremely conservative cost and ridership assumptions and methodologies reviewed by an independent expert review panel appointed by the governor, the state Legislature and the state Transportation Department.” However, this became front-page scandal in 2000 when Sound Transit was forced to admit this was all-wrong, and had to increase the project budget by over one billion dollars, or roughly 44%. For this reason any rail cost assumptions made prior to 2000 were probably grossly underestimated. This fact alone makes the 1993 FEIS, as it stands, obsolete and misleading.

Still another reason the 1993 FEIS is obsolete is that over half the HOV network --whose costs were included in the TSM or bus alternative—has since been completed. Those are sunk costs. Thus the all-bus alternative is now less expensive than it was in 1993.

The net effect of the underestimated rail costs and partial completion of the HOV network is to make the cost difference between the rail and all-bus alternatives even greater today that it appeared to be in 1993. To be even roughly relevant today, the 1993 FEIS cost estimates would need to be updated. They haven't been. In fact Sound Transit hasn't even published an updated cost estimate for the 21-mile system approved by the voters in 1996.

Sound Transit's recent release of a Draft SEIS states quite clearly that its Long-Range Plan is based on the 1993 FEIS. However, since the 1993 FEIS was not a valid exercise in the first place, and is now obsolete, the entire foundation for Sound Transit's Long-Range Plan –not to mention the part already under construction-- is faulty. The FTA should recognize this and force Sound Transit to conduct the proper alternatives analysis that is long overdue and which is recommended so often throughout this report.

Part 2: Sound Transit morphed rapid rail into light rail

Sound Transit has not wanted to do an alternatives analysis for Link, so they have maintained that the 1993 FEIS for rapid rail was really about light rail. In one recent presentation the agency falsely states that the 1993 FEIS compared light rail and BRT. In fact the 1993 FEIS never mentioned BRT, but it did address light rail (LRT) in a cursory fashion along with monorail and other alternatives the RTA wasn't interested in. This is what the FEIS said about light rail.

"Surface LRT options were analyzed to the point that it became clear that these options did not adequately serve the goals and objectives of the Regional Transit Project. Because of the superior

performance of the grade-separated RTP system in terms of consistency with land-use objectives, level of service, and ridership, it was recommended as the rail technology in the recommended draft Systems Plan." (Ref 1: page 2-61)

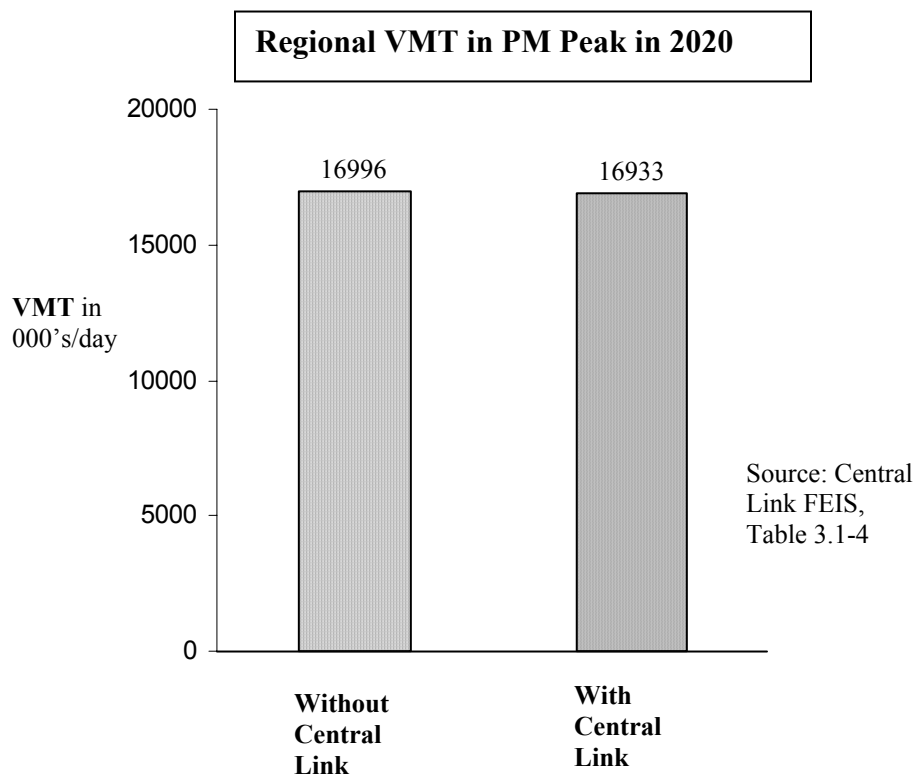
In spite of their one and only alternatives analysis having recommended against it, Sound Transit plans to put some "surface LRT" into the very backbone of the light rail system they are building. How then is it possible for Sound Transit to claim that the 1993 FEIS supports their decision to make light rail the technology of choice?

Part 3: The shortcomings of Link Light Rail

Light rail has many appeals to the superficial observer. It promises fast effortless trips bypassing congestion. Many hope it will lure others off the road thus leaving more room for them. Some believe it's a way to control sprawl, clean the air and reduce energy consumption. As visitors we've all benefited from riding rail systems in other cities. Civic boosters think Seattle can't be world class without rail. Unfortunately, at least in the Puget Sound setting, light rail is one of those things where the less you know about it; the better you probably like it.

Link's fundamental problem is that it costs too much and does too little.

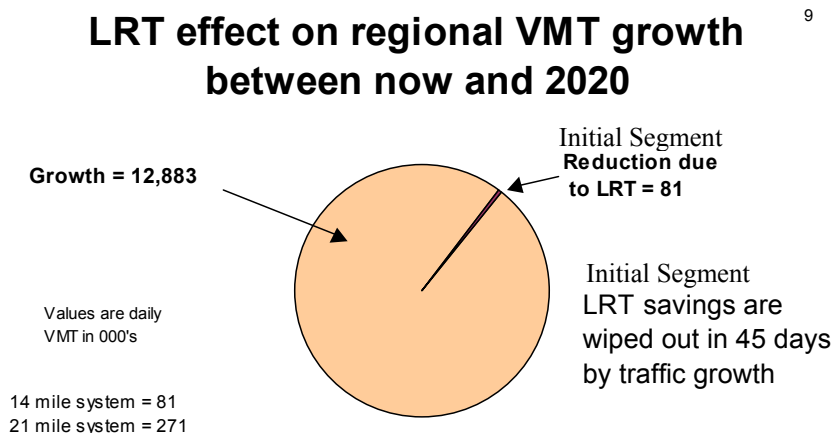
Polls consistently show that traffic congestion is one of the public's highest concerns. Link was sold to voters by implying it was a solution to traffic congestion. Yet Sound Transit's own studies prove Link would have almost no effect. The FEIS for the 21-mile Central Link shows that the \$2.6 billion (in 95\$) system would only reduce road traffic about 1/3 of one percent. This is equivalent to taking two and a half cars off a lane on 520 that is packed bumper to bumper with cars from Montlake to the east shore of Lake Washington. It's hardly noticeable, as the bar chart below illustrates.



The \$1.5 billion (95\$) Initial Segment now under construction would accomplish even less. It would only reduce traffic 1/10th of one percent.

Even auto traffic into the Seattle CBD is minimally impacted.

It turns out the miniscule traffic reduction effects of Link's 14-mile Initial Segment would be wiped out within 45 days of its opening by the normal growth trend in regional traffic as the following chart shows. The 21-mile Central Link has greater ridership, but its traffic reduction effect would be wiped out in less than a year.



Sound Transit has repeatedly implied that Link would reduce traffic congestion even while knowing it wouldn't. This was done with pictures, innuendo, and carefully chosen wording so there was never any direct statement that could be challenged legally. It was done extensively during Sound Transits pre-vote marketing campaign and continues today. The statements that Link will not reduce traffic congestion are brief and don't stand out in the EIS's, which very few voters read anyway. Sound Transit never acknowledged publicly that light rail wouldn't reduce congestion until, in December 2000, the author used Sound Transit's own data to publicize that knowledge in a Seattle Times OP ED. Unfortunately Sound Transit's admission came years after the 1996 vote.

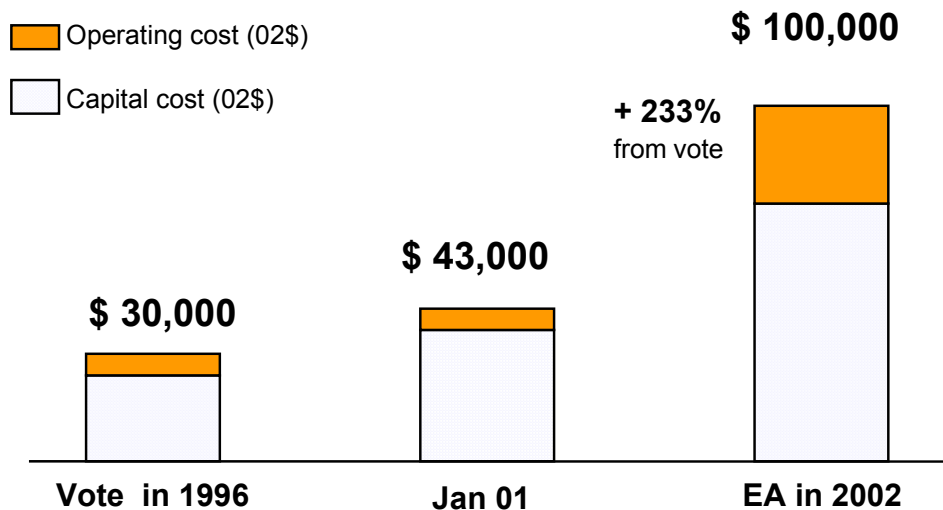
Light rail: There will never be a better time Richard Harkness got one thing right in a guest column (The Times, Dec 22): Light rail will not ease traffic congestion. Yes, that's a fact. (Dave Earling, OpEd, Seattle Times, Dec 26, 2000)

The effects light rail could have on environmental issues like air pollution or energy use are proportional to its impact on traffic, and thus similarly miniscule.

As a way to get cars off the road Link is notably costly. If that's the primary aim of the project then it's fair to divide the project's cost by the number of cars it removes to get a sanity check on Link's cost-effectiveness. The result is that it would cost taxpayers \$100,000 per year for each car which Link IS removes from peak period traffic. This cost would continue every year until the bonds were paid off in about 30 years.

The chart below shows how much this particular cost metric increased from the time voters approved Link. The left bar is based on Central Link costs at the time of the vote. The center bar is based on Central Link costs after Sound Transit admitted having underestimated them and raised Link's cost by \$1 billion in Jan 2001. The right bar is based on Link IS costs as reported in the Feb. 2002 Environmental Assessment.

Annual cost per vehicle removed from peak period traffic



In stark contrast, a recent Seattle Times article reported on a company that had significantly increased car pool use by giving employees just \$75 a month per person to carpool. And, for \$100,000 per year, it may be cheaper to simply pay people to quit their day jobs and stay home.

Once the congestion reduction myth was publicly debunked, rail advocates –such as King County Executive and Sound Transit Board Member Ron Sims-- switched to claiming that light rail offers an alternative to driving. They said it provides “choice”. Indeed it does offer choice to a favored few, but again that gift costs society roughly \$80,000 per year for each individual who –according to Sound Transit’s ridership estimates for 2020-- would find Link IS attractive enough to stop using a car. In this case the cost of choice is huge. To paraphrase Winston Churchill: Never in the region’s history will so many, have paid so much, to benefit so few.

Link light rail has other deficiencies beside cost-ineffectiveness. It is highly inequitable in that it provides service to a relatively narrow corridor while the cost is borne across a wide region. Capacity on the south line –due to the decision to run on the surface along Rainier Avenue—is only one third the capacity of the north line, and thus forever shortchanges the entire south Puget Sound area.

The Initial Segment serves only one of the region’s 21 designated urban growth centers. Even a full 100+ mile light rail system –which is not guaranteed and which the region may never be able to afford-- would bypass many important commercial and employment centers such as South center, Renton, Bothell, Tukwila, West Seattle, south Lake Union, Bell town, Seattle Center, Ballard, Magnolia, south Seattle below the stadiums, West Seattle, key Boeing sites, the Sammamish plateau office park, the emerging biotech area on Elliott Bay, and so forth.

Link’s central control system and extensive tunneling make it vulnerable to power outages and terrorism.

If Link is not extended into a full regional system its preemption of the Downtown Seattle Transit Tunnel would compromise the remaining express bus system and dim prospects for a regional BRT system.

Some of the region’s most precious resources are its preexisting rights-of-way (ROW), and those should be used efficiently. Having the center lanes on I-90 devoted solely to the occasional light rail train is not a good use of ROW since it would reduce the total people moving capacity of the bridge relative to having a mixture of BRT buses, car and vanpools, emergency vehicles, etc. use those lanes. Adding light rail would actually reduce capacity in this corridor.

Currently over ten times more daily trips are made by car pool than by mass transit in this region. (283,000 by transit, versus 3,554,000 by car/van pool) Arguably it is far more important to maintain and expand car/van pooling than to expand an already excellent mass transit system. Displaced them into less protected lanes than they have today is not progress.

In short, upon close inspection of the facts, Link light rail doesn’t seem to be a good idea, or to be worth the money. This would be true even if there were no obvious alternatives.

In economic terms, one must examine the “opportunity costs” of going with light rail when there appear to be less costly ways to achieve much the same benefit. What else could the region do with the money that could be saved? Alternately, if taxpayers are willing to spend the same amount, how much further might we get toward reducing congestion and improving the environment if some more cost effective technology were employed? What if we could have 200 route miles of BRT for what – according to the GAO study-- 14 miles of light rail is costing? What if some of the light rail money could be diverted to accelerate the Alaska Way viaduct and 520 bridge replacements?

Part 4— BRT and Other Alternatives to Light Rail

If the objective is to reduce congestion or travel delay, the author has identified about 50 alternatives to light rail. They include things like widening roads, increasing car and vanpool usage, telecommuting, and clearing accidents and breakdowns faster. However, if only various forms of mass transit are of interest, then bus rapid transit or BRT is the most likely contender to light rail. If light rail is “Plan A”, then BRT is “Plan B”.

BRT is actually a systems solution comprised of several elements. The core would be express buses operating on HOV lanes, essentially what we have today, but more and better. Dedicated busways are possible but probably not necessary. Service frequencies would match that of rail. A BRT alternative would also involve bus priority lanes on certain arterials, bus priority signalization, off-bus fare collection, direct access ramps, and a range of other things all intended to make bus travel more rapid and attractive.

BRT hasn’t gotten much publicity here in Puget Sound. However, BRT has been implemented elsewhere, particularly overseas, with great success. The U.S. General Accounting Office published a report comparing it to light rail and encouraging cities planning light rail to give BRT serious consideration as a less expensive alternative. It’s proven technology and the advent of hybrid buses makes it even more attractive.

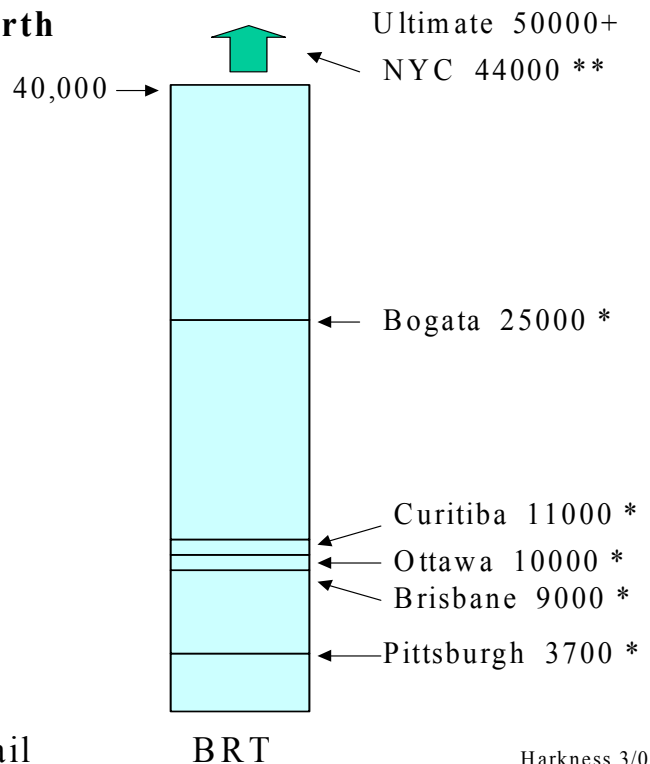
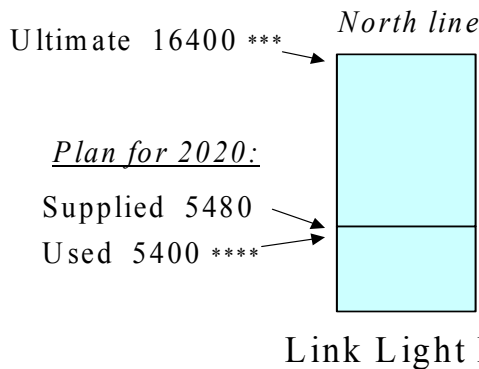
There is no question that BRT has enough capacity to handle the regions mass transit needs. As shown in the chart below, BRT routes operating in other countries already carry far more people than Link could carry, or that Sound Transit estimates Link would need to carry.

Figure 5.12a

Capacity: BRT vs Link north

Persons/hr one way
at peak load point

- * Actual current use
- ** Based on current bus volumes, all seated
- *** Includes standees
- **** Assumes LRT goes to Northgate



In terms of ability to meet future needs it is worthwhile to note that there is no way to increase the capacity of Link light rail since train lengths would be limited by stations already in place and headways can't be reduced. For these reasons even a second rail tunnel through downtown in some distant year wouldn't help. In other words the limits on rail system capacity are systemic and not subject to local remedies. In contrast bus capacity can be increased by building short parallel paths around local bottlenecks, and then only when needed.

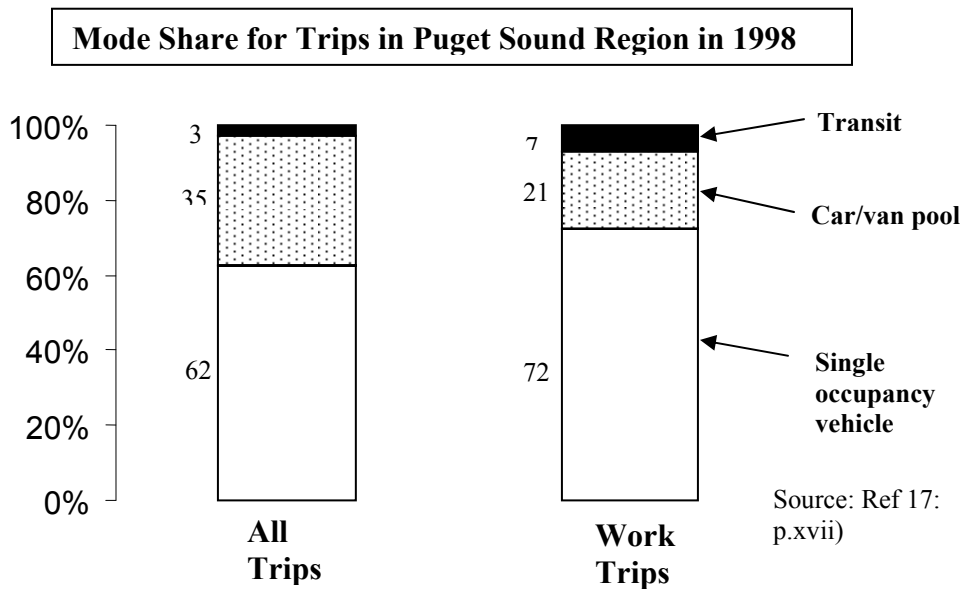
Based on ST's 1993 FEIS the highest volume that a BRT system would need to carry by 2020 is 12,000 persons per hour between downtown Seattle and the U District. This volume could be handled by about 110 articulated buses per hour. This volume of buses would use about 10% of the capacity of a single express lane along that stretch. Elsewhere BRT would need much less than 10% of the capacity of an HOV lane.

BRT should also be faster. BRT buses can operate in express non-stop mode once loaded whereas light rail must stop at every station.

BRT would probably require fewer transfers. Buses can circulate in neighborhoods picking up passenger before entering the HOV lanes for non-stop travel to major destinations.

Still, the most compelling reason for BRT is that much of the "guideway" needed for BRT already exists in the form of the region's 200 miles of HOV lanes. And every investment made in expanding or improving these guideways for BRT has the double benefit of encouraging more car and vanpooling.

Car and Van pooling—This report focuses on BRT versus light rail. However, car/van pooling is probably even more cost effective than BRT, and should be among the alternatives considered most carefully as the region charts its transportation strategy. There are currently about 250,000 people car or van pooling to work. Car and vanpools are already far more effective in getting people out of single occupancy vehicles than is mass transit, as the following chart based on PSRC data makes clear.



If the number of people car or van pooling to work could be increased by just 5% it would take the same number of cars off the road as would building the 21-mile Central Link light rail system.

At last estimate Central Link would cost \$2.6 billion in 02\$. Simple calculations show it would cost \$43,000 per year to take a car off the road using Central Link. Many people who don't car pool today could probably be induced to do so for considerably less than \$43,000 per year. If so, car and van pooling would be a far more cost-effective way to relieve traffic congestion than building Link light rail.

Part 5—The capacity issue

Part 5 investigates the capacity issue in depth because back in 1993 the RTP alleged that buses had insufficient capacity to meet the regions needs and dismissed bus alternatives largely for that reason. Ever since, buses or BRT have remained off the table as far as the core portion of the regional transit network is concerned.

RTP's treatment of the capacity issue in the 1993 FEIS appears to have been deliberately manipulated to favor rail. Basically, RTP postulated an all-bus alternative called TSM and compared it against a hybrid rail/bus alternative called Rail/TSM. During their evaluation RTP estimated year 2020 ridership for both alternatives and concluded that the Downtown Seattle Transit Tunnel (DSTT) could not handle the number of riders the bus alternative would attract. RTP's response was to reduce the predicted ridership of 518,000 daily riders to what they said the tunnel could handle, namely 474,000. This significantly degraded the cost-effectiveness of the bus alternative as well as reduced other ridership dependent benefits, such as impacts on air pollution.

What the RTP did not do –after recognizing that a capacity problem might exist—was to verify the assumptions they had made about tunnel capacity and/or seek ways to modify the bus alternative so as to eliminate the alleged capacity problem. In short, RTP put a knowingly and deliberately hobbled bus alternative into competition with the rail alternative.

The key assumption that RTP did not verify concerned tunnel capacity. There had been six prior paper studies that each reached different conclusions, ranging from 125 to 192 buses per hour in each direction. The RTP chose to assume 100, a value based on operating buses inefficiently. About 135 buses per hour were needed to carry the predicted demand. Why --when capacity was so critical-- didn't RTP assume the tunnel would be managed efficiently? Why --with the whole multi-billion dollar rail vs. bus decision hanging in the balance-- didn't RTP take the trouble to verify the tunnels true capacity with real world trials? This could not have been oversight or incompetence, it must have been deliberate.

If the RTP had properly verified tunnel capacity and still found it below 135 buses per hour they could, and should, have found other remedies so capacity problems in this 1.5-mile segment of a 125-mile network didn't become the tail that wagged the dog.

In prior studies, a range of fixes had been identified. They ranged from increasing bus capacity on downtown streets to building a second parallel bus tunnel, which RTP staff had estimated would cost \$600 million. As a worst case, RTP could have added this second tunnel to the bus alternative thus completely eliminating the downtown bus capacity problem. Failure to do so was apparent bias or manipulation. It seems especially egregious since the RTP elected to provide 20 miles of tunnel for the \$11.5 billion rail alternative yet was unwilling to provide even a mile or two for the \$4.7 billion bus alternative.

In short, had RTA resolved the alleged bus capacity constraint –either by finding it didn’t exist, or fixing it-- the RTA could not have claimed the bus alternative was unable to handle its predicted ridership, and –able to carry its full ridership-- the TSM alternative would have been much more competitive in its comparison against rapid rail.

Part 5 also addresses ridership forecasts that appear to conflict. In 1993 RTP estimated that by 2020 the peak load on the rail system would be 15,000 persons per hour at the peak load point just north of the DSTT. Sound Transit still asserts the long term demand for rail transit would create a peak load point demand of 15,000 persons per hour on the north line, and that we need a system able to handle it. However, the much more recent forecast for Central Link predicts a peak load of only 5415 persons per hour. This discrepancy is something the large difference between the 125 and 21-mile systems does not appear to explain.

This is an important issue in that if 15,000 is the correct number it appears that Link would run out of capacity soon after 2020 and is therefore not a long range solution for the region’s capacity needs. Indeed one of the reasons RTA gave for choosing rapid rail in 1993 was that its assumed capacity of 22,000 gave it headroom for growth well beyond 2020. In addition, if 15,000 is correct, Link may not be enough capacity on its south line to even meet demand in 2020.

On the other hand if 5415 is correct, it is possible that system ridership is simply lower than originally thought.

It seems that no matter which forecast is correct, Sound Transit faces an embarrassing situation. If the higher forecast is correct, light rail is inadequate. If the lower forecast is correct, it completely destroys Sound Transit’s claim that buses lack sufficient capacity through downtown, even if the tunnel could only handle 100 buses per hour.

Sound Transit’s claim that light rail “would provide the same people moving capacity as a 12 lane highway” is simply false. Just one freeway lane pair full of buses could carry far more people than Link. Rather than compare what these systems could carry, it is more meaningful to compare what highways actually carry on a daily basis versus what light rail is actually expected to carry. Sound Transit’s ridership forecasts for Central Link –at the ship canal where it is heavily loaded-- show it would carry only slightly more people in 2020 than a single lane pair on I-5 carries today. Along the bulk of its

route Central Link would carry only a fraction of what one lane pair on I-5 is now carrying.

Part 6: The cost issue

Part 6 has two broad objectives. One is to demonstrate how the 1993 FEIS was inadequate and biased in the way it addressed cost-effectiveness. The second objective is to use the raw data in the 1993 FEIS and related documents to produce an estimate of what Sound Transit’s current rail-centric strategy might end up costing this region in relation to the all-bus alternative they rejected.

The 1993 FEIS gave very little attention to either cost or cost-effectiveness. Almost everything that large report had to say was contained in a single small table listing cost and ridership totals for each of the four alternatives. (Table 4 in the 1993 FEIS)

Table 4. Summary of System Alternatives Characteristics.

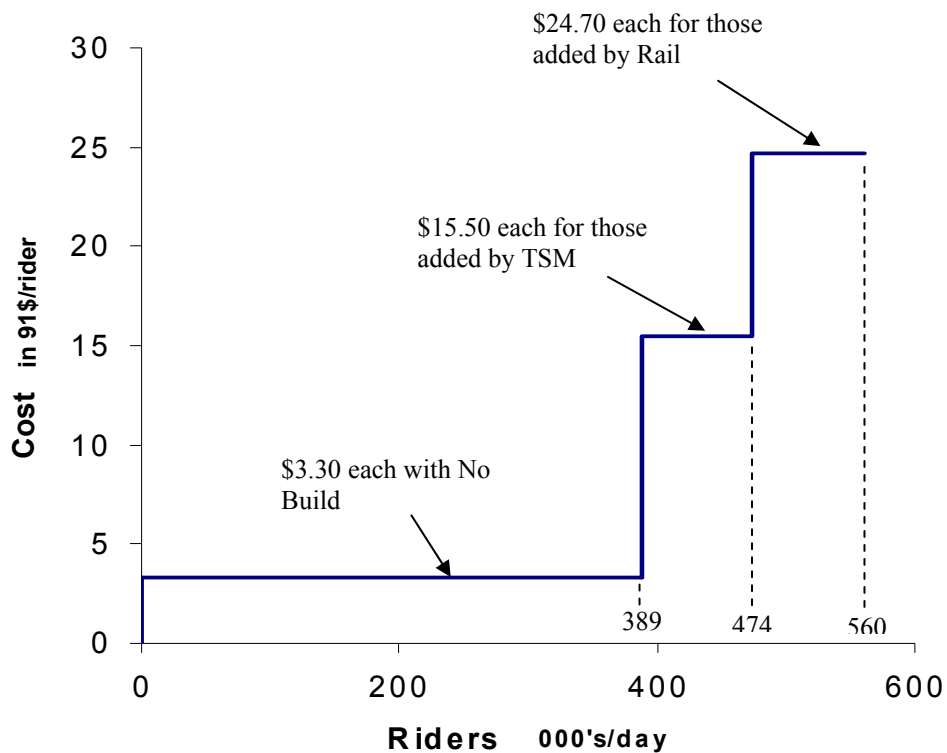
Alternative	Capital Cost (billions of 1991 \$)	Operating and Maintenance Cost (millions of 1991 \$)	Daily Ridership (Year 2020)	Annual Ridership (year 2020) (millions)	Cost per Rider (1991 \$)	Cost per New Rider (1991 \$)
No-Build	\$1.2	\$274	388,500	109.4	3.67	N.A.
TSM	\$4.7	\$399	473,900	133.7	5.92	N.A.
Transitway/ TSM	\$5.5	\$406	480,000	135.4	6.36	11.39
Rail/TSM (includes Commuter Rail)	\$11.5	\$492	560,500	157.3	7.94	12.52

This form of presentation was deceptive. The difference between the rail and bus alternatives, shows in the numbers, but it doesn’t appear dramatic. This author, probably like many others, saw that table and felt that while the bus alternative was more cost effective, it was not dramatically so. This was because the cost per rider figures RTP chose to present were averaged across all riders and thus did not allow the cost-effectiveness of the rapid rail element to be separated out and examined for reasonableness. It could be claimed this information was deliberately hidden.

To better illustrate what could have been done, and what should have been done, the data in that FEIS Table 4 has been reformatted into Figure 6.1 below. Remember, this is the picture as it would have appeared in 1993, with all costs in 91\$ and before the rail cost estimates were found to have been underestimated.

This chart conveys a very different message. Not only would it cost much more than we are paying today to increase transit ridership by implementing TSM, but it would cost dramatically more still for those additional riders that rapid rail could add above and beyond what TSM could attract on its own.

Figure 6.1



As to the detail, transit would attract 389,000 daily riders by 2020 if we did nothing but grow the existing bus system. RTP called this the “No Build” alternative. The chart shows that society is now paying about \$3.30 for each one-way bus ride, less the 80 or so cents recovered at the fare box. (The transit industry calls a one-way ride a “rider”.) Next, it shows that implementing just the TSM alternative would increase daily transit ridership by about 80,000, and that these extra 80,000 rides would cost society about \$15.50 each. Finally, it shows that if we build the 125-mile rapid rail system it would attract an additional 85,000 riders above and beyond what the all-bus TSM alternative could achieve. However, these extra rides would cost \$25 each.

If the RTA had elected to fix the alleged capacity bottleneck by building a second bus tunnel this cost picture would have changed to that shown in Figure 6.2c.

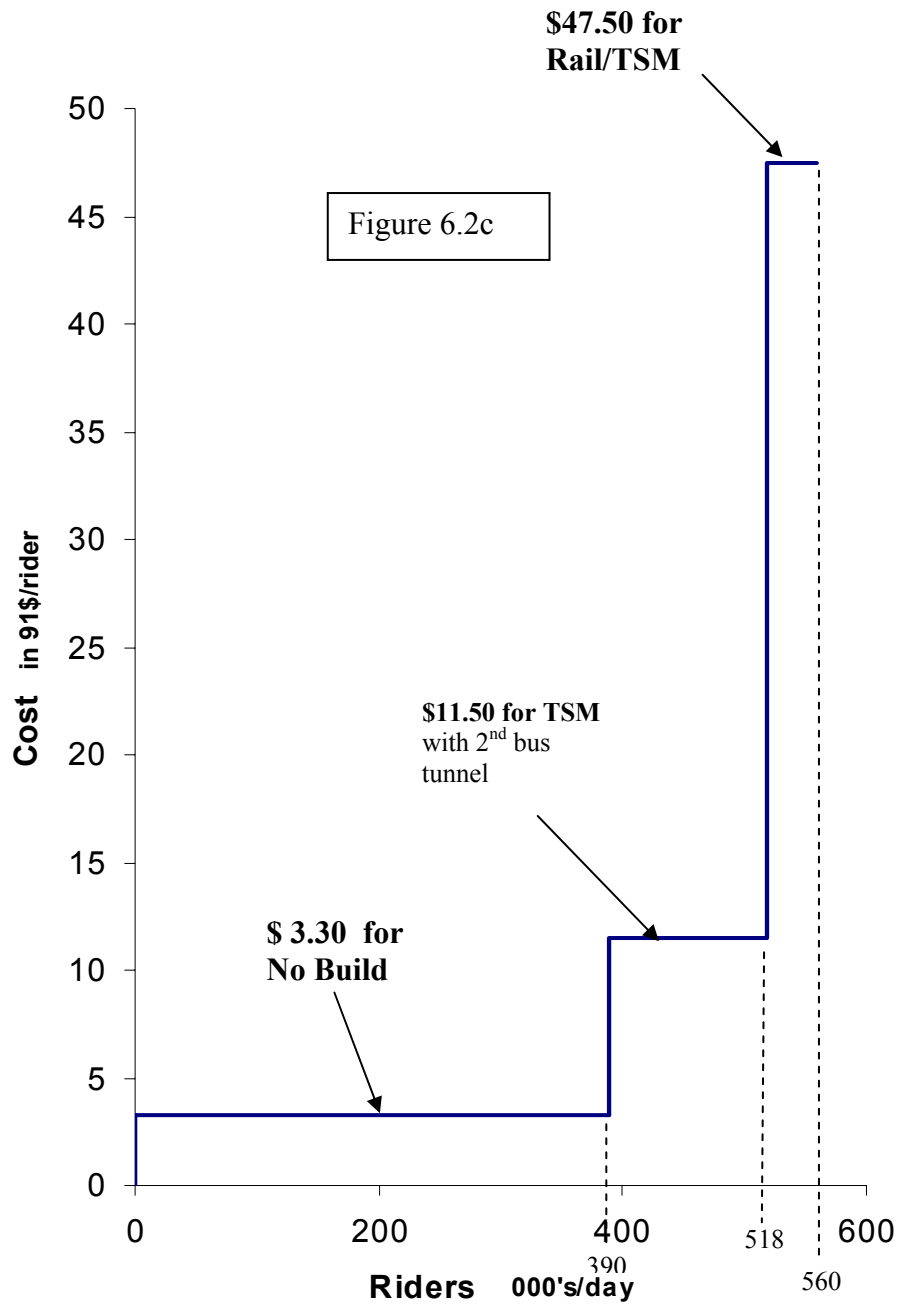
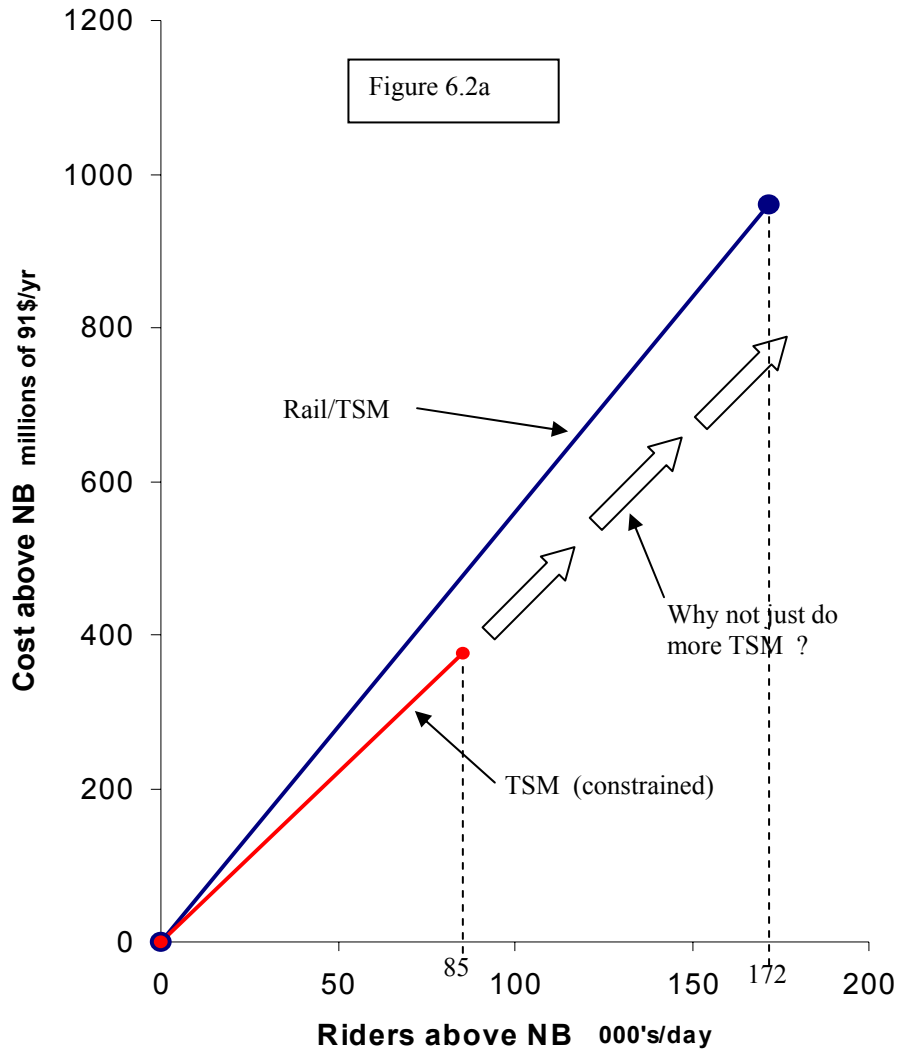


Figure 6.2c emphasizes the point that society would need to spend far more to attract these new riders than it has been willing to spend in the past. The upsweep of the bars illustrates very dramatically the law of diminishing returns. Once those with relatively little choice have gotten aboard, it becomes increasingly expensive to improve transit service enough to attract others. This raises the questions of affordability and reasonableness. There is some point where the cost of making transit more attractive so it will attract more riders begins to exceed the benefits. To make rail worthwhile the benefits of each rider it adds would need to exceed \$47.50 per one-way ride. Again, that

is what would have been visible in 1993. After accounting for ST's underestimated rail costs, and inflating to current dollars, that \$47.50 becomes \$93. The 1993 FEIS did not get into any of this, perhaps because they felt it would have worked against their desire to promote rail.

Figure 6.2a is another chart –based on Table 4 in the FEIS--that would have been helpful.



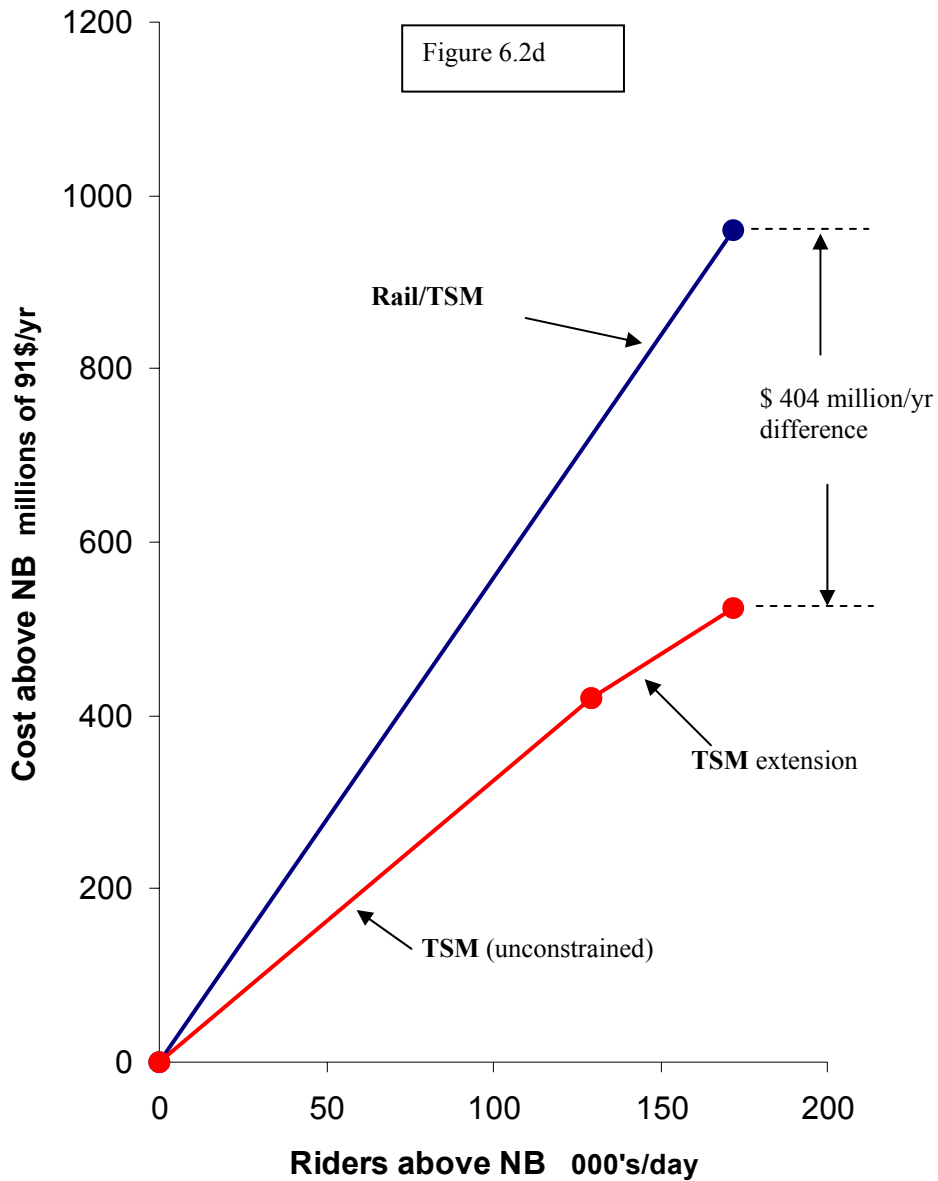
The cost (\$960 million/yr) and ridership (172,000/day) of the Rail/TSM alternative is represented by the dot at the end of the Rail/TSM line. The same is true of the TSM line. This chart shows that while the Rail/TSM alternative costs more and does more, the TSM alternative is actually more cost effective since its “trend line” is not as steep.

NOTE: If the RTA's goal had been to increase ridership by just 85,000 above the NoBuild baseline, rather than 172,000, this chart shows that the original TSM alternative would have had adequate capacity, as well as being less expensive. Alternately if the goal had been to reach 300,000 riders the rapid rail alternative itself would have failed for lack of capacity. Thus, where the goal is set can sometimes determine which alternative wins. Planners can manipulate this to get the answer they want. In the case of the 1993 FEIS the goal was set high enough to (allegedly) break the bus alternative but not high enough to break the rail alternative. This is one reason Part 8 calls for a range of different size rail networks to be compared with bus alternatives.

Presenting the data with a chart like Figure 6.2a is useful because it graphically suggests the following: Why not just intensify or extend the TSM alternative until it achieves the same ridership as rail, because it looks as though the savings would be worthwhile? In other words, whatever we were doing in the TSM alternative, just do more of the same. In practice this would have meant more frequent bus service, more routes, and perhaps more HOV lanes, direct access ramps, and park & ride lots. The arrows suggest this idea. RTP staff was aware of this option and had already estimated its cost.

However, the TSM alternative can't be extended until the alleged bus capacity constraint in downtown Seattle is dealt with. Maybe the RTA's assumption about tunnel capacity was wrong and there really isn't any bottleneck. However, to be conservative the author assumed that the bottleneck was real, and that it takes the most costly of the available remedies—namely a second bus tunnel—to fix it. This was an option that RTA staffers had already identified and estimated would cost \$600 million. The RTA had also estimated the cost of extending TSM services so as to achieve greater ridership. It short the RTA had shown how the TSM alternative could be extended to achieve more ridership, and they had estimated the costs of doing so. However, all this information was hidden in backup technical reports and none of it was used to fix the bus alternative's alleged capacity problem. Instead the 1993 FEIS presented a hobbled bus alternative unable to match rails ridership or achieve its other benefits.

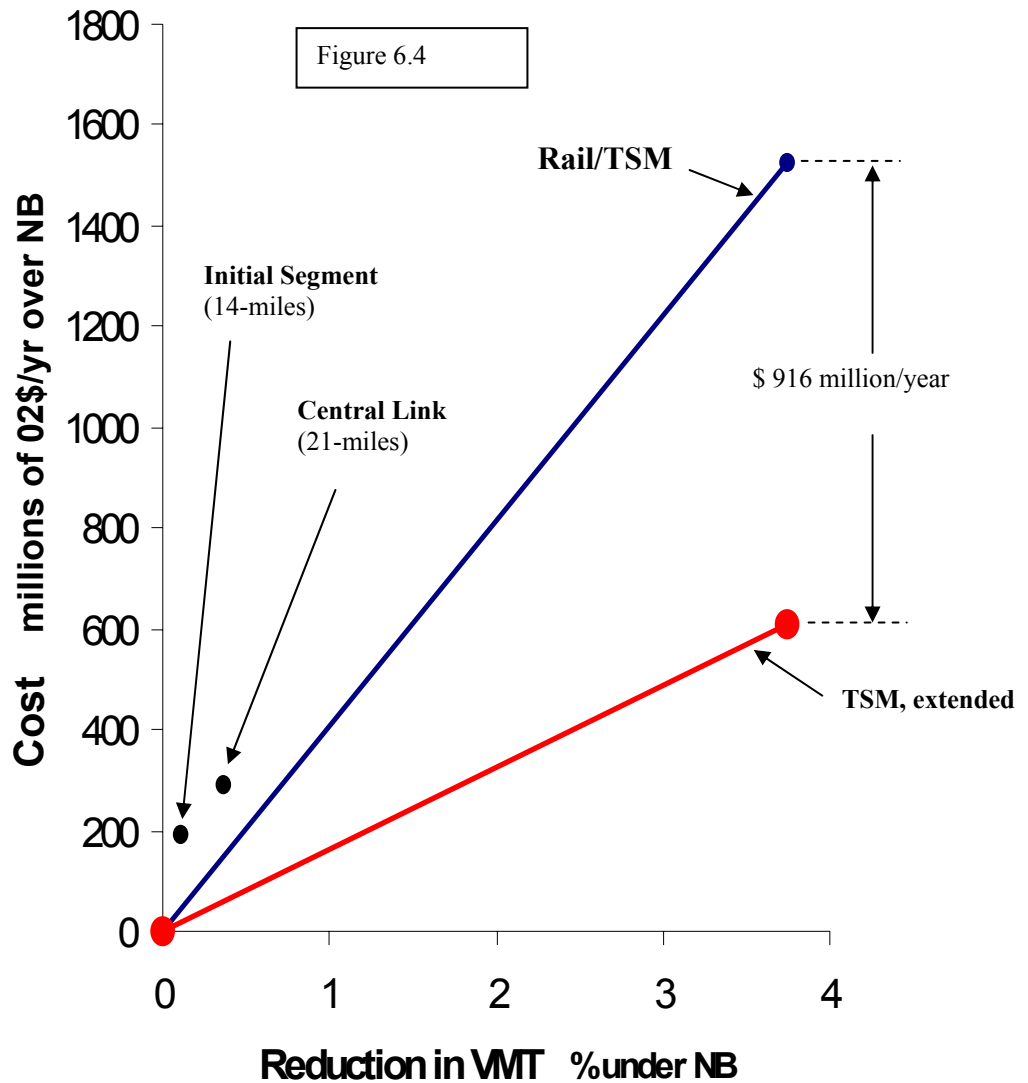
The chart below shows what would happened if the RTP had un-hobbled the bus alternative. The first part of the TSM trend line shows the result of including \$600 million for a second tunnel, which allows TSM to achieve the “unconstrained” ridership forecast by the RTP. The second part of the line is based on RTP's cost estimate for extending it so as to attract and handle as many riders as the Rail/TSM alternative.



At this point it is apparent that fixing the alleged TSM capacity constraint and extending TSM is a good idea. It would save taxpayers about \$400 million (in \$91\$) per year. The RTP could have done this analysis and included it in the 1993 FEIS. Was their failure to do so a matter of incompetence, or of deliberate bias? Again, this is the picture that RTP should have presented in 1993. But what does it mean for Link light rail today?

The above analysis can be updated and used to show the implications of proceeding with Sound Transit's light rail-centric strategy, which calls for building as much as 125 miles of light rail along with supporting TSM elements such as bus feeders, HOV improvements, and park and ride lots. In other words the RTP created and evaluated a

“Rapid Rail/TSM” alternative with 125 miles of rapid rail. What the author does in this report is create a “Light Rail/TSM” alternative with 125 miles of light rail, and then compare it against an all-bus or TSM alternative using BRT. Figure 6.4 shows the result.



It now appears that Sound Transit never intends to make this comparison, but it’s essential information because the region’s at a fork in the road. It can either proceed to implement Sound Transit’s light rail-centric strategy, working out along the Rail/TSM line in Figure 6.4 to build as much light rail as possible. Or it can switch to an equally effective all-bus or BRT strategy while there’s still time. The public needs to understand the dramatic difference in cost.

Thus Figure 6.4 compares the cost of Sound Transit's light rail-centric strategy with the cost of an all-bus or BRT alternative able to reduce regional Vehicle Miles of Travel or VMT by the same amount. (Reduction in VMT is a better metric for comparing benefit or effectiveness of the alternatives than is transit ridership. Travel delay would have been a better metric yet, but the RTP did not provide that data.)

Figure 6.4 is based on conservative assumptions. For instance the author assumed that a 125-mile light rail system would attract the same ridership as the 125-mile rapid rail system studied by RTP. Actually, light rail would probably attract fewer riders since it's slower. On the cost side, Figure 6.4 is based on light rail costing an average of \$120 million/mile whereas Link IS is actually costing \$138 million/mile and Central Link is expected to cost \$158 million/mile. (All these are in 02\$) Also, it was assumed that the all-bus alternative would require a second bus tunnel costing \$600 million (91\$) through downtown Seattle, although the existing bus tunnel may well suffice, and if not there are probably less expensive remedies than a second tunnel. In other words, the Tail/TSM line in Figure 6.4 is probably steeper than shown, the TSM line is probably flatter, and the difference between them is probably greater than \$900 million/yr.

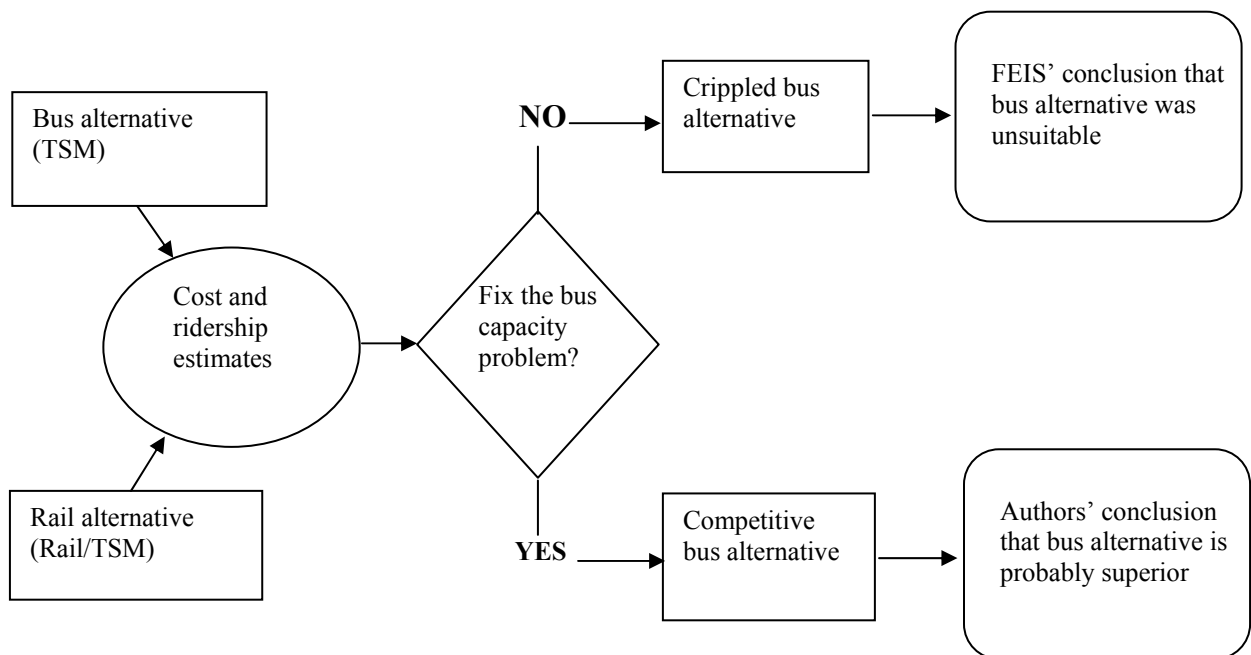
As to details, the RTP originally estimated the 125-mile rapid rail system would cost \$7.9 billion in 91\$. The construction bids Sound Transit received a few years ago showed that actual costs were 44% higher than originally estimated. Figure 6.4 assumes the 125-mile light rail system would cost 1.44 times that \$7.9 billion, or \$11.4 billion in 91\$. In 02\$ the 125-mile light rail system would cost \$15 billion. (This is probably the best estimate publicly available today for what the light rail system in ST's Long-Range Plan might cost) The original TSM costs were updated in two ways. The cost component allocated for building HOV lanes was cut in half since half the HOV network has now been completed. Second, \$600 million was added for the second bus tunnel. All capital costs were annualized by assuming a 30-year, 6% bond. Annual O&M costs from the RTP table were included without modification. Finally, cost totals were inflated from 91\$ to 02\$ to make them more timely.

The dots at the end of the Rail/TSM and TSM lines show the annual cost of these two alternatives. For instance it would cost about \$1.5 billion per year to fully implement Sound Transits light rail-centric strategy by building 125 miles of light rail. The lines from the origin to the dots give some rough indication of the costs of smaller systems. For instance, a system with 63 miles of light rail rather than 125 might cost about \$750 million per year. By the same token a BRT system able to achieve the same VMT reduction might cost about \$300 million per year. The actual cost and performance of Link IS and Central Link are shown for reference.

Figure 6.4 is probably the most important chart in the entire report. What does it tell us? It shows that to achieve the same level of transit ridership estimated for a 125-mile rail system, switching from light rail to an all bus strategy would save taxpayers about \$900 million per year. This would continue over the 30-years life of the bonds.

The huge cost difference between Link light rail and BRT simply reflects the fact that the best technology for one region is not necessary the best for another. Light rail doesn't have an easy fit in this region because we lack the abandoned railroad rights-of-way or flat terrain that makes constructing light rail relatively easy in other cities. On the other hand our excellent bus system and extensive HOV network makes BRT particularly attractive.

The diagram below attempts to clarify any remaining confusion as to how the RTA concluded buses were unsuitable while the author reached the opposite conclusion.



The flowchart reads as follows. The RTP started by designing an all-bus alternative called TSM and a 125-mile rapid rail plus feeder bus alternative called Rail/TSM. Consultants then estimated the cost and ridership for each alternative. At that point it became apparent that predicted bus ridership would exceed RTP's assumption for tunnel capacity. RTP elected not to fix the capacity problem using any of the remedies that staff had previously identified. This resulted in a crippled bus alternative being compared against the rail alternative, and thence to RTP's conclusion that buses couldn't meet the regions needs, whereas rapid rail could.

In this report the author starts with RTP's bus and rail system designs, and with RTP's cost and ridership forecasts, but reaches a different conclusion. He did that by adding a second bus tunnel to "fix" the alleged bus capacity bottleneck downtown, then adding more bus service so it would attract the same ridership as the rail alternative. The cost of these modifications was added in. He then concluded that the modified bus alternative could equal rail in ridership, have sufficient capacity for long-term growth, and be much less expensive.

Part 7: Evaluation and recommendations

Part 7 tries to explain why things have gone astray, and some of the broader implications that Sound Transit's preoccupation with light rail is having on public trust and on competing uses for scarce tax dollars. This report presents new information that will hopefully trigger action. Part 7 recommends several specific actions that seem appropriate based on this new information.

Why things went wrong- There is a huge disconnect between the problem (traffic congestion) and the proposed solution (light rail).

This disconnect shows that what drives officials and decisions in this arena was not an honest attempt to find congestion remedies based on solid analysis. Instead, what has happened is best explained by some complex mixture of myth, fact, wishful thinking, uninformed opinion, altruistic and not so altruistic motives, hard-ball politics, ego, psychology, bureaucratic maneuvering, and most of all, money. When all this enters the mix it is not surprising that actually spending taxpayer money wisely so as to make the most progress against traffic congestion fell by the wayside.

As to motives, one must acknowledge the superficial appeal of rail transit. Emotionally rail seems like a simple "silver bullet" solution for a complex and intractable problem. Promoting it appears to be "doing something".

But elected officials have another set of reasons to favor rail. They revolve around power and money. If it proceeds, Link light rail will be among the largest public works projects in Puget Sound history. Billions of dollars will be spent. Officials can feel important making decisions about how billions are spent. They can proudly leave a legacy of concrete and steel. They can please certain powerful parties on the receiving end of those billions. They can be seen as providing jobs and stimulating the economy. Perhaps most of all they can be seen as bringing in "free" money from Washington D.C. Fundamentally Link is a "pork barrel" project.

In terms of who pays and who benefits, Link is a clever way to transfer money from the pockets of many to the pockets of a few. Not enough is taken from the pockets of the average taxpayer (in the form of sales tax and auto registration tax) to cause him or her to 'fight city hall'. On the other hand the relative few directly benefiting from Links design, financing, and construction maintain a behind-the-scenes pressure to keep Link going.

Another reason Sound Transit's a clever mechanism for wealth transfer is that taxpayers have practically no way to stop it. The State Legislature created Sound Transit, but forgot to make Sound Transit's Board members directly elected, and they forgot to give voters in the Sound Transit taxing district any practical control over Sound Transit via initiative. As a result the only way local voters can control Sound Transit is by mounting a costly statewide initiative. This self-confidence in its own untouchability gave Sound

Transit's attorney the hubris to say in open court that Sound Transit recognized no limits on how much it could spend or how long it could take building light rail.

Key officials have long wanted a rail transit system in Puget Sound, period. In the early 1990's consultants were hired to prepare the necessary paperwork in order to get federal funding and meet state law. Although alternatives analyses are supposed to be objective studies, consultants are generally fairly astute at figuring out what the client really wants, and repeat business means delivering it. The client wanted rail. As a result the 1993 FEIS or alternatives analysis became a pro forma exercise meant to justify this preordained conclusion.

In short, the 1993 FEIS is a sham; a document meant to satisfy legal requirements, but almost totally useless in providing objective information that would help officials or the public make a wise decisions about spending billions of dollars.

The FTA colludes with Sound Transit in these abuses of the planning process. FTA overlooks faulty work such as the 1993 FEIS, and their requirements for funding projects like Link appear lax. FTA is probably among those Federal agencies that have been accused of being in bed with the organizations they are supposed to regulate.

It is also clear that Sound Transit's board has little concern for spending tax dollars efficiently. In other words achieving the "most bang for the taxpayer buck" is not a high priority with that group. If the Sound Transit Board really wanted cost effective solutions they would have scrutinized the 1993 FEIS in the way the author has done and probably chosen BRT, since it appears BRT would save billions. After finding that Link's costs had been underestimated and needed to be increased by 44%, they would certainly have revisited their choice of rail, rather than simply looked for additional money. They would have published and agonized over, rather than hidden, the high cost-per-rider data for Sounder and Link. They would have calculated the approximate cost of fully implementing their current rail centric strategy and compared that against BRT. These are the minimum things a board really concerned with spending tax dollars wisely would have done.

The Puget Sound Regional Council (PSRC) must also take considerable blame. If that organization were sincerely concerned with getting the most bang for the taxpayer buck it would have eagerly embraced and practiced Least Cost Planning --as State Law requires-- rather than trying so hard to avoid it. It would have analyzed Sound Transit's light rail plans and ensured they were cost effective relative to other alternatives rather than simply downloading them intact into the Metropolitan Transportation Plan (MTP). It would consider van and car-pooling as a major stand-alone alternative to investing billions in mass transit and highways, rather than just as window dressing attached to the main transit and highway alternatives.

In fact, it is not exaggerating to state that if the PSRC had obeyed the law as regards Least Cost Planning (LCP), Sound Transit' light rail plan would probably never gotten this far.

The importance of trust-- It has become increasingly clear that voters don't trust Sound Transit and Sound Transit doesn't trust voters. In fact, Sound Transit has become the poster child for why voters distrust government to spend their transportation tax dollars wisely. There are good reasons for this mistrust.

Voters overwhelmingly voted to rescind Sound Transit's tax on vehicle registration, but ST still fights to overturn that expression of public will in the courts. ST changes the project greatly from what voters approved in 1996 but vigorously fights a lawsuit that would have put the much altered plan back on the ballot for a vote of confidence.

Sound Transit wants more money. However, while claiming it has a public mandate and support for light rail, ST is deathly afraid to ask voters to increase the existing light rail tax. Thus ST supporters used political strong-arm tactics to force light rail into a broad package of regional transportation projects where voters couldn't reject it without rejecting everything else as well.

On this November's advisory ballot voters were asked if they supported that package, which the ballot explicitly said was intended to reduce congestion and improve safety. Since Sound Transit had already admitted Link wouldn't reduce congestion, putting it into that package was a remarkable example of cynical manipulation and deception.

The problem is magnified since that ballot --which still implies Link would help reduce congestion-- was seen by millions, while few have seen the truth.

When one party has the funds to broadcast misleading statements through a megaphone while their critics have only the occasional Op-Ed or letter to the editor to whisper a rebuttal, there is simply no way the public will get a balanced story. Critics, such as CETA, have found the facts don't matter when there's no money to get them disseminated. This has been a fundamental structural problem throughout the entire light rail debate here in Puget Sound.

The role that trust, or lack thereof, plays in reaching any solution for Puget Sound's transportation problems is hard to overstate. Part 7 contains a long list of newspaper quotes like the following:

Sound Transit: a matter of trust The 10-year plan for increasing transportation system capacity in the Central Puget Sound area was dubbed "Sound Move" by its creators at the regional transportation authority, Sound Transit. ...

...Half of those ten years are now past, and the Sound Move plan has fallen well short of its billing. The most visible culprit of course is the light rail project, which is \$1 billion over budget, three years behind schedule and the subject of a federal audit.

...It's the sort of indecision that makes one wonder, despite the agency's official denial, just how much of the 10-year plan was completed in a vacuum, without input from the very people it is meant to serve. It's the kind of day to day waffling and mismanagement that wastes time, overruns budgets and over time, causes people to lose trust. Some of us in the Legislature have noticed the loss of trust in Sound Transit.

... Why should taxpayers support long term financial commitment to transportation when Sound Transit provides such a convenient example of a commitment gone sour?

... The second offers revote on the grounds that the Sound Transit board's actions have significantly altered the proposition citizens approve in 1996.

... Because of Sound Transit's lackluster performance so far, any taxes directed toward transit and transportation projects from here on out need to be the best spent money in state government.

... At the heart of the public trust, President Abraham Lincoln once wrote, is trusting the public. Government should not be – and cannot afford to be – afraid of letting the people judge how well their money is being spent. Let's Vote. (Op Ed by 15 members of the State Legislature, Seattle Times, Feb. 20, 2001)

Requests that Sound Transit consider alternatives- There have been numerous requests that Sound Transit reconsider its light rail plans. Again this story is told via articles quoted from local newspapers. Two examples are:

Sound Transit Board: It's time to do your job After the overwhelmingly negative wave of recent events, you would think a board that calls itself "Sound" would stop shelling out our money to move forward on such a monumental undertaking as a \$4.2 billion light rail plan. You would think they would call a timeout not just to patch up the holes that have been revealed, but a timeout to actually rethink whether this flawed vessel, light rail, is going to get us to the vital goal of reducing traffic congestion in central Puget Sound. Yet in response to the damaging report issued last week by the US Inspector General's office... all we get here at home is more patch-up.

... My response is this: Is there *any* event or combination of facts, any misgivings about cost, funding, ridership, or concerns over the Inspector General's criticisms, *anything* at all that would finally cause the Sound Transit Board to ask, "Is proceeding with light rail still a good idea?" It seems no issue exists that's significant enough to prompt the board's serious review of alternative solutions.

... The board's irresponsibility is found in the decision to remain silent despite their growing awareness of that misinformation, including possession of significant evidence that light rail may not be a cost-effective transit alternative.

Civic groups, critics and other elected officials are calling ever more loudly for a complete review of the project including available alternatives... (Booth Gardner, former Governor Washington State, Op Ed Seattle Times, April 11, 2001)

Full speed ahead for light rail In a hasty attempt to secure \$500 million in federal funding before the Clinton administration steps down, Sound Transit will move forward with light rail despite mounting objections about costs, the agency's leaders say.

... But Sound Transit Executive Director Bob White and board Chairman Dave Earling say they already know what the board will decide on that pivotal day: The agency will not explore alternatives to light rail... (Chris McGann, Seattle P-I, Jan. 5, 2001)

Recommendations-- This report recommends the following actions:

- 1) The FTA should reject the DSEIS for Sound Transit’s Long-Range Plan and should withhold any additional money for Link until a proper alternatives analysis has been completed, its results fully communicated to the public, and a public vote of confidence confirms voter support for continuation of Sound Transit’s light rail strategy. Part 8 of this report outlines key requirements for conducting a proper alternatives analysis.**
- 2) The Sound Transit Board of Directors should voluntarily undertake the above actions with or without the FTA requiring same. They should do this to confirm they are on the right path and to restore public trust.**
- 3) Congress should investigate the manner in which mass transit grants are approved to ensure that FTA controlled planning processes are not abused in the ways chronicled throughout this report. They should investigate Sound Transit as one case example. Congress should insure that the process is redesigned to obtain the most “bang for the taxpayer buck”. That is: greatest improvement in transportation at least cost to Federal and local taxpayers.**

The Sound Transit Board has no good reason to balk at taking these actions. If Board members are confident they are on the right path, a proper alternatives analysis can do nothing but confirm it, silence the critics, and help restore public trust. There is no reason why Link can’t be put on hold since its completion wouldn’t have much beneficial effect.

Vetting-- Authorities should immediately cause this report to be reviewed by an objective team of experts to confirm or refute the logic, calculations and conclusions herein. This could be done in about six weeks. If those are upheld by the team of experts then there would exist reasonably credible, but still not conclusive, evidence that an all-bus strategy could achieve much the same benefits as light rail, and do so at a far lower cost. Such vetting would justify temporally halting construction on Link until a full-fledged alternatives analysis is complete in 12 to 18 months. Finally, Link could be restarted if the full-fledged analysis is favorable, or terminated if it is not.

Does it matter if the region spends billions more on mass transit than it needs to?-- This report concludes that pursuit of Sound Transit’s light rail strategy could end up costing the region roughly a billion dollars a year more than switching to an all-bus alternative.

So what? Does anyone care?

The answers are not obvious. It will be interesting to see if anyone gets concerned enough to act. Perhaps the best way to make the cost of Sound Transit’s rail plans meaningful is to list some of the other good projects that are being shortchanged because they are, in the ultimate analysis, competing with light rail for limited tax dollars.

School-renovation fund \$11 million short A Seattle School District review shows that its school-renovation programs are running deficits that could mean some projects will be delayed, trimmed or eliminated. (Sanjay Bhatt, Seattle Times, Aug. 4, 2004)

\$878 million more sought by Bergeson for schools Terry Bergeson, state superintendent of public instruction, yesterday asked for an additional \$878 million for public schools over the next two years, an amount she says is essential to reach the goals of the state's decade old education reform law. (Linda Shaw, Seattle Times, Sept. 23, 2004)

Legislators Brace for Extra-Hungry Interest Groups ... There will be pressure to expand colleges and universities and pay for multibillion-dollar transportation projects such as replacing the Alaskan Way viaduct.

Much of this year's problem is pent up demand. Colleges, for instance, have not kept pace with population growth and many state workers have gone years without a pay increase. But it comes at a time when the state projects a budget deficit of around \$1.8 billion, after already struggling through several years of huge shortfalls. (Seattle Times, Jan. 10, 2005)

Sound Transit's 2004 Financial Plan says that \$2.437 billion will be spent on Link's Initial Segment between 1997 and 2009. In 2004 alone Sound Transit will collect \$271 million in taxes.

The amount of money going to even the Initial Segment of Link light rail would make a big dent in the funding needed to reconstruct the Alaska Way viaduct and rebuild the 520 bridge. But the Initial Segment is just the first step in Sound Transit's ambitions for light rail. Clearly the \$900 million per year difference between a 125-mile version of Link versus an all-bus alternative would be more than enough to pay for both projects.

In short, the money that might be wasted on Sound Transits rail-centric strategy is not an abstraction; it comes at the expense of opportunities foregone, and of other good ways to spend tax dollars.

Nor is the impact on the Federal budget, of questionable projects all across the country like Link, something to ignore.

Congress lift debt ceiling New borrowing to avert default

Congress last night sent President Bush an \$800 billion boost in the federal borrowing limit, spotlighting how the budget has lurched out of control in recent years and how difficult it will be to afford future initiatives. ... "I want someone to explain to me how it can be moral for a father to stick his kids with his bills," said Rep. Gene Taylor, D-Miss. (Seattle Times, Nov. 19, 2004)

Part 8: Guidelines for a proper alternatives analysis

Sound Transit is beginning to plan for Phase 2 of Link light rail. The DSEIS Long-Range Plan shows this will include a limited version of an alternatives analysis, but the only alternatives being looked at are the alternative ways to expand HCT above and beyond the 24-mile Central Link line which Sound Transit is taken as a given.

Limiting Phase 2 to just consideration of ways to expand Central Link does not provide voters and officials a full view of the alternatives before this region. Since Link construction has hardly begun, one option is to halt its construction and shift to a more cost effective alternative like BRT. Another is to build Link IS but truncate it south of the bus tunnel so it wouldn't interfere with a regional BRT system. Still another option concerns the full 100+ mile version of Link called for in Sound Transit's draft Long-Range Plan, and in PSRC's Metropolitan Transportation Plan. This 100+ mile version of Link needs to be compared apples-to-apples with a BRT alternative that is either equal in cost, or equal in benefit.

Part 8 describes these and other options in more detail along with technical guidelines to ensure the rail/bus comparisons are done objectively.

Early indicators for Phase 2-- Part 8 concludes with a litmus test that will give voters an early indication of whether or not Sound Transit plans to conduct an adequate and objective alternatives analysis as part of their Phase 2 planning.

Part 9: Main conclusions of this report:

- 1) The existing planning process is not producing the kind of information needed by officials and the public to make intelligent decisions about major mass transit projects. Important information is missing or obscured. Promising alternatives are ignored. Reports seem intended more to sell than to inform.
- 2) Sound Transit and its predecessor agency the RTA have abused the planning process in order to promote light rail. They biased key studies by making inappropriate assumptions and masking key information. They compared a robust rail alternative against a deliberately hobbled bus alternative. They disseminated misleading information to the public.
- 3) ST justifies its choice of light rail on the one and only rail vs. bus alternatives analysis conducted here since the 1980s. However, that study was deliberately biased to favor rail. When that bias is removed the underlying data shows that an all-bus solution could probably achieve the same level of benefit at far lower cost.
- 4) ST and RTP dismissed bus alternatives largely on false claims that buses lacked adequate capacity. Their analysis was deliberately manipulated to support these claims. BRT has more than adequate capacity to meet the region's long-term needs. Light rail has less capacity than BRT and is therefore less strategic.

- 5) As construction begins on Link there is still no study which compares the benefits of spending \$X billions on light rail plan versus spending the same amount on bus rapid transit.
- 6) If the money now intended for light rail were instead redirected toward other projects such as BRT, car and vanpool enhancement, and other transportation projects the region could probably make considerably more progress in solving our transportation problems, because these other alternatives are more cost-effective.
- 7) By objective measures Link does not seem like something worth pursuing. Among other faults it would have almost no effect on traffic congestion and is not cost-effective as an alternative to driving.
- 8) BRT is a viable alternative to light rail in the Puget Sound Region. It could achieve the same benefits at a much lower cost and has more than adequate capacity to handle long term growth.
- 9) Link is the failed result of a faulty planning process. The process can and has been manipulated to favor preordained outcomes. It is not objective. It does not produce the type of information needed to make intelligent decisions. It fosters distrust. It is a process that needs to be fixed. This would take local and Federal action.
- 10) The region is embarking on a rail-centric mass transit strategy, which could result in over 125 miles of light rail. If fully implemented, that strategy will probably cost the region about a billion dollars per year more than an all-bus (BRT) strategy having the same level of transit ridership and related benefits. Meanwhile Link IS and Central Link are probably costing over twice what comparable all-bus alternatives would cost.
- 11) Link light rail is an example of the “waste, and abuse” that is driving up the Federal budget deficit, because it was sold on the basis of misleading information and because there are more cost-effective alternatives.
- 12) There has been insufficient public discussion about the merits or consequences of committing the region to this multi-billion dollar rail-centric strategy, and there is no solid analysis demonstrating it’s the best strategy.
- 13) Transportation planning in the Puget Sound region has not placed a high priority on spending taxpayer money efficiently or in finding the lowest cost solutions.
- 14) Link should be put on hold and further Federal funding withheld until and unless a new and honest alternatives analysis is completed, and that analysis demonstrates that light rail is superior to BRT and other options. On the basis of available evidence, such a conclusion seems unlikely.

- 15)** The FTA should review, and if appropriate withdraw, its prior acceptance of the 1993 FEIS as meeting FTA requirements for a proper alternatives analysis, since that particular analysis is faulty in so many respects and contains no apples-to-apples comparison between Sound Transit's light rail plans and all-bus alternatives. By the same token FTA should not allow Sound Transit to proceed with any Phase 2 planning until a new and proper alternatives analysis has been completed.
- 16)** Sound Transit's planning process for Phase 2 will not provide the information needed for this region to make intelligent decisions about massive investments in mass transit unless the recommendations listed in Part 8 of this report are adopted.
- 17)** The PSRC should be forced to obey the State Law requiring Least Cost Planning because imposition of that planning technique is the single most important thing that can be done to help ensure that scarce transportation tax dollars are spent wisely.
- 18)** Sound Transit's latest Long-Range Plan should not be approved because it's very foundation, the 1993 FEIS, is obsolete and corrupt.

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