

East Link: Cost Saving Options

Bellevue City Council

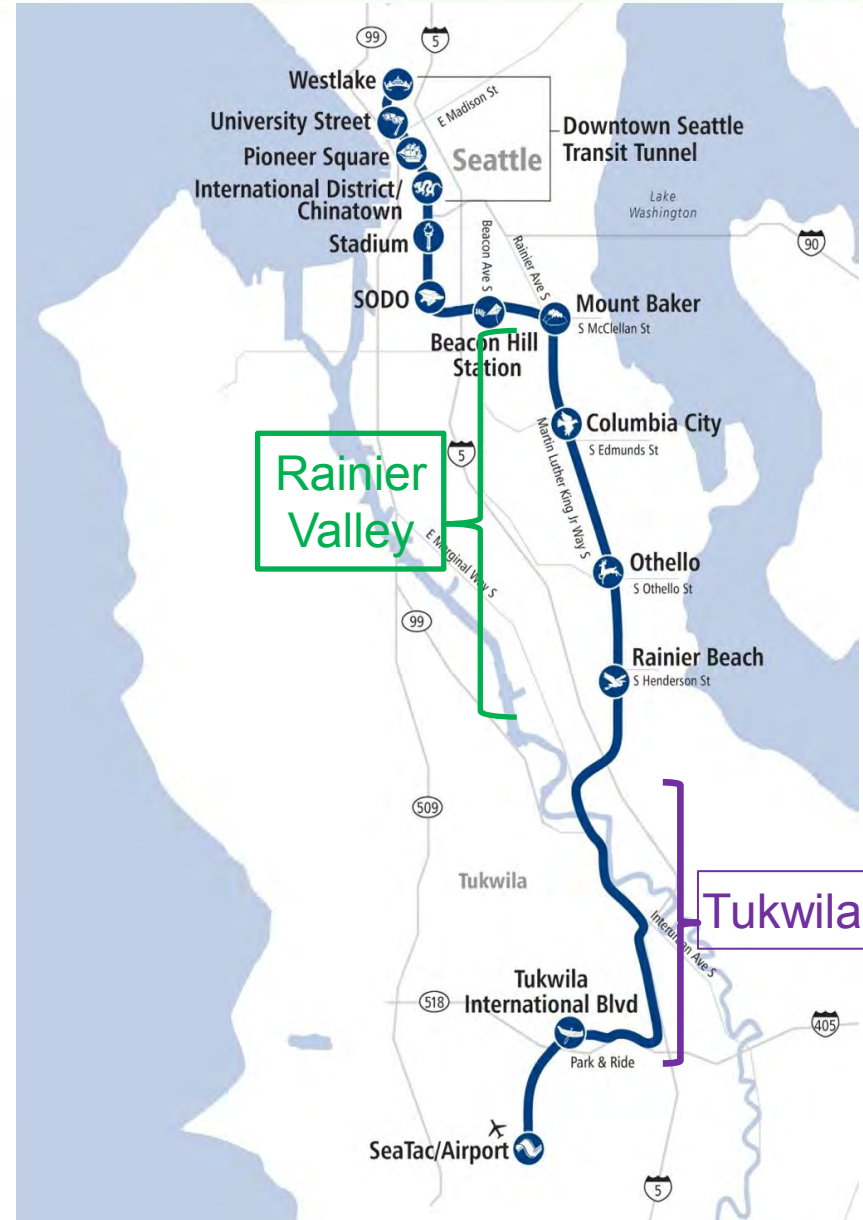
April 8, 2013

Tonight's Presentation

- Follow-up items from April 1
 - Sound Transit noise analysis and mitigation
 - Bellevue Way HOV Lane analysis
- April Decision Process
- Public Involvement Summary
- Steering Committee Recommendation
- Cost Saving Summary
- Upcoming Project Phases
- Next Steps

Initial Segment Noise Overview

- Train running noise
- Rough rail surface
- Wheel Squeal
- Crossover noise
- Bells – train and wayside



Rainier Valley Center Running At-grade



Tukwila Primarily Elevated



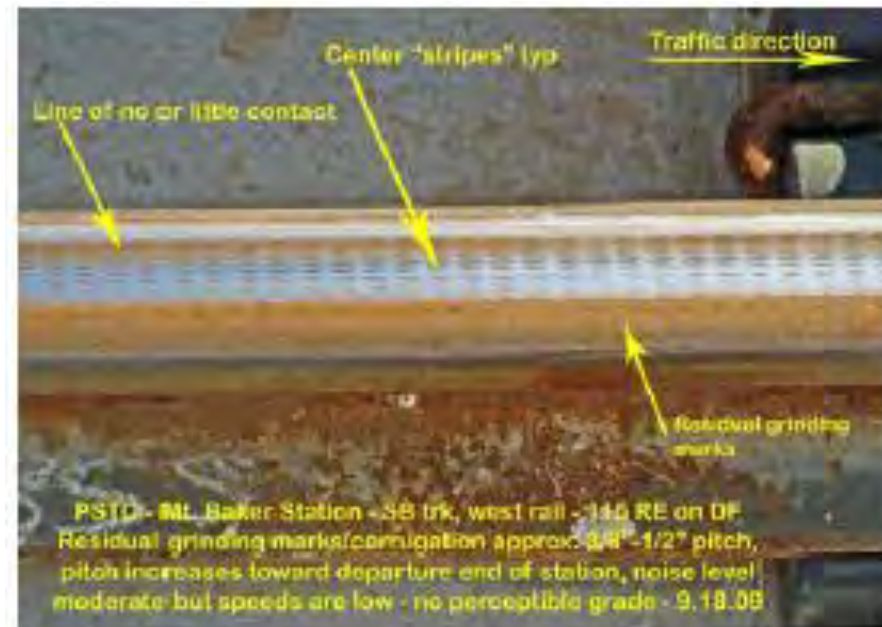
Train Running Noise



- Portland vehicle was basis for original analysis – 75 dBA
- Actual measured running noise for Initial Segment– 79 dBA
- Measured noise level (79 dBA) used for East Link analysis

Rough Rail Surface

- Rough rail surface after construction created high pitched howling sound
- Reground rail for entire system and reground worst areas third time in problem areas
- Updated rail specification to require smooth rail



Wheel Squeal

- Curves with 600-foot radius or less created wheel squeal
- Installed solar powered wayside lubricators
- Identify all curves 600 feet or less and install lubricators as part of initial construction. All curves 600 to 1,000 feet designed to accept lubricators if needed.



Solar Rail Lubricator

Crossovers



- Two crossovers in Rainier Valley in embedded track without noise reducing measures in switches
- Modified switches and insulated residences
- Use noise reducing switches where create noise impacts

Vehicle Warning Bells

- ST requires vehicle bell ring at all at-grade crossings and stations
- Initially about 86 dBA at 50', multiple rings
- Reduced
 - 80 dBA at 50' daytime
 - 72 dBA at 50' night time
- Revised operating rule to reduce number of rings



Wayside Pedestrian Crossing Bells

- Warning bells at each pedestrian signal
- Noise level adjusts based on background noise, adjusted to lowest setting
- Modeled at 66.5 dBA at 50 feet for East Link



Rainier Valley

- No sound walls because center running at-grade
- Residential sound insulation mitigates noise at receivers
- Mostly front line receivers impacted except near crossover and elevated station



Residential Sound Insulation

Typical sound insulation includes:

- Replacing windows
- Replacing doors
- Air exchange or air conditioner

May include wall insulation or other improvements depending on house conditions



Lessons learned

- Noise analysis for East Link includes
 - Measured train noise level
 - Crossover location and design
 - Bells - train and wayside
 - Wheel Squeal
- Detailed noise analysis in final design
- Design criteria and specifications
 - Lubricate all curves 600-feet or less
 - Rail smoothness specifications

SE 4th - Emergency Access Only



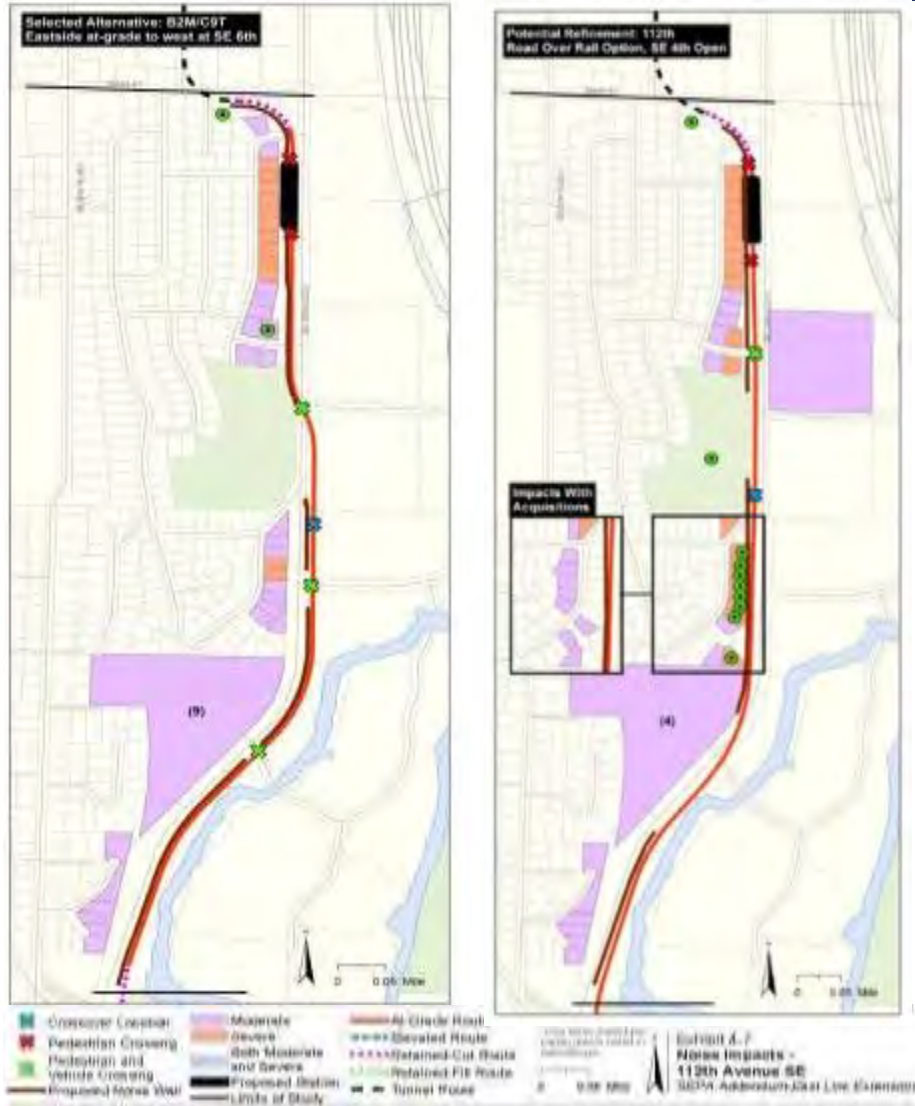
SE 4th – Open (right-in/right-out)



SE 4th – Rail Under Road (retained cut)



112th Road Over Rail Noise and Vibration



- Decreased number of noise impacts for all SE 4th sub-options
- Walls, special track work, building insulation mitigate impacts

112th Road Over Rail Noise and Vibration

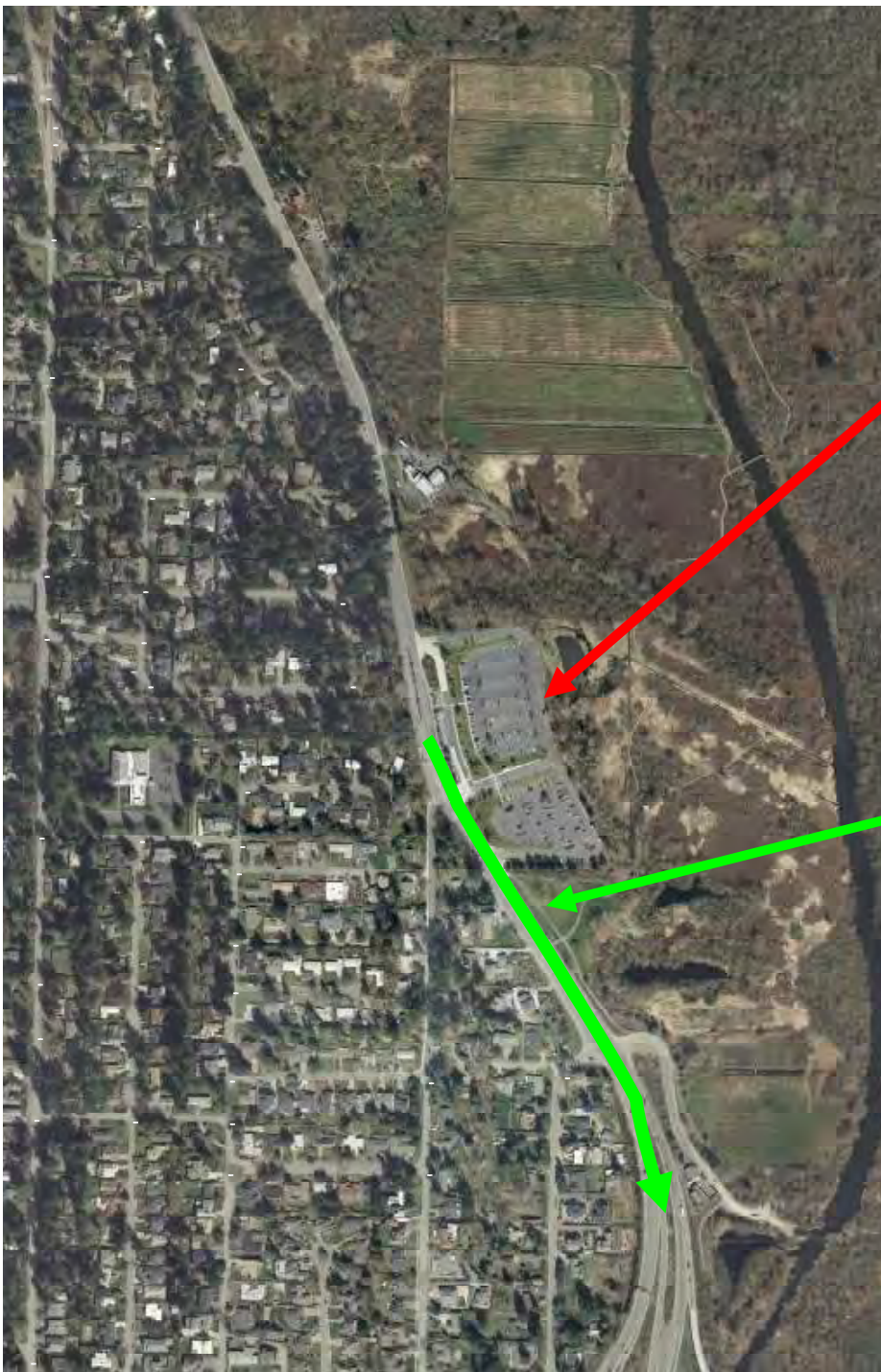


Overall cumulative noise levels lowest with SE 4th Emergency Access and highest with Road under Rail

Bellevue Way SE HOV Lane Concept

Policy Background

- Southwest Bellevue Subarea Plan
 - Principal arterial, gateway, aesthetics
- Downtown Subarea Plan
 - Minimize arterial traffic growth, arterials not alternatives to freeways
 - Add NB & SB lanes, SE 30th to I-90 and extend NB right turn lane to favor traffic flow to 112th Ave SE
- 2003 Transit Plan
 - SB HOV lane, S. Bell P&R to I-90
- Comprehensive Plan
 - Roadway improvements not to create bypasses for I-90, I-405, or SR 520 that would adversely affect adjacent residential neighborhoods
 - Pursue integrated arterial HOV system linking activity centers to regional HOV system to provide HOV travel time advantage over SOVs in congested corridors and locations + dedicated bus lanes



Bellevue Way SE HOV Concept

South Bellevue Park & Ride:

- Currently 519 stalls, consistently over capacity
- Expanding to 1450+/- stalls with East Link

Park & Ride to I-90 southbound HOV lane:

- Mitigates expanded park & ride
- Restores traffic to no-build condition (2030)
- Part of East Link project (per 11/2011 MOU)
- Does not address underlying congestion and delay

Bellevue Way SE HOV Concept

"Y" to Park & Ride

southbound HOV lane:

- Addresses underlying growth
- Draws Enatai cut-through traffic back to Bellevue Way SE
- Cost:
 - \$11m (City share of \$22m joint project)
 - \$18-20m (City build independently)



Southwest Bellevue Travel Times

In Minutes – “Y” to I-90

Year 2030 – Typical evening peak

	HOV Lane Park and Ride to I-90 (Part of East Link)	HOV Lane “Y” to I-90	Change	Percent Change
General purpose	3.4	2.0	-1.4	-41%
Transit	3.9	1.4	-2.5	-64%
HOV	3.4	1.2	-2.2	-65%

Southwest Bellevue Traffic Volumes

“Y” to I-90

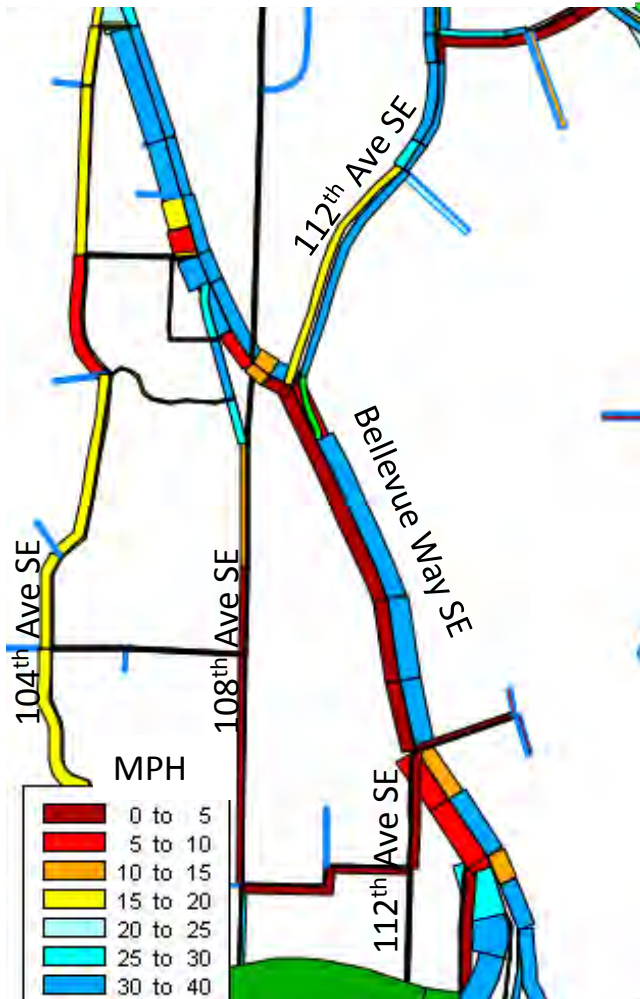
Year 2030 – Typical evening peak

	HOV Lane Park and Ride to I-90 (Part of East Link)	HOV Lane “Y” to I-90	Change	Percent Change
Bellevue Way SE southbound vehicles	2410	1830 GP <u>1170 HOV</u> 3000 total	+590	+24%
Transit routes	9	9	0	0
Person trips – total	4440	6030	1590	+36%
Person trips – transit	1520	1690	170	+11%
Person trips – Auto-HOV	2920	1830 + 2510	1420	+49%
Southbound neighborhood vehicle volumes	470 (108 th Ave SE) <u>300</u> (104 th Ave SE) 770 total	210 (108 th Ave SE) <u>190</u> (104 th Ave SE) 400 total	-260 (108 th) <u>-110</u> (104 th) -370 total	-55% -37% -48% total

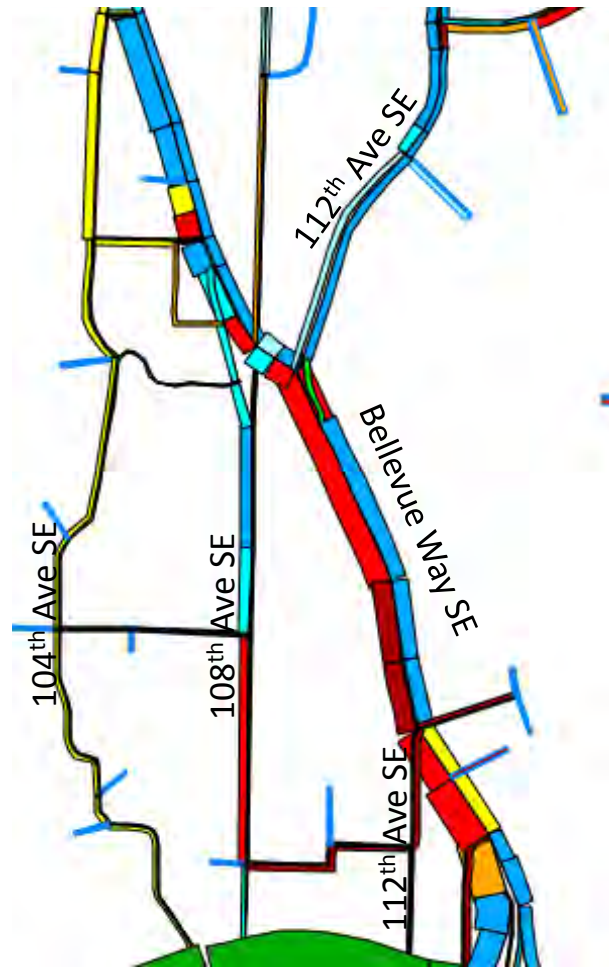
Southwest Bellevue Traffic Speed

Year 2030 – Typical evening peak (5:50pm)

HOV Lane Park & Ride to I-90



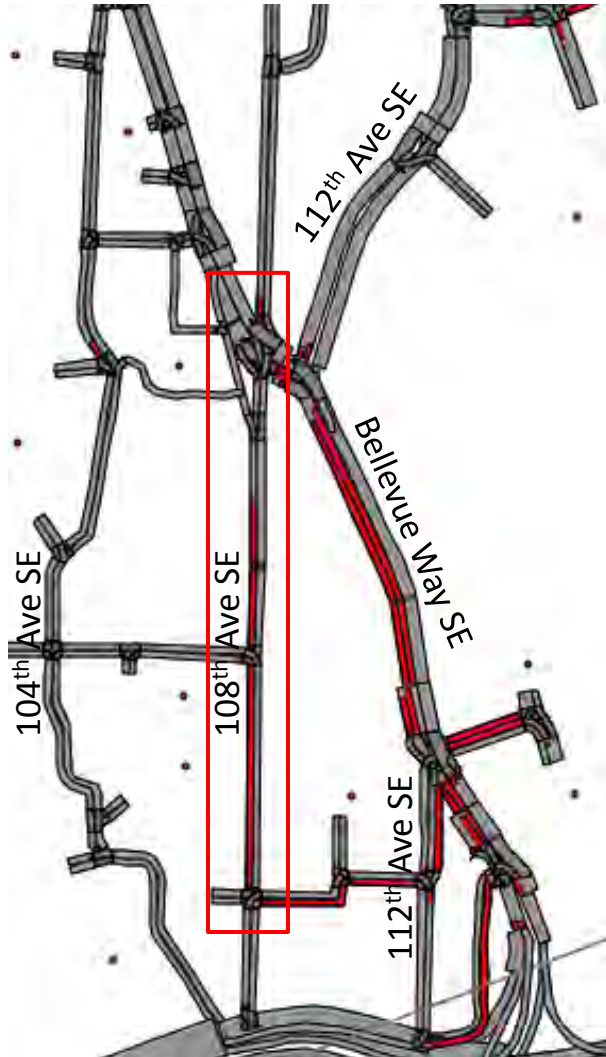
HOV Lane "Y" to I-90



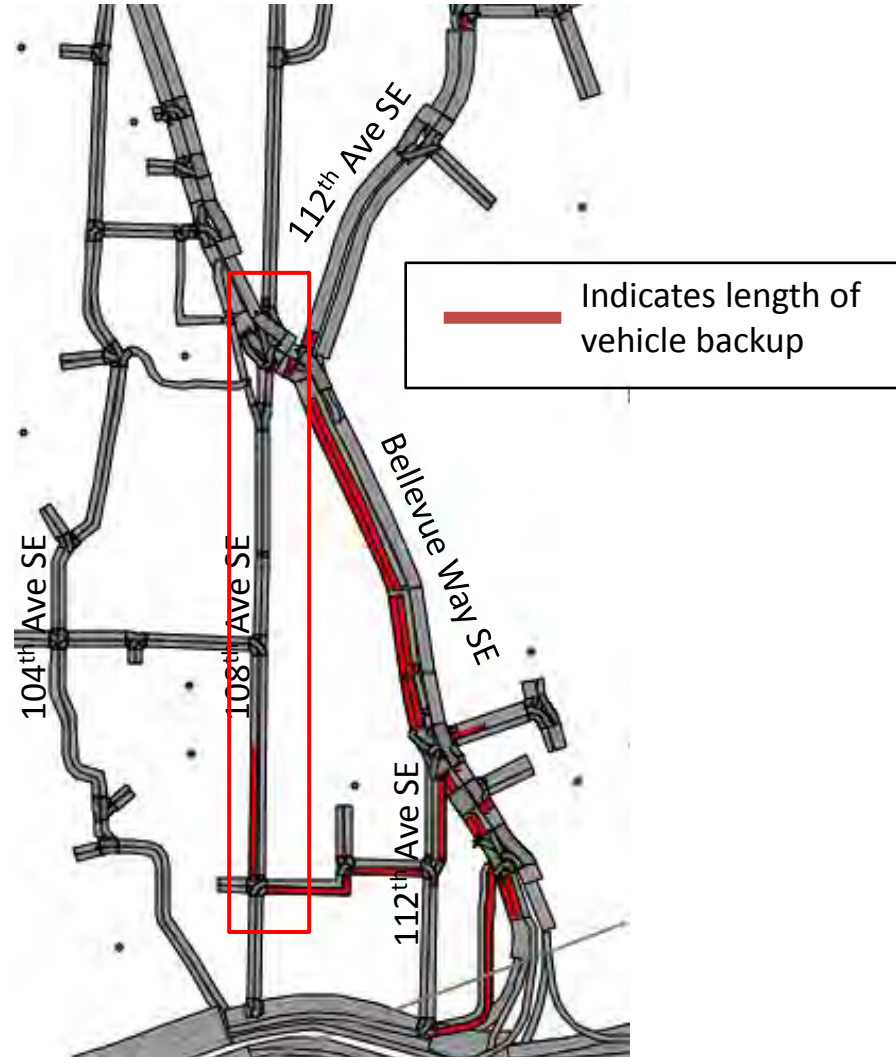
Southwest Bellevue Traffic Queues

Year 2030 – Typical evening peak (5:50pm)

HOV Lane Park & Ride to I-90



HOV Lane "Y" to I-90



Additional Steps Required for HOV Lane Project Implementation

(Regardless of Lead Agency)

- Complete Transportation Facilities Plan (TFP) Process
- Adoption of TFP
- Amend 2013-2019 Capital Investment Program (CIP) to fully fund Bellevue Way HOV Lane Project
- Prepare State Environmental Protection Act (SEPA) Checklist
- Project-level permitting, including SEPA

Questions on Bellevue Way HOV Lane analysis?

April Cost Saving Decision

- Cost savings efforts underway since early 2012 identified a range of options and progressively narrowed choices based on technical analysis and public input
- April final decision on East Link alignment
 - April 15 Council discussion and public hearing
 - April 22 Council action requested
- The City and Sound Transit must agree to any changes, or the alignment stays consistent with the MOU
- Resolution identifying cost saving options to be incorporated into final alignment
- If Council wishes to advance Shift Bellevue Way with HOV, additional action by Council on HOV lane in June needed, pending completion of TFP environmental analysis

Joint Steering Committee Recommendation Basis

- CDP Management Plan
 - Directs staff from both agencies to work together to achieve joint goals
- Joint goals of CDP Management Plan
- Technical information – EIS addendum
- Work plan direction – narrowed options and directed particular areas of focus

Public Feedback

- Outreach to stakeholder groups & leadership
- Cost-savings Open House
 - Approx. 100 attendees
 - Approx. 40 comment forms submitted at open house
 - Overall strong support for retained cuts on Bellevue Way & 112th
 - More support for NE 6th station
 - Discussion & concerns centered around impacts, mitigation & construction
- Ongoing outreach – Right-of-entry requests & final design kick-off (ST), pre-scoping for station area planning (Bellevue)



Bellevue Way Options

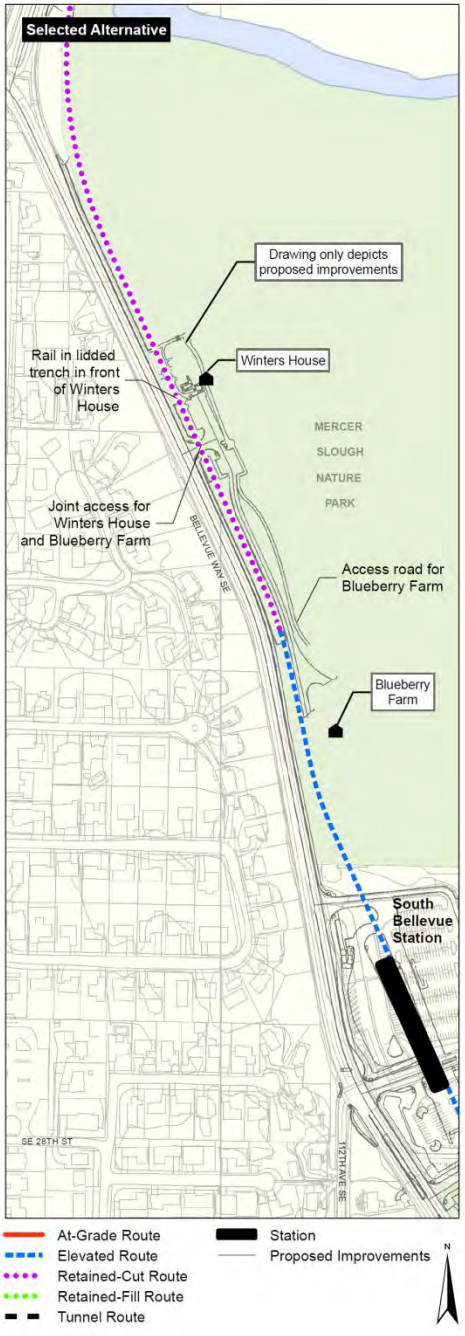
MOU Option: LRT in a retained cut on east side of Bellevue Way

- Baseline project cost

Cost Saving Option: Shift Bellevue west with At-grade LRT and an HOV Lane

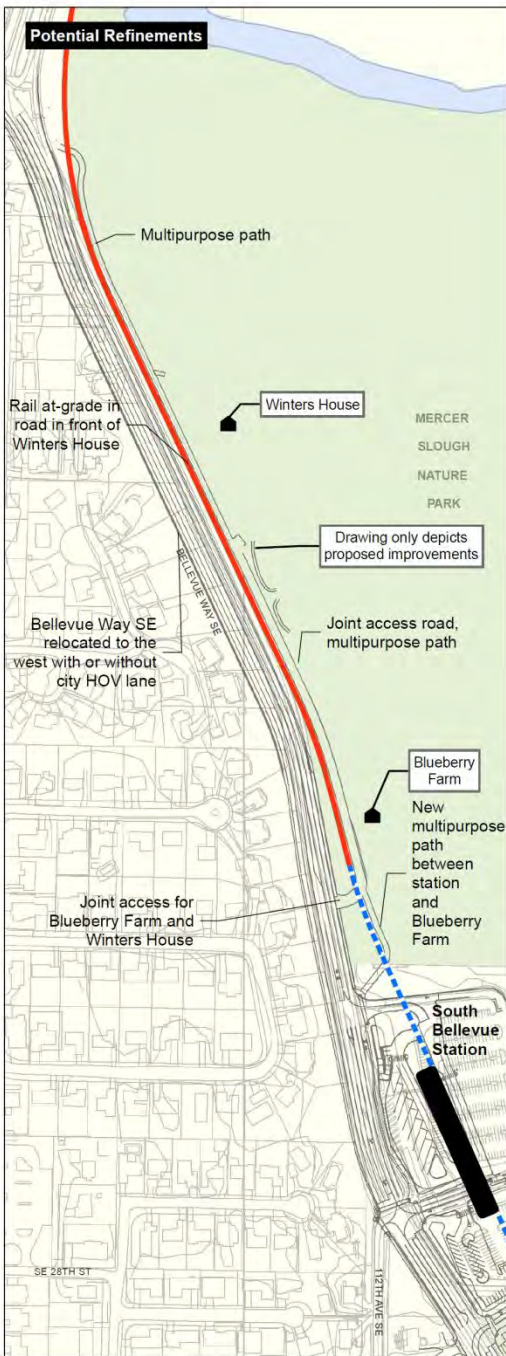
- Savings \$5-8M (with \$11M contribution from the City for the HOV lane)

Bellevue Way Retained Cut (MOU)

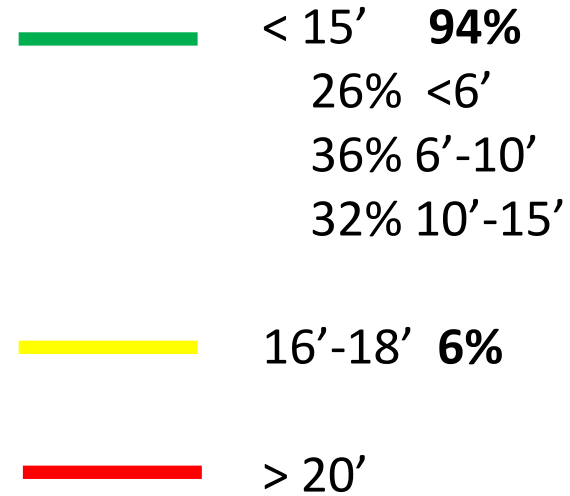
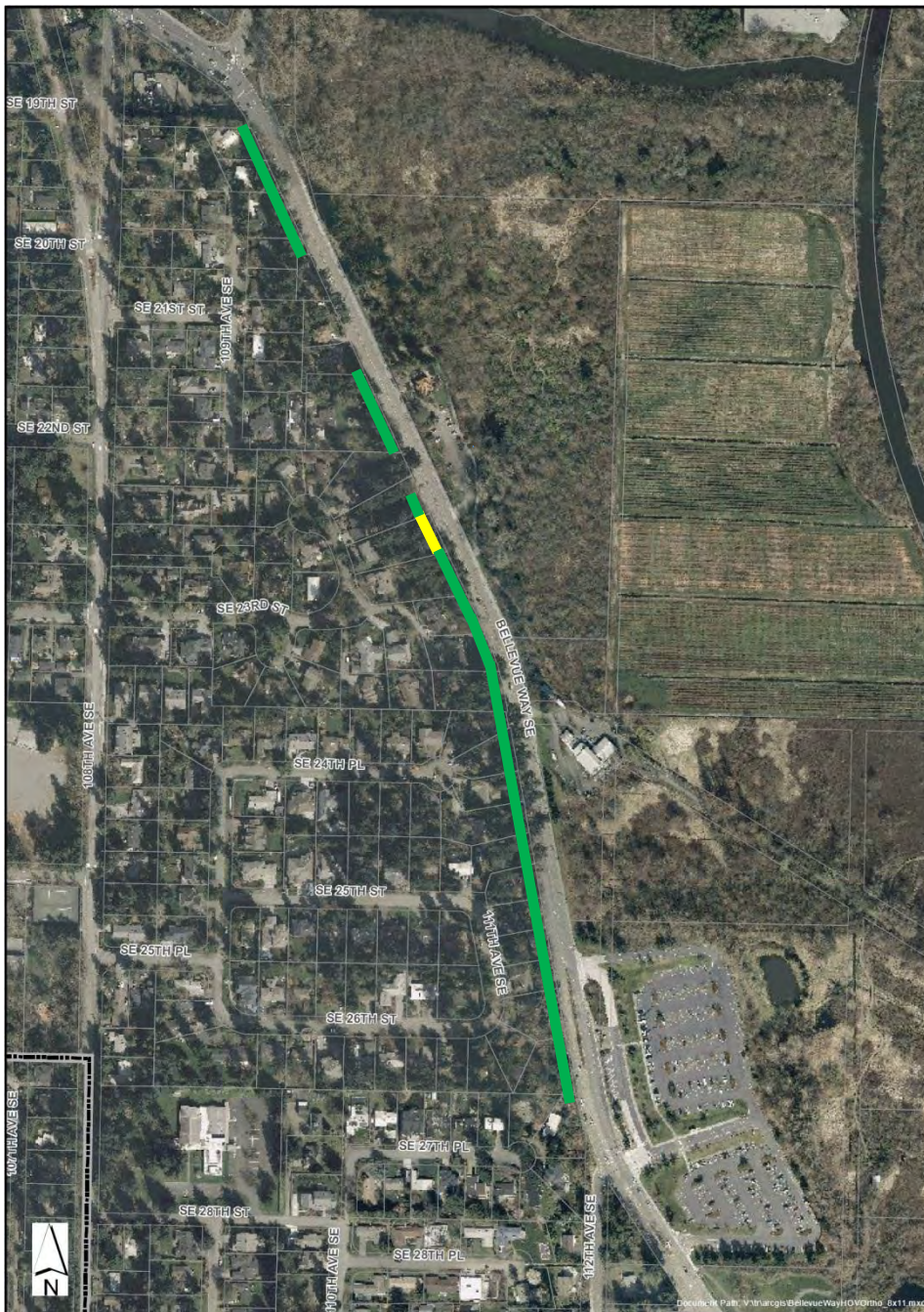


* Conceptual design, prepared by the City of Bellevue

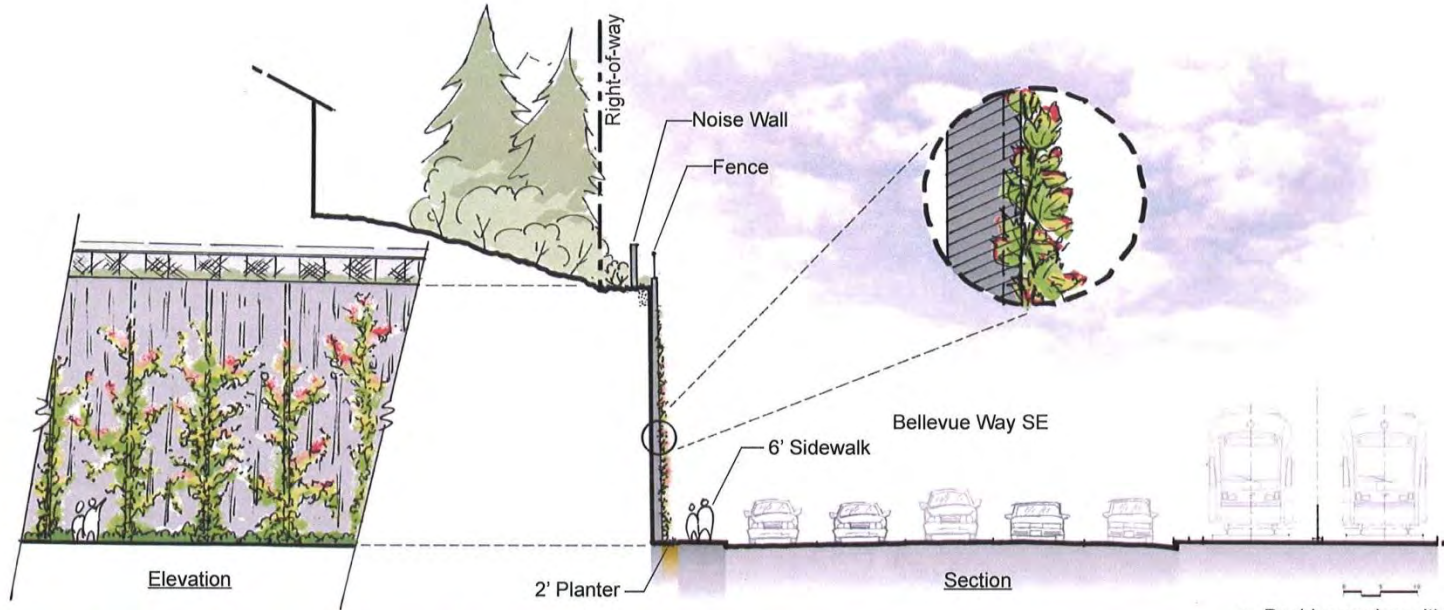
Bellevue Way Cost Saving Option – Shift BW w/HOV Lane



Retaining Wall Heights MOU Alignment w/HOV Lane



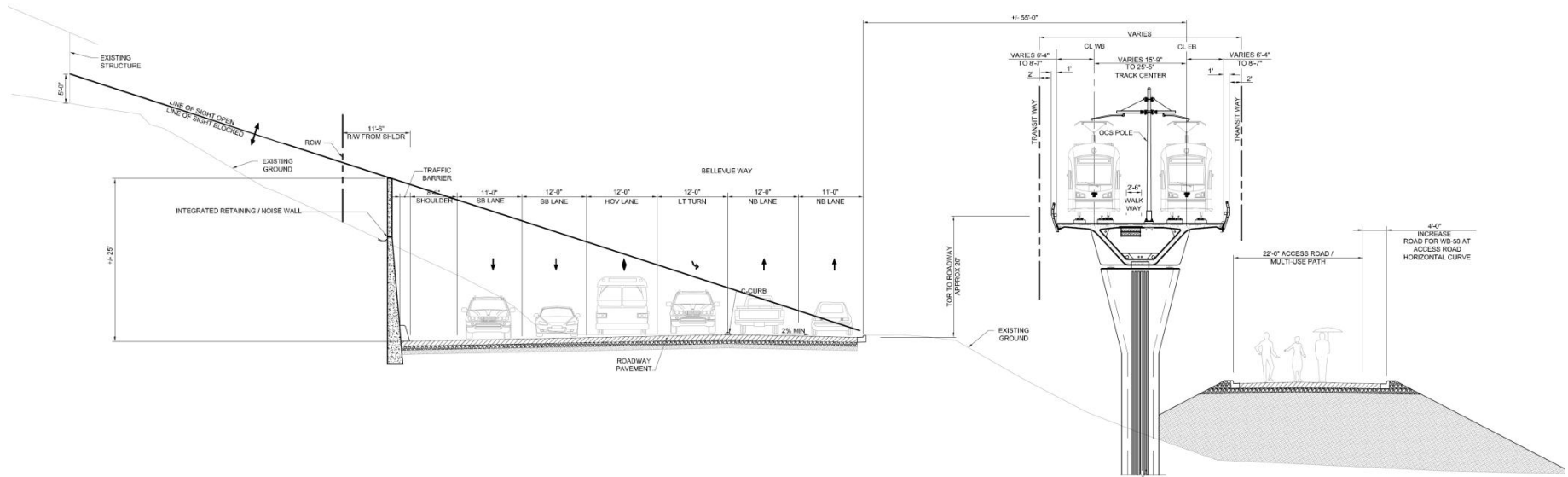
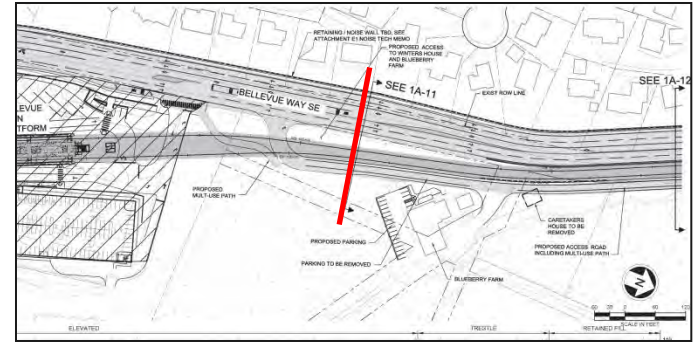
Potential Retaining Wall Treatment



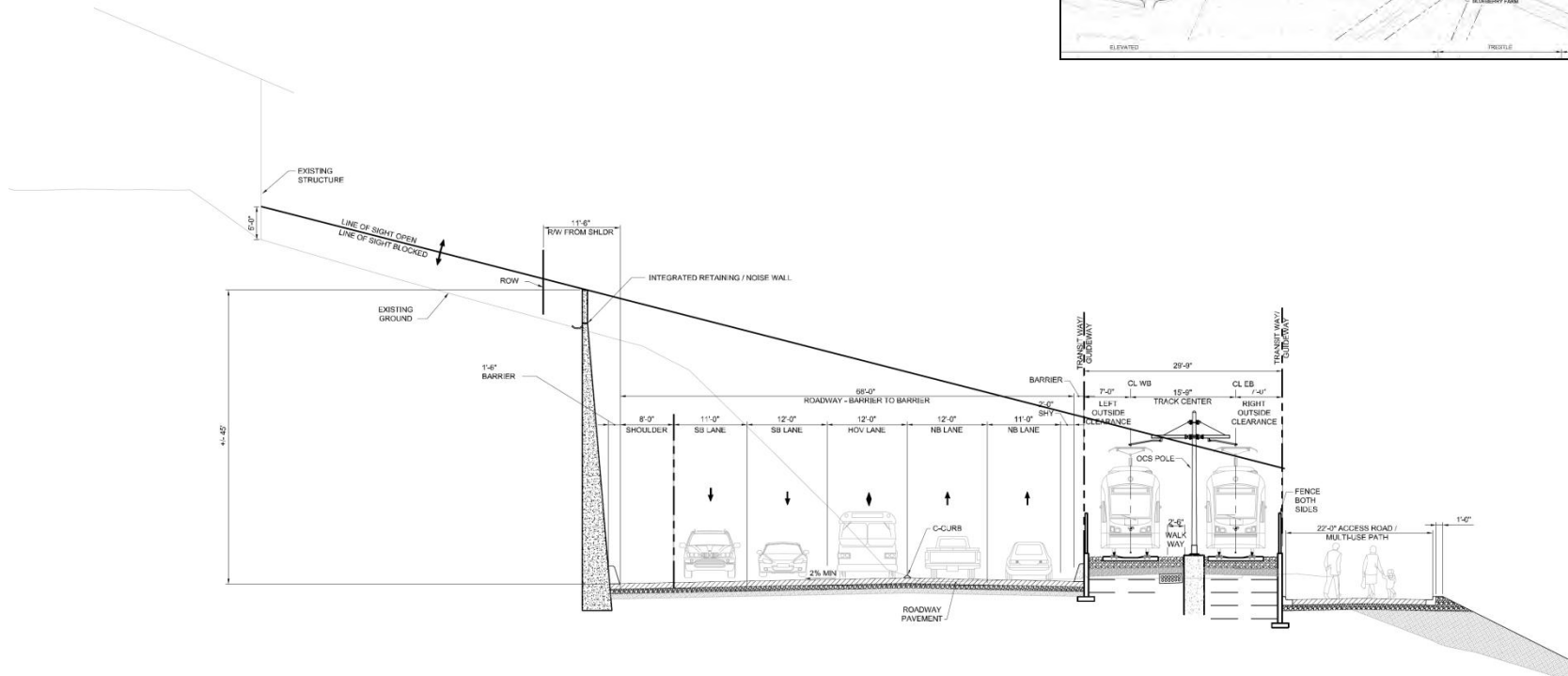
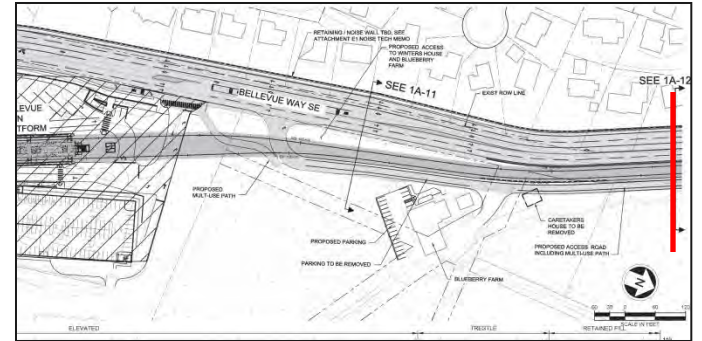
- Deciduous vine with fall color that clings to concrete (trellis structure not needed).
- Vine able to grow 30 to 40 feet after several years.
- Decorative formliners provide visual interest to concrete.
- Least expensive option.

Boston Ivy Vine & Formliners
 East Link - Bellevue Way SE - Wall Treatment Options

Bellevue Way Sightlines



Bellevue Way Sightlines



Joint Steering Committee

Bellevue Way Recommendation:

Shift Bellevue Way w/HOV

- Key Criteria and Considerations:
 - Cost Savings for East Link and HOV Project
 - Benefits of HOV lane
 - Transportation analysis
 - Environmental factors
 - Noise reduction benefit for corridor
 - Design and construction efficiencies
 - LRT: rider experience, risk reduction, lower maintenance cost

112th Ave SE Options

Road over Rail at SE 15th with SE 4th options:

- SE 4th Rail Under SE 4th (\$6-11M increase)
- SE 4th Emergency Access Only (\$2-4M savings)
- SE 4th Open Right-in/Right-out (\$2-4M savings)

SE 15th Road over Rail



Road over Rail at SE 8th



* Conceptual design, prepared by the City of Bellevue

112th Road-over-Rail – Retained cut at Surrey Downs Park



*Conceptual design, prepared by the City of Bellevue

SE 4th Retained Cut



SE 4th Open Right-in/Right-out



SE 4th Emergency Access Only

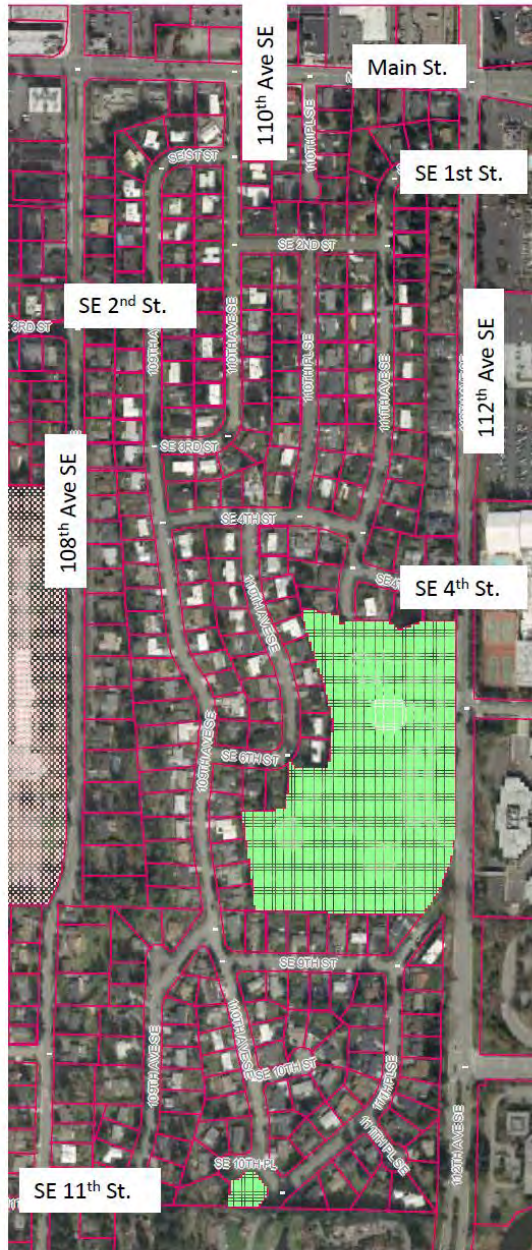


Surrey Downs Neighborhood Traffic Counts

110th Ave SE
Year 2000: 669
Year 2012: 382

SE 2nd St.
Year 2000: 742
Year 2012: 632

SE 11th St.
Year 2000: 525
Year 2012: 398



SE 1st St.
Year 2000: 229
Year 2012: 282

SE 4th St.
Year 2000: 680
Year 2012: 492

- Traffic counts taken in May 2012
- Decrease in volumes at many intersections since 2000
- Approx. 800 daily trips at SE 1st and SE 4th combined

112th Recommendation: **Road-over-Rail with SE 4th Open Right-in/Right-out**

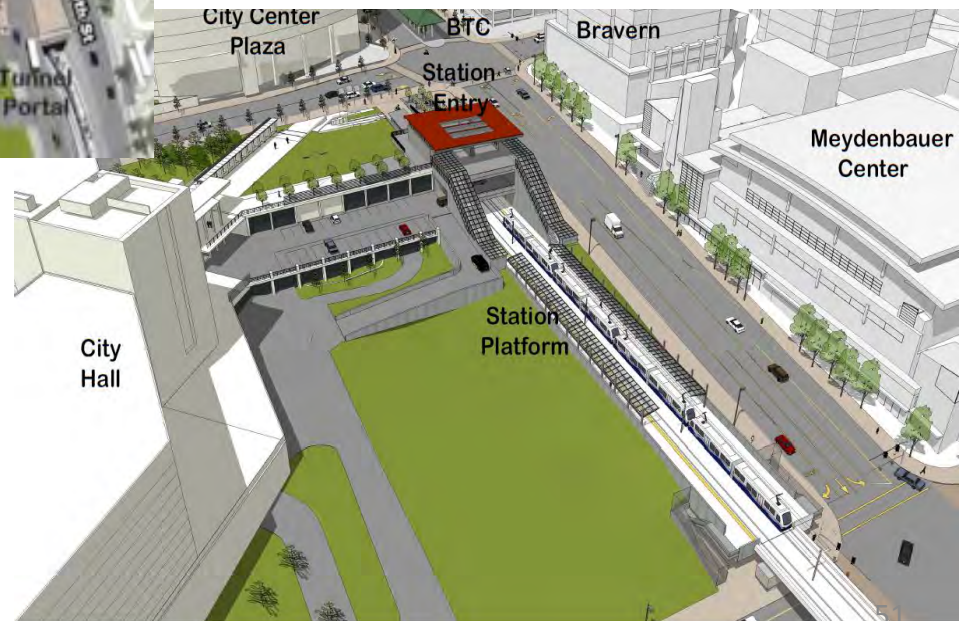
- Key criteria and considerations:
 - Cost savings
 - Urban design and visual character of corridor
 - Neighborhood access
 - Noise impacts and mitigation opportunities
 - LRT: rider experience, lower maintenance cost

Downtown Station Options

PE Optimized Station



NE 6th Station



Downtown Station Walk Analysis

2030 Jobs and Residents	Optimized PE	NE 6th Station
% of Jobs Within 5 Minute Walk Radius	36%	33%
% of Jobs Within 10 Minute Walk Radius	89%	88%
% of Residents Within 5 Minute Walk Radius	14%	7%
% of Residents Within 10 Minute Walk Radius	60%	56%

Downtown Station Recommendation:

NE 6th Station

- Key criteria and considerations
 - Cost savings
 - Accessibility
 - LRT: lower maintenance cost, minimized operational impacts
 - Urban design opportunities
 - SEM construction opportunity

Cost Summary

Idea	Savings (Increase) Range (2010\$)
1. Bellevue Way	
Retained cut	Baseline
Shift Bellevue Way West	\$5 - \$8 million savings
2. 112 th Road over Rail	
SE 4 th At-grade	\$2 - \$4 million savings
SE 4 th Retained cut	(\$6 - \$11 million) increase
3. Downtown Station	
Optimize Selected Station	\$6 - \$10 million savings
NE 6 th Station	\$19 - \$33 million savings
4. Engineering 'Just Take It' Ideas	\$9 - \$16 million savings
Range	\$4 - \$61 million savings

Joint Steering Committee Recommendation: \$35-61M savings

Cost Estimate Next Steps

- Cost saving estimates based on changes from MOU alignment
- Fully updated baseline cost estimates in 2014
- Adjustment of City contingency at confirmation of MOU agreement in 2014

East Link Design Advances

- Station Area Planning (May)
- Collaborative Design Process continues as Final Design advances
 - Follow-up from Greenbusch recommendations as noise mitigation design advances
 - Open houses in on stations in downtown and south Bellevue in May and June
- LRT Overlay District
 - CAC formation
 - Design and Mitigation Permit
- Property acquisitions (ST)

Next Steps

- April 15
 - Continued discussion of Joint Steering Committee Recommendation
 - Draft Resolution, presenting cost saving choices
 - Public Hearing
- April 22
 - Council action requested on cost saving options

Questions?