Key points to consider

The I-90 corridor/East King County high capacity transit analysis looked at issues specific to each scenario in addition to cost and ridership. The overall results of the analysis of each scenario are summarized as follows:

HOV/BRT

- Assumes HOV lanes are managed to provide reliable speed and travel time advantage
- Reliant on WSDOT funding for freeway-to-freeway HOV connections
- Surface street operations in Seattle CBD
- Only scenario that preserves I-90 center lanes for HOV and Mercer Island SOVs
- Only scenario independent of BNSF right-of-way acquisition

Busway/BRT

- Eastside regional bus facility underneath Bellevue Transit Center
- Most reliant on BNSF right-of-way acquisition
- Requires transfer station in Seattle CBD
- Requires rebuilding of Wilburton trestle

Light rail transit (LRT)

- Highest ridership on I-90 bridge
- Integrated with Central Link
- Some segments have higher capital/operating costs and lower ridership
- Highest cost element, Bellevue CBD tunnel, could cost significantly less if aerial
- LRT operation on floating bridge feasible; operational design analysis being completed

Monorail

- Must operate at-grade on a lightweight steel beam on I-90 bridge and Mercer Island (technology untested)
- Hitachi vehicles do not fit within Mt Baker tunnel and other constrained areas
- Bombardier vehicle can fit, with reconstruction of some structures
- Requires transfer station in Seattle CBD
- Some segments have higher capital/operating costs and lower ridership

Rail-convertible bus

- Capital costs are higher than busway/BRT (approaching LRT costs)
- Costs do not include conversion
- Requires bus service accommodation during conversion
- Highest cost element, Bellevue CBD tunnel, could cost significantly less if aerial
- Transfer station in Seattle CBD will be required until system conversion to LRT
- No known conversions from BRT to LRT except Downtown Seattle tunnel
- No exact threshold for conversion

MARCH 2005

I-90 Corridor/East King County High Capacity Transit Analysis

The purpose of this analysis is to address long-term mobility needs in the I-90 corridor/East King County subarea through the development of a reliable High Capacity Transit (HCT) system that operates as independently of the growing freeway and roadway congestion as possible, provides a highly attractive alternative to travel by automobile, and integrates seamlessly with the HCT system now being implemented by Sound Transit.

The analysis builds upon the following previous decisions:

- SR-520: Bridge replacement & HOV lanes in near term
- I-405: Record of Decision includes Bus Rapid Transit (BRT)
- I-90: Ultimate configuration: R-8A with High Capacity Transit in the center roadway

Principal findings

- **No one scenario fits the needs of all the segments.**
- **A combination of technology scenarios may best serve the needs of the I-90 Corridor/East King County subarea.**

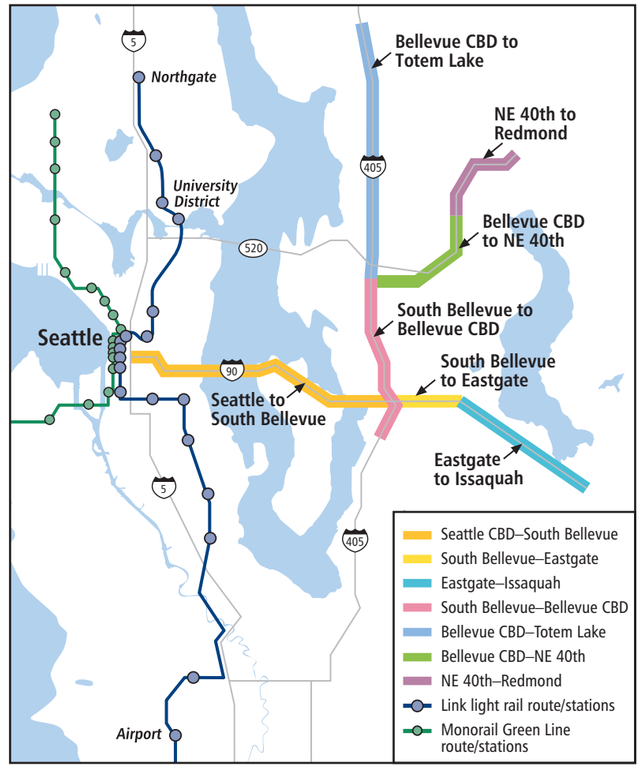
Scenarios

The maps shown inside illustrate five different scenarios for building an HCT system across the I-90 corridor and throughout East King County.

- HOV/BRT—an express bus network that primarily relies on the existing HOV system.
- Busway/BRT—an express bus network that operates on dedicated bus lanes separated from other traffic.
- Three Fixed Guideway scenarios—light rail, monorail, and rail-convertible bus operating in exclusive rights-of-way.

Charts showing ridership and costs for each scenario, broken down by segment, appear below the maps.

I-90 Corridor/East King County System Segments



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HOV/BRT Scenario

Potential Facilities
- Freeway Bus Only Connections
- New Direct Access Facility
- In-Line BRT Stop

Existing or Planned Projects
- Direct Access Facility
- Transit Center or Park & Ride Lot
- Link Light Rail Route & Stations
- Monorail Green Line Route & Stations
- HOV Lanes

Busway/BRT Scenario

Potential Facilities
- Busway Route & Stations
- New Direct Access Facility

Existing or Planned Projects
- Direct Access Facility
- Transit Center or Park & Ride Lot
- Link Light Rail Route & Stations
- Monorail Green Line Route & Stations
- HOV Lanes

Fixed Guideway Scenarios

Potential Facilities
- Fixed Guideway Route & Stations for light rail, monorail, or rail-convertible bus

Existing or Planned Projects
- Link Light Rail Route & Stations
- Monorail Green Line Route & Stations

Ridership and Cost by Segment (Refer to map on front)

Seattle CBD → South Bellevue

Scenario	Ridership	Cost
HOV/BRT	30,000	<$10m
Busway/BRT	29,000	$250-340m
LRT	48,000	$300-410m
Monorail	31,000	$720-990m
Rail-Convertible BRT	36,000	$300-410m ✳

South Bellevue → Eastgate

Scenario	Ridership	Cost
HOV/BRT	11,000	$160-220m
Busway/BRT	11,000	$120-170m
LRT	9,000	$210-290m
Monorail	7,000	$200-270m
Rail-Convertible BRT	7,000	$180-240m ✳

Bellevue CBD → NE 40th (Overlake)

Scenario	Ridership	Cost
HOV/BRT	13,000	$1.6-2.2b
Busway/BRT	13,000	$430-590m
LRT	15,000	$540-740m
Monorail	12,000	$640-870m
Rail-Convertible BRT	14,000	$480-660m ✳

Bellevue CBD → Totem Lake

Scenario	Ridership	Cost
HOV/BRT	19,000	$260-360m
Busway/BRT	21,000	$780m-1.1b
LRT	6,000 ✧	$810m-1.1b
Monorail	4,000 ✧	$1-1.4b
Rail-Convertible BRT	5,000 ✧	$750m-1b ✳

South Bellevue → Bellevue CBD

Scenario	Ridership	Cost
HOV/BRT	15,000	$1.8-2.5b
Busway/BRT	16,000	$510-700m
LRT	37,000	$780-1.1b (tunnel) $410-$560m (aerial)
Monorail	26,000	$400-540m
Rail-Convertible BRT	29,000	$790m-1.1b (tunnel) ✳ $380-$520m (aerial)

Eastgate → Issaquah

Scenario	Ridership	Cost
HOV/BRT	6,000	$120-160m
Busway/BRT	7,000	$340-470m
LRT	7,000	$790m-1.1b
Monorail	6,000	$830m-1.1b
Rail-Convertible BRT	7,000	$670-920m ✳

NE 40th (Overlake) → Redmond

Scenario	Ridership	Cost
HOV/BRT	5,000	$200-270m
Busway/BRT	5,000	$670-920m
LRT	7,000	$710-970m
Monorail	6,000	$730m-1b
Rail-Convertible BRT	7,000	$650-880m ✳

✳ Does not include conversion cost

✧ Additional transit volumes in HOV lane = approximately 15,000

Note: Ridership numbers in a segment should not be added to numbers in other segments. The sum of segment costs does not equal total system costs because segment costs do not include vehicles, maintenance facilities and other system costs.