



# Downtown Bellevue Light Rail Alternatives Concept Design Report

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**FEBRUARY 2010**

# East Link Overview



**1** Move B3 to at-grade on the east side of Bellevue Way SE and 112th Avenue SE, subject to further evaluation.

**2** Future consideration of C3T tunnel as the preferred alternative, if additional funding sources are identified.

**3** Locate D2A on the north side of NE 24th Street, subject to further evaluation.

**4** New location for the Downtown Redmond Station, subject to further evaluation.

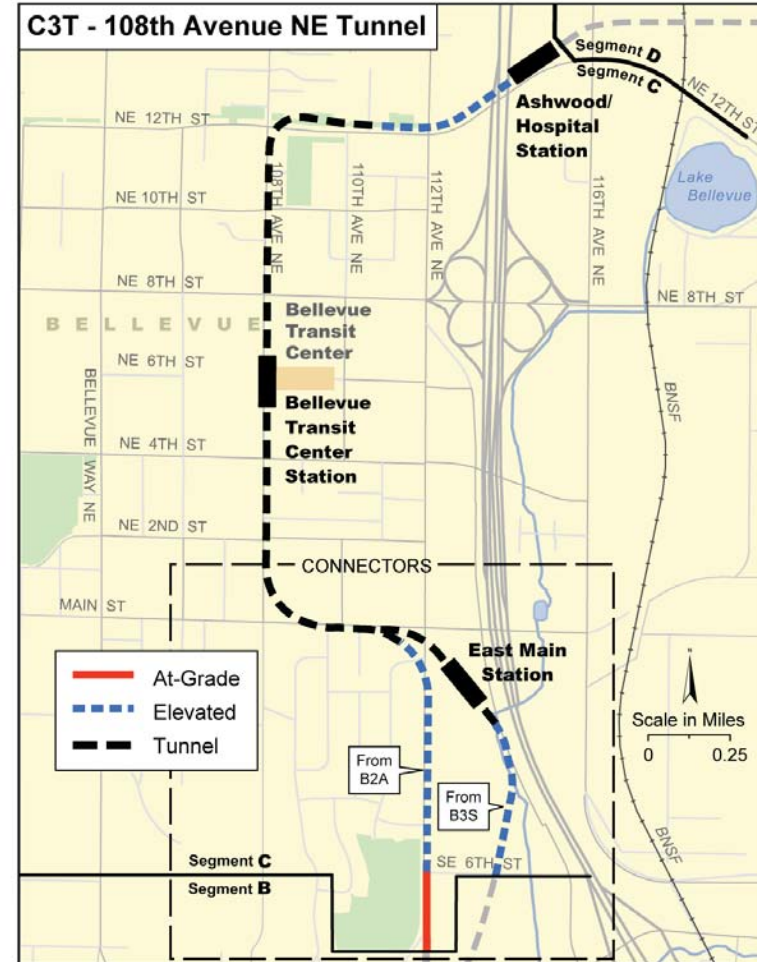
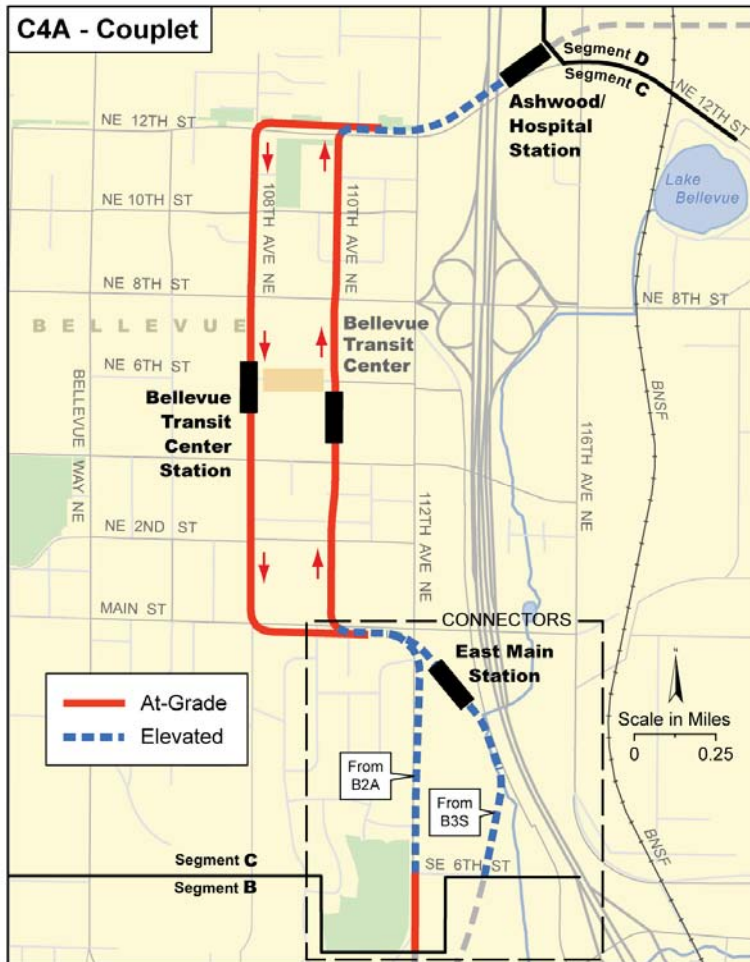
# Project Timeline

EIS Scoping	Fall 2006
Prepare Draft EIS	2007-2008
ST2 Approved by Voters	November 2008
Identify Preferred Route Alternatives	May 2009
Preliminary Engineering/FEIS	2009-2010
Identify Single Downtown Bellevue Preferred Alternative	April 2010
ST Board Selects Project	Early 2011
Final Design	2011-2013
Construction Starts	2013/2014
Service Starts	2020/2021
Public Meetings and Outreach is Continuous	

# Draft EIS and Preferred Alternative

- City of Bellevue recommendation
  - Tunnel in downtown Bellevue with NE 6<sup>th</sup> crossing
- Sound Transit Board identified a preferred alternative in May 2009
  - C4A – At-Grade Couplet preferred alternative
  - Tunnel for future consideration as preferred alternative if the additional funding identified

# Sound Transit May 2009 Preferred Alternative and Tunnel for Future Consideration



# Project Developments

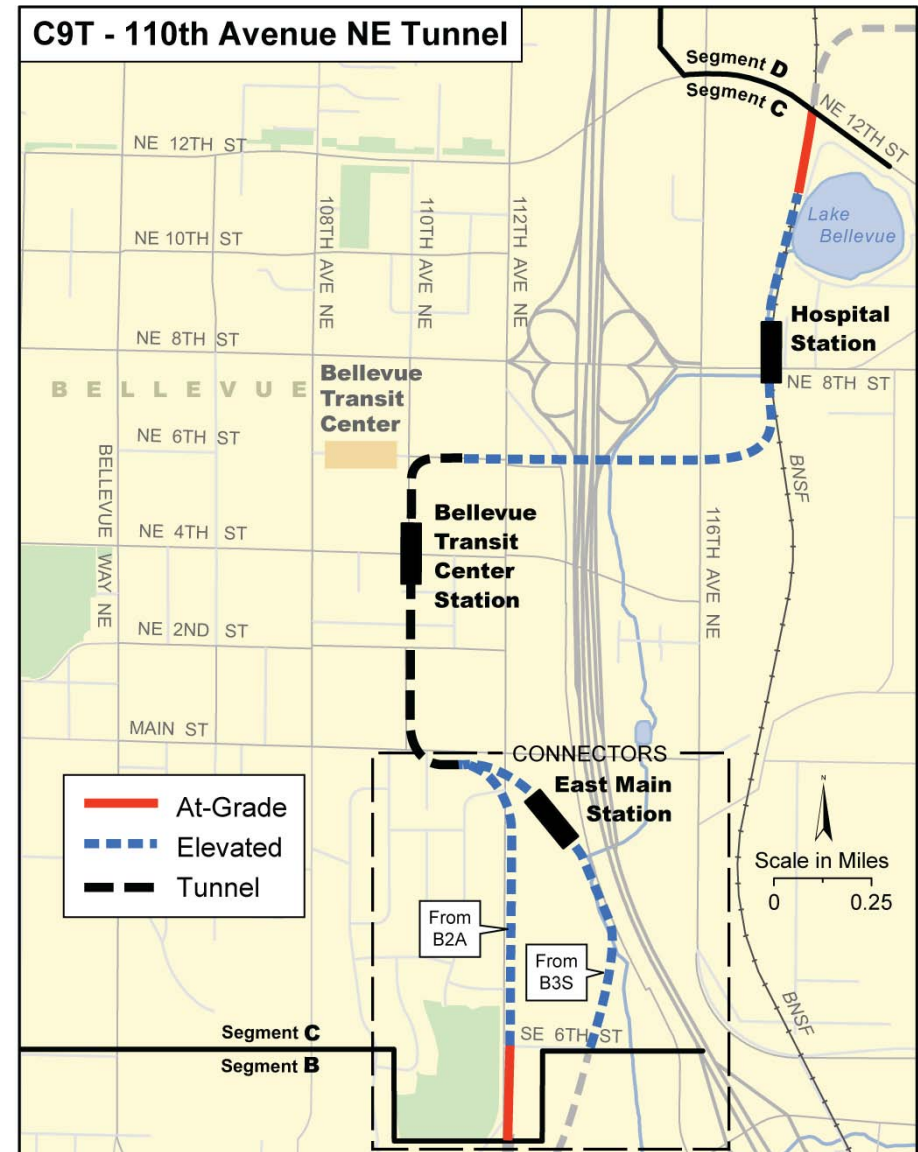
- Increased budget pressures
  - Recession reduces ST revenue forecasts by 20%
- Expert reviews
  - Shorter tunnel alternative with NE 6<sup>th</sup> crossing
  - New at-grade alternatives with NE 6<sup>th</sup> crossing
  - Recommend at-grade on 112<sup>th</sup> as the approach into downtown Bellevue
- City of Bellevue evaluation request
  - 114<sup>th</sup> elevated option

# Alignment Alternative Development

- Public workshop and stakeholder briefings in November and December 2009
- Sound Transit with Bellevue staff developed new alternatives to conceptual engineering level of design

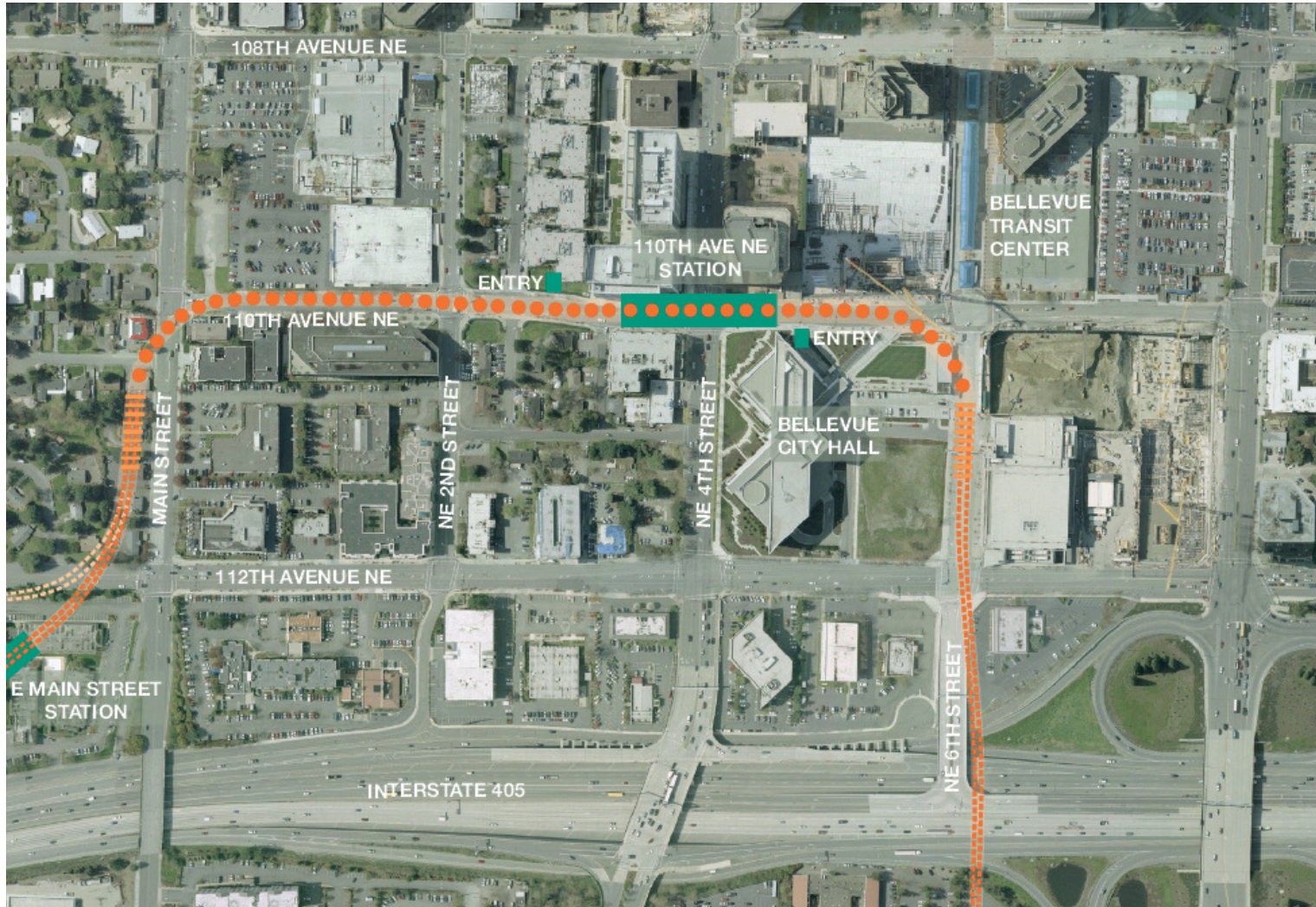
# C9T: 110th NE Tunnel

- Tunnel under 110th
- Three stations:
  - East Main: elevated
  - BTC: underground
  - Hospital: elevated
- Fully grade-separated



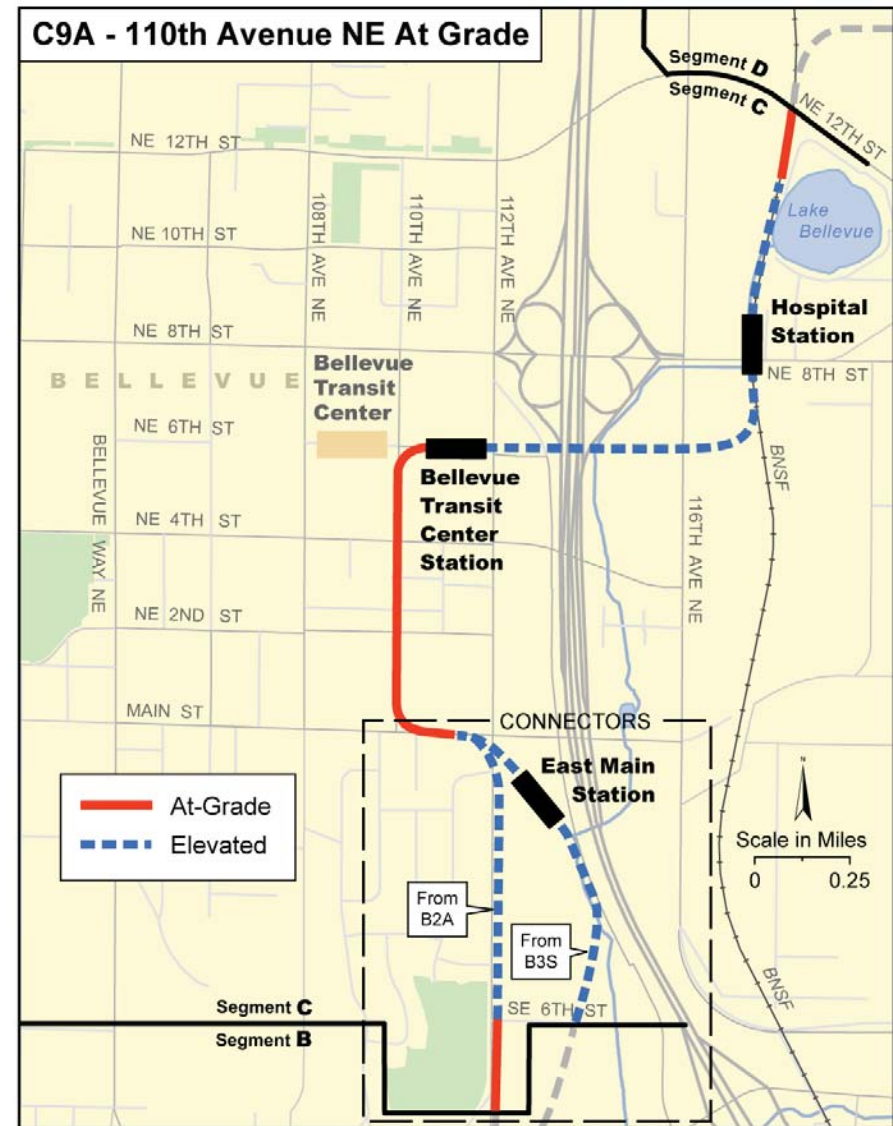


# C9T: 110<sup>th</sup> Tunnel

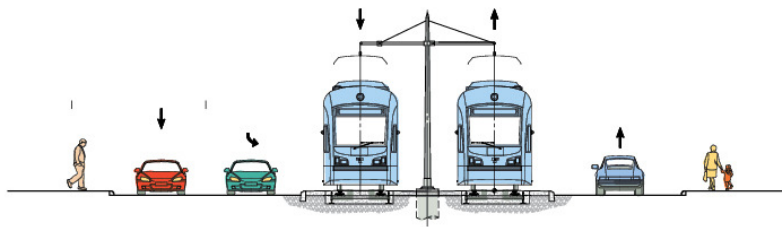
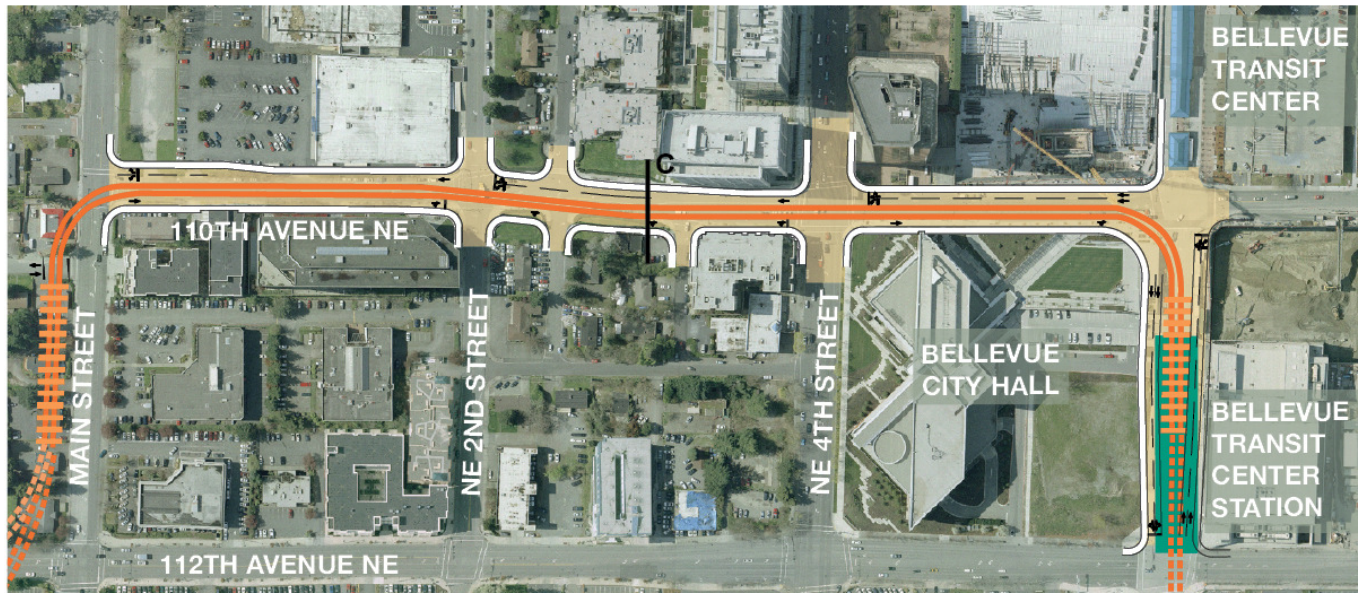


## C9A: 110th NE At-Grade

- At-grade, center running on 110th
- Three stations:
  - East Main: Elevated
  - BTC: Elevated
  - Hospital: Elevated
- 76% grade separated



# C9A – 110<sup>th</sup> At-Grade

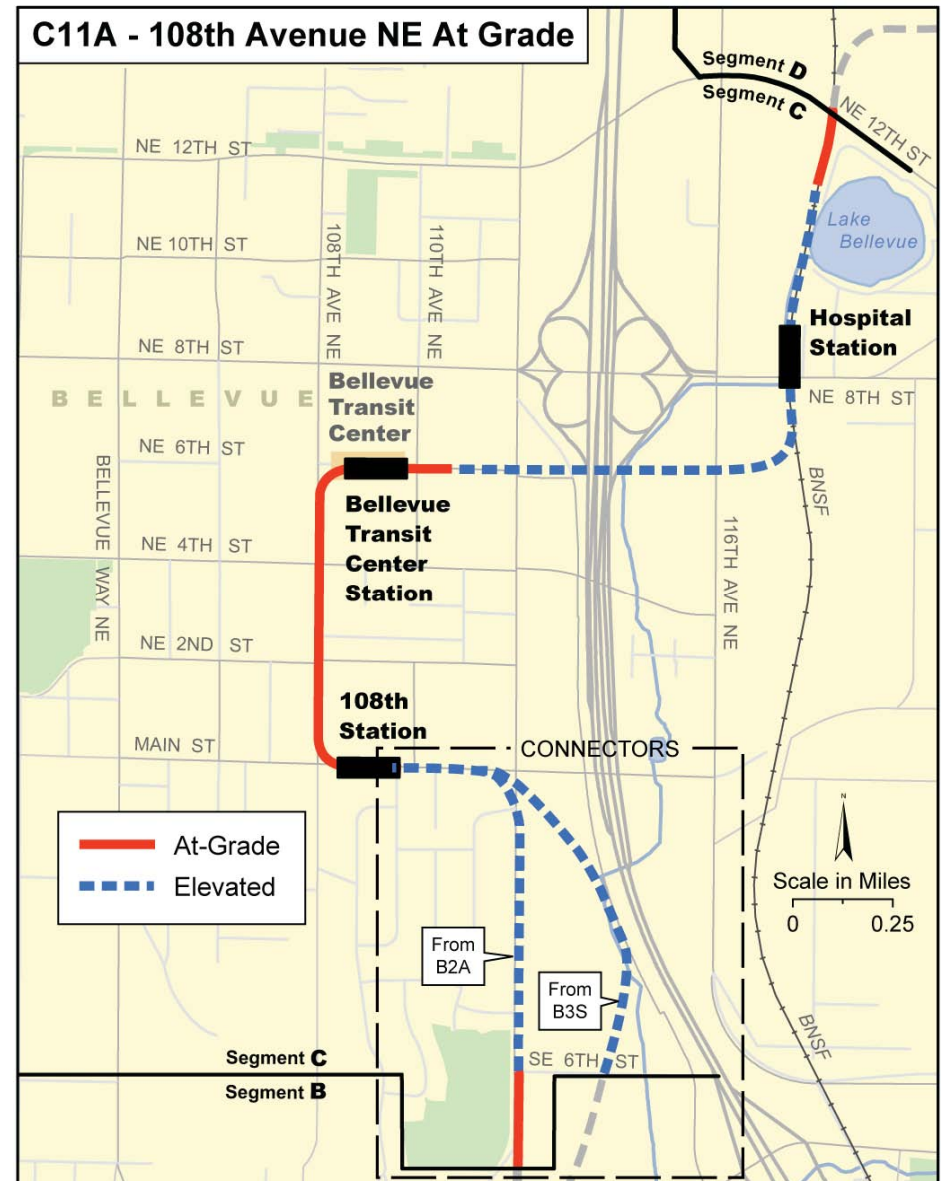


Section C 108th Ave – Looking North

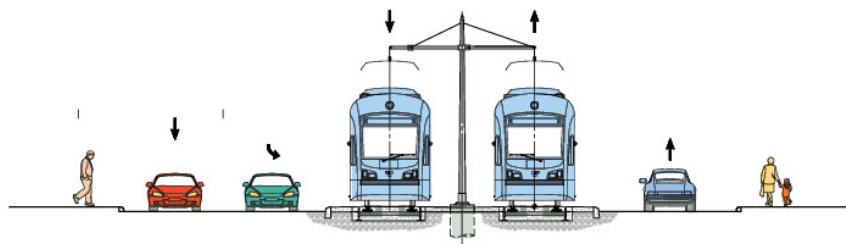
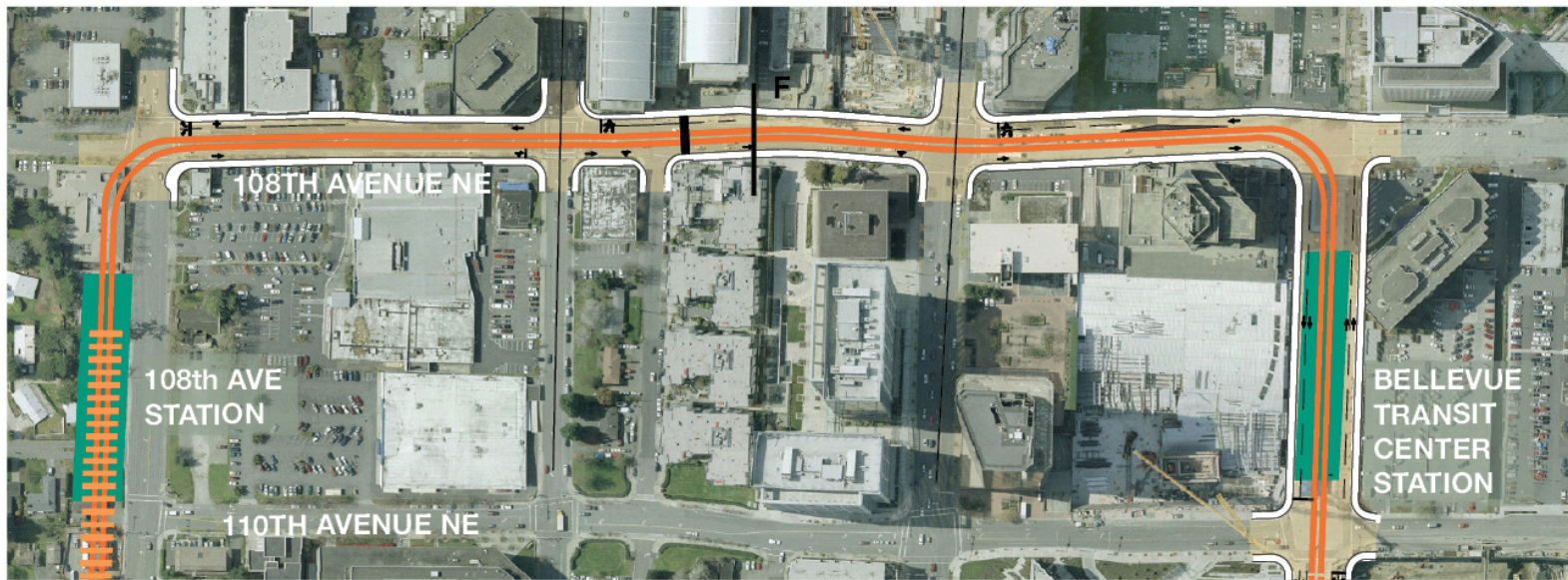
- Center running on 110th Ave NE
- One through lane each direction, with southbound turn lane at NE 4th, 2nd, and Main Street
- Property access to be right-in/right-out.

# C11A: 108th NE At-Grade

- At-grade running on 108th
- Three stations:
  - 108th: At-grade
  - BTC: At-grade
  - Hospital: Elevated
- 73% grade-separated



# C11A – 108<sup>th</sup> At-Grade

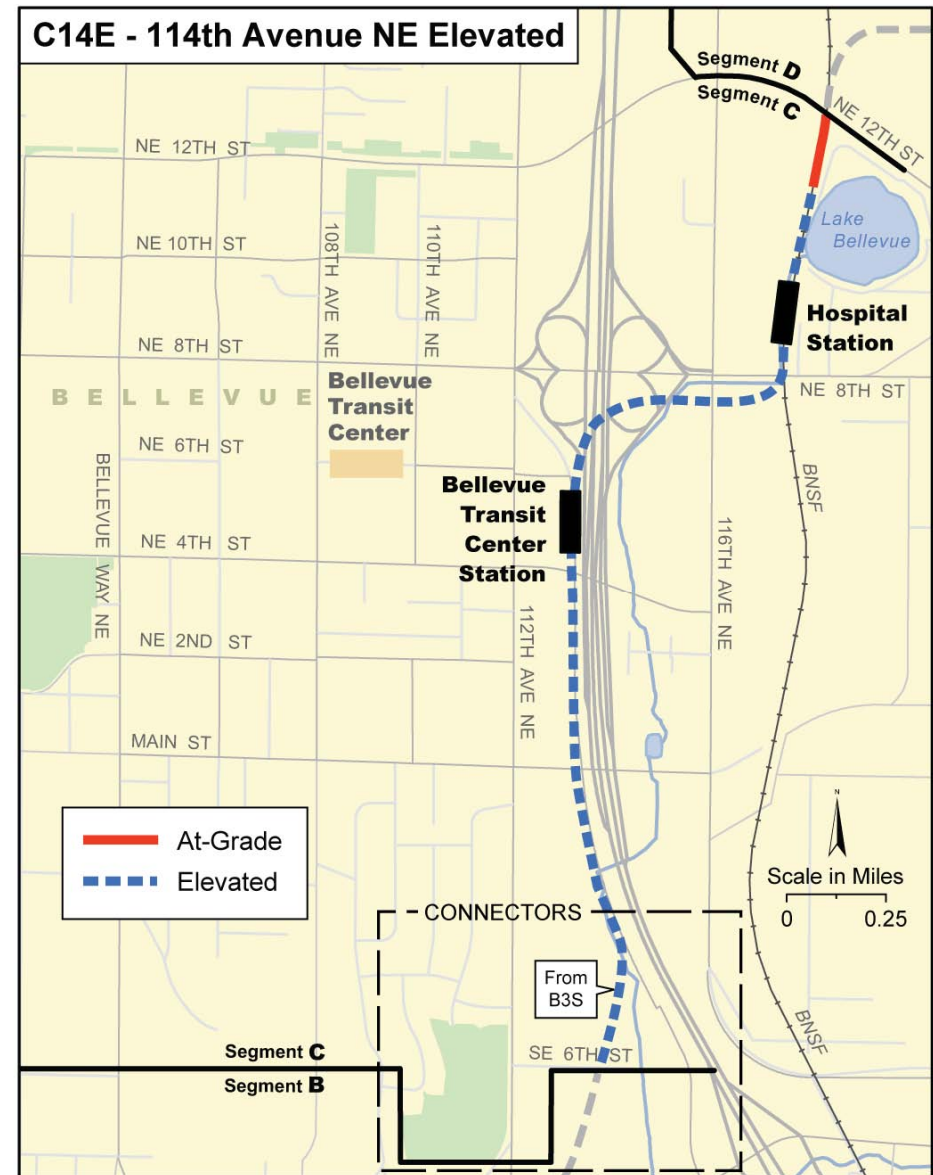


Section F 108th Ave – Looking North

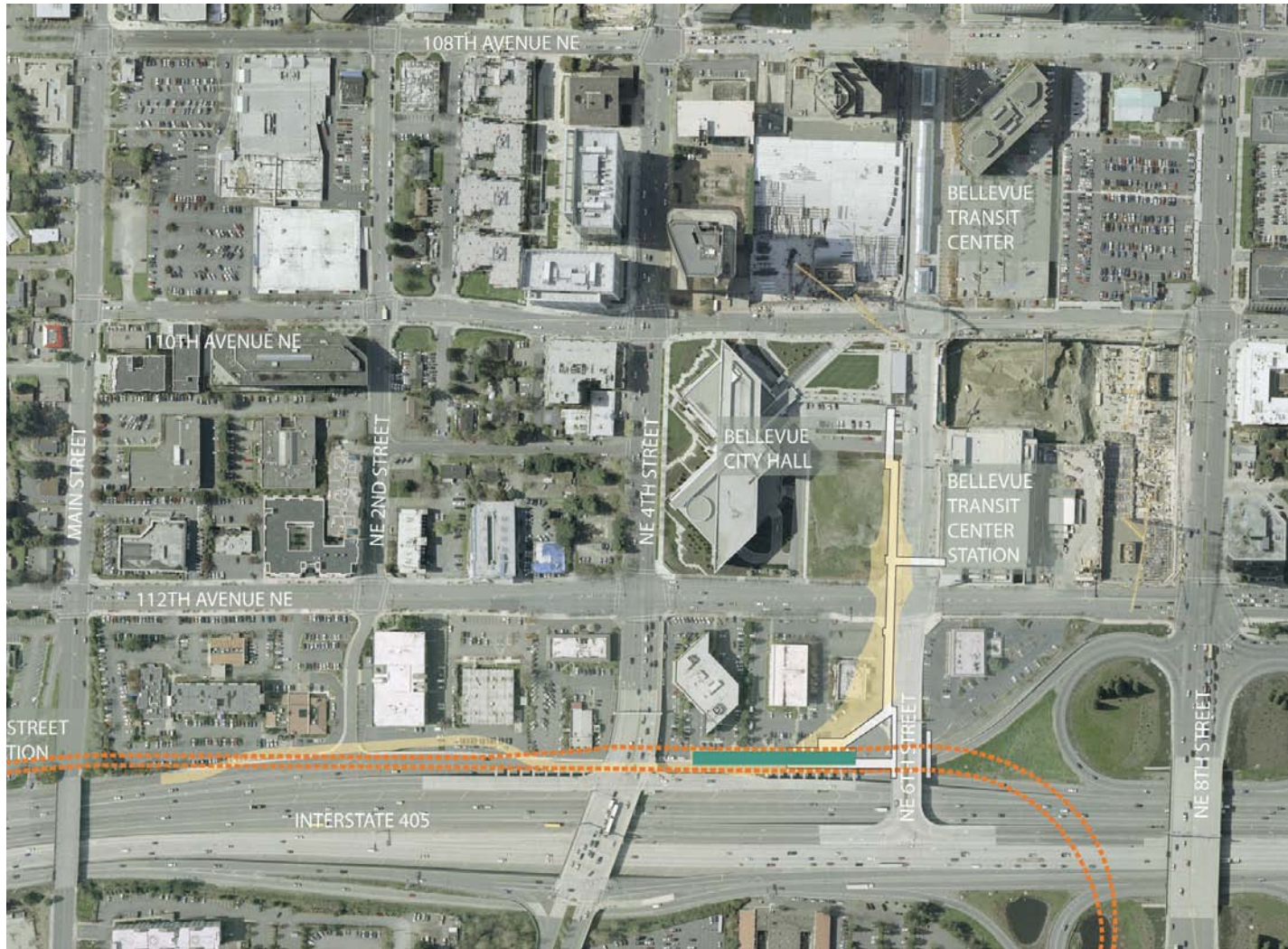
- Center Running alignment on 108th Ave
- One through lane each direction, with southbound turn lane at NE 4th, 2nd, and Main Street
- Pedestrian crossing at NE 2nd Place
- Property access to be right-in/right-out.

# C14E: 114th Avenue NE Elevated

- Elevated on 114th
- Two stations:
  - BTC: Elevated
  - Hospital: Elevated
- Other elements:
  - Moving sidewalk
  - Pedestrian bridge to Meydenbauer Center
- Possible additions:
  - 200-space park-and-ride
  - Circulator bus
- Fully grade-separated



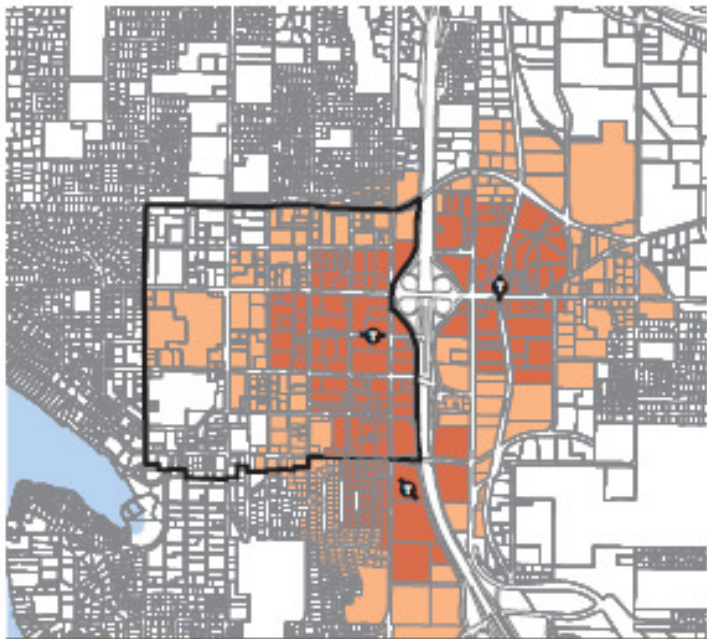
# C14E – 114<sup>th</sup> Elevated



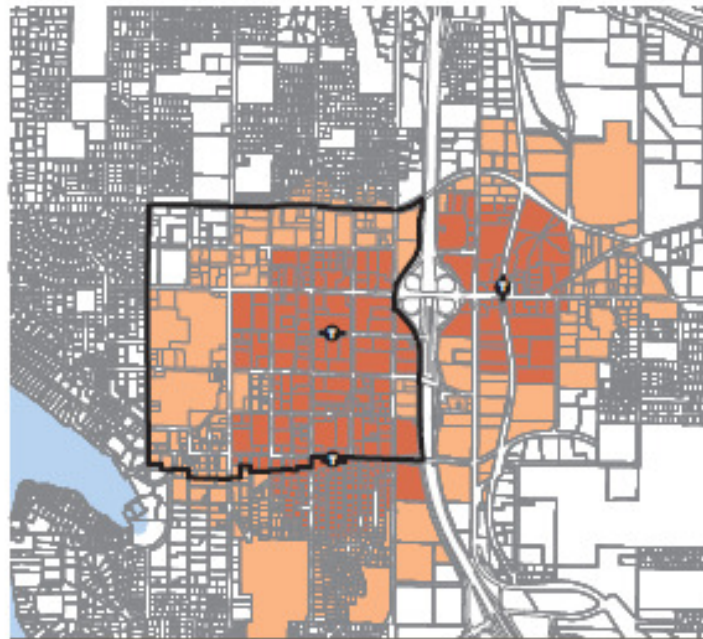
# Evaluation Criteria

Criteria Category	Criteria
Cost	Capital cost (\$2007)
Land use accessibility	Land uses within walking distance of stations
Light rail ridership	2030 ridership and travel time
Traffic operations	Traffic congestion and delay for vehicles
Environmental impacts	Displacements, noise, vibration, parks and ecosystems
Construction effects	Relative street-level disruption and duration
Construction risks	Relative risks to schedule and budget
Consistency with plans and policies	Consistency with Comprehensive Plan and adopted Council interest statements

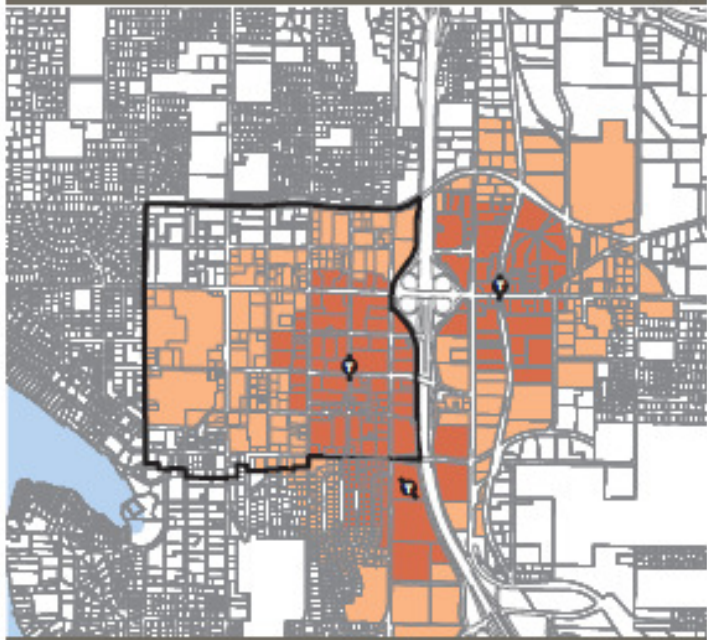




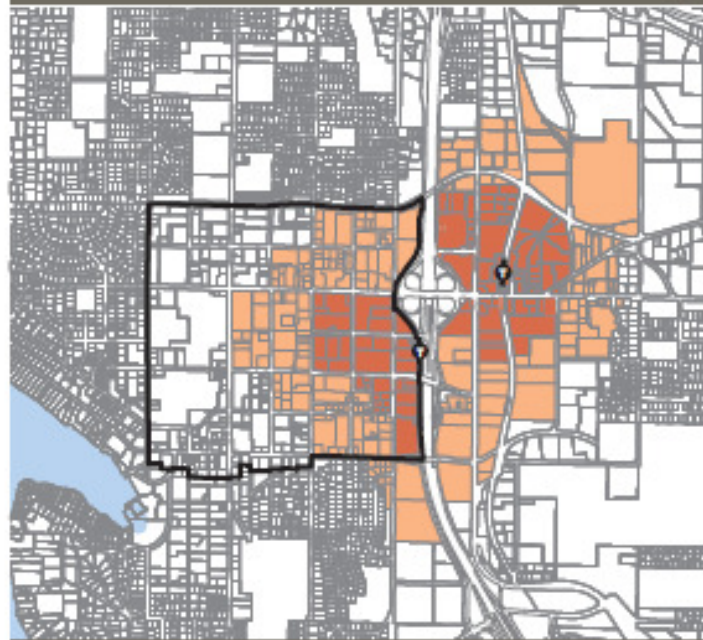
C9A



C11A



C9T







C14E



## Land Use Accessibility

WALK DISTANCE TO EAST LINK STATIONS

-  light rail station
-  5 minute walk
-  10 minute walk
-  downtown subarea boundary

# Walk Distance to Stations

	2030 Downtown Jobs		2030 Downtown Residents	
Downtown Subarea Forecast	79,000		19,000	
<b>Walk Distance</b>	5-min. walk	10-min. walk	5-min. walk	10-min. walk
<b>C9A Alignment: 110<sup>th</sup> NE At-Grade</b>				
Downtown Land Use within Walk Distance Percent of 2030 Downtown Subarea Total	<b>39,938</b> <b>51%</b>	<b>75,298</b> <b>96%</b>	<b>5,221</b> <b>28%</b>	<b>11,826</b> <b>63%</b>
<b>C9T Alignment: 110<sup>th</sup> NE Tunnel</b>				
Downtown Land Use within Walk Distance Percent of 2030 Downtown Subarea Total	<b>34,755</b> <b>44%</b>	<b>75,908</b> <b>97%</b>	<b>3,940</b> <b>21%</b>	<b>12,345</b> <b>66%</b>
<b>C11A Alignment: 108<sup>th</sup> NE At-Grade</b>				
Downtown Land Use within Walk Distance Percent of 2030 Downtown Subarea Total	<b>60,059</b> <b>76%</b>	<b>77,824</b> <b>99%</b>	<b>9,929</b> <b>53%</b>	<b>17,157</b> <b>92%</b>
<b>C14E Alignment: 114<sup>th</sup> NE Elevated</b>				
Downtown Land Use within Walk Distance Percent of 2030 Downtown Subarea Total	<b>21,249</b> <b>27%</b>	<b>62,023</b> <b>79%</b>	<b>1,258</b> <b>7%</b>	<b>8,628</b> <b>46%</b>

# Evaluation Summary: Ridership and Travel Time

Criteria	C9T 110 <sup>th</sup> Tunnel	C9A 110 <sup>th</sup> At-Grade	C11A 108 <sup>th</sup> At-Grade	C14E 114 <sup>th</sup> Elevated
Segment C daily boardings	8,000	7,500	8,000	6,000
East Link daily ridership	51,000	48,500	49,000	48,500*
Segment C light rail travel time (minutes)	6	9	9	4

\* Inclusion of a 200 space park-and-ride garage and circulator bus but does not significantly increase segment ridership.

# Evaluation Summary: Traffic Operations

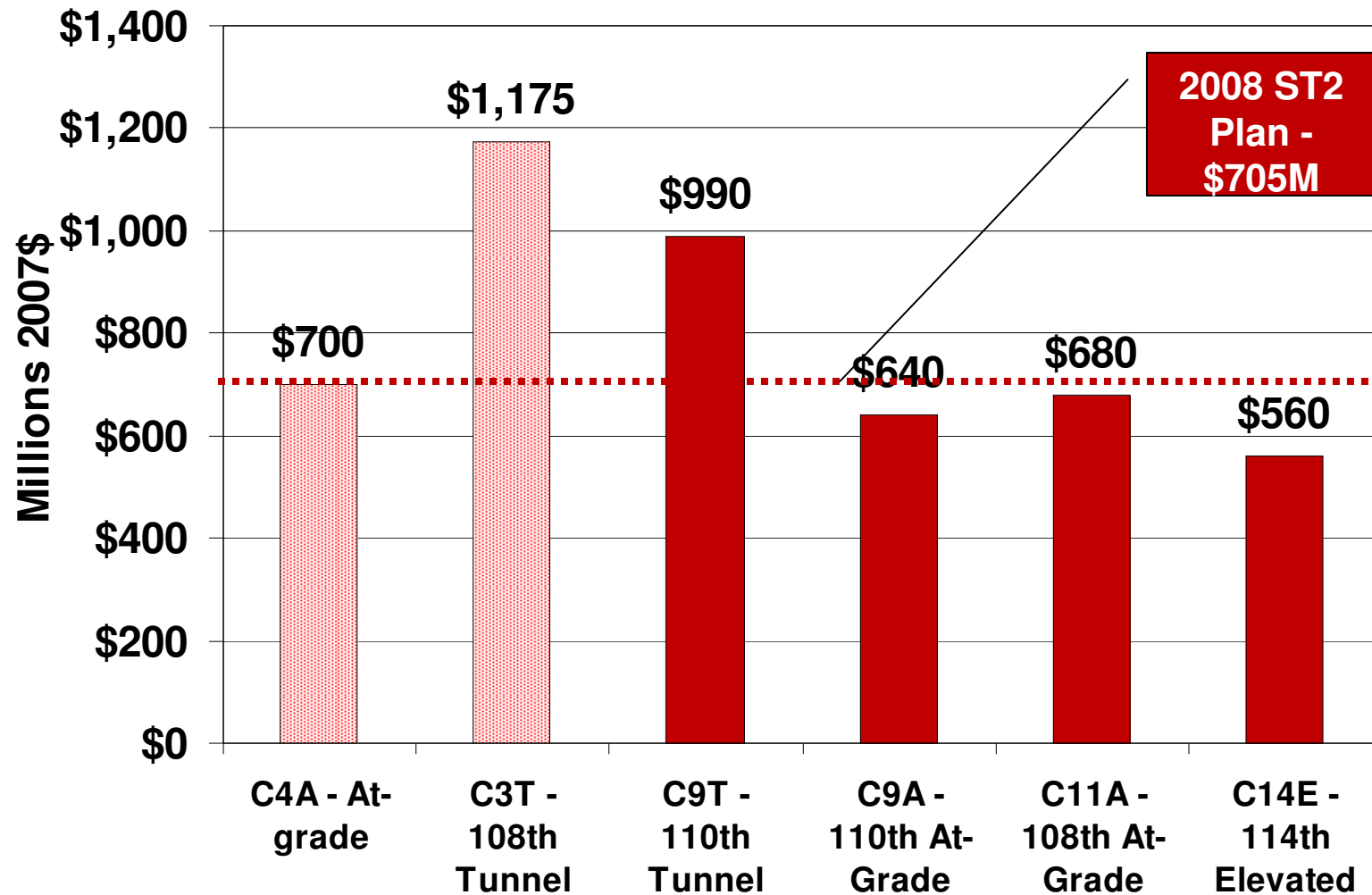
Criteria	C9T 110 <sup>th</sup> Tunnel	C9A 110 <sup>th</sup> At-Grade	C11A 108 <sup>th</sup> At-Grade	C14E 114 <sup>th</sup> Elevated
Southbound vehicle travel time (minutes)	6.5	8.0	7.4	6.5
Northbound vehicle travel time (minutes)	5.8	6.5	5.6	5.8
Eastbound vehicle travel time (minutes)	5.0	4.9	5.3	5.0
Westbound vehicle travel time (minutes)	4.9	5.2	5.8	4.9
Percent of vehicle demand into and out of downtown served	78%	78%	77%	78%
Average downtown intersection vehicle delay (seconds)	67	73	70	67
Average vehicle delay at key affected intersections (seconds)	78	85	87	78

# Evaluation Summary: Cost and Alternative Characteristics

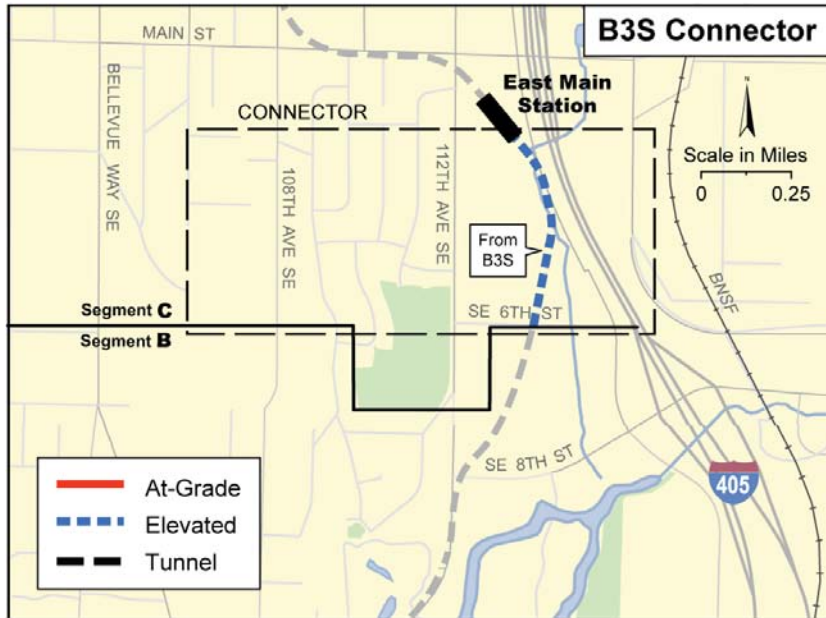
Criteria	C9T 110 <sup>th</sup> Tunnel	C9A 110 <sup>th</sup> At-Grade	C11A 108 <sup>th</sup> At-Grade	C14E 114 <sup>th</sup> Elevated
Cost (millions, \$2007)	\$990	\$640	\$680	\$560*
Difference between ST2 Plan (\$705 million)	(\$285)	\$65	\$25	\$145
Segment C length (miles)	1.6	1.7	1.9	1.3
Number of stations	3	3	3	2

\*A 200 space park-and-ride and circulator bus would add \$70 million to the cost for C14E.

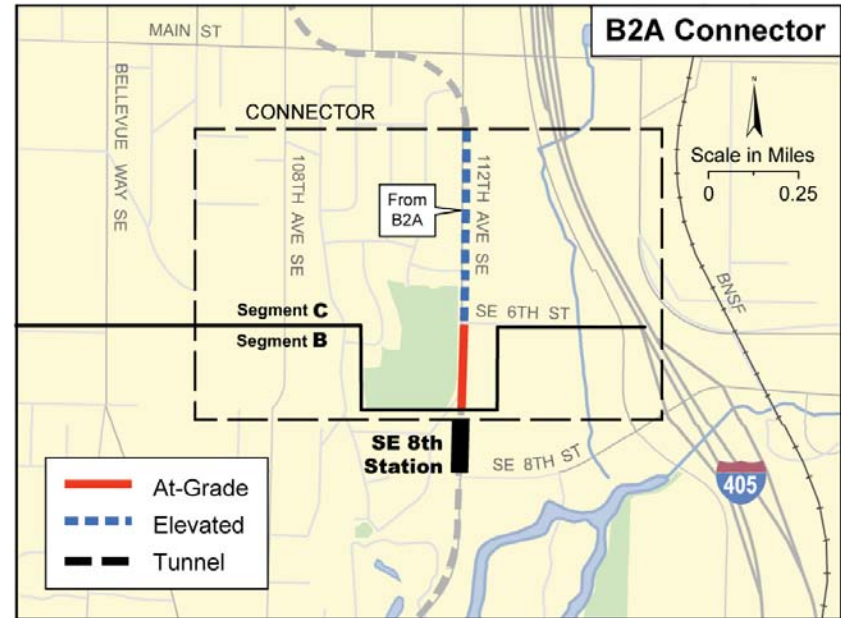
# Cost of Downtown Alternatives



# Connectors to Segment B



Via B3S  
112<sup>th</sup> Bypass



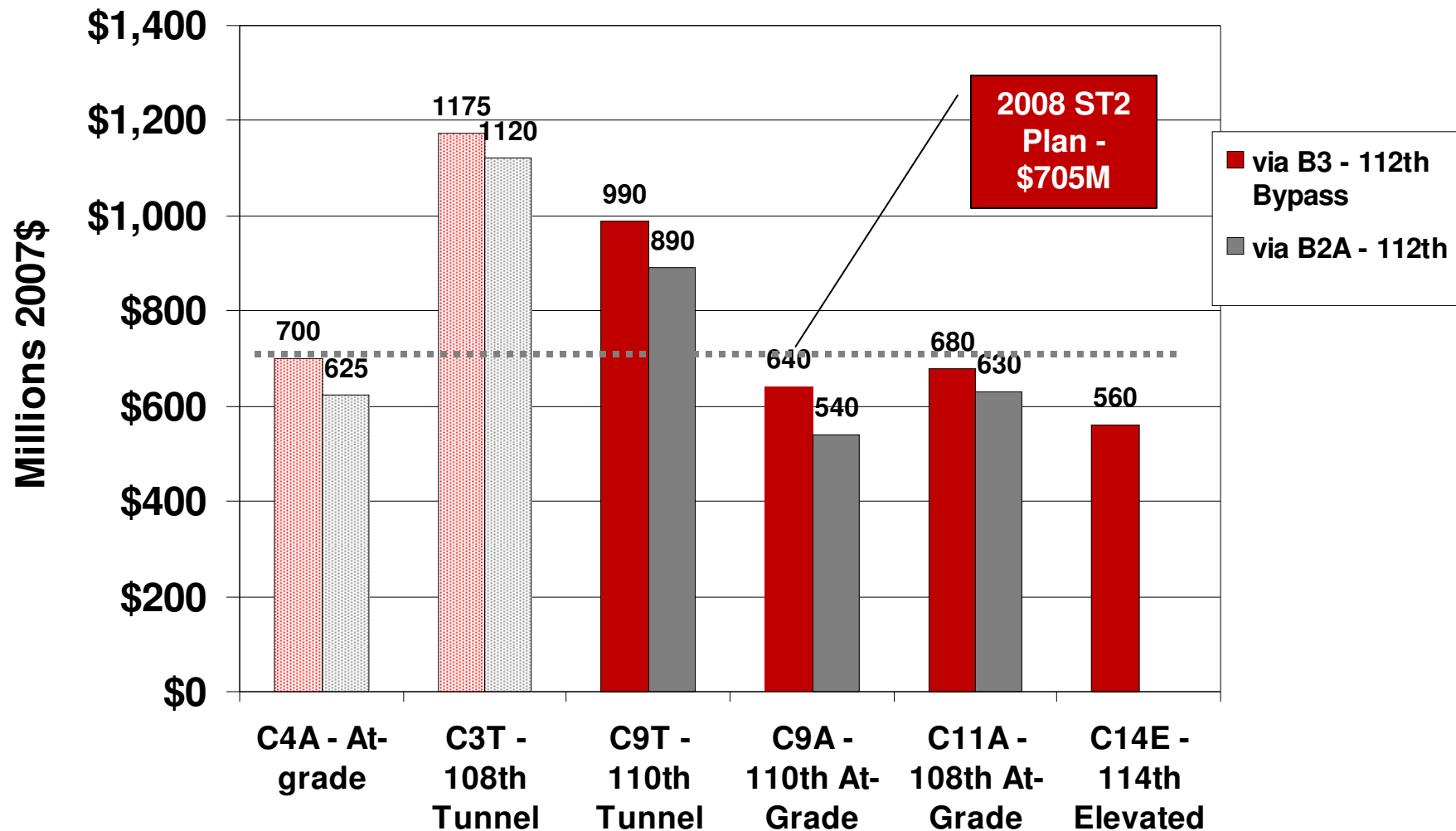
Via B2A  
112<sup>th</sup> At-Grade

# Comparison of Segment B Connectors

- 112th would reduce cost by \$50-100 million
- 112th bypass would require slightly less noise mitigation
- 112th would reduce ecosystem impacts



# Cost of Downtown Alternatives by Connector Option



# Questions?

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