STAFF REPORT

SOUND TRANSIT
MOTION NO. M2001-68

Implement a work plan for Central Link that is consistent with the selected items in the attached Board decision matrix

Meeting:	Date:	Type of Action:	Staff Contact:	Phone:
Board	6/28/01	Discussion/Possible Action	Joni Earl, Executive Director Tuck Wilson, Acting Link Director	(206) 398-5450 (206) 398-5134

The Central Link Light Rail project is at a critical juncture and decisions are necessary for the project to proceed. Staff needs policy direction from the Sound Transit Board so the agency can take a significant step toward building a regional system.

The Central Link issue can be boiled down to one key question for the Board: Where should light rail start? Is it with University Link from NE 45th to Lander, or with a different, initial segment? Either way, the Board is committed to building a regional light rail system.

To help move this important decision forward, Sound Transit staff has prepared a packet of information that includes:

- A Board decision matrix
- A Board motion to implement a Central Link work plan
- A revised Board calendar
- Key components of the four scenarios as presented to the Board on May 24, 2001
- A community comment report from the June 20 public forum
- A status report on the six-month work program including University, Northgate and Airport Link elements

Sound Move – the Regional Vision

The voter-approved *Sound Move* plan adds people-moving capacity to the region and provides alternatives to the single-occupant vehicle. The multi-modal plan includes Link light rail, Sounder commuter rail, and ST Express bus service along with capital improvements to enhance the region's transportation services. Sounder currently runs two trains in the morning and two in the afternoon from Tacoma to Seattle. ST Express buses run on 14 routes, with three additional routes approved to start in September.

Sound Move calls for partnering with other transit agencies and jurisdictions, including the Washington State Department of Transportation. It is based on Vision 2020 – the regional vision adopted through the Puget Sound Regional Council. That vision was recently updated to Destination 2030, and continues to rely on Sound Transit services to meet the region's mobility needs.

Background on the Central Link Project

In January 2001, the Sound Transit Board adopted a new budget and schedule for the Central Link Light Rail project. In April, an interim report from the Office of Inspector General of the US Department of Transportation resulted in changes to Sound Transit's federal funding assumptions in the financial plan. This spring, the Sound Transit staff told the Board it no longer believes the agency can build the Central Link Locally Preferred Alignment (LPA) from NE 45th to South 200th Street within the current financial plan and have trains running by 2009.

Over the course of four Board meetings, staff outlined a number of options, received Board input and responded to questions from the Board and public. A public forum on the options was held on June 20, 2001

The Challenge

We now know that the original 10-year system plan for Link light rail was unrealistically aggressive. When the agency revised Link's budget and schedule in December/January, it realized the consequences of the aggressive schedule and its impacts on the project budget. In short, we underestimated the time and cost of building such a complex light rail project in this urban area.

Due to the cost and risk issues primarily related to building a deep tunnel under Portage Bay, the Board asked staff to study alternative crossings. The Board also asked staff to look at other ways of cutting the overall cost and timeline for opening the light rail system. This was to be achieved through an adopted six-month work program and with the assistance of the Project Review Committee.

Sound Transit has the ability to proceed with University Link (MOS-1) as an initial segment if it can quickly resolve the issues raised in the interim report by the Office of Inspector General in order to receive the approved federal funding needed to build MOS-1. The agency also has the ability to begin building a different initial segment of Central Link, which would allow trains to begin running by 2009. The agency can also work at resolving other outstanding route option issues over the next 18 to 24 months.

Building the System

Staff is proposing a phased approach to building Central Link that starts with an initial light rail segment. This approach is more consistent with how other transit systems have been built around the country. Four scenarios have been outlined for the initial segment:

- University Link – NE 45th to Lander Street (7.2 miles)
- Convention Place to South Henderson Street (8.1 miles)
- Convention Place to South 200th Street (with southern interim terminus options) (16 plus miles)
- Capitol Hill to South Henderson (9.5 miles)

The Board workshop notebooks from May 24, 2001 and June 14, 2001 provide greater detail for each of those scenarios and outline the steps and funding options for the entire system,

including Northgate. On June 14, Sound Transit staff introduced the concept of a "Common Segment." At the same time, the staff outlined a draft three-month work program leading to a Board decision on September 27, 2001 which would identify a preferred Minimum Operable Segment (MOS) and a work program (including staff and consultant resource realignment), budget and schedule for the initial segment. This action would be the basis for negotiations with the federal government on revisions to the agency's Full Funding Grant Agreement.

What we are asking from the Board

Building upon the previous discussions and workshops, staff is now requesting direction for moving forward. We have defined seven questions for the Board:

1. Should staff proceed with the following actions on the "common" segment between Convention Place Station (CPS) to S. Henderson Street: advance design, initiate permit applications, and refine cost estimates and funding plans?

2. Should joint bus/rail operation of the Downtown Seattle Transit Tunnel (DSTT) be assumed in the work related to developing the revised MOS and should staff perform additional study on bus intercept terminals at Convention Place and International District stations and at Lander Street in case fire/life/safety issues cannot be resolved?

3. Which options should be studied further as an interim northern terminus for an initial segment (where construction would begin first)?

4. Should staff develop a conceptual route for a south Lake Union alignment?

5. Should staff continue work on the Northgate alignment and complete the draft SEIS?

6. Should a Southcenter route be further studied?

7. Which options should be studied further for an interim southern terminus for an initial segment (the segment where construction would begin first)?

The Board Decision Matrix of this staff report outlines those questions in greater detail. We are specifically requesting policy direction to guide our work over the next three months.

In order to move forward effectively and efficiently with our staff and consultant resources, we need to focus our work efforts.

Next Steps

Assuming we receive clear direction from the Board, staff will initiate the three-month work program activities and bring material to the Board during that time. A Board decision on a preferred Minimum Operable Segment is anticipated by September 27, 2001.

By September, we will provide refined cost estimates and schedule information on that initial segment. Our cost estimates will be evaluated by a third-party independent review. In addition, the Board has directed an internal audit of our cost methodologies and cost estimates

from 1999 to 2001. The internal audit should provide greater confidence on how we are conducting our work.

Our communications department and community outreach staff will keep the public informed of our activities and develop opportunities for public input. We will work with the Federal Transit Administration, the Office of Inspector General and our congressional delegation to maintain our federal funding partnership, including revisions to our Full Funding Grant Agreement.

SOUND TRANSIT

MOTION NO. M2001-68

A motion of the Board of the Central Puget Sound Regional Transit Authority directing the Executive Director to implement a work plan for Central Link consistent with the selected items.

Background:

On April 26, 2001, the Sound Transit Board of Directors began a series of workshops to discuss how to proceed with Central Link Light Rail. This discussion began in response to the April 4 interim Inspector General's report, which identified concerns about project cost and federal funding assumptions with Central Link's original Minimum Operable Segment (MOS) from the University District to South Lander Street. Given those concerns, the Board directed staff to explore what alternatives might be feasible and affordable for a revised MOS, and identify how these alternatives could be implemented as an initial segment toward the full build out of the system.

Staff efforts on the six-month work plan and Airport Link work plan were redirected toward responding to Board requests for new alternatives. At the May 24, 2001, Board workshop, four potential scenarios were presented. These scenarios identify segments of the 200th to Northgate alignment which could become the basis for a potential, revised MOS where construction would begin first. Further detail about these scenarios has been produced for subsequent Board meetings. As a result of these discussions, the Board has expressed an interest in studying some of these options further.

A Board decision matrix was developed to guide future staff work. It identifies the specific options that will be studied over the next three months. Over the next three months, staff will provide regular updates and briefings to the Board. It is anticipated that issues will be brought forward for Board consideration and possible action throughout the three-month period.

Motion:

It is hereby moved by the Board of the Central Puget Sound Regional Transit Authority that the Executive Director is directed to implement a work plan for Central Link that is consistent with the following items:

1. Proceed with the following actions on the "common" segment between Convention Place Station (CPS) to South Henderson Street: advance design, initiate permit applications, and refine cost estimates and funding plans.

2. Assume joint bus/rail operation of the Downtown Seattle Transit Tunnel (DSTT) in the work related to developing a revised MOS and perform additional study on bus intercept terminals at Convention Place and International District stations and at Lander Street in case fire/life/safety issues cannot be resolved.

3. Study Royal Brougham and Convention Place further as an interim northern terminus for an initial segment (where construction would begin first) and do not study further a Capitol Hill option as an interim northern terminus for an initial segment.

4. Develop a conceptual route for a south Lake Union alignment.

5. Discontinue work on the Northgate alignment and do not complete the draft SEIS.

6. A Southcenter route should not be further studied.

7. South 200th should be studied further for an interim southern terminus for an initial segment (the segment where construction would begin first).

It is further moved that:

Additional geotechnical borings on the Montlake route be performed, consistent with further Board authorization as may be required.

APPROVED by the Board of the Central Puget Sound Regional Transit Authority at a regular meeting thereof held on the 28th day of June 2001.

David Earling
Board Chair

ATTEST:

Marcia Walker
Board Administrator

Work Items Selected by the Sound Transit Board of Directors

1. Should staff proceed with the following actions on the "common" segment between Convention Place Station (CPS) to S. Henderson Street: advance design, initiate permit applications, and refine cost estimates and funding plans?

   Board response: Yes

2. Should joint bus/rail operation of the Downtown Seattle Transit Tunnel (DSTT) be assumed in the work related to developing the revised MOS and should staff perform additional study on bus intercept terminals at Convention Place and International District stations and at Lander Street in case fire/life/safety issues cannot be resolved?

   Board response: Yes

3. Which options should be studied further as an interim northern terminus for an initial segment (where construction would begin first)?

   Board response: Royal Brougham and Convention Place

4. Should staff develop a conceptual route for a south Lake Union alignment?

   Board response: Yes

5. Should staff continue work on the Northgate alignment and complete the draft SEIS?

   Board response: No

6. Should a Southcenter route be further studied?

   Board response: No

7. Which options should be studied further for an interim southern terminus for an initial segment (the segment where construction would begin first)?

   Board response: South 200th

SOUNDTRANSIT

CENTRAL LINK LIGHT RAIL

June 28, 2001

Contents

STAFF REPORT

FOR

MOTION NO. M2001-68

June 28, 2001

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Our communications department and community outreach staff will keep the public informed of our activities and develop opportunities for public input. We will work with the Federal Transit Administration, the Office of Inspector General and our congressional delegation to maintain our federal funding partnership, including revisions to our Full Funding Grant Agreement.

BOARD DECISION MATRIX

CENTRAL LINK LIGHT RAIL

June 28, 2001

Board Decision Matrix

1. Common Segment

A "common" segment exists among three of the four scenarios presented to the Sound Transit Board on May 24, 2001. The scenarios identify four segments of Central Link that could become the initial segment to be built. The "common" segment is the portion between Convention Place Station in the downtown Seattle transit tunnel and S. Henderson Street in the Rainier Valley. The common segment would be included in a revised MOS.

Question: Should staff proceed with the following actions on the "common" segment between Convention Place Station (CPS) to S. Henderson Street: advance design, initiate permit applications, and refine cost estimates and funding plans?

Options	Discussion	Key work elements
Yes	• Design is the most advanced along this segment of the Link light rail project. • A court injunction prevents Sound Transit from property acquisition activities in Rainier Valley. Trial date for Save Our Valley lawsuit is July 31 • Guidelines for the $50 million Community Development Fund and MOAs with the City of Seattle and King county are being developed for Board consideration. • Beacon Hill tunnel station is designated a deferred station so cost of building a shell only is included in project cost estimates. Cost of completing is an additional $30 million (YOE).	• Work with FTA and Congressional delegation on feasibility of maintaining federal funding on a revised MOS that includes the common segment. • Proceed with engineering and architectural design of the common segment • Initiate permit application process on permits which require long lead time or on critical path such as Master Use Permit for maintenance base and NPDES from Department of Ecology for storm water discharge • Work with City of Seattle and King County Metro to resolve issues on station design, station area improvements, utility relocation, urban design, traffic improvements, and bus interfaces. • Continue to work on Community Development Fund and associated MOAs with King County and City of Seattle. • Refine/update cost estimates, cash flows, and financial plan • Provide updated cost estimates and ridership forecasts for Beacon Hill station. • Continue community involvement
No	Alternatives to common segment would include: • Focus on different segment of Central Link route • Focus only on MOS 1 (Lander to NE. 45th Street)	• Pursue work outlined in 6-month work program or • Study other route and segment options

2. Use of the Downtown Seattle Transit Tunnel (DSTT)

Assumptions about use of the DSTT impact work to be done over the next three months. A final decision about whether or not the DSTT should be joint rail/bus operation is scheduled to come before the Board in September. More information about joint operations as well as the option for bus transfer facilities will be provided to the Board prior to that decision.

Question: Should joint bus/rail operation of the Downtown Seattle Transit Tunnel (DSTT) be assumed in the work related to developing the revised MOS and should staff perform additional study on bus intercept terminals at Convention Place and International District stations and at Lander Street in case fire/life/safety issues cannot be resolved?

Options	Discussion	Key work elements
Yes	Re: Joint bus/rail operation of DSTT • If Convention Place Station is interim northern terminus, it must be redesigned to accommodate joint use. • Cost of joint rail/bus operations will add to project cost but potential savings exist in tunnel purchase cost • Technical issues have been addressed but fire/life/safety issues are still unresolved • Estimated tunnel closure time for conversion to joint bus/rail operations is up to 2 years depending upon scope of changes and route north of downtown Re: Rail-only with bus intercepts: • Intercepts buses at three stations: Convention Place, International District, and Lander • Transfers passengers at those stations to rail • Use of DSTT is rail only • Requires redesign of Lander station • Adds additional cost to program	Re: Joint bus/rail operation of DSTT • Work with King County Metro to resolve issues related to joint use • Develop joint rail/bus operating plan • Revise design for joint bus/rail use • Develop revised cost estimates • Begin discussions on revisions to DSTT agreement • Resolve fire/life/safety issues • Complete conceptual and preliminary design of provisions for joint operations • Review and refine tunnel closure time estimates • Continue research on hybrid buses Re: Rail-only with bus intercepts: • Work with King County Metro to resolve issues related to bus intercept terminals • Develop conceptual designs for intercept terminals at Convention Place, International District, and Lander • Review impacts to current Lander station design • Begin discussions on revisions to DSTT agreement • Develop cost estimates and cash flows • Continue community involvement
No	• Rail only use of tunnel per existing DSTT agreement or • Rail only use of DSTT with bus intercepts (see discussion above)	• Work with King County Metro to resolve issues related to rail only use of the tunnel and a north terminus • Prepare cost estimates based on current 60 design for rail only operation • Begin discussions on revisions to DSTT agreement • Continue community involvement

3. Interim Northern Terminus

An interim northern and southern terminus will establish the limits of a potential, initial segment.

Question: Which options should be studied further as an interim northern terminus for an initial segment (where construction would begin first)?

Options	Discussion	Key work elements
Royal Brougham	• Requires rail passengers to transfer to bus to proceed north • No joint bus/rail use of tunnel • Requires no modification to DSTT • Lowest ridership of any interim northern terminus • Delays decision about joint operations of DSTT to future date • Adds large volume of buses to DSTT • Requires new bus/rail terminal facility	• Complete conceptual design of bus/rail terminal facility • Develop operating plan for buses in tunnel • Develop revised cost estimates and cash flows • Continue community involvement
Convention Place	• Maintains all options for future north extensions including ship canal crossings • Final design cannot be completed until decision identifying route north from station. • Study of options for proceeding north takes 18-24 months • Some redesigns eliminate use of CPS as passenger facility • Requires more environmental review • See 2 pages in Central Link work book for further detail: section 8, page 18 and appendix F, page 3	• Completé analysis of how to modify station to proceed north and how that impacts bus operations • Complete analysis of impact of King County's proposed TOD project • Develop revised cost estimates • Continue community involvement • Option for a CPS station for passengers
Capitol Hill	• Maintains ability to explore all alternatives to crossing Ship Canal • Precludes South Lake Union route options • Additional cost of extending from CPS to Capitol Hill is $650 to $750 million (YOE). • Adequate resources to build to Capitol Hill are only available if the existing $500 million FFGA is maintained and potential cost savings in the rest of the segment are achieved. • Highest ridership of any interim northern terminus option • If CPS is selected as an interim terminus, Capitol Hill could be included in a future alternatives analysis that identifies routes and station locations for extensions northward.	• Provide status and informational update to Board on 7/26 regarding Ship Canal crossings. • Identify implications for future north alignment options • Continue to refine Nagle Place station options • Develop revised cost estimate and cash flows • Continue community involvement

4. South Lake Union Route

Recent discussions about options to the Capitol Hill route have lead to suggestions that a south Lake Union route be studied. One option was studied in the Central Link Environmental Impact Statement (EIS). Other routes have been suggested recently as well.

Question: Should staff develop a conceptual route for a south Lake Union alignment ?

Options	Discussion	Key work elements
Yes	• No route has been determined for this concept • If Capitol Hill is selected as the interim northern terminus, a south Lake Union route would be precluded. • Does not preclude study of Capitol Hill as an interim northern terminus • Intent is to review previous studies and perform preliminary, conceptual analysis . Staff briefing on preliminary information scheduled for 7/26. • Full engineering and environmental analysis of routes north from interim northern terminus would take 18 – 24 months • Crossing options for Lake Washington Ship Canal are the same as exist for Capitol Hill route. • Portions of this route were studied in the EIS • Route options identified to date include tunnel, surface, and elevated sections	• Work with City of Seattle, King County, and Washington State Department of Transportation staff to develop and evaluate conceptual route • Review previous studies and analyses • Develop conceptual route and station locations • Prepare conceptual level cost estimates and cash flows • Prepare conceptual ridership estimate • Evaluate engineering feasibility and identify key issues • Identify implications for interim northern terminus options • Meet with interested community and business groups • Provide status and informational update to Board on 7/26 regarding Ship Canal crossings.
No	• No change to current work effort regarding routes.	• Follow 6-month work program

5. Northgate

Staff is currently preparing a Supplemental Environmental Impact Statement (SEIS) for Northgate routes. The routes are based upon extensions of the current LPA route.

Question: Should staff continue work on the Northgate alignment and complete the draft SEIS?

Options	Discussion	Key Work Elements
Yes	• Publication of the draft SEIS is scheduled for August. Final SEIS is scheduled for publication in early 2002. • Publication of draft SEIS would allow Board to consider identifying a preliminary LPA for this segment this fall. • Board Resolution No. 2000-11-1 adopted December 14, 2000 states that the Board will identify a preferred route in spring 2001 • As long as the LPA route extends from N.E. 45th and 15th Ave. N.E. (as it does in the LPA), the route options would remain the same and continue to be feasible. If the route is relocated substantially, new Northgate alternatives will be required. • If different routes through the University District are chosen, routes being studied in the Northgate SEIS could be impacted • Additional environmental review will likely be required after three years if no major action is taken (advancement to final design, property acquisition, etc.) on the proposal	• Complete draft SEIS • Continue work on final SEIS • Refine cost estimates and cash flows
No	• Information gathered to date in the SEIS could be folded into a broad look at alternatives for extending north from the interim northern terminus • Study of route options for proceeding north takes 18-24 months	• If the Board directs staff to undertake a review of alternatives to the north of the interim northern terminus, work to date on the SEIS would be folded into that work product

6. Southcenter route

Recent discussions regarding starting first in the southern portion of Central Link have lead to the suggestion that an interim southern terminus at Southcenter be considered. At present, staff efforts in this area are focused on routes through Tukwila and SeaTac.

Question: Should a Southcenter route be further studied?

Options	Discussion	Key work elements
Yes	• Two Southcenter routes have been identified (along Martin Luther King, Jr., Way S. and the Interurban) and were studied in the EIS • No preferred Southcenter route has been identified • Southcenter route options present significant engineering challenges • Requires additional engineering and study to determine design, cost, and potential impacts of train turnback and storage facilities as well as park and ride, bus transit and traffic access and circulation impacts • Preliminary estimates are $220 – $260 million (YOE) higher than LPA route along Tukwila International Blvd. • Requires additional environmental review • Time for review of Southcenter route takes approximately 12 months	• Prepare comparative analysis of termini options • Proceed with additional engineering for route • Develop conceptual design for interim terminus • Update cost estimates and cash flows • Coordinate with City of Tukwila, City of SeaTac, and WSDOT • Suspend work on Tukwila freeway route SEIS and incorporate work into broader environmental review of southern routes
No	• Project focus remains on Tukwila freeway route to airport	• See question #7

7. Interim southern terminus

The choice of a terminus affects route options. Some terminus options are practical only with specific routes. Some preserve or eliminate route options.

Question: Which options should be studied further for an interim southern terminus for an initial segment (the segment where construction would begin first)?

Options	Discussion	Key work elements
S. Henderson	• Preserves all options for continuing south to S. 200th • Was studied as terminus in EIS • See #1 in "common segment"	• Review and update terminus info developed for EIS
S. 154th	• Identifying an interim terminus south of S. Henderson requires resolution of all alignments south of Henderson (LPA, Southcenter, and Tukwila) • Cost of extending from S. Henderson to Boeing Access Road (at North King/South King boundary) is $90 - $110 million. • Precludes Southcenter routes studied in EIS • Requires shuttle bus to airport until new airport station opens • Could require station redesigns, depending upon route options • Requires additional engineering and study to determine design, cost, and potential impacts of train turnback and storage facilities as well as park and ride, bus transit and traffic access and circulation impacts • Preparation of Tukwila freeway route final SEIS is underway and due for publication in August	• Complete final SEIS for Tukwila freeway route (estimated completion date: August 2001). Must be amended to include new interim terminus. • Prepare comparative analysis of termini options • Develop alternative interim terminus designs for stations • Revise cost estimates, cash flows and schedule as appropriate • Continued coordination activities with City of Sea-Tac, Tukwila, WSDOT, King County Metro, and Port of Seattle
S. 200th	• Completing alignment to S. 200th dependent upon the schedule of the Airport's North End Development Project which will not be ready for light rail service before 2009, based upon Port of Seattle letter to Sound Transit dated June 6, 2001.	• Revise cost estimates, cash flows and schedule as appropriate • Continued coordination activities with City of Sea-Tac, Tukwila, WSDOT, King County Metro, and Port of Seattle • Complete final SEIS for Tukwila freeway route (estimated completion date: August 2001)

MOTION NO. M2001-68

June 28, 2001

SOUND TRANSIT

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APPROVED by the Board of the Central Puget Sound Regional Transit Authority at a regular meeting thereof held on the _____ day of _____ 2001.

_____
David Earling
Board Chair

ATTEST:

_____
Marcia Walker
Board Administrator

BOARD CALENDAR

CENTRAL LINK LIGHT RAIL

June 28, 2001

Three-month Board calendar

For Central Link Light Rail

June 28 Board meeting

- Guidance to staff on the range of northern and southern termini to be considered for a revised MOS.
- Direction to staff on assumptions regarding operation of the Downtown Seattle Transit Tunnel (DSTT)
- Direction to staff on proceeding with a common segment between Convention Place Station and S. Henderson
- Direction to staff on whether to develop a conceptual route option for a south Lake Union alignment.
- Direction to staff on whether a Southcenter route should be further studied.
- Direction to staff on whether to continue work on the Northgate alignment and complete the draft SEIS.
- Briefing on property acquisition.

July 12 Board meeting

- Update Board on new three-month work program and staff consultant resource allocation.

July 26 Board meeting

- Briefing by staff on preliminary evaluation of Eastlake or South Lake Union alignment and comparison analysis with locally preferred alternative.
- Briefing by staff on preliminary findings of northern interim terminus analysis.
- Briefing by staff on preliminary findings of southern interim terminus analysis.
- Direction to staff on termination of the LB235 Design/Build contract procurement process.
- Briefing on federal strategy including Inspector General review and funding.
- Briefing by staff on the status of the common segment financial plan.
- Briefing by staff on alternatives for crossing Portage Bay.

August 9 Board meeting

- Identification of a preferred northern terminus for revised MOS and direction to staff regarding further studies of alignments north of the selected terminus to Northgate.
- Identification of a preferred southern terminus for revised MOS and direction to staff regarding further studies of alignments south of the terminus to South 200th Station.
- Briefing by staff on the status and cost estimate for the completion of the revised Beacon Hill Station.
- Direction to staff on deferred Royal Brougham station.

August 23 Board meeting

- Direction to staff whether to include Beacon Hill Station in revised MOS.
- Briefing by staff on status of McClellan and MLK Jr. Way South issues and the SOV lawsuit.
- Briefing by staff on status and process for DSTT joint bus/rail operations planning and negotiation.
- Update on community development fund

September 13 Board meeting

- Briefing by staff on preferred, revised MOS program, budget and schedule.
- Briefing by staff on Central Link implementation and funding strategy including FTA/New Starts process.

September 27 Board meeting

- Identify preferred MOS and adopt a work program (including staff and consultant realignment), budget and schedule to support a final Board action for Central Link. The work program could address:
  - Financial program and direction of federal funding
  - Work program, budget and schedule for the resolution of alignment issues between the preferred interim northern terminus and Northgate.
  - Work program, budget, and schedule for the resolution of alignment issues between the preferred interim southern terminus and South 200th Station.
  - New implementation and financial program for the entire Central Link system, including the possibility of and schedule for revising the LPA, seeking new local funds and seeking subsequent Full Funding Grant Agreement(s).

KEY COMPONENTS

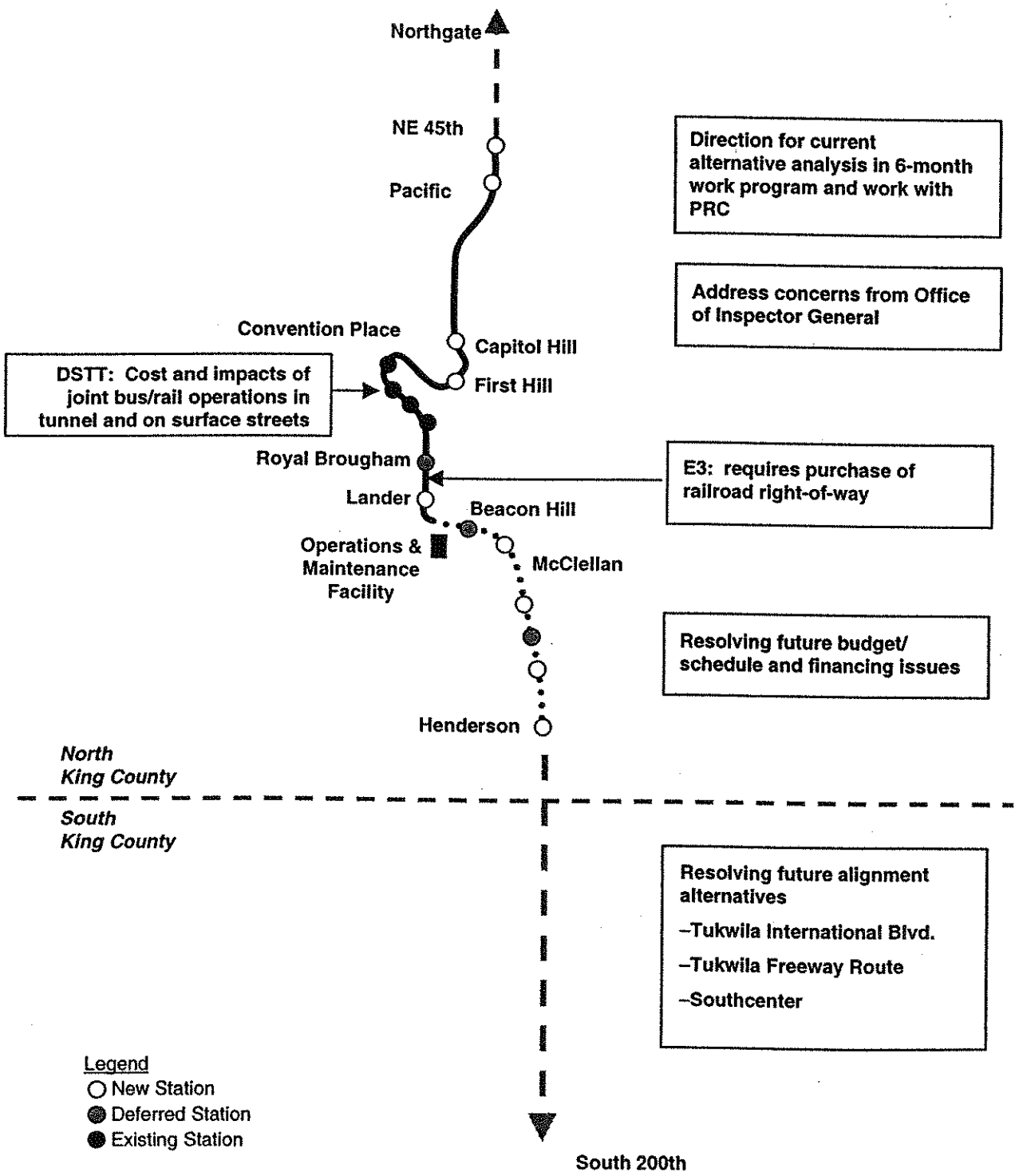
OF

SCENARIOS

This is a copy of material presented previously to the Sound Transit Board
at the May 24, 2001meeting

Scenario 1 - University Link

MAJOR ISSUES



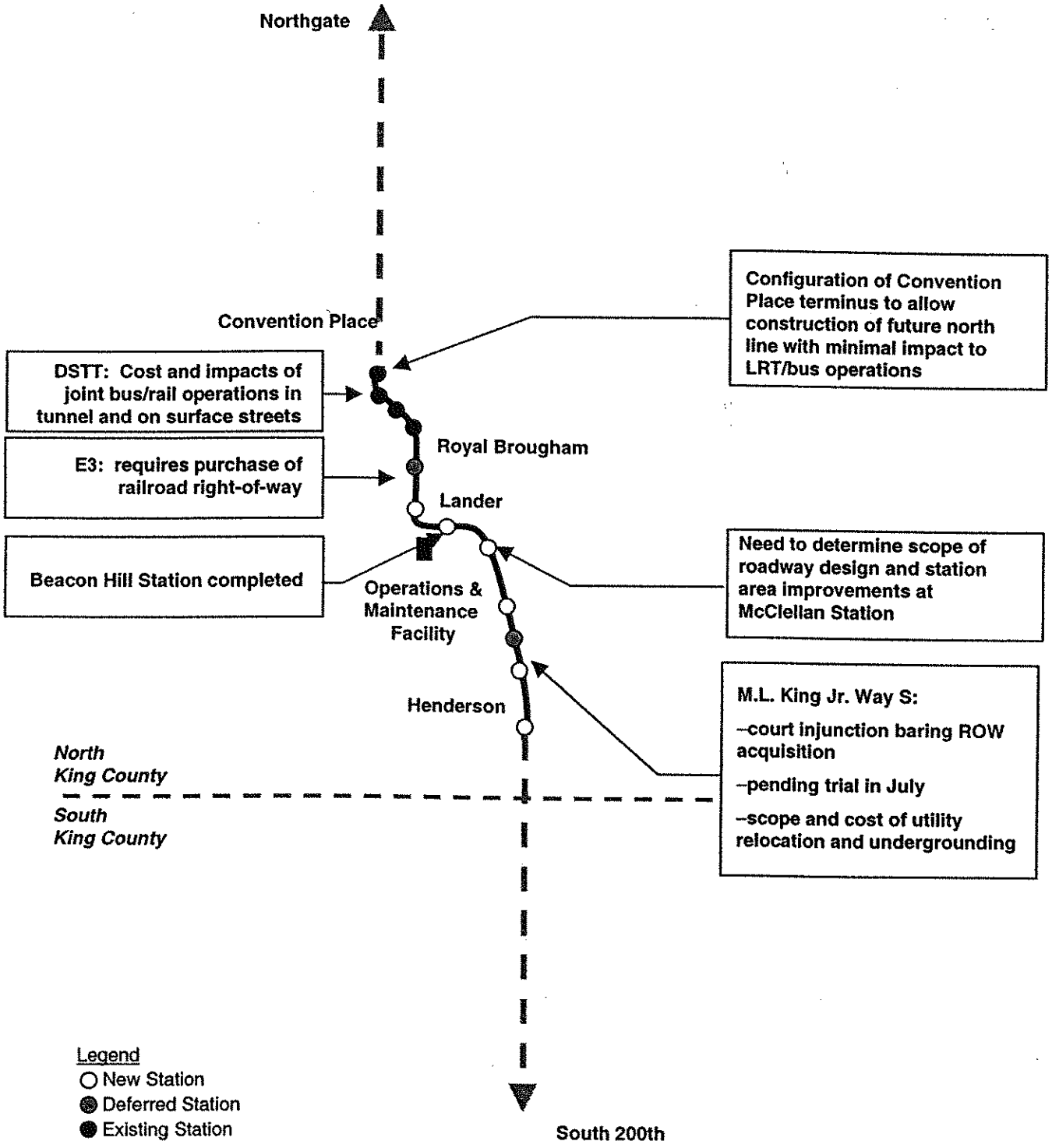
Scenario 1 – University Link

KEY COMPONENTS

		Information	Discussion
Total capital costs		$ 2,250m	Includes expenditures to date. No provision for joint operations.
Total funds available		$ 2,250m	
	Local	$ 1,750m	
	Federal	$ 500m	Uses current FFGA
Remaining local funds	Total	$ 470 –520m	
	North King subarea	0	
	South King subarea	$ 470 – 520m	
Schedule		Fall 2009 revenue start date	Assumes design/build process for CPS to University District
Ridership		85,000 daily boardings	
Limits/terminus		NE 45th to Lander (7.2 miles)	
Staffing		Link: TBD	
		PSTC: TBD	
Property acquisition		66 parcels	
		279 easements	
Design status		50-90% completed	
Environmental review status		Capitol Hill station: new options under review	

Scenario 2 - Convention Place Station (CPS) to Henderson

MAJOR ISSUES



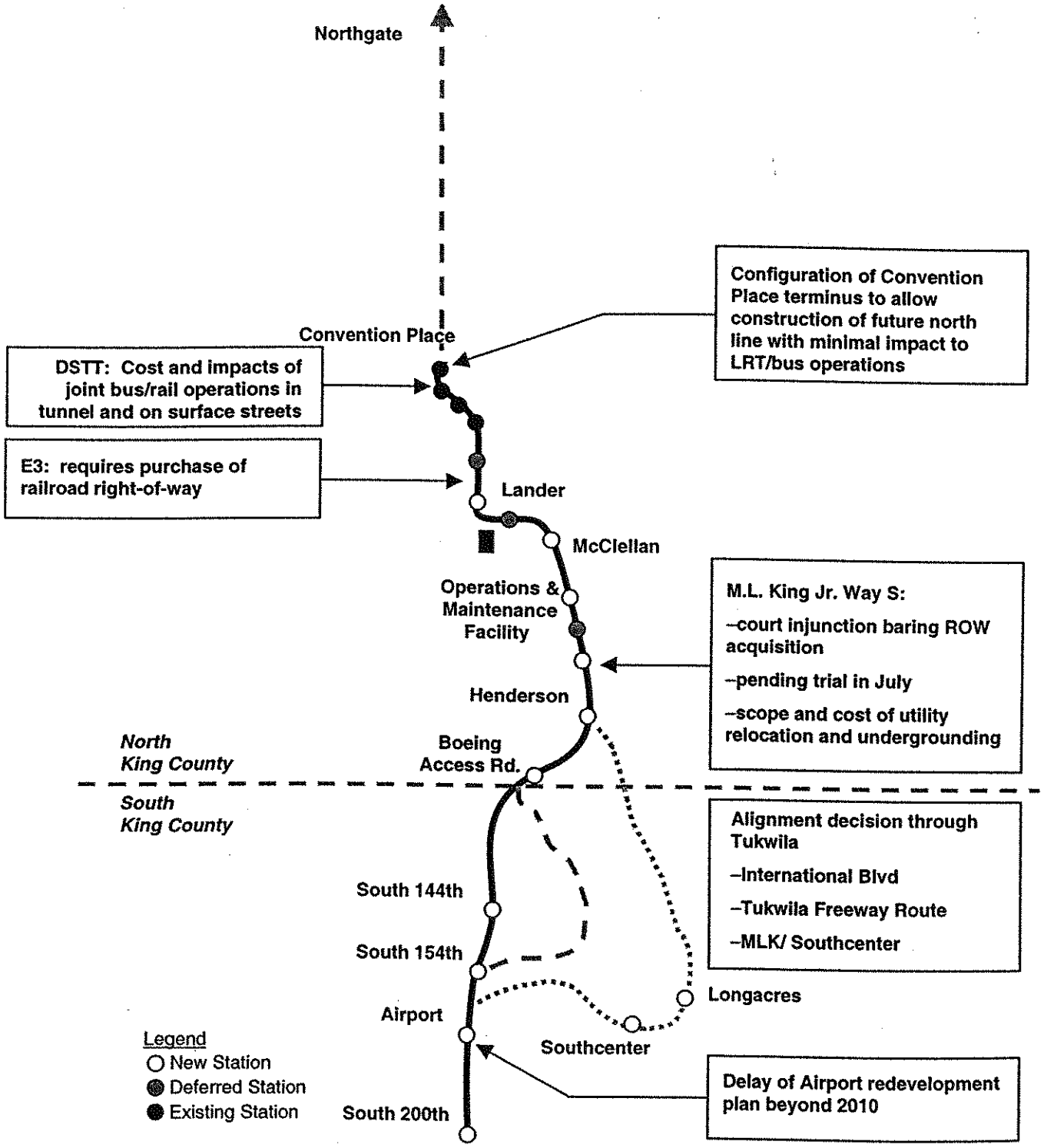
Scenario 2 – Convention Place Station to Henderson

KEY COMPONENTS

		Information	Discussion
Future capital costs		$ 1,580 – 1,680m	Assumes joint operation/bus-rail intercepts. Includes completed Beacon Hill station.
Total future funds available	Total	$ 1,500 – 1,700m	
	Local	$ 1,500 – 1,700m	
	Federal	0	Assumes local funding only
Remaining local funds	Total	$ 470 –520m	
	North King subarea	0	
	South King subarea	$ 470 – 520m	
Schedule		Mid 2008 revenue start date	
Ridership		Daily boardings 27,000	
Limits/terminus		CPS to Henderson (8.1 miles)	
Staffing		Link: TBD	
		PSTC: TBD	
Property acquisition		256 parcels	
		65 easements	
Design status		30-90% completed	
Environmental review status		CPS terminus not studied in FEIS, additional review may be necessary	

Scenario 3 - CPS to South 200th

MAJOR ISSUES



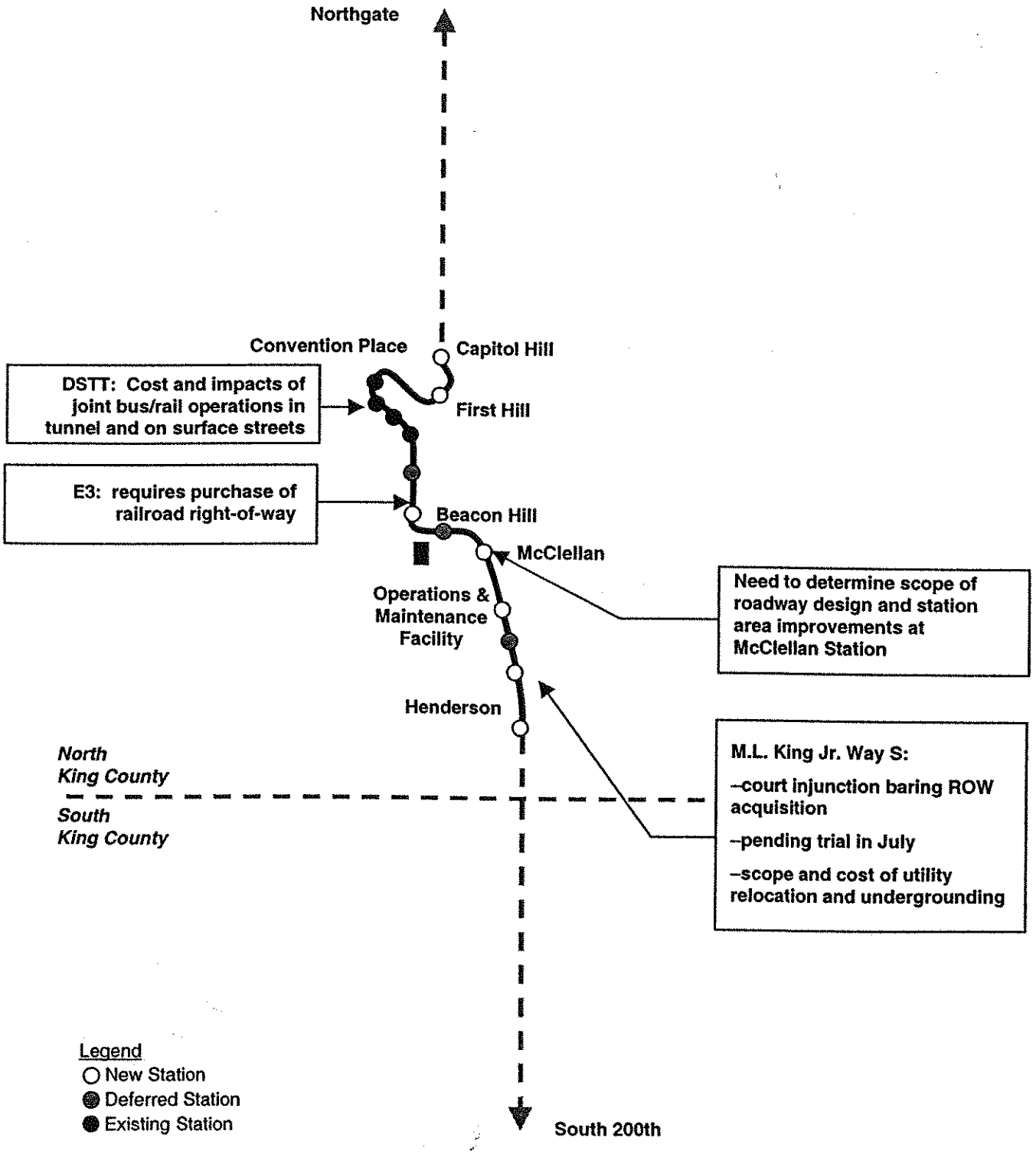
Scenario 3 – Convention Place Station to South 200th

KEY COMPONENTS

		Information	Discussion
Future capital costs		$ 2,250 – 2,350m	Assumes joint operation/bus-rail intercepts. Assumes current LPA route in Tukwila; the Tukwila freeway route would cost $40 –60m more, the Southcenter route would add $220 – 260m more. Build out of Beacon Hill station would cost an additional $30m.
Total future funds available	Total	$ 2,470 – 2,720m	
	Local	$ 1,970 – 2,200m	
	Federal	$ 500m	Assumes FFGA is re-programmed
Remaining local funds	Total	$220 - $ 370m	Any funds remaining may be north or south subarea funds
	North King subarea	$220 - $ 370m	
	South King subarea	$220 - $ 370m	
Schedule		Fall 2009 revenue start date (if outside airport), 2012 or beyond (if through airport)	Schedule is highly variable and dependent on alignment through Tukwila and route through or outside airport
Ridership		51,000 daily boardings	
Limits/terminus		CPS to S. 200th (16 miles)	Route mileage assumes current LPA through Tukwila (longer if Tukwila freeway route or Southcenter route chosen)
Staffing		Link: TBD	
		PSTC: TBD	
Property acquisition		361-394 parcels	
		65 easements	
Design status		30-90% north of Henderson, 5-30% Tukwila to 200th	
Environmental review status		Tukwila freeway route: SFEIS planned for Aug. 2001. CPS terminus not studied in FEIS. Additional review may be necessary.	

Scenario 4 - Capitol Hill to Henderson

MAJOR ISSUES



Scenario 4 – Capitol Hill to Henderson

KEY COMPONENTS

		Information	Discussion
Future capital costs		$ 2,150 – 2,250m	Assumes joint operation. Build out of Beacon Hill station would cost an additional $30m.
Total future funds available	Total	$ 2,000 – 2,200m	
	Local	$ 1,500 – 1,700m	
	Federal	$ 500m	Assumes FFGA is amended to reflect new MOS definition
Remaining local funds	Total	$ 470 – 520m	
	North King subarea	0	
	South King subarea	$ 470 – 520m	
Schedule		Fall 2008 revenue start date	Assumes design/bid/build procurement for CPS to Capitol Hill tunnel
Ridership		60,000 daily boardings	
Limits/terminus		Capitol Hill to Henderson (9.5 miles)	Requires future tunnel connection at Capitol Hill station
Staffing		Link: TBD	
		PSTC: TBD	
Property acquisition		280 parcels	
		290 easements	
Design status		30-90% completed	
Environmental review status		Capitol Hill station: new options under review	

PUBLIC COMMENT

SUMMARY

June 6 – June 30, 2001

Includes comments from Public Forum, E mail, Letters, and Surveys

SOUNDTRANSIT

MEMO

June 28, 2001

TO: Sound Transit Board

FROM: Ric Ilgenfritz, Chief Communications Officer

SUBJECT: Public Feedback from June 20th Central Link Public Forum

Attached are the results from the public forum held on June 20, 2001. We received 394 comments total, roughly one-half the sample size taken in our recent public opinion survey. The community commented using 5 methods: phone, e-mail, written survey, web-based survey and public comment. Comments were taken from June 1st to close of business June 25th.

Highlights from the report include 56% of respondents supporting the use of light rail in a regional transportation system. Among responses, there was no consensus on a preferred alignment. However, the number of respondents expressing preference for an alignment equaled the number of folks who rejected all scenarios (roughly 38% each).

We asked two open-ended questions on the survey form. Written comments in response to these questions covered a variety of topics and are available to you upon request.

RI:kd 062001 public feedback

Central Link Forum and Other Public Comments

Received from 6/1/01 - 6/30/01

COUNT OF RESPONDENTS AND METHOD OF RESPONSE

ReceiptMethod	Count	Percent
Email	49	12.44%
Letter	10	2.54%
Public Comment at Forum	76	19.29%
Survey Form-Hardcopy	101	25.63%
Survey Form-Web	158	40.10%
Total Comments Received	**394**	

SURVEY QUESTIONS

1) Should Light Rail be one part of our region's overall transportation system?

Response	Count	Percent
Yes	220	55.84%
No	113	28.68%
Not Answered	61	15.48%
Total Count	**394**	

2) In light of increased costs and construction time should ST:

Response	Count	Percent
Neither (or Not Answered)	108	27.41%
Identify LR segment affordable w/ current resources, start building	157	39.85%
Start over and redesign project	121	30.71%
Other Specific (noted in comments)	8	2.03%
Total Count	**394**	

3) Which scenario do you prefer?

Response	Count	Percent
1: NE 45th to Lander	51	12.94%
2: Convention Pl to Henderson	15	3.81%
3: Convention Pl to S. 200th	25	6.35%
4: Capitol Hill to Henderson	28	7.11%
Doesn't matter, just build it	35	8.88%
None of the above	151	38.32%
Not answered	72	18.27%
Other Specific (noted in comments)	17	4.31%
Total Count	**394**	

Central Link Forum and Other Public Comments

Received from 6/1/01 - 6/25/01

Receipt Method: Email Count: 49

SURVEY QUESTIONS

1) Should Light Rail be one part of our region's overall transportation system?

Response	Count	Percent
Yes	32	65.31%
No	6	12.24%
Not Answered	11	22.45%
Total Count	**49**	

2) In light of increased costs and construction time should ST:

Response	Count	Percent
Neither (or Not Answered)	28	57.14%
Identify LR segment affordable w/ current resources, start building	19	38.78%
Start over and redesign project	2	4.08%
Total Count	**49**	

3) Which scenario do you prefer?

Response	Count	Percent
3: Convention Pl to S. 200th	3	6.12%
Doesn't matter, just build it	3	6.12%
None of the above	5	10.20%
Not answered	31	63.27%
Other Specific (noted in comments)	7	14.29%
Total Count	**49**	

Receipt Method: Letter Count: 10

SURVEY QUESTIONS

1) Should Light Rail be one part of our region's overall transportation system?

Response	Count	Percent
Yes	7	70.00%
No	1	10.00%
Not Answered	2	20.00%
Total Count	**10**	

2) In light of increased costs and construction time should ST:

Response	Count	Percent
Neither (or Not Answered)	3	30.00%
Identify LR segment affordable w/ current resources, start building	4	40.00%
Start over and redesign project	1	10.00%
Other Specific (noted in comments)	2	20.00%
Total Count	**10**	

3) Which scenario do you prefer?

Response	Count	Percent
4: Capitol Hill to Henderson	2	20.00%
None of the above	3	30.00%
Not answered	1	10.00%
Other Specific (noted in comments)	4	40.00%
Total Count	**10**	

Receipt Method: Public Comment at Forum Count: 76

SURVEY QUESTIONS

1) Should Light Rail be one part of our region's overall transportation system?

Response	Count	Percent
Yes	33	43.42%
No	14	18.42%
Not Answered	29	38.16%
Total Count	**76**	

2) In light of increased costs and construction time should ST:

Response	Count	Percent
Neither (or Not Answered)	47	61.84%
Identify LR segment affordable w/ current resources, start building	21	27.63%
Start over and redesign project	5	6.58%
Other Specific (noted in comments)	3	3.95%
Total Count	**76**	

3) Which scenario do you prefer?

Response	Count	Percent
1: NE 45th to Lander	12	15.79%
2: Convention Pl to Henderson	2	2.63%
4: Capitol Hill to Henderson	5	6.58%
Doesn't matter, just build it	8	10.53%
None of the above	20	26.32%
Not answered	25	32.89%
Other Specific (noted in comments)	4	5.26%
Total Count	**76**	

Receipt Method: Survey Form-Hardcopy Count: 101

SURVEY QUESTIONS

1) Should Light Rail be one part of our region's overall transportation system?

Response	Count	Percent
Yes	61	60.40%
No	29	28.71%
Not Answered	11	10.89%
Total Count	**101**	

2) In light of increased costs and construction time should ST:

Response	Count	Percent
Neither (or Not Answered)	16	15.84%
Identify LR segment affordable w/ current resources, start building	48	47.52%
Start over and redesign project	34	33.66%
Other Specific (noted in comments)	3	2.97%
Total Count	**101**	

3) Which scenario do you prefer?

Response	Count	Percent
1: NE 45th to Lander	22	21.78%
2: Convention Pl to Henderson	2	1.98%
3: Convention Pl to S. 200th	8	7.92%
4: Capitol Hill to Henderson	11	10.89%
Doesn't matter, just build it	6	5.94%
None of the above	37	36.63%
Not answered	13	12.87%
Other Specific (noted in comments)	2	1.98%
Total Count	**101**	

Receipt Method: Survey Form-Web Count: 161

SURVEY QUESTIONS

1) Should Light Rail be one part of our region's overall transportation system?

Response	Count	Percent
Yes	88	54.66%
No	65	40.37%
Not Answered	8	4.97%
Total Count	**161**	

2) In light of increased costs and construction time should ST:

Response	Count	Percent
Neither (or Not Answered)	14	8.70%
Identify LR segment affordable w/ current resources, start building	66	40.99%
Start over and redesign project	81	50.31%
Total Count	**161**	

3) Which scenario do you prefer?

Response	Count	Percent
1: NE 45th to Lander	17	10.56%
2: Convention Pl to Henderson	11	6.83%
3: Convention Pl to S. 200th	14	8.70%
4: Capitol Hill to Henderson	11	6.83%
Doesn't matter, just build it	18	11.18%
None of the above	88	54.66%
Not answered	2	1.24%
Total Count	**161**	

SOUNDTRANSIT

June 20, 2001

June Forum Comments

After you have viewed the information on display and talked with Sound Transit representatives, we invite you to offer your comments. A summary of comments received will be provided to the Sound Transit Board prior to the June 28 Board meeting.

What is your zip code? _____

1) Should light rail service be one part of our region's overall transportation system?

Yes ☐ No ☐

2) In light of increased costs and construction time should Sound Transit

☐ Identify a light rail segment affordable with current resources and start building now.

or

☐ Start over and re-design the entire project.

3) Which scenario do you prefer?

☐ Scenario 1: NE 45th to Lander

☐ Scenario 2: Convention Place to Henderson

☐ Scenario 3: Convention Place to South 200th

☐ Scenario 4: Capitol Hill to Henderson

☐ does not matter, just build it

☐ none of the above

4) Are there specific features of the Central Link project you are interested in or concerned about? Do you have suggestions about design refinements?

5) Do you have comments about other Sound Transit services and projects such as Sounder commuter rail and ST Express bus service and facilities?

Other comments:

Your continued involvement ...

What's the best way for Sound Transit to keep you informed and involved in the Link light rail project and other Sound Transit programs? Please mark the most effective options for you:

___ **Send me electronic updates**

Name _____

E-mail address _____

___ **Mailings and newsletters**

Name _____

Address _____

_____

City, State, Zip _____

___ **Post information on the Sound Transit Web site**

___ **Radio - which station(s)** _____

___ **Newspaper - which paper(s)** _____

___ **Other** _____

We would like the opportunity to speak at your community organization's meeting. To schedule a speaker, please contact Sound Transit Community Relations at 206-398-5000.

Please return this form to one of the comment boxes at the public forum or fax to Sound Transit at (206) 398-5221. This form is also available electronically at www.soundtransit.org. To be included in a summary of comments to the Sound Transit Board prior to the June 28th Board meeting, please return this comment form by the end of day Thursday, June 21, 2001. Thank you.

STATUS REPORT

SIX-MONTH WORK PROGRAM

June 25, 2001

Contains a status report on items in the Central Link work programs for University Link, Airport Link, and Northgate.

I. LINK PROJECT-WIDE

TASK	STATUS
1. Review of LPA Options	• Complete
2. Project Review Committee	• Committee formed and work in progress
3. Project Controls	• On-going
4. External Affairs	• On-going
5. Federal and State Policy	• On-going
6. Grant Program Administration	• On-going
7. Board Schedule & Agenda	• On-going
8. Contracts	• On-going
9. Link Community Affairs	• On-going
10. Inventory of Third Party Agreements	• Complete
11. King County Metro Agreements	• On-going
12. UW Agreement	• On-going
13. City of Seattle Interlocal Agreement	• On-going
14. WSDOT Agreements	• On-going
15. Light Rail Vehicle Procurement	• On-going
16. Ticket Vending Machines	• Complete
17. Land Use/Construction Permits	• On-going

II. UNIVERSITY LINK

TASK	STATUS
1. Alternatives for Reducing Tunnel Risk	• Preliminary assessment of Montlake alignment completed. • All other work on hold pending direction from PRC
2. Capitol Hill Station and Crossover	• Design studies completed • On hold pending public review activities
3. CPS Alignment Change	• Design work completed • On hold pending decision on DSTT joint bus/rail use
4. Eliminate Conveyor and Barging System at Pacific Street	• Alternative construction staging approaches identified • On hold pending resolution on north portal
5. First Hill Station Refinement	• Initial design work completed • On hold pending review by tunnel peer group
6. NE 45th Station Refinements	• Initial design work completed • On hold pending review by tunnel peer group
7. Pacific Station and University Crossover Refinements	• Initial design work completed • On hold pending review by tunnel peer group
8. Selected Deferral of Maintenance Base Facilities	• Complete
9. Deferral of Elevators in Deep Tunnel Stations	• Complete
10. SR 520 Ventilation Facility Refinement	• Complete
11. VE Review of Deep Tunnel F/LS Enhancements	• Initial work completed • Holding for Fire/Life Safety Committee Meetings
12. Review of Station Architectural Finishes	• Not started
13. Refine Tunnel Alignment	• Complete
14. North Tunnel Final Design & Construction Procurement	• On hold pending resumption of contract negotiations or procurement termination
15. Review of Downtown Seattle CBD Bus Volumes and DSTT Joint Use	• Initial design and operations work completed • Fire/Life Safety analysis still to be undertaken
16. D500: DSTT – Final Design	• 60 percent design submittal completed
17. D700: E-3 Busway – Final Design	• 90 percent design submittal completed
18. Utility Relocation	• On-going
19. Response to IG Report and Submittals to FTA	• On hold pending policy direction
20. Real Estate Acquisition	• On-going
21. Land Use/Construction Permits	• On-going

III. NORTHGATE EXTENSION AND INCLUSION OF NORTH PORTAL

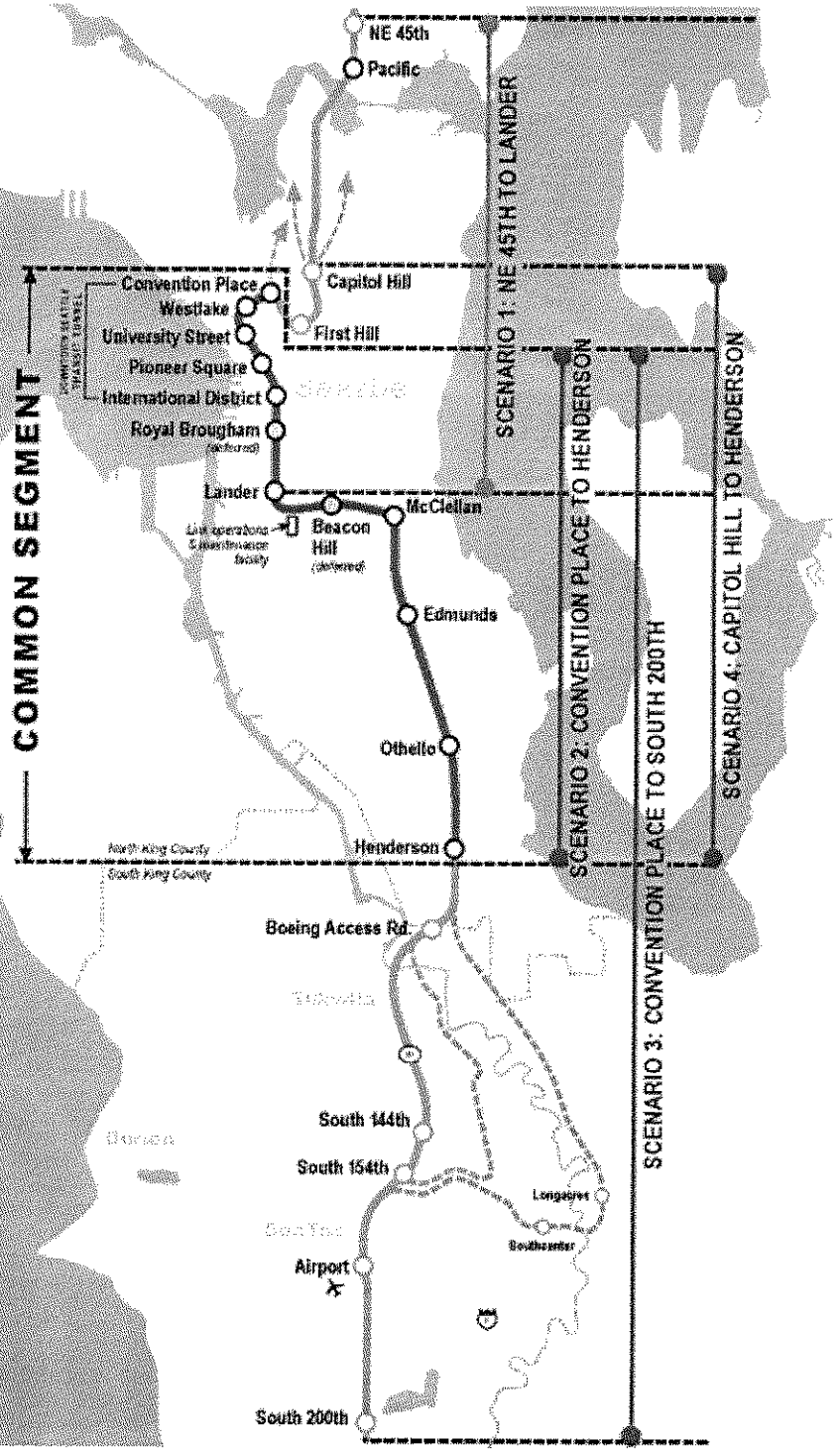
TASK	STATUS
1. Alignment Decision and Inclusion of North Tunnel Portal	• On hold
2. Environmental Process	• Draft SEIS to be published in July
3. Land Use/Construction Permits	• On hold

IV. AIRPORT LINK

TASK	STATUS
1. Project Development/Planning	• Complete
2. D710: East of I-5 to East Beacon Hill Tunnel Portal	• All design activities on hold
3. D720: East Beacon Hill Tunnel to MLK North of S. Walden Street	• All design activities on hold • Initial station area scope review with City of Seattle in progress
4. D730/D740: South Walden Street to South Boeing Access Road	• 90 percent civil design submittal scheduled for September
5. D750/D760: Tukwila	• Tukwila Freeway Route Draft SEIS to be published in August
6. D770/D780: SeaTac	• On hold
7. Community Development Fund	• On-going
8. CDF MOA with City of Seattle	• On-going
9. CDF MOA with King County	• On-going
10. Real Estate Acquisitions	• On hold
11. Land Use/Construction Permits	• On hold
12. Utility Relocation	• On hold

Central Link
June Forum

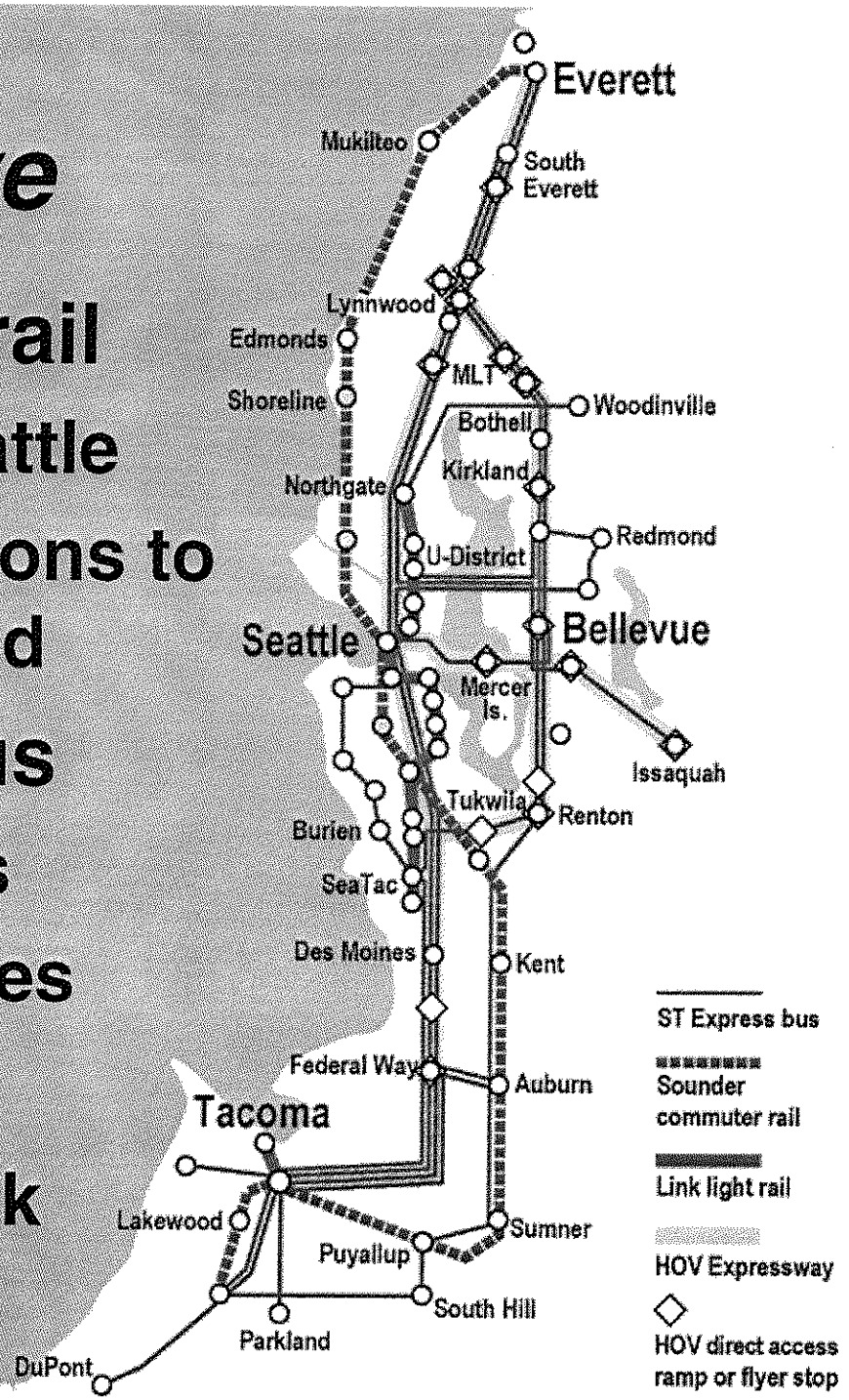
June 20, 2001



SOUNDTRANSIT

Sound Move

- **Sounder commuter rail**
  - 40 miles Tacoma-Seattle
  - 81 miles with extensions to Everett and Lakewood
- **Regional Express bus**
  - 19 ST Express routes
  - 45 new capital facilities
- **Link light rail**
  - 1.6 miles Tacoma Link
  - 21 miles Central Link



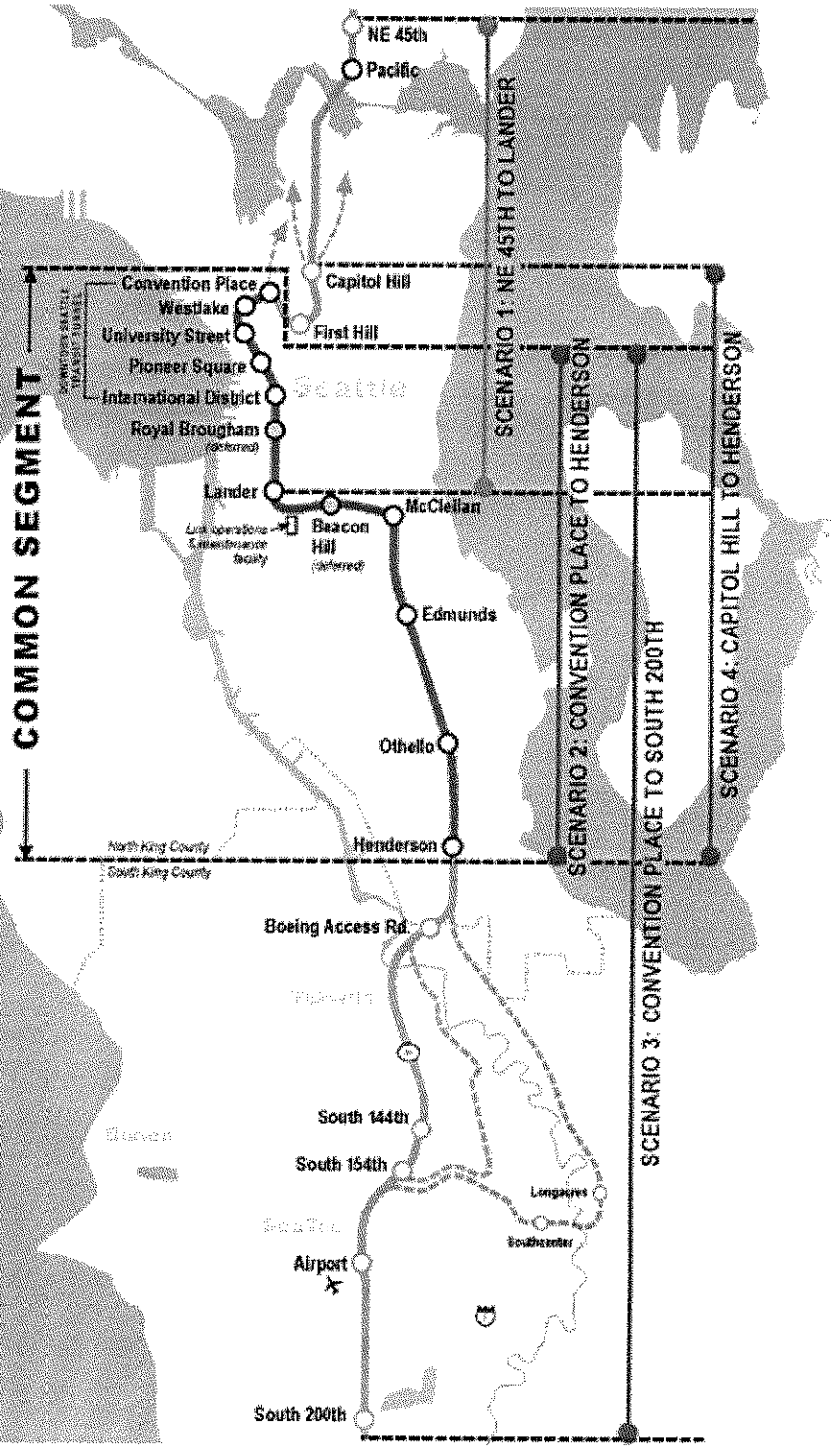
How did we get here

- Revised budget and schedule (Jan)
- Signed federal agreement for $500 million for University Link (Jan)
- Inspector General released interim report (Apr)
- Board asked for scenarios to start building Link south first (Apr)

Choosing an Initial segment

- Begins service by 2009
- Allows further study of light rail system from Northgate to SeaTac, including environmental review for Northgate and Tukwila routes
- Includes joint bus/rail operations in the existing Downtown Seattle Transit Tunnel
- Uses funds generated locally and continues to seek federal funding
- Costs and financing of extending Central Link north and south of the initial segment must be resolved

Common Segment



SOUNDTRANSIT

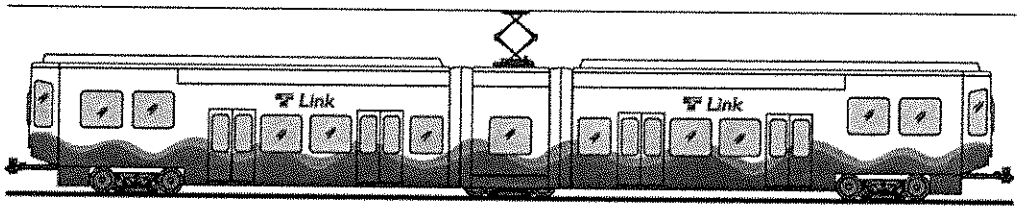
Extending Link

North

- Conceptual study of Eastlake and South Lake Union routes
- Montlake geotech investigation
- Work program to reevaluate north routes
- Integration of Northgate environmental review

South

- Re-examination of Southcenter route
- Tukwila environmental review
- Coordination with Port of Seattle



Schedule

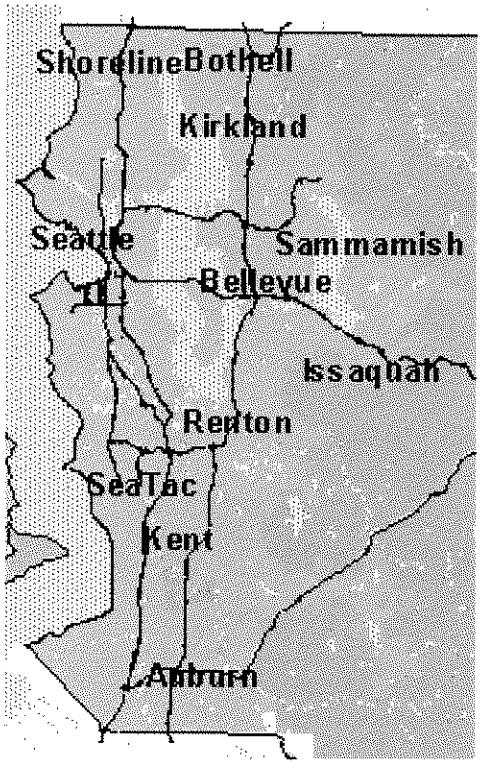
- Jun 28 - Board provides direction for work over next three months
- Aug 9 - Board identifies preferred interim termini
- Sept 27 - Board defines preferred initial segment

We need your help

- Should Sound Transit start now with an initial segment?
- Which initial segment scenario do you prefer?
- Which interim terminus options do you support?
- What are your ideas for completing Central Link?

Criteria for a World Class System

that fits



Does Sound Transit's Link Light Rail satisfy any of these criteria?

- Regional
- Safe/Clean
- Fast/Flexible
- Environmentally Friendly
- No Harm to the Community
- Integrated Multimodal

***** In separate surveys taken on June 5 and 13, 2001, 80% of the respondents wanted Monorail as part of of the regional system, with 0% naming light rail. *****

Two Common Sense Requests

Submitted at Sound Transit Board meeting June 28, 2001

As a resident and taxpayer I have two, what I believe are common sense, requests of the Sound Transit Board. One is to broaden the scope of the current alternatives analysis to include, at least, an all bus alternative. Second, I request you go on record in favor of another public vote before implementing anything.

As those of you that have delved into the background of light rail know, there has never been an honest comparison of Sound Transit's light rail plan against other alternatives like all-bus solutions, monorail, and vanpool. No one knows if light rail is the best way to deal with our transportation problems. No one knows whether spending $4 billion on light rail is better than spending the same $4 billion on a serious enhancement to the bus system.

In the last year we have learned that light rail isn't as attractive as we hoped. We learned it won't have any impact on congestion, it will cost over $1 million for every car it removes from peak period traffic, that it is much more expensive to build in our hilly city than elsewhere, and that any payoff is many years in the future. There's every reason to believe there are better solutions; more bang for the buck elsewhere. But we haven't looked at other options seriously. There is no hard data.

Sound Transit claims the alternatives analysis was done. In doing so they continually cite the RTA study done in 1993. Unfortunately the focus of that study was a 125 mile long heavy rail system, not a beginner light rail segment. Let me read a few quotes from the 1993 study*.

"The RTP (rail line) has a calculated capacity of 22,400 passengers per hour. Trains can be operated on 90 second headways" (whereas we know Link has only one quarter to one half that capacity, and will have much longer headways) To continue they say: "This Rail/TSM alternative is based on a rapid rail system on exclusive grade separated right-of-way, with average speeds around 35 to 40 mph." (but we know Link is not entirely grade separated, and would only go 28 MPH). That 1993 report was very explicit in saying the RTA was comparing heavy rail, not light rail, against bus alternatives. For example, the executive summary states: "Within the range of other North American rail lines the rail system that is being proposed would fall into the definition of heavy rail"

So as we stand here today we have an old apples to apples comparison of heavy rail against bus, but **we still don't have any apples to apples comparison of Sound Transit's light rail plan against an all bus alternative**. We need that comparison more than ever at this point, and I urge you to make it happen.

My second request, namely for another public vote, is, I believe, widely desired. The light rail options that Sound Transit is putting on the table today bear little resemblance to what we voted for in 1996. If Sound Transit really wants the public to trust them, Sound Transit must act like they trust the public. And that means asking for a public vote of confidence in whatever new plan emerges from the current process.

Signed: Richard C. Harkness

* See RTA's Final Environmental Impact Statement dated March 1993, pages xxxii, 2-24, 2-58, and 2-61.

Transit Solutions
4612 Evanston Avenue North
Seattle, WA 98103
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June 20, 2001

Dear Sound Transit Board Member:

Thank you for the opportunity to comment on the Link Light Rail Project. I appreciate the effort you have made to provide time for public input on this project which is of such critical importance to Seattle and the Puget Sound region.

Attached are three items:

1. A written copy of my oral statement on Link Light Rail.
2. My perspective on Implementing Link Light Rail.
3. A document I have prepared for use in various public presentations: Rail Transit---A National Perspective.

Although I am an active member of several organizations including the Washington Association of Rail Passengers, People for Modern Transit, Washington Transit Association, the American Public Transportation Association, Transportation Choices Coalition, 1000 Friends of Washington, the American Planning Association, Women's Transportation Seminar, several committees of the Transportation Research Board, and the Association of American Geographers, the views presented here are my own and do not reflect the positions of any of these groups.

Sincerely,

Ronald C. Sheck, Ph.D.
President

Attachments

STATEMENT ON LINK LIGHT RAIL

Ronald C. Sheck

Wednesday, June 20, 2001

Thank you for the opportunity to sound off on Sound Move. Twenty years ago yesterday, June 19, 1981, the first light rail line in the U.S. opened in San Diego. In the following two decades 11 other cities have built light rail. Five of the six surviving U.S. streetcar systems have been upgraded to light rail. Four additional cities now have light rail under construction or in final design. Several others are in the planning stages. Fifteen of the 17 cities with light rail have expanded their initial systems, several doubling in size with further expansions planned. Light rail is a successful, popular transportation mode, that because of its flexibility to operate in a variety of environments, generate economic development, assist in guiding urban growth, and contribute to sustainable communities, has become the preferred fixed guideway transit mode in most cities in the U.S. and around the world. Even the two North American cities that have emphasized all bus transit, and flirted with BRT (bus rapid transit), Ottawa and Houston, are now building light rail. Can all of these places be wrong in having chosen light rail? Obviously not. The family of rail transit technologies, primarily heavy rail rapid transit, light rail, and commuter rail, is the fastest growing segment of an industry that has seen a 21 percent growth in ridership since 1995. Today, nearly one third of all U.S. transit trips, and nearly one half of all passenger miles, are made on rail transit.

In 1996 voters approved the Sound Move program with its three part approach to help solve transportation problems in the King, Pierce and Snohomish county portions of the Puget Sound region. Sound Transit has brought us a regional bus system that continues to grow---one that I appreciate and use. You have brought us the first stages of what is proving to be a popular commuter rail system that will by early 2003 connect the three counties. Kudos to you all for those accomplishments.

Now is the time to move ahead with Link light rail in Seattle. To do so requires that you now make a decision on a preferred starter segment, and keep the bigger vision of the entire system as your goal. Virtually all of the new rail systems in the U.S. began with a long term goal, but started building one segment at a time. I remember riding on the first segment of the Washington Metro

in the bicentennial year, 1976. The system map published then showed the five routes of the planned 101 mile system but only the initial 4.5 mile segment was in a solid rather than a dotted line. The built out system was only completed last year---a 25 year build out. San Diego, Sacramento, St. Louis, Portland, Denver, Dallas, San Jose all began by building only a portion of what they saw as a broader goal. Ridership continues to grow as new segments are added, and bus ridership also grows as people have more travel options.

You have done so well with getting the regional bus and commuter rail components of Sound Move launched. Now you must make the tough decision on move ahead with the first segment of Link Light Rail. While you may be breaking new ground here in Seattle, you are following the path of your counterparts in other cities across our land. They too had detractors, physical and fiscal problems to over come, and had to make decisions where some areas would be served later rather than sooner. Their decisions took wisdom, courage and leadership. We expect nothing less from you. So, pick that first minimum operating segment, order the light rail vehicles, build the maintenance facility, and get underway with the line construction. Don't fret too much about all the varying permutations on segment by segment ridership. Do what others have done. Build It. They will come---and in droves!

IMPLEMENTING LINK LIGHT RAIL

Ronald C. Sheck

Wednesday, June 20, 2001

The following is presented as what I believe is the most reasonable approach to implementing Link Light Rail.

1. Select the Convention Place to Boeing Access Road section as the MOS. Restore the Royal Brougham and Beacon Hill stations. Ensure a connection between Link Light Rail and Sounder Commuter Rail at Boeing Access Road. Preserve joint bus and rail operations in the tunnel.

2. Continue to re-examine the alignment alternatives between Convention Place and 45th Street and beyond to Northgate: the Capitol Hill alignment; the Montlake option; the East Lake alignment. This work needs to be undertaken with close cooperation with the City of Seattle. Intermediate capacity transit options need to be examined for serving some of these areas, and that needs to be taken into consideration in the alignment selection for Link Light Rail.

3. Continue to examine the alternatives for going through Tukwila and for serving the airport. It is important to connect with Sounder Commuter rail, and this could be done at Boeing Access Road and/or at Tukwila. Work with the Port Authority, PSRC, WashDOT, and other agencies at the highest level to get a shorter term access to SeaTac Airport (Portland and San Francisco airports will soon be served by rail transit; Oakland and Sacramento are in the planning stages).

4. Select the second and third phases of Link Light Rail only after carrying out steps two and three described above as these are essential considerations in making the decisions on these next phases.

5. Explore additional opportunities for use of Sounder Commuter rail to help with short term alternatives for travel before the north and south extensions of Link Light Rail are built. This includes acceleration of construction of commuter rail stations and development of new feeder bus services at Shoreline, Ballard, and Belltown. Commuter rail should be able to provide some travel alternatives for trips from and to the areas north of Seattle.

RAIL TRANSIT---A NATIONAL PERSPECTIVE

Ronald C. Sheck
Core Group, People for Modern Transit
Seattle, Washington

INTRODUCTION

Critics of the Link Light Rail Project often make statements that are untrue, or half-truths at best. They ignore the fact that Seattle alone of cities of its size, and certainly West Coast metropolitan areas, has yet to develop significant rail transit. It is important to understand what is going on in other metropolitan areas across the country with transit, and with rail transit in particular. Critics ignore the growing popularity of rail transit, and overlook the fact that over 1/3 of our nation's transit ridership, and ½ of the transit passenger miles are on rail modes: commuter, heavy and light rail, and some specialized technologies. Criticism of the costs of Link Light Rail needs to be re-examined in light of other projects. The following outline identifies some national trends and provides some cost comparisons with other relevant rail and road projects.

The Seattle Metropolitan Area lags behind its neighbors on the West Coast in development of fixed guideway transit. Congestion is rampant because travel options are limited. Buses, which carry over 99 percent of all transit riders, are often caught in traffic. Bus trip travel times have increased, not decreased over the past two decades. Seattle needs rail options now. The Seattle Waterfront Streetcar, and the recently opened Sounder regional commuter rail service are components with growth potential. The Link Light Rail Project will be the core element for future rail transit. It is essential that it be built as quickly as possible. To further delay will only increase costs and prolong the attainment of realistic travel options to congested roadways.

IMPORTANT NATIONAL TRENDS

- Transit ridership decline has been reversed and growing.

  Transit ridership peaked in WW II at 23 billion annual trips, declined steadily and bottomed out at 6.5 billion in the mid-1970s.

  For the past two decades there has been slow, steady growth with ridership reaching nearly 9 billion trips in 2000, a 5.4 % gain over the previous year.

  Transit riders represent all socio-economic strata of society. 20 percent of riders in areas of 1 million population or more are from households with annual income in excess of $50,000. 25 percent nationally are from households of less than $15,000 annual income.

- Rail transit assumes a greater role.

  Rail transit is one of the true success stories in the transportation arena. Many metropolitan areas are building or expanding rail transit. Nine metropolitan areas had rail transit in the

early 1970's. Now there are 26 with 4 more under-construction, and another dozen in the planning stages.

Rail is capturing an ever-larger share of the transit market. Although rail is present in only 5 percent of the 500 cities with transit, it generates 1/3 of the transit trips and accounts for one half of the passenger miles. This is up from 1/4 of the passenger trips and 35 percent of the passenger miles in 1990.

Rail includes a variety of technologies: heavy rail, commuter rail, light rail---and its streetcar antecedent, and automated guideway systems. And unique technologies like the San Francisco cable car, and Pittsburgh's inclined planes.

New systems in the San Francisco Bay Area, Atlanta, Washington, D.C., Baltimore, Los Angeles and Miami opted for heavy rail on grade separated rights of way: elevated, subway or surface.

Commuter rail, running in the 1970s in Boston, New York, Philadelphia, Chicago and San Francisco, operating on existing intercity rail lines, has been added to the transit mix in Baltimore, Washington, DC, Dallas, south Florida, Los Angeles, San Diego, and most recently in the San Joaquin Valley and in the Puget Sound area. It is being planned in Nashville, Salt Lake City, Cleveland, St. Louis and Atlanta.

In 1981 San Diego launched the first of many new light rail systems in this country. Use of existing rights-of-way, flexibility to fit into various operating environments, and lower costs than heavy rail were strong arguments for selecting this option. Light rail start ups followed in several cities: Sacramento, San Jose, Portland, Los Angeles*, Buffalo, Baltimore*, St. Louis, Dallas, Denver, Salt Lake City. Four other systems are under-construction or nearing construction: Houston, Phoenix, Minneapolis, Charlotte. Older streetcar systems in Pittsburgh, San Francisco, Philadelphia and Cleveland were upgraded to light rail status.

- Light Rail is a Rising Star in the Rail Transit Arena

  Flexibility, attractiveness, lower cost, lower profile, all have contributed to light rail's popularity as the chosen rail mode in more metropolitan areas than any other technology. Not only has it been chosen as an investment by 17 metropolitan areas, it has achieved tremendous success and popularity---with riders, community leaders, neighbors, businesses and employers. Applications of light rail have brought about a RailVolution in urban transportation.

  Of the 12 new light rail systems built since 1981, success and popularity have resulted in expansions and even doubling of the systems. Former streetcar systems upgraded to light rail are also experiencing expansion.

- Some examples

Portland, initial Max eastside light rail line, doubled in size with opening of West Side Max in 1998. Daily ridership rose from 36,000 to 67,000 in 2000. 24 % of total ridership. Opens to Portland International Airport in September--a joint public private partnership is building this extension. Another 5.5 miles being planned for construction beginning in 2002. (Portland City Streetcar--a project by the City of Portland, not the transit agency, 2.5 miles, $45 million, integrated with land use and economic development--opens July 20)

San Diego, initial line opened in 1981, 15 miles, extensions have added another 25 miles, 6 more to be under construction. Plans for another 10.5 miles. 66,000 daily riders in 1998, 30 % of total ridership. (Cross platform exchange with commuter and intercity rail is an important element here, as it is in Dallas and Baltimore)

San Jose, initial line opened in 1985, additions have increased the system size from 20 to 32 route miles, another 10 under construction and 20 more planned. Ridership of 23,000 daily riders in 1998, jumped to 40,000. 20 % of total.

Sacramento, initial line composed of 13 miles, extensions increased to 18, another 20 under construction, another 8 planned. Daily ridership in 1998: 27,000; nearly 30 % of system total.

St. Louis, opened in 1994. Ridership dramatically exceeded projections. 42,000 daily riders in 1998, 25 percent of total. A doubling of the system will occurred in May, 2001. Two other routes are in design.

Dallas, opened in 1995. Original 22 mile system is being doubled to 42 miles, and plans are to double again. 40,000 daily riders in 2000. 20 percent of transit ridership. Extensions to Garland, Plano and Richardson. (New urban revitalization efforts, suburban developments). Commuter rail to Ft. Worth later this year, cross platform changes.

Denver, opened in 1996, second line opened in 2000, more than doubled. Another doubling planned. New route replaced a bus line with 1,600 daily riders, now carrying 11,000. Three other lines are under construction or in the planning stage.

Rail Important in metro areas that have had it, and are expanding it. S.F. Bay Area, 500,000 rail transit riders daily on heavy rail, commuter rail, light rail, streetcar, cable car, building on the streetcar and cable car system that survived the wholesale abandonment of streetcar systems across the country. Cleveland, Boston, Philadelphia and Pittsburgh have upgraded streetcars to light rail also. Newark is undergoing a similar upgrading and expansion. New Orleans will be adding a third streetcar line, planning a fourth. Tampa opens streetcar route in April 2002. Portland opens its downtown streetcar on July 20, 2001, and already planning its first extension.

Los Angeles, 1.2 million bus riders, 200,000 rail transit riders---none a decade ago. Nearly 80,000 on light rail, 100,000 on heavy rail, 30,000 on commuter rail. A third light rail line will open in late 2002 or early 2003.

Baltimore, 350,000 daily transit riders, 80,000 on rail transit. Even more rail transit users if MARC riders to Washington, D.C. are included. Baltimore has effectively integrated multimodal links between light rail, commuter rail, intercity rail, heavy rail and bus. Baltimore is one of a growing number of cities where the metropolitan airport is served by rail transit.

San Francisco Bay Area, 700,000 daily bus riders, another 500,000 on rail transit. Transit ridership is growing steadily on all modes, and at an even greater rate on the expanding rail network that includes. The Bay Area is moving to develop a common fare payment medium usable on all thirty transit systems in the nine county area.

BUS TO LIGHT RAIL DIVERSION

A frequent criticism of light rail is that it does not generate new ridership, and only takes away from existing bus travel. This can be countered in numerous examples. One of the best, and perhaps most germane to Seattle is found in a recent presentation by Tom Matoff and Greg Thompson at the November 2000 joint TRB/APTA Light Rail Conference in Dallas. The presenters compared Columbus, Ohio and Sacramento, California, both cities of about 950,000 population, both with bus only transit systems in the 1980s. Sacramento opened light rail in 1994. The ridership statistics speak for themselves:

	1987 Ridership (millions)	1995 Ridership (millions)
Columbus, bus	17.5	17.6
Columbus, light rail	n/a	n/a
Columbus, total	17.5	17.6
Sacramento, bus	14.0	16.3
Sacramento, light rail	n/a	7.1
Sacramento, total	14.0	23.4

The addition of light rail to the transit mix in Sacramento resulted in a 165 % increase in transit ridership. While much of that is attributed to the new light rail lines it is noteworthy that bus transit ridership increased by over 2 million annually. The overall quantity and quality of service expansion produced great ridership growth.

SOME COST COMPARISONS

While there is clearly concern with the increase in cost estimates for Link Light Rail Project, that needs to be viewed in the light of other rail transit projects across the country, and proposed highway projects in the Seattle Metropolitan area.

Every new transit project costs more than previous ones of similar character. This is true of highway and roadway projects also. Increased cost result from the passage of time. Construction is more expensive because of inflation factors that affect the cost of labor, materials and capital. Seattle is paying more than other metropolitan areas in part because of not having taken action to

build rail transit when others did so. Seattle is at least a two decades behind the curve. Added to the very difficult geography and geology of the metropolitan area this has pushed costs up significantly. These costs were clearly under-estimated in earlier projections. Sound Transit is moving to get a much better handle on these costs, but unfortunately they have risen by very great numbers.

Some interesting comparisons:

- Buffalo, New York built a "light rail" system in the early 1980s, that was heavily criticized at the time as being the most expensive in the country. In reality the Buffalo system used light rail technology in a heavy rail environment. Five miles of the 6.5 mile system are in tunnel. The cost, in then current year dollars, was over $550 million. Inflation in the ensuing two decades would push that up to nearly $1 billion today.

- San Francisco offers two worthwhile comparisons. The Muni streetcar system that survived rationalization in the 1950s and 1960s was converted to a light rail system between 1975 and 1985. Nearly three miles of the line were placed in the upper level of a two level tunnel built by the regional BART system. This connected to an existing tunnel built in 1912. These two tunnels account for about one third of the route mileage of the five line system. The upgrade, and extensions of the "J" line, carried out over 15 years cost nearly $500 million. A second noteworthy comparison lies with the BART regional rail system. The initial system (over 50 miles) cost $1.2 billion when built in the 1970s. The latest addition, the 9.8 mile extension to the San Francisco International Airport, will cost over $1.3 billion, equal to the cost of the original system.

- In New York City, the MTA opened the 1.2 mile 63rd Street/Queens Boulevard tunnel project to connect subway lines in Manhattan and Queens. Cost: $645 million.

- At the Newark International Airport, the Port Authority and New Jersey Transit are spending $415 million to extend the 1.5 mile monorail line a mile to the southwest to a new Northeast Corridor intermodal station that will be served by Amtrak intercity and NJ Transit commuter trains.

- Recent events in the Seattle Metropolitan area have identified proposed highway/HOV/bus transit improvements for the I-405 Corridor, and the Trans Lake Corridor, that range up to over $12 billion. The proposed interchange rebuilding for the I-405, SR 520 interchange is estimated at between $700 and $900 million.

CONCLUDING POINTS

- If light rail is so unpopular, why are so many cities building it? The 67,000 daily riders in Portland, the 42,000 in St. Louis, the 80,000 in Los Angeles, the 40,000 in Dallas can't be all unhappy about their systems. And why, where light rail has been built, are people clamoring for more? Ask those who make nearly 600,000 light rail trips every day in systems across the country.

- Seattle's Link Light Rail Project has high costs in part because of geography and geology. Tunneling is the only realistic option in the highest density parts of the urban area, particularly given the terrain of hills and water bodies. The geology of the area, primarily glacial clays and muds overlying deep rock structures, adds to the tunneling costs.

- Seattle's Project is expensive in part because of timing. Things cost more now. Seattle is paying the price for not having done anything over the past two decades when San Diego, Sacramento, San Jose, Portland, Los Angeles and Vancouver, B.C. all built new rail transit

- To delay further the building of light rail in Seattle, certainly to opt for other technologies, will only push the costs up and/or not contribute a significant transit alternative that can provide the appropriate travel option that is needed. Not moving ahead to improve Seattle's dismal transportation picture will not only negatively impact economic growth, but will damage the very quality of life that our citizens and visitors enjoy.

- "Boeing Voyage" The Boeing Company decision to move its corporate headquarters out of Seattle is motivated by many reasons. Transportation and access for executive management, production workers, materials, components, sub-assemblies, and products have been cited as contributing factors. All three cities that Boeing is considering for its corporate relocation have excellent transit, and more significantly good rail transit. Chicago has a history of great rail transit for over a century. Denver and Dallas have both built light rail (2 lines each in current service), have more under-construction and will double their present networks in the next three years. Dallas and Ft. Worth will be linked by commuter rail with several trips a day---and this system will be extended into DFW airport. Both Chicago airports (O Hare and Midway) are served by rail transit. Ft. Worth is considering streetcar and light rail options. And in the end Boeing chose Chicago. Great location in terms of the national transportation network and accessibility to markets and plants. Superb urban transit that provides a good mobility option, with lots of rail rapid transit, commuter rail, and rail transit to both O'Hare and Midway Airports.

Regional Transit Project

Final Environmental Impact Statement Regional Transit System Plan

March 1993

Metro

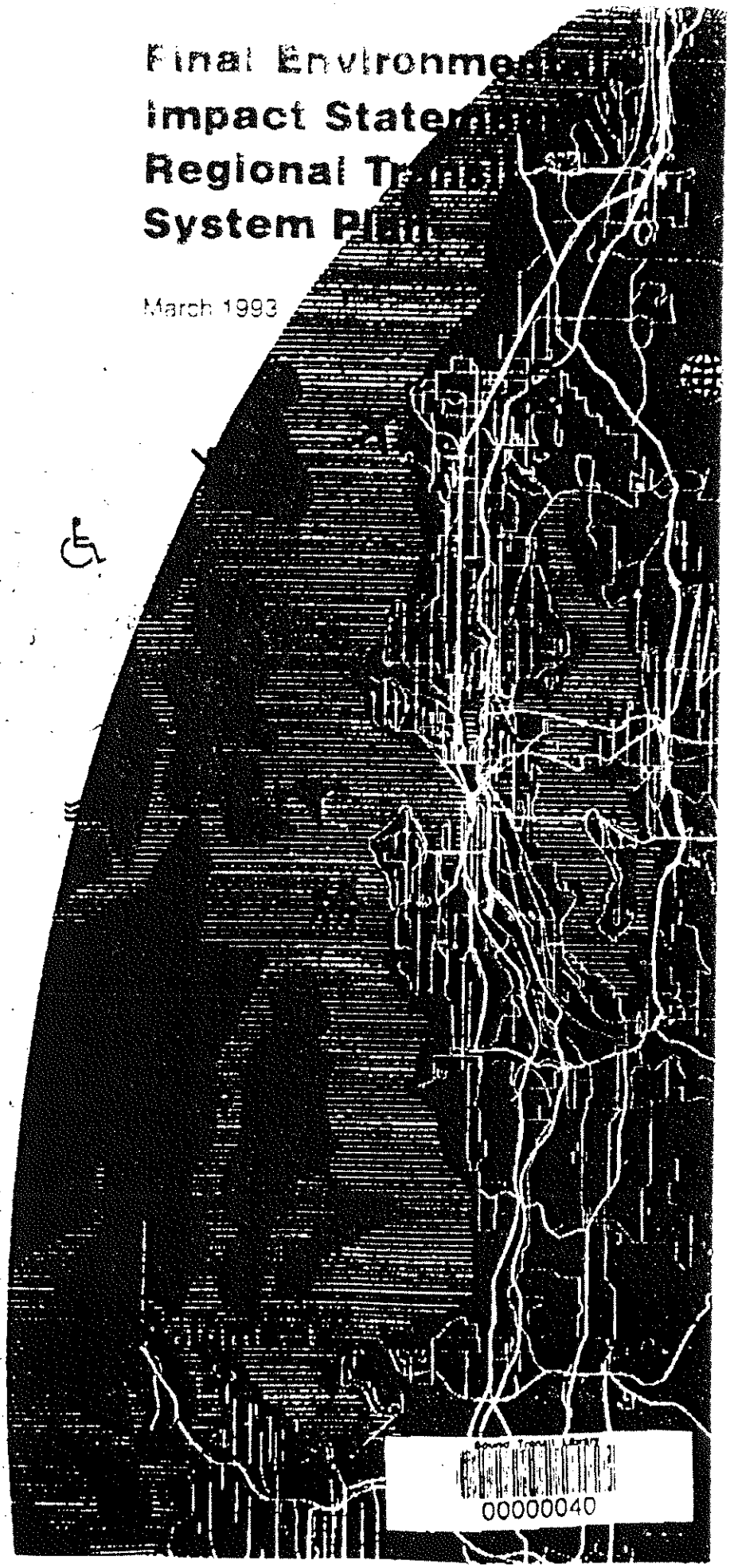
Pierce Transit

Community Transit

Everett Transit

SNO-TRAN

Washington State Department of Transportation



from construction were allowed to enter groundwater, there might be some effect on water quality in the lake.

- Extension south from Tacoma to Lakewood or McChord would increase the total impervious surface created due to construction of the rail system.
- The Lakewood/McChord area includes various hazardous materials users and sites, including light industry, vehicle-related businesses, McChord Air Force Base, the Ponders Corner and American Lake Gardens Superfund sites, and Xytec Plastics and Associated Military Camp Murray MTCA sites.
- Perkins Park and the Tacoma Country and Golf Club could be affected by the alignments under consideration.
- Historically significant properties are located at Camp Murray adjacent to Burlington Northern tracks and at Fort Lewis. Commemorative trees (remnants of the "Boulevard of Remembrance" are located between I-5 and Burlington Northern tracks in three locations.

2.4.3 East Corridor

2.4.3.1 Eastside Commuter Rail

RTP has studied a commuter rail link between Renton and Bellevue along existing Burlington Northern right-of-way as an interim service before construction of the main rail system in this corridor. The line would provide two-way peak-hour service between South Kirkland Park-and-Ride and Boeing Renton, downtown Renton, and the main Seattle-Tacoma commuter rail line. However, daily ridership would be low, estimated at about 2,000.

2.4.3.2 I-405 Access Improvements

RTP is considering specific access improvements to the planned center HOV lanes along I-405 if, as is likely, these segments are not part of the initial eastside rail segments. These access improvements would consist of ramps giving buses direct access to I-405 center HOV lanes from nearby park-and-ride lots. Because of initial low projected ridership on these segments, bus service would have sufficient capacity to serve these areas until the 2020 system is built.

2.5 Surface Light Rail Systems

"Light rail transit" ("LRT") encompasses a range of overhead electrically powered rail systems that run either in mixed traffic or on exclusive rights-of-way. The term "light" usually refers to capacity, not vehicle size or weight. "Surface" light rail systems run at grade. They typically have average operating speeds of 5 to 20 mph and capacities between 4,000 and 12,000 persons-per-hour in each direction.

Light rail technology is flexible and adaptable. With grade-separated facilities, two or more linked light rail vehicles (LRVs) can carry relatively large numbers of passengers. When the system has an unobstructed trackway, it can convey passengers at relatively high average speeds. Light rail can also operate on surface streets and in mixed traffic where increased access is necessary and operational disruption can be minimized.

The level of service that can be achieved with surface light rail systems is significantly lower than that of grade-separated systems. The most important aspects of the level of service (speed, capacity and reliability) are discussed below:

Speed

A high-volume rail line should operate at an average speed that is competitive with automobiles traveling the same distance. A slow system will not attract a major share of potential transit demand. Speed is a function of several factors, including exclusivity of right-of-way, distance between stations, and dwell time at stations. A surface LRT system like MAX in Portland would operate at average speeds of 18 to 20 mph, relatively slow compared to the grade-separated Rail/TSM Alternative, which would average 35 to 40 mph.

Capacity

Surface LRT operating across intersections is typically limited in terms of train length and frequency. Train length will be limited to something shorter than a city block, since trains cannot block intersections when stopped at stations. Train frequency is also limited, since there must be time for cross traffic to clear intersections between trains. Conventional transit practice and highway standards suggest that when train frequencies are under 6 minutes, cross traffic on arterials will be affected to the extent that grade separation is necessary. Between 6 and 16 minute headways, traffic levels, levels of service on cross streets, and the importance of cross streets to the community and emergency services become important criteria for assessing operational feasibility. These constraints limit the capacity of surface LRT systems, as compared to grade-separated systems.

Schedule Reliability

Because surface LRT must deal with cross traffic and crossing pedestrians, slowdowns and stoppages will sometimes occur at intersections, particularly at peak hours when congestion or accidents prevent crossing vehicles from clearing the intersection. These considerations will reduce system speeds, schedule reliability, or both.

Land Use Consistency

In general, a light rail system would not serve regional land use objectives as well as a comparable rapid rail system (Table 2.8). The slower speeds and lower capacity would reduce its ability to support concentrating density into centers, as called for by Vision 2020 and emerging countywide planning policies. Additionally, it would be unlikely to strongly encourage joint development near its smaller stations.

While surface LRT has been very successful in some systems due to low-cost right-of-way or a very dense urban setting, its operating performance relative to grade-separated systems is generally characterized by slower speeds, lower ridership, lower capacity, and lower reliability. These characteristics mean that surface LRT is unlikely to satisfy the demands of a three-county system.

Table 2.8. Consistency of Surface Light Rail with Land Use Goals.

GMA and/or Vision 2020	
Encouraging growth in urban areas	w
Reducing sprawl	w
Encouraging efficient multimodal transportation	m
Encouraging economic development consistent with comprehensive plans	w
Retaining open space and developing recreating opportunities	m
Protecting environment and enhancing the area's quality of life	m
Encouraging citizen involvement in the planning process	s
Concurrency between public facilities and new private development	w
Encouraging historic preservation	m
Countywide Planning Policies	
King County	
Promotion of contiguous and orderly development and provision of urban services to such development	w
Siting public capital facilities of a countywide or statewide nature	m
Countywide transportation facilities and strategies	m
Joint county and city planning within urban growth areas	m
Countywide economic development and employment	w
Pierce County	
Designation of urban growth areas and distribution of 20-year population forecasts	w
Countywide transportation facilities and strategies	m
Promotion of contiguous and orderly development and provision of urban services to such development	w
Siting of public capital facilities of a countywide or statewide nature	m
Snohomish County	
Urban growth areas and population distribution	w
Transportation facilities and strategies	m
Contiguous and orderly development	w
Siting of capital facilities	m

n = nil; w = weak; m = moderate; s = strong

However, there may be a place for surface LRT in the system plan. It may be more appropriate toward the suburban ends of the alignments (i.e., Tacoma and Everett) and for local feeder lines where the demand for speed and reliability can give way to the need for flexibility that light rail transit offers in concentrated urban centers.

The above discussion makes some general observations about surface light rail systems, but no two light rail systems are truly alike. There is a very wide variation in both system configurations and the levels of service that they provide. It is essential that local factors, such as development patterns, population densities, system demand, and physical characteristics be taken into account in discussing any surface LRT system.

2.5.1 Rhododendron Lines (Regional Transit Alternative)

The Puget Sound Light Rail Society (PSLRTS) is a group of private citizens who have formed a non-profit organization to advance the concept of surface light rail transit (LRT) as a transit solution for the Puget Sound region. The PSLRTS includes a number of engineers and architects, as well as private