Background

Columbia River Crossing

A project to reduce congestion and improve safety on I-5 for:

- Cars and trucks
- Public transit
- Pedestrians and bicycles

An 5 improvement project sponsored by:

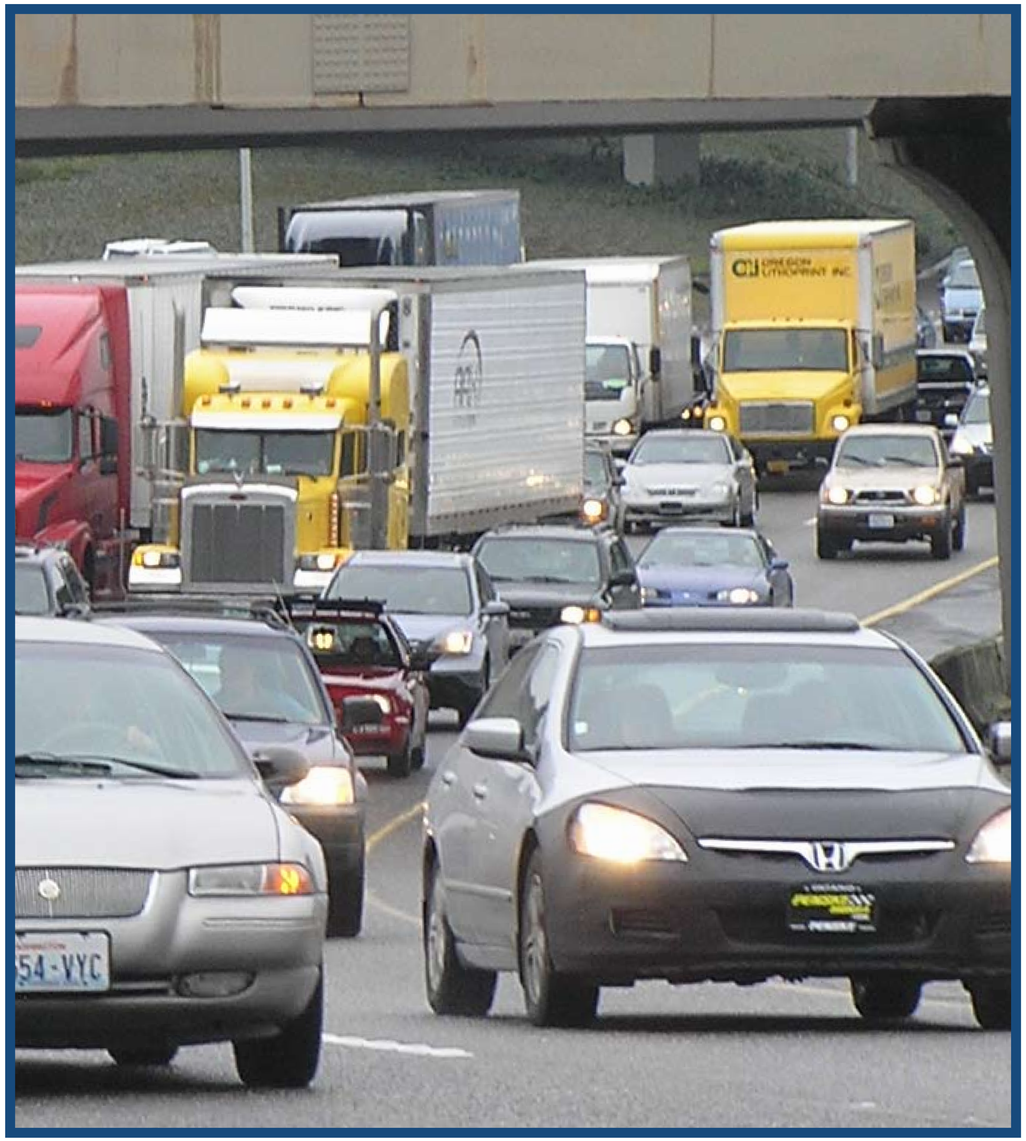
Oregon Department of Transportation

Washington State Department of Transportation

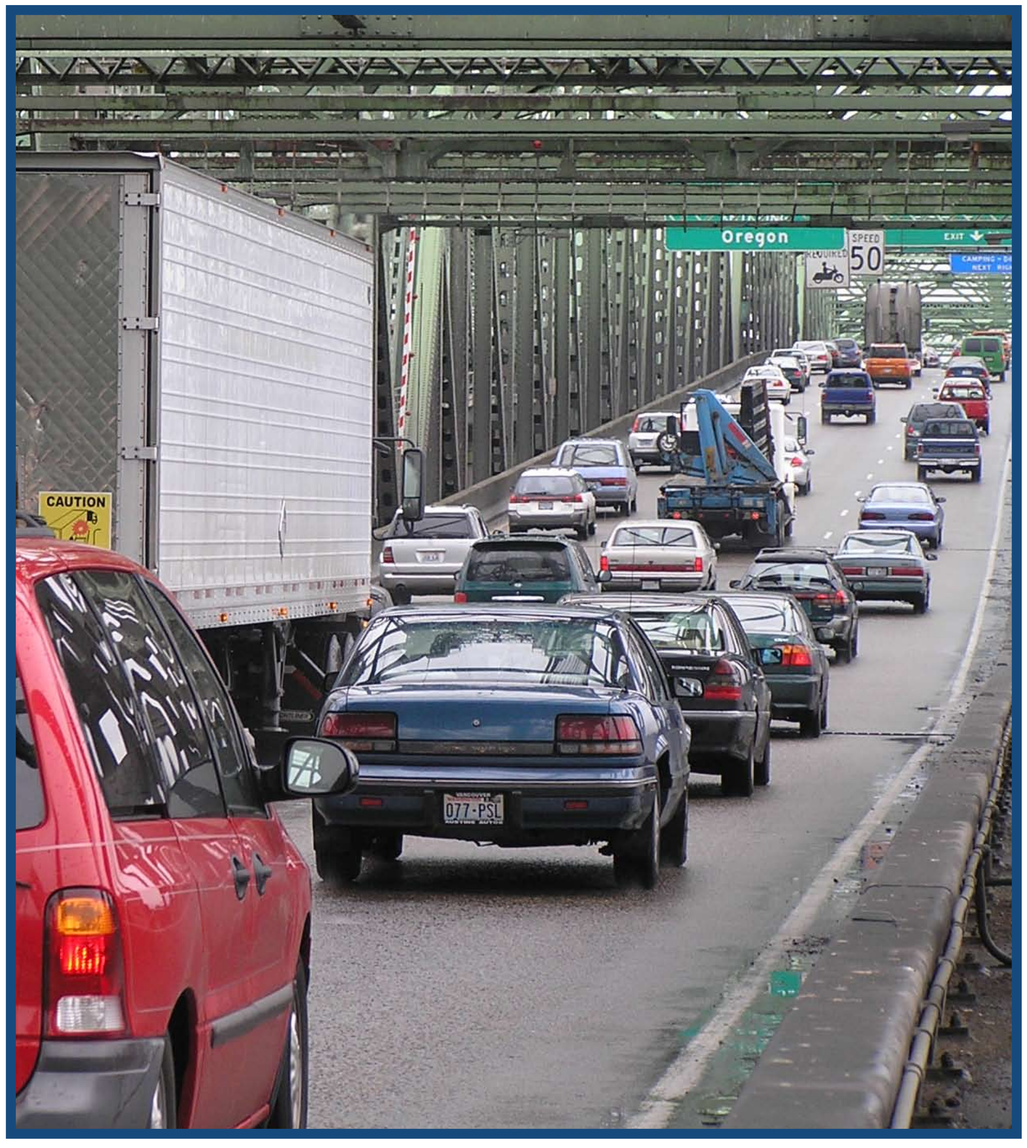
Project Purpose and Need

The project seeks to address six problems:

- Growing congestion
- Impaired freight mobility
- Diminished transit reliability
- High crash rates
- Inadequate pedestrian and bicycle facilities
- Potential for earthquake damage



Year 2030 Conditions



No Build Scenario:

- 1 million more people in the region
- 15 hours of daily congestion delays freight, transit and cars
- Collisions expected to increase by 80%
- Pedestrian/bicycle paths remain inadequate
- Earthquake safety concerns remain

What is a Draft Environmental Impact Statement?

A Draft Environmental Impact Statement (EIS):

- Defines project goals, purpose and need
- Analyzes potential positive and negative effects of each project alternative
- Outlines ways to avoid, minimize or mitigate negative effects
- Seeks public input as required by federal law (National Environmental Policy Act)

CRC Draft EIS comment period:
May 2–July 1, 2008

Draft EIS Technical Reports

Built Environment

- Acquisitions and displacements
- Air quality
- Cumulative effects (includes greenhouse gas emissions)
- Economics
- Electric and magnetic fields
- Energy
- Environmental justice
- Land use
- Neighborhoods and populations
- Noise and vibration
- Public services
- Utilities
- Visual quality and aesthetics

Cultural Environment

- Archaeology
- Historic resources
- Parks

Natural Environment

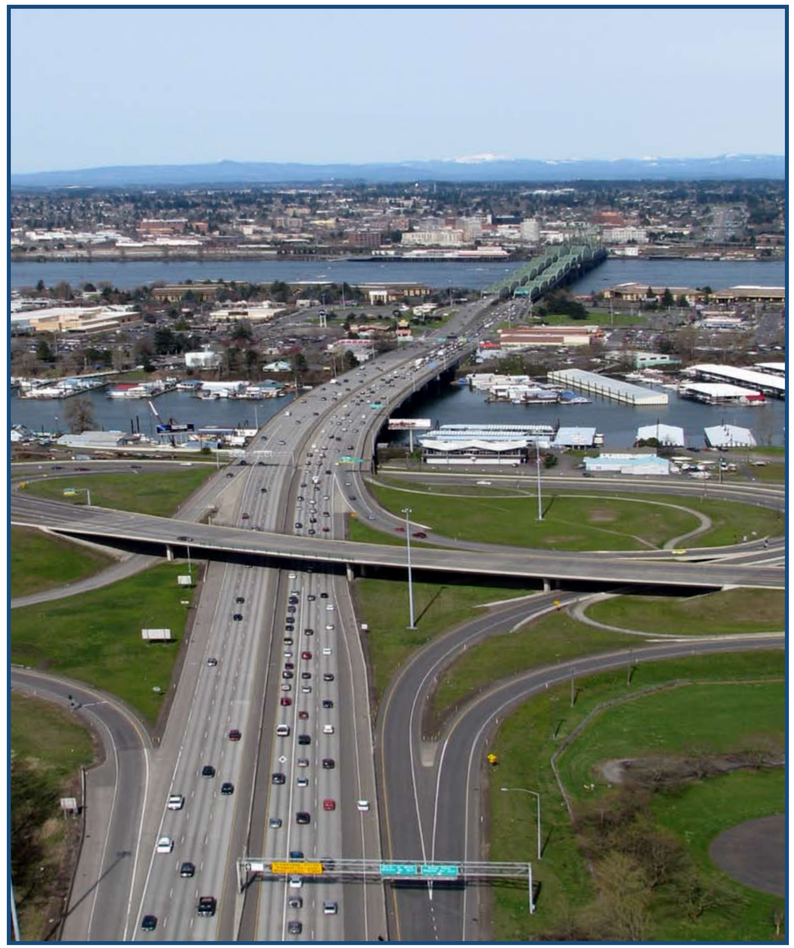
- Ecosystems
- Geology
- Hazardous materials
- Wetlands and jurisdictional waters
- Water quality

Transportation

- Aviation
- Navigation
- Traffic
- Transit

Technical reports listed above are included on a CD with the Draft EIS report and at www.columbiarivercrossing.org

Draft EIS Alternatives



1. No build (for comparison purposes)
2. Replacement bridge with bus rapid transit
3. Replacement bridge with light rail
4. Supplemental bridge with bus rapid transit
5. Supplemental bridge with light rail

Current Choices

*Minimum operable segment: A shorter segment of a larger high capacity transit project that is effective as a stand alone project, attracting riders but minimizing costs.

Three key choices will be made in the coming months:

Bridge

- Replace Interstate Bridge, or
- Supplement Interstate Bridge with an additional structure

Transit Mode

- Bus rapid transit with express bus service, or
  Light rail with express bus service

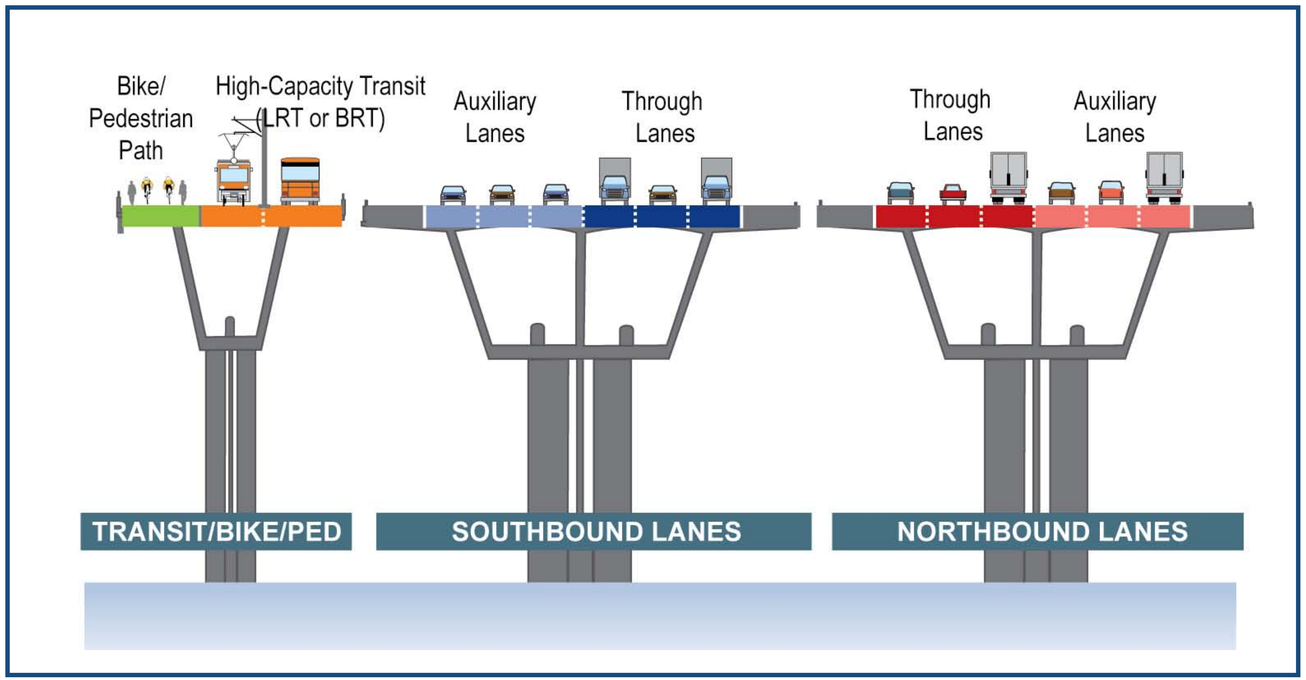
Transit Terminus

- Kiggins Bowl (I-5 and 45th Street)
- Lincoln (39th and Main Streets)
- Clark College minimum operable segment*
- Mill Plain minimum operable segment*
  (15th and Main Streets)

Components of Build Alternatives

Replacement Bridge

Number of Lanes and Traffic Types on Bridges



Not to Scale

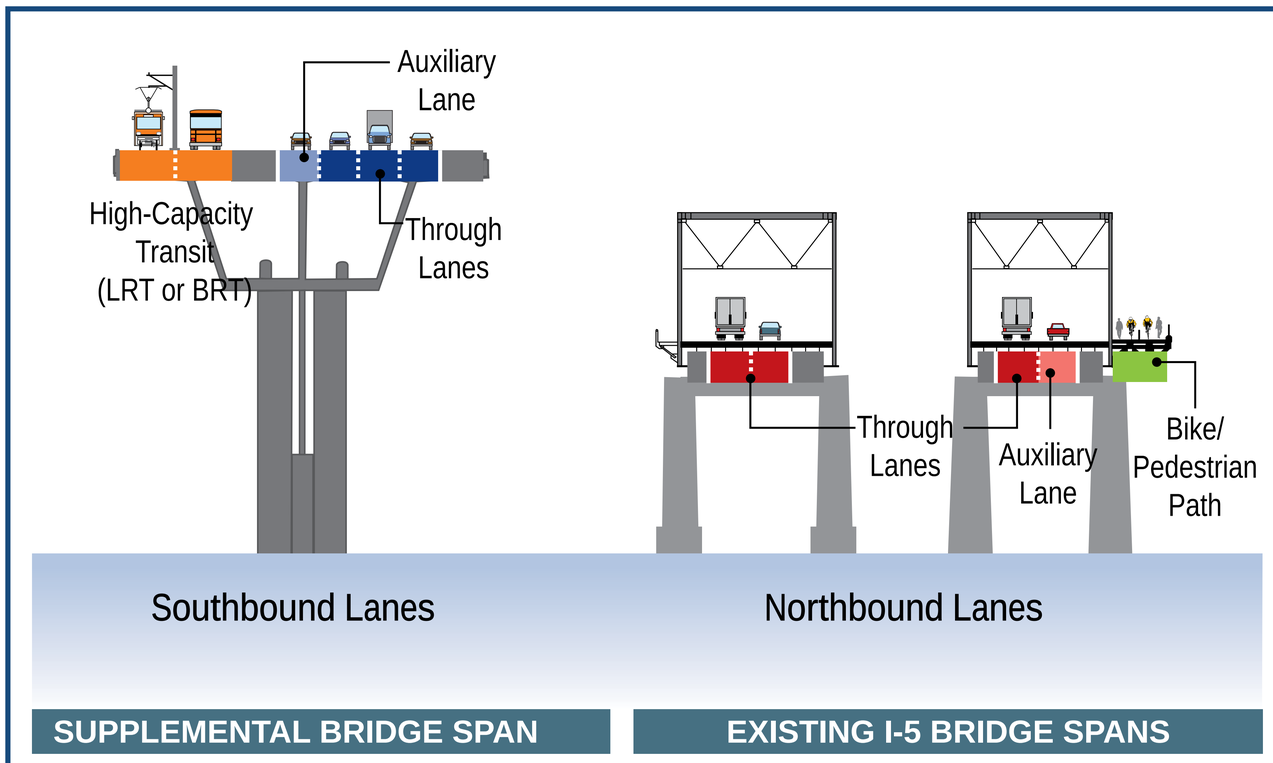
New bridges for highway traffic:

- Three through lanes and two or three auxiliary lanes in each direction
- No need for bridge lifts

Separate bridge for transit, pedestrians and bicycles

Supplemental Bridge

Number of Lanes and Traffic Types on Bridges



Not to Scale

Existing bridges for northbound traffic:

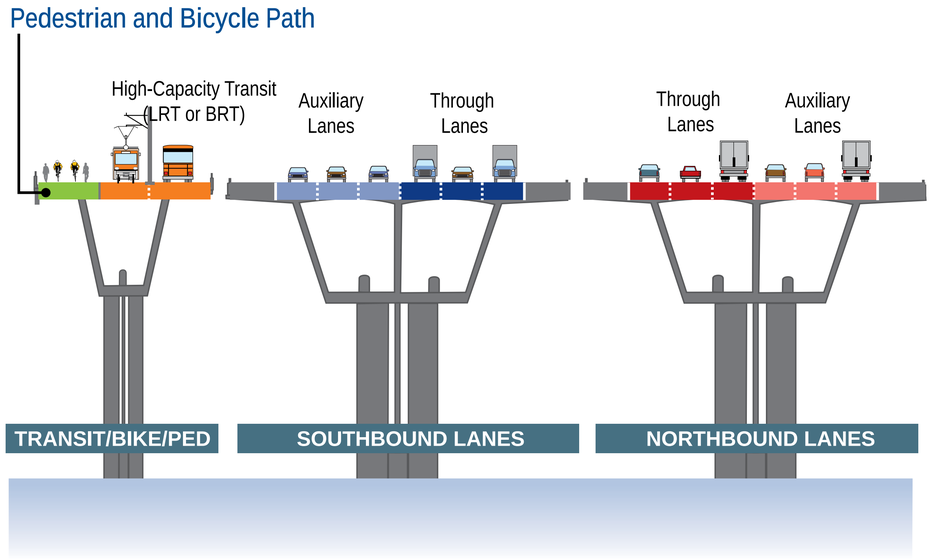
- Three through lanes and one auxiliary lane
- Wider pedestrian/bicycle path
- Retrofit for earthquake safety
- Bridge lift and river navigation challenges remain

New bridge for transit and southbound traffic:

- Three through lanes and one auxiliary lane
- No bridge lift

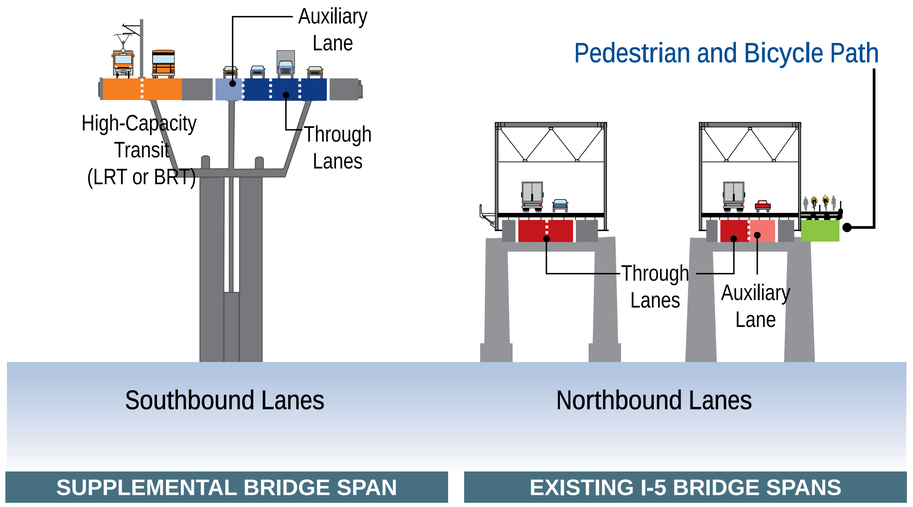
Pedestrian and Bicycle Facilities

Replacement Bridge



Not to Scale

Supplemental Bridge

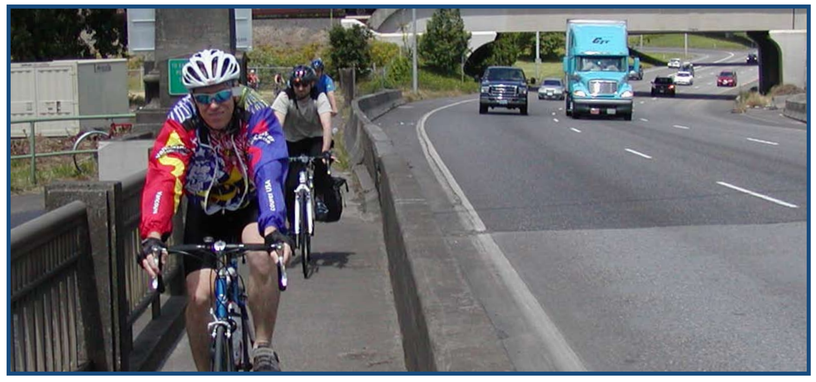


Not to Scale

Pathways would be at least 16 feet

Better connections and signage

Existing Conditions



Highway and Interchange Improvements–Washington

Replacement Bridge:

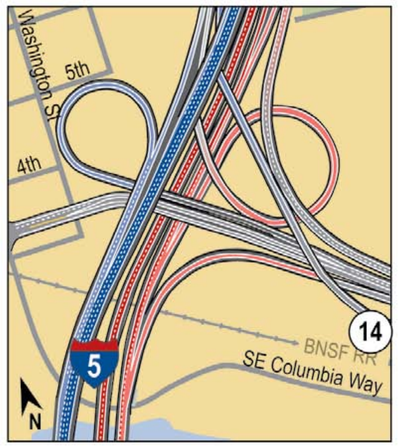
- Improves design and safety at each interchange

Supplemental Bridge:

- Improves some, but not all, design and safety issues

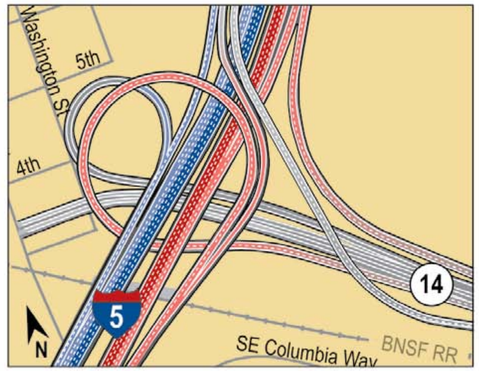
SR 14 Interchange

Supplemental Crossing

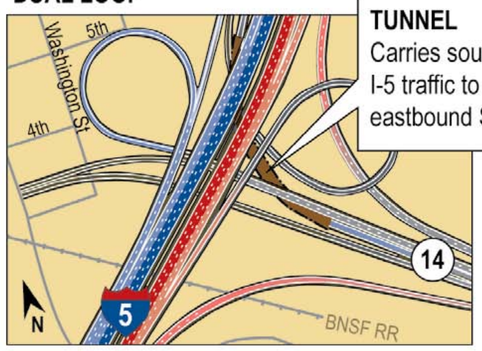


Replacement Bridge Design Options

LEFT LOOP



DUAL LOOP

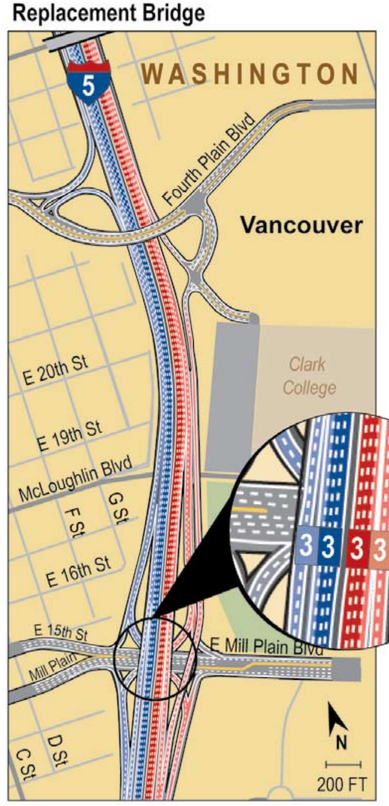


TUNNEL
Carries southbound I-5 traffic to eastbound SR 14

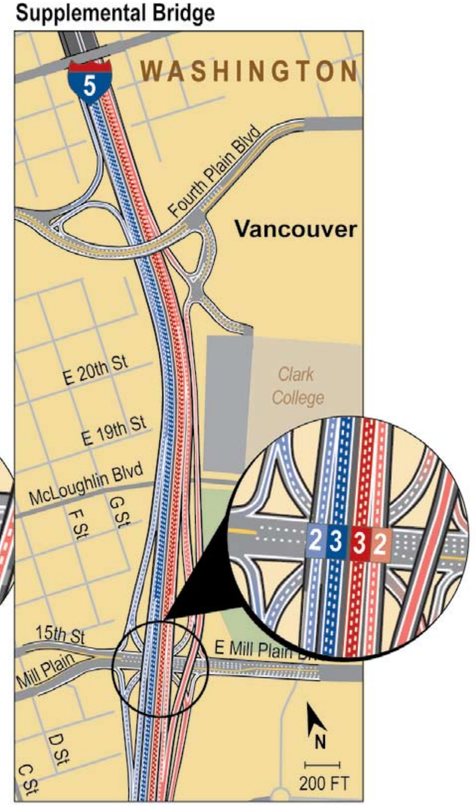
- Northbound through lanes
- Northbound auxiliary lanes
- Southbound through lanes
- Southbound auxiliary lanes

Mill Plain Boulevard to Fourth Plain Boulevard

Replacement Bridge



Supplemental Bridge



Highway and Interchange Improvements–Oregon

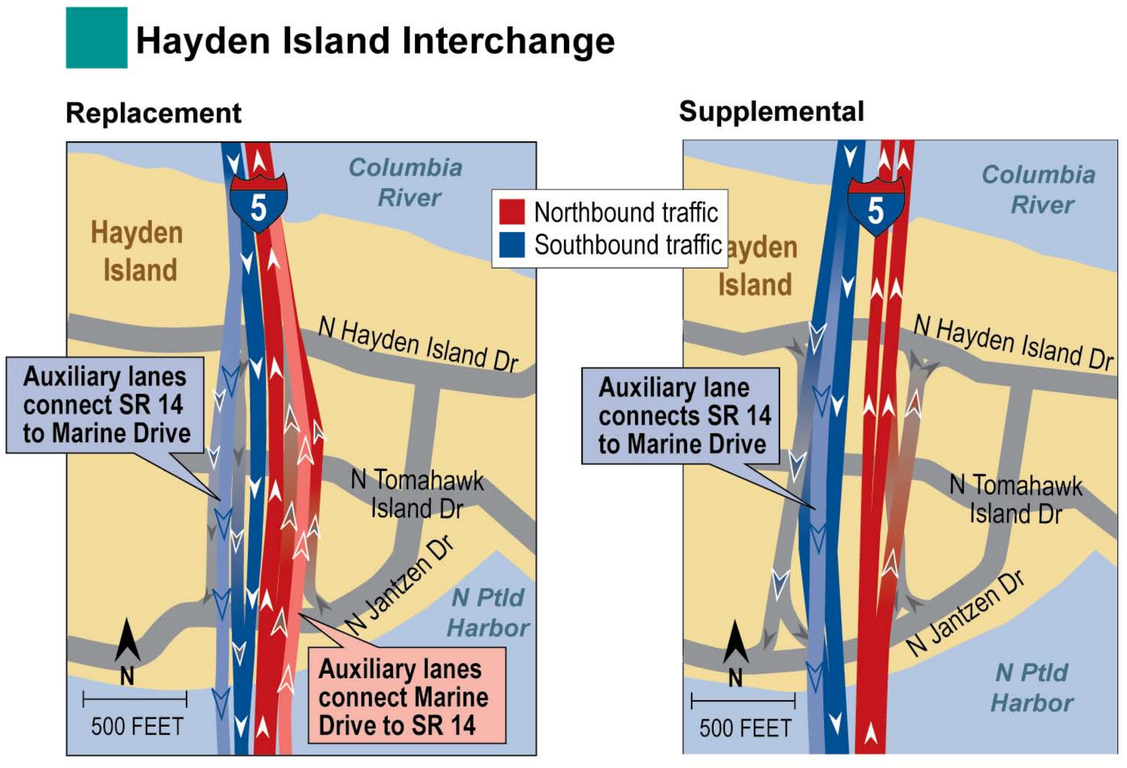
Replacement Bridge:

- Improves design and safety at each interchange

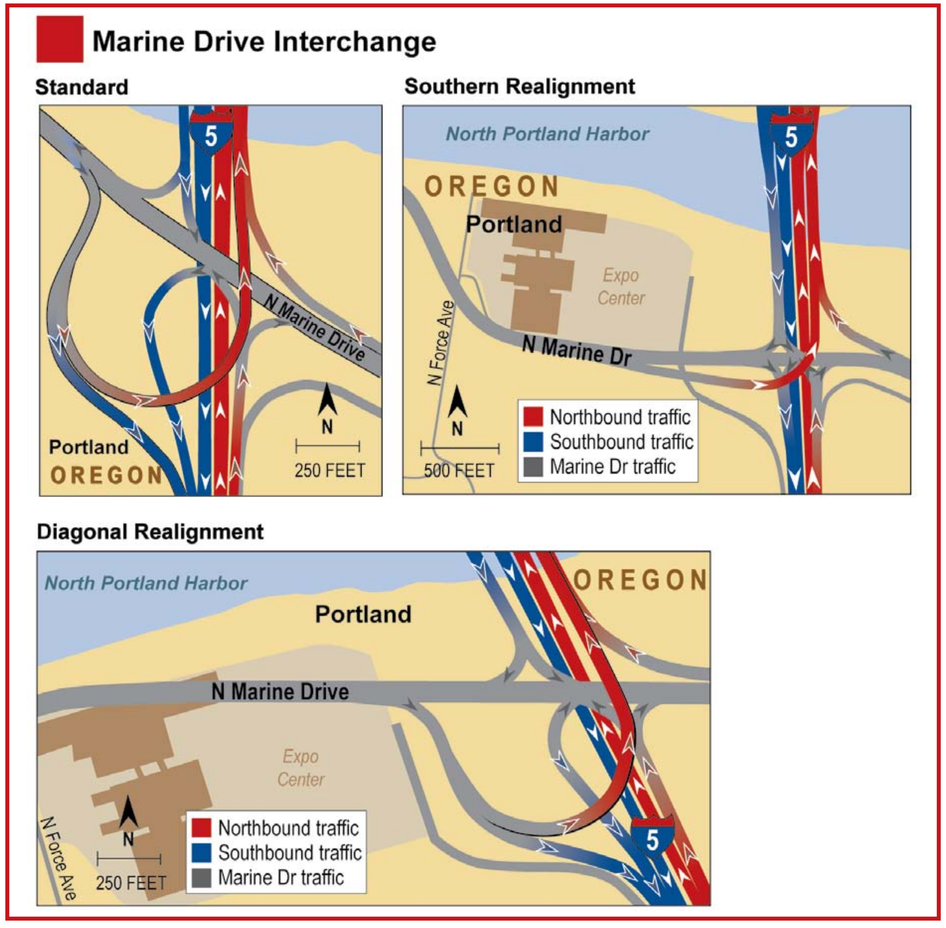
Supplemental bridge:

- Improves southbound design and safety issues but does not address all northbound problems

Hayden Island Interchange



Marine Drive Interchange



Bus Rapid Transit or Light Rail

	No Build Alternative 1	Bus Rapid Transit (Alternatives 2 and 4)	Light Rail (Alternatives 3 and 5)
People per vehicle	n/a	91	266 (per two car train)
Annual operating costs	$70 million	$75 million	$73 million
Capital costs	n/a	$600-750 million	$780-940 million
Frequency of service in dedicated transit lanes	n/a	Every 1.5–2.5 minutes (includes local buses)	Every 6–7.5 minutes
Daily transit ridership	8,800	16,800- 19,800	20,800–23,100
Transit ridership over the I-5 Bridge during evening peak period (3–7 p.m.)	2,050	6,100	7,250
Percentage of people on transit during evening peak hours	13%	15–18%	17–20%
Travel time from northern station to downtown Portland	n/a	43–48 minutes (includes transfer time at Expo Center)	40 minutes
Transit vehicle average speed in project area	n/a	14.5 mph	17.3 mph

Bus Rapid Transit

Light Rail

Transit Terminus and Alignment Options

Kiggins Bowl Terminus

Lincoln Terminus

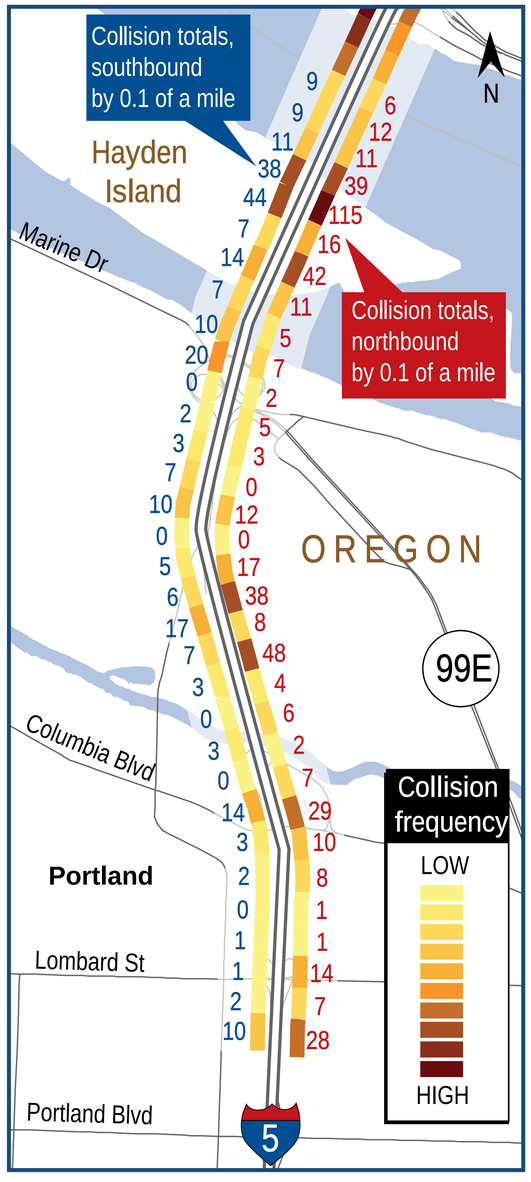
Clark College MOS

Mill Plain MOS

Transportation Findings

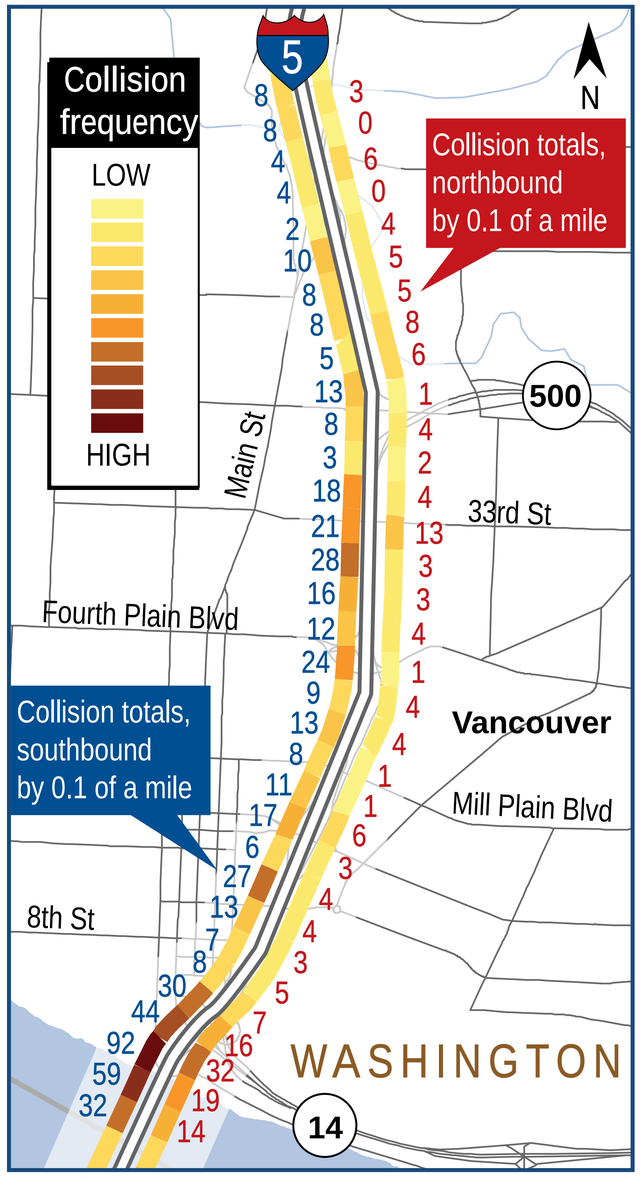
Collision Rates

Oregon Collisions, 2002–2006



Not to Scale

Washington Collisions, 2002–2006



Not to Scale

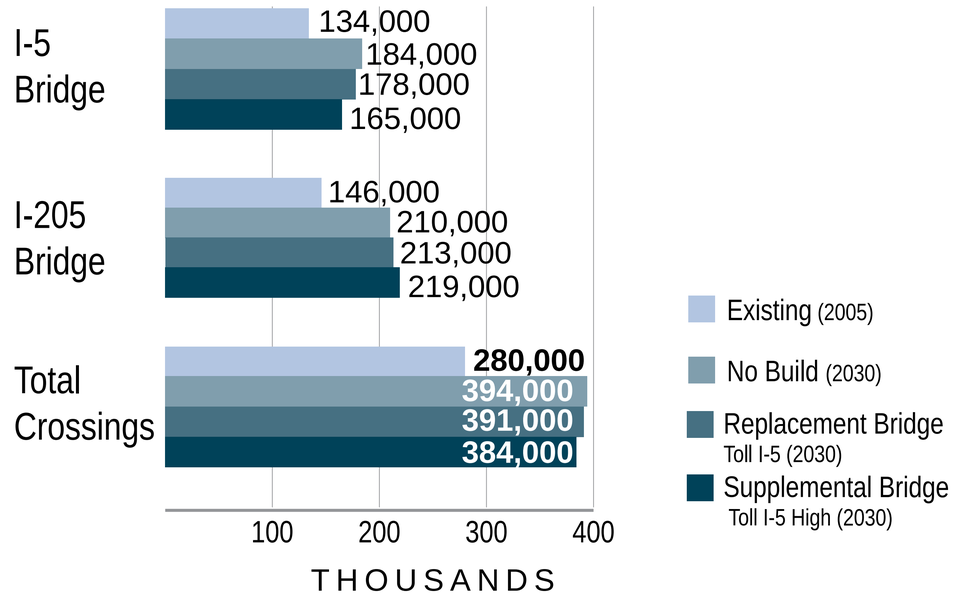
On average, there is a crash every day in the project area.

Collisions are up to 4 times more likely during bridge lifts and congestion.

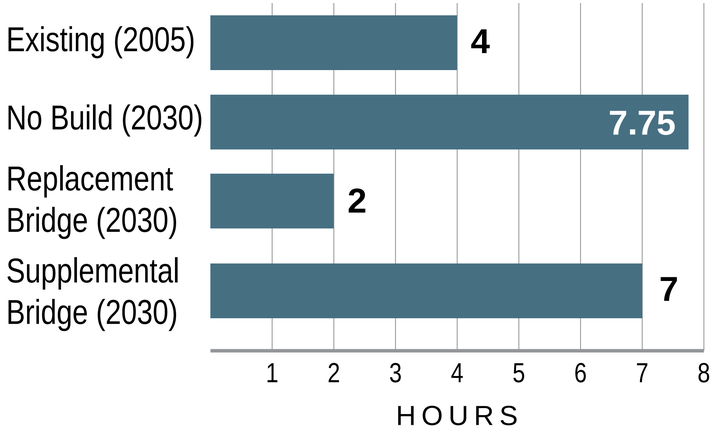
Collisions are expected to increase 80% by 2030 with no project.

Daily Congestion

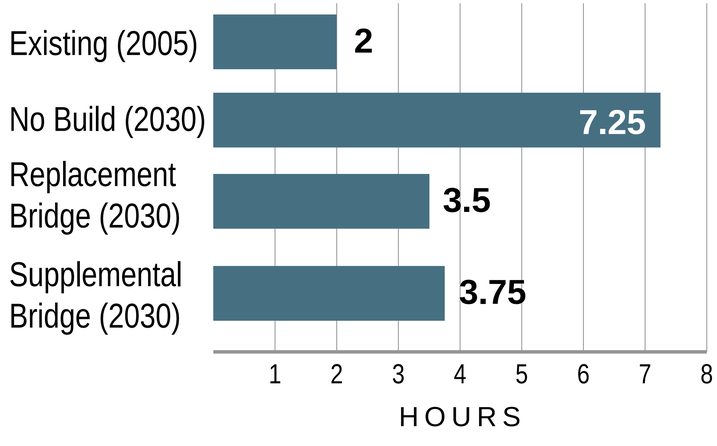
Total Vehicle Trips Across the Columbia River



Daily Northbound Congestion
Hours of Congestion at the I-5 Bridge

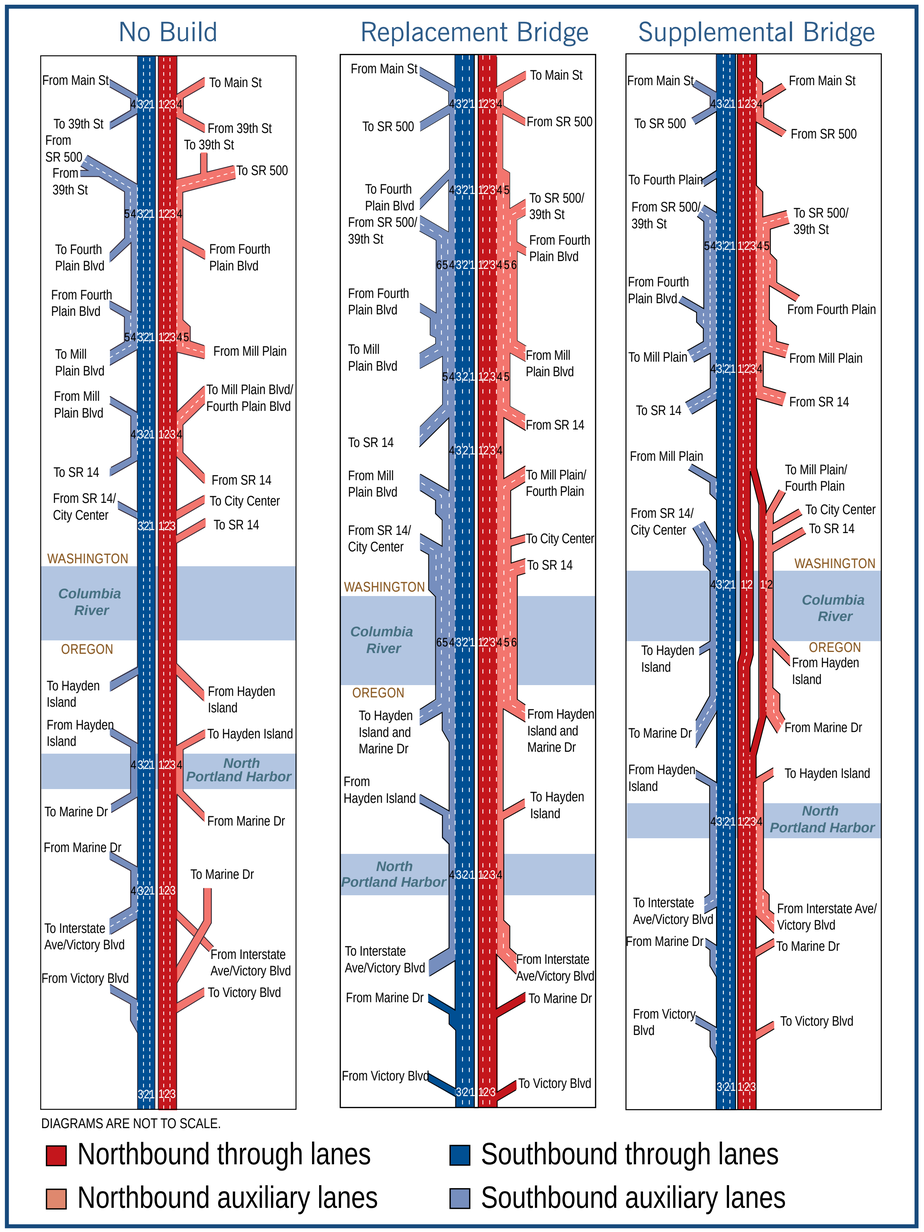


Daily Southbound Congestion
Hours of Congestion at the I-5 Bridge



Safety Improvements

Auxiliary Lanes Analyzed



DIAGRAMS ARE NOT TO SCALE.

- Northbound through lanes
- Southbound through lanes
- Northbound auxiliary lanes
- Southbound auxiliary lanes

Safety is improved by auxiliary lanes at closely spaced interchanges.

Auxiliary Lanes

"General Purpose" or "Through Lanes"

Auxiliary lane: A dedicated lane between highway interchanges—from one on-ramp to the next off-ramp that provides motorists with more time and extra room to accelerate or decelerate and merge when entering or exiting a highway.

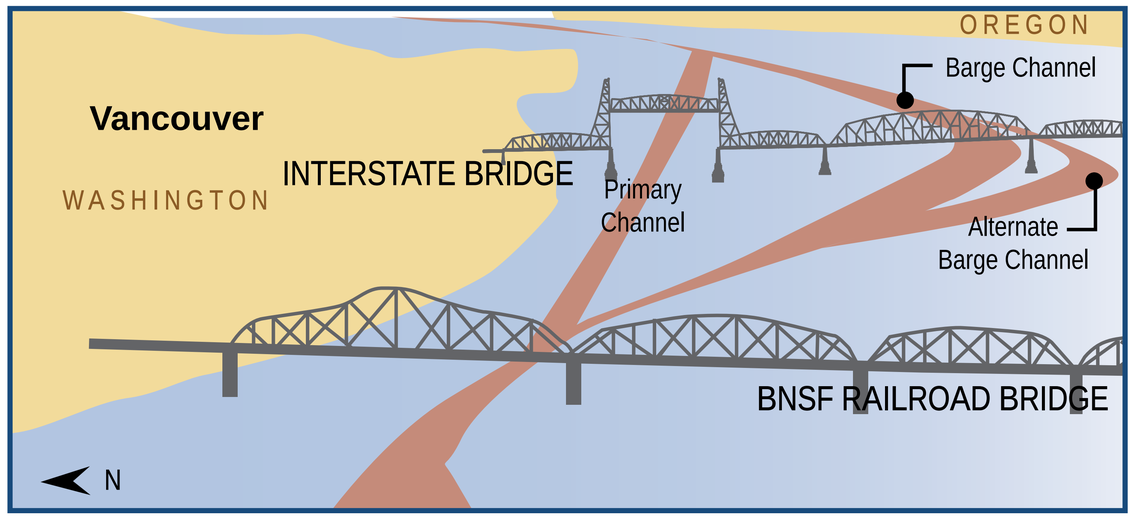
Transit Terminus Options*

	Kiggins Bowl	Lincoln	Clark College MOS	Mill Plain MOS
People in transit vehicles over the I-5 Bridge each weekday	21,100	20,800	18,200	19,100
Percentage of people on transit during evening peak hours over the I-5 Bridge	19%	19%	17%	20%
Length of alignment	4.22 miles	3.43 miles	2.65 miles	2.07 miles
Capital cost (in millions)**	$1,045–$1,108	$850–$881	$654–$689	$596–$628
Residential displacements	9-16	9-16	1–8	1–8
Commercial displacements	27–36	42–52	25–34	28–30
Number of potential adverse effects to historic resources	1–3	3	0–2	0

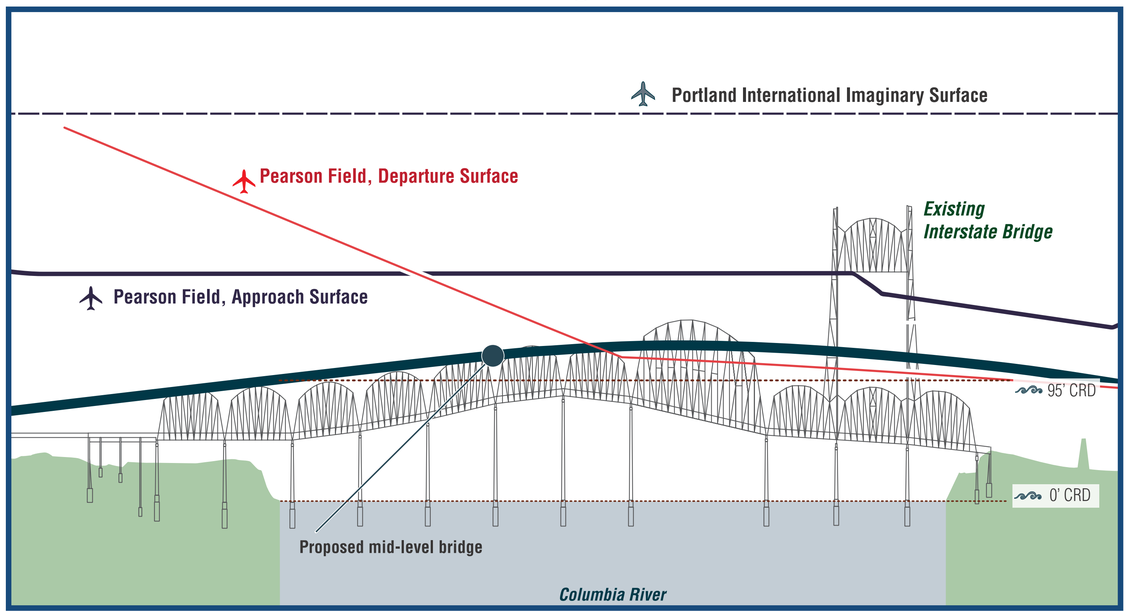
*All numbers are based on Alternative 3: Replacement bridge with light rail.
**Capital costs are in year of expenditure dollars, the years the money would actually be spent.

Air and River Navigation

River Navigation Constraints



Air and River Navigation Clearances



Project Effects:

- Replacement bridge– No need for lifts and sharp turns

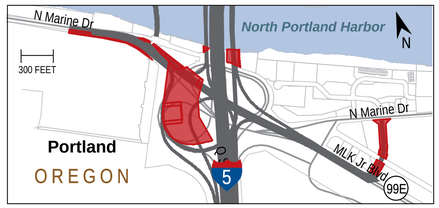
- Supplemental bridge – Bridge lifts, navigation challenges and airspace impacts remain

Environmental and Community Findings

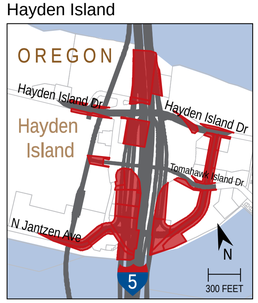
Potential Highway Related Property Impacts

Replacement Bridge and Highway Acquisitions

Marine Drive



Hayden Island



River to Mill Plain Blvd

Replacement River Crossing
Property Acquisition

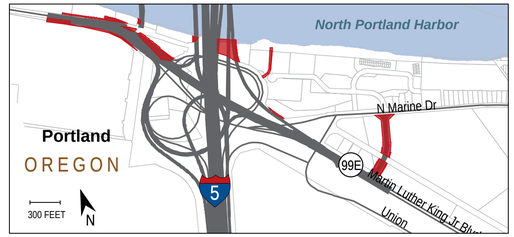
Mill Plain to Fourth Plain

North of Fourth Plain Blvd

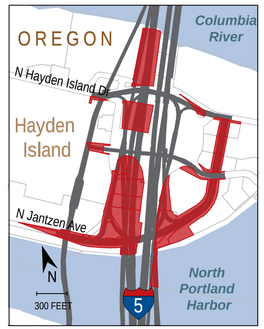
DIMENSIONS ARE APPROXIMATE.

Supplemental Bridge and Highway Acquisitions

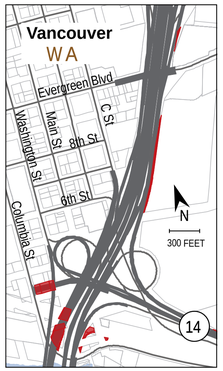
Marine Drive



Hayden Island



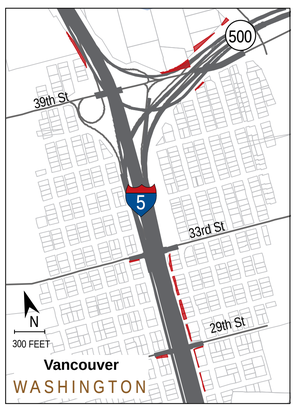
River to Mill Plain Blvd



Supplemental River Crossing
Property Acquisition

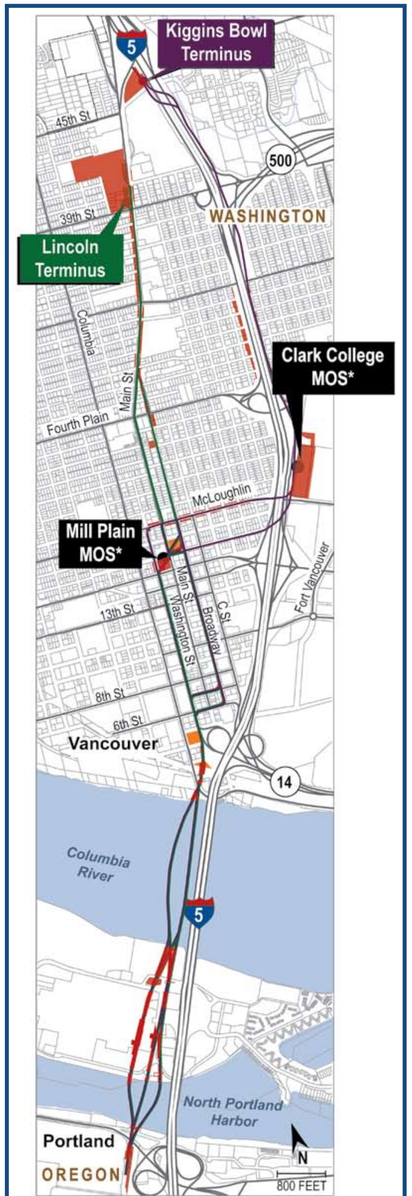
Mill Plain Blvd to Fourth Plain Blvd

North of Fourth Plain Blvd

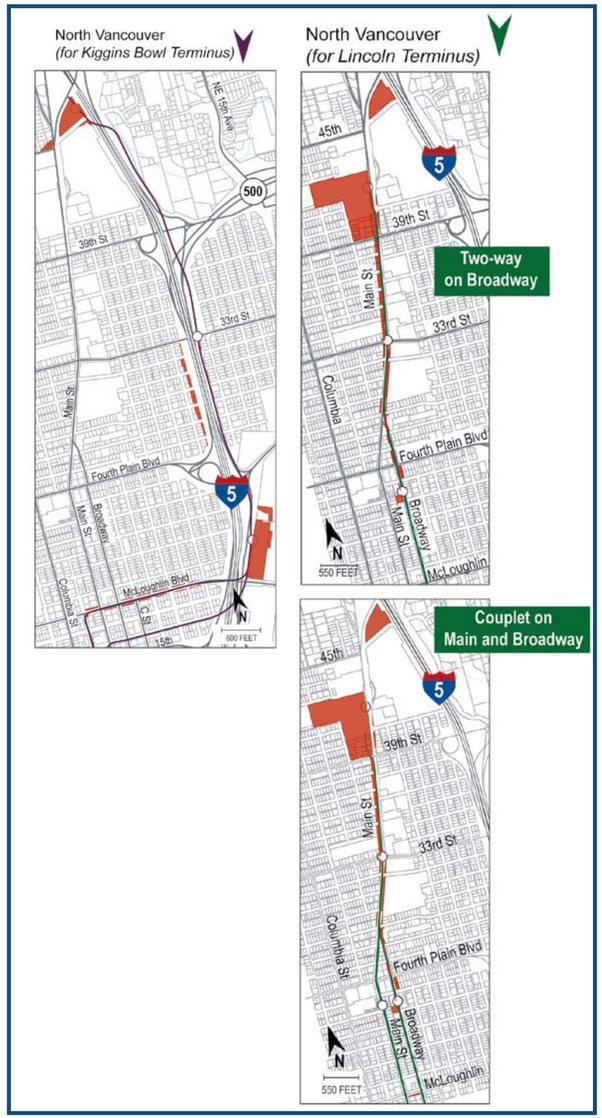


DIMENSIONS ARE APPROXIMATE.

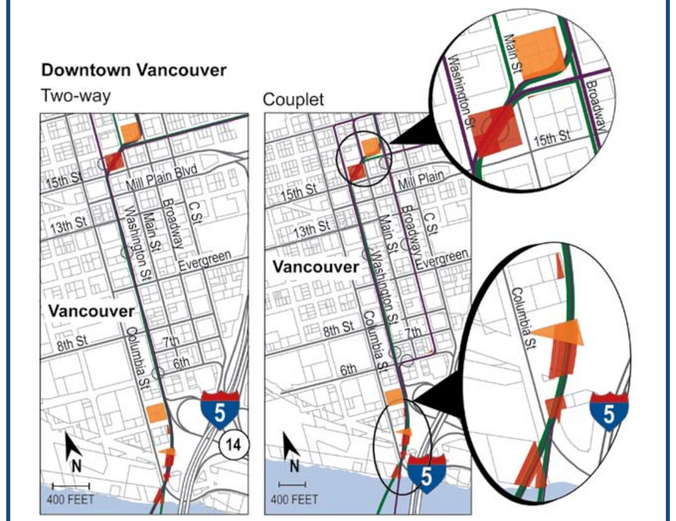
Potential Transit Related Property Impacts



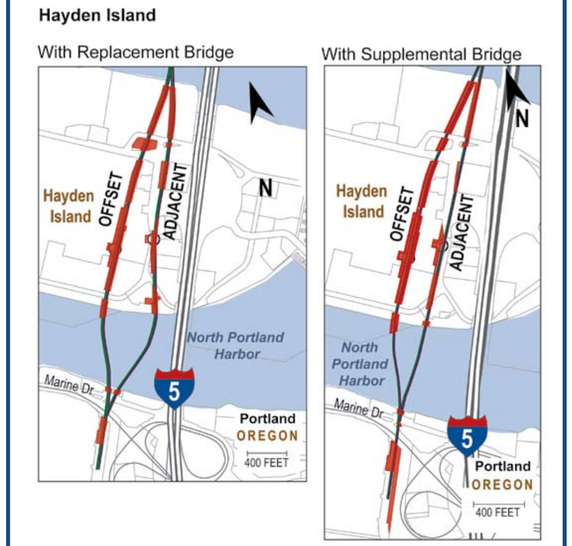
North Vancouver Transit Acquisitions



Downtown Vancouver Transit Acquisitions



Hayden Island Transit Acquisitions



Kiggins Bowl Terminus
Lincoln Terminus
Transit Station
Property Acquisitions
Property Acquisition for Mill Plain MOS only

Land Use Planning Goals

Existing land use in Vancouver (facing south)

Existing land use on Hayden Island (facing south)

Project Effects:

- Supports local, regional and state-wide goals:
  - » Efficient transportation
  - » More transportation options
  - » Compact development
- Consistent with downtown Vancouver and Hayden Island plans
- Pedestrian-friendly, mixed-use development at transit stations

Regional Economy

I-5 is the primary north-south freight corridor on the west coast and is a key local freight route.

There is a projected 80% increase in freight.

Project Effects:

- Shorter, more reliable travel times for freight and commuters.
- Replacement bridge would reduce the duration of congestion more than the supplemental bridge.

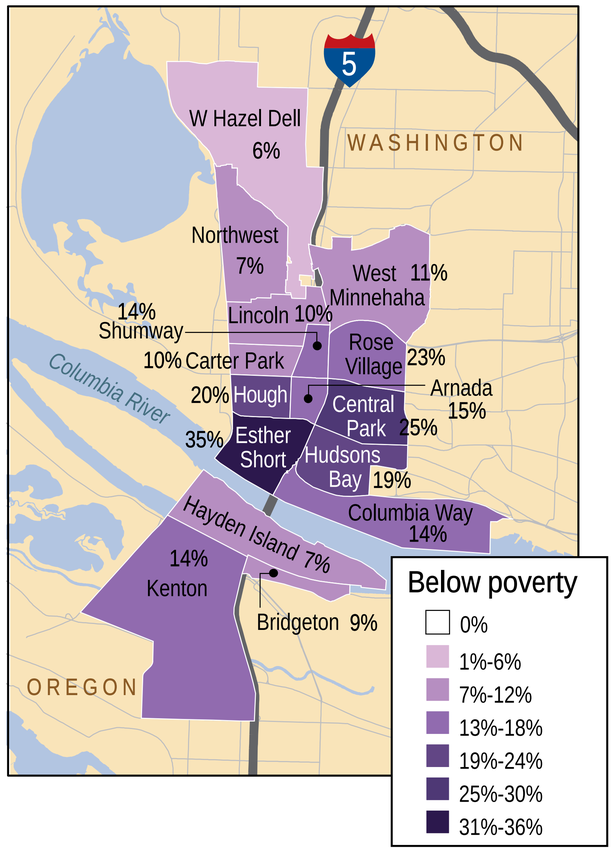
Temporary Construction Effects

Project Effects:

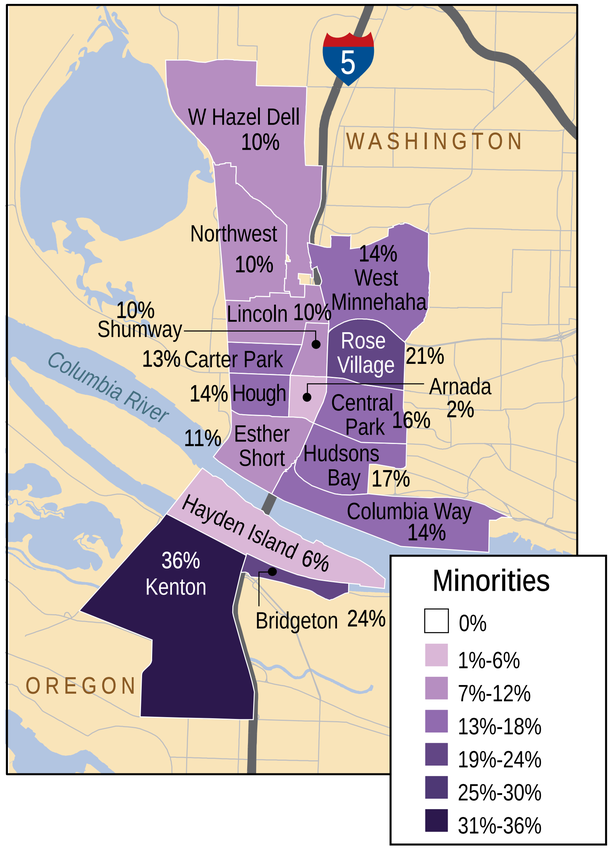
- Construction would last five to seven years.
- I-5 would remain open throughout construction.
- Temporary disruption to businesses and local streets.
- Noise and vibration from large demolition and construction equipment.

Environmental Justice

Below poverty level



Minority population



Executive Order on Environmental Justice (12898):

- Ensure full participation by all potentially affected communities in the decision-making process.
- Avoid, minimize or mitigate disproportionately high and adverse effects to low income and minority populations.

Project Effects:

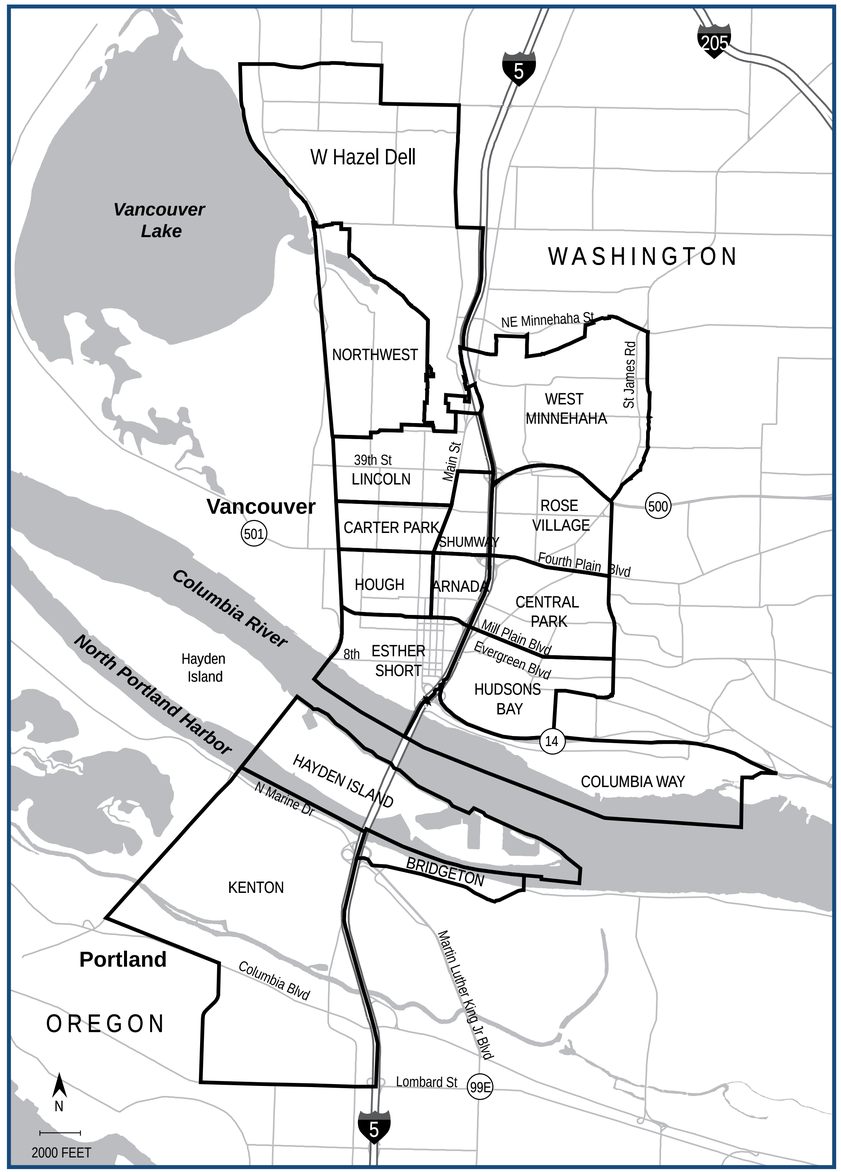
- Lincoln transit terminus would displace clinic serving low income clients.
- More reliable and improved access to jobs, education, housing and services.
- Tolls would constitute higher proportion of income for low income drivers.
- Reduced noise impacts; some noise impacts would remain at second story residences.
- Improved air quality under any alternative.

Neighborhoods and Communities

Project Effects:

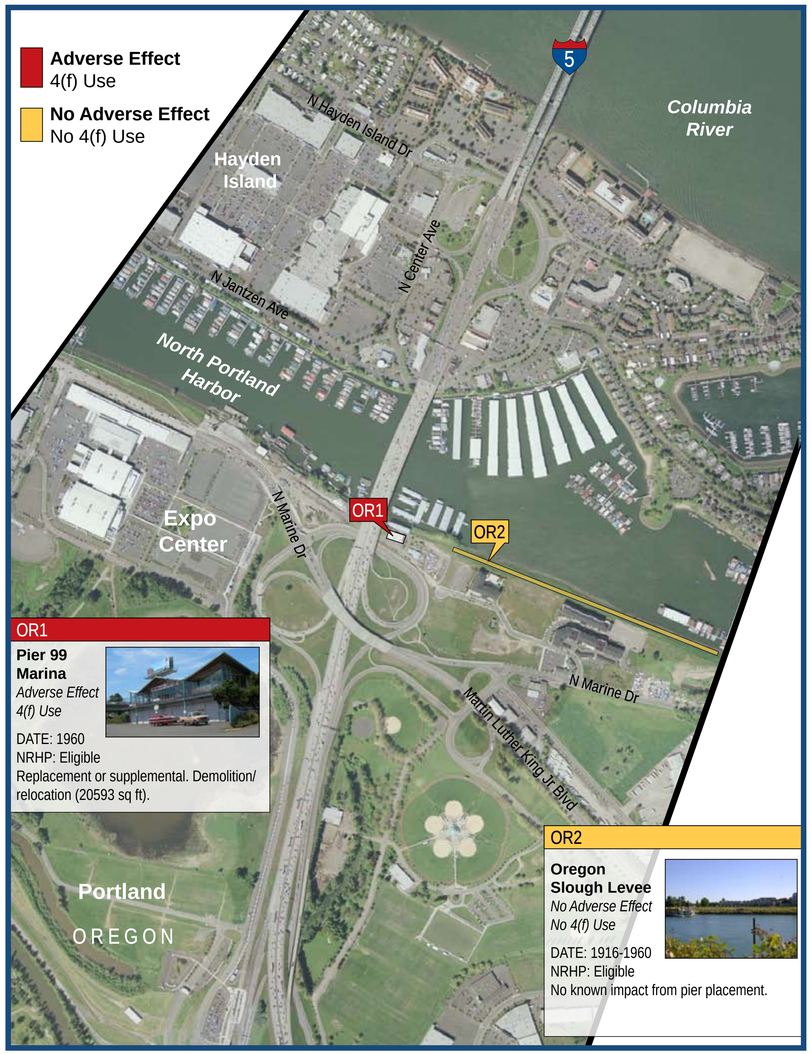
- Community connections improved
- Reduced neighborhood cut-through traffic
- Vancouver –
  - » Lincoln park and ride would increase traffic nearby
- Hayden Island –
  - » Offset transit alignment would impact floating home community more than adjacent alignment
  - » Displacement of some floating homes
  - » Potential displacement of Safeway

Neighborhoods in the CRC Project Area



Dimensions are approximate

Historic Properties



OR1

Pier 99 Marina
Adverse Effect
4(f) Use

DATE: 1960
NRHP: Eligible
Replacement or supplemental. Demolition/ relocation (20593 sq ft).

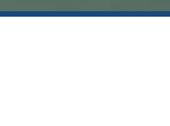
OR2

Oregon Slough Levee
No Adverse Effect
No 4(f) Use

DATE: 1916-1960
NRHP: Eligible
No known impact from pier placement.

150

Providence Academy
Adverse Effect
4(f) Use



DATE: 1873
NRHP: Listed
Replacement only. Partial acquisition without displacement (11923 sq ft)

41

Kiggins House
Adverse Effect
4(f) Use

DATE: 1907
NRHP: Listed
Replacement only. Demolition/relocation if not moved by other project prior to CRC (2424 sq ft).

109

Heritage Apple Tree
Adverse Effect/4(f) Use

DATE: 1827
NRHP: Listed
Replacement. Change in shading from new structures (7849 sq ft).

381

I-5 Bridge
Adverse Effect/4(f) Use

DATE: 1917/1958
NRHP: Listed
Replacement or supplemental. Demolition or major seismic retrofits and compromised setting.

918

Officers Row
Adverse Effect / 4(f) Use
DATE: 1849-1907 NRHP: Listed
Replacement or supplemental.
Partial acquisition of parking lot adjoining 650 E Evergreen (2168 to 7644 sq ft).

368

Barracks Hospital Building 614
Adverse Effect
4(f) Use

DATE: 1903
NRHP: Listed
Replacement or supplemental. Adjacent acquisition without displacement; potential vibration impacts, setting compromised (1350 to 4269 sq ft).

149

Normandy Apartments
No Adverse Effect
No 4(f) Use

DATE: c. 1930
NRHP: Eligible

369

Pearson Airfield
Adverse Effect
4(f) Use

DATE: 1904-45
NRHP: Listed
Replacement or supplemental.
Protected airspace intrusion.

993

Kiggins Bowl Park, Sports Venue
No Adverse Effect / No 4(f) Use
DATE: Dedicated 1933 NRHP: Eligible
Terminus options A, B, C, and D. Partial acquisition (6099 sq ft); additional 15246 sq ft for I-5 with BRT.

148

300 E 37th St Office
Adverse Effect
4(f) Use

DATE: c. 1950
NRHP: Eligible
Terminus option B. Demolition/relocation (18500 sq ft)

54

First United Methodist
No Adverse Effect
No 4(f) Use

DATE: 1948
NRHP: Eligible
Transit terminus option B. Partial acquisition without displacement (3325 sq ft).

55

3200 Main, Office
No Adverse Effect
No 4(f) Use

DATE: 1956
NRHP: Eligible
Transit terminus option B. Partial acquisition without displacement (660 sq ft).

56

3212 Main Office
Adverse Effect
4(f) Use

DATE: c. 1960
NRHP: Eligible
Transit terminus option B. Partial acquisition without displacement (1892 sq ft).

62

903 E 31st St Residence
Adverse Effect
4(f) Use

DATE: c. 1910
NRHP: Eligible
Transit terminus option A. Demolition/ relocation (5461 sq ft).

61

3000 K St Residence
Adverse Effect
4(f) Use

DATE: c. 1915
NRHP: Eligible
Replacement: No Adverse de minimis.
Partial without displacement (505 sq ft).
Supplemental: Adverse. Demolition/ relocation of garage (1481 sq ft).

59

3110 K St Residence
Adverse Effect
4(f) Use

DATE: c. 1910
NRHP: Eligible
Supplemental. Partial acquisition without displacement; setting compromised (847 sq ft).

108

2901 Main Street Residence/Office
Adverse Effect
4(f) Use

DATE: c. 1915
NRHP: Eligible
Terminus option B. Demolition/relocation (454 sq ft).

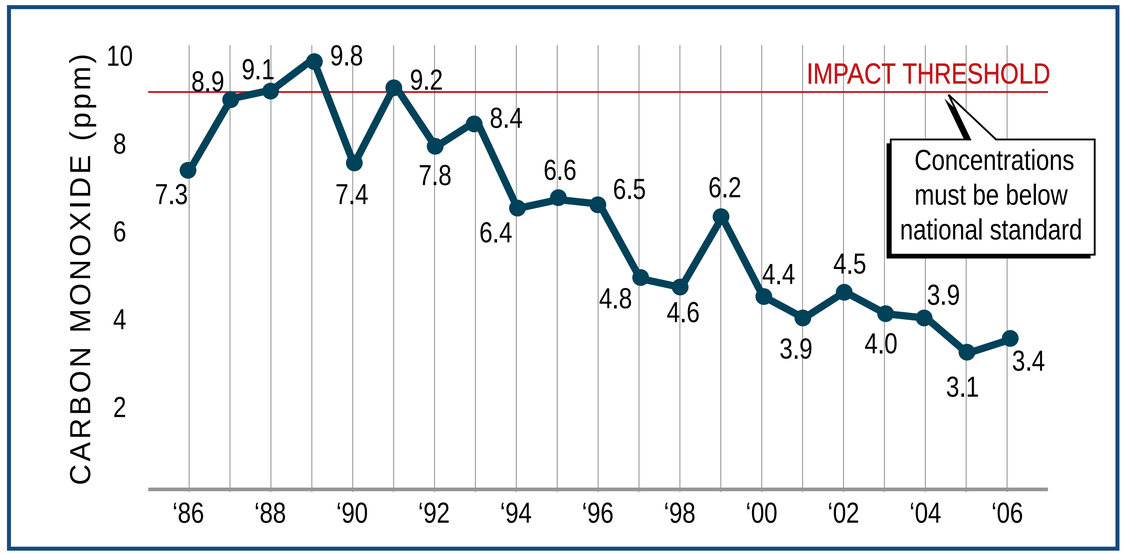
Air Quality

Regional emissions for all alternatives are expected to decline.

- Carbon monoxide – 30% reduction
- Nitrogen oxides – 70% reduction
- Volatile organic compounds – 50% reduction
- Particulate matter – 90% reduction

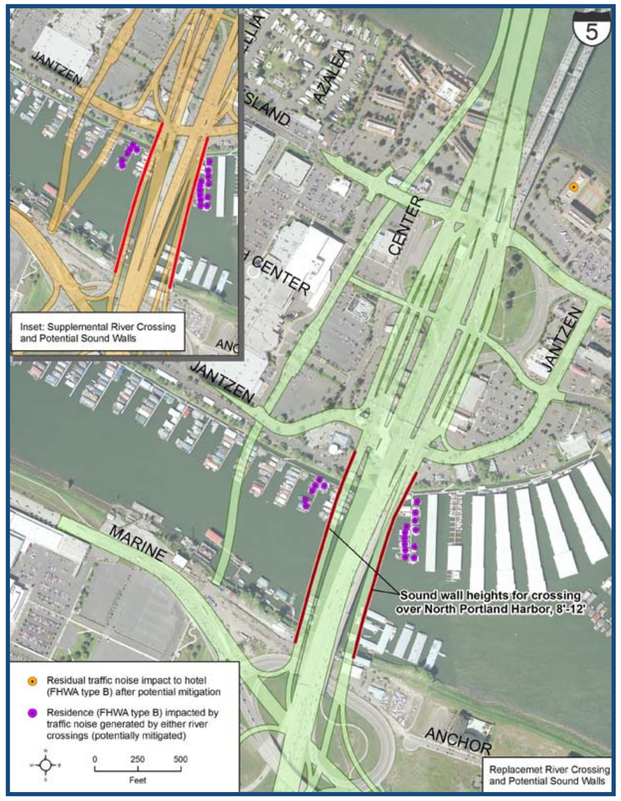
No federal air quality violations are expected.

Carbon Monoxide Trends since 1986

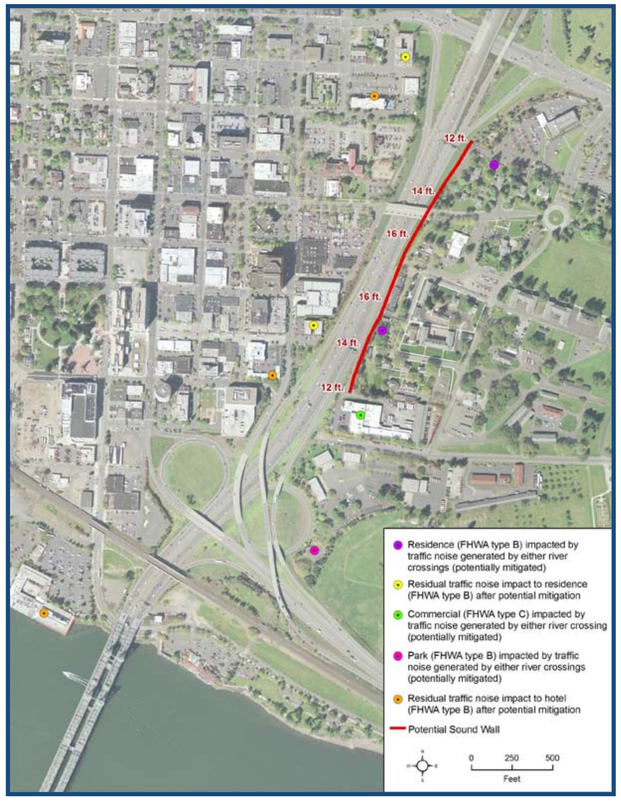


Highway Noise and Vibration

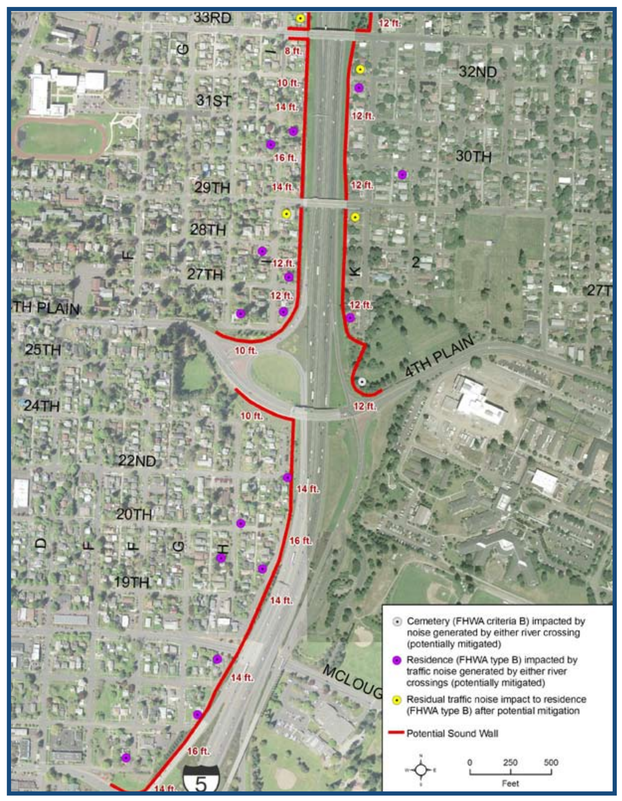
Impacts and Potential Mitigation in North Portland and Hayden Island

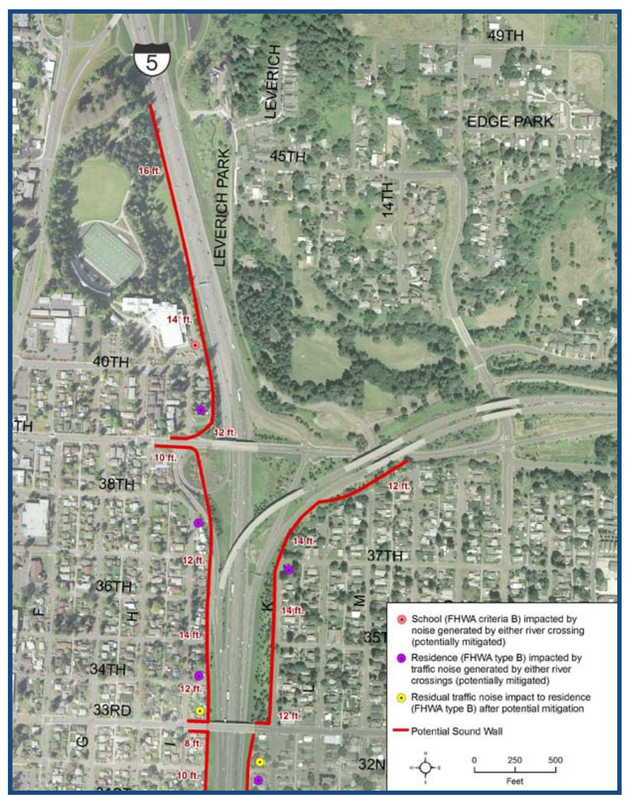


Impacts and Potential Mitigation in Downtown Vancouver and near Fort Vancouver



Impacts and Potential Mitigation in Northern Vancouver

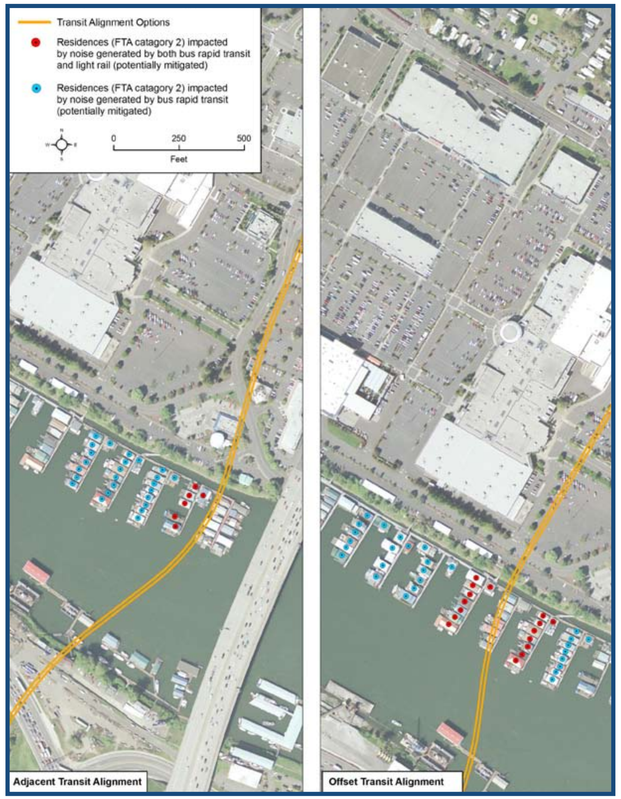




Alternative	No-Build	Replacement Bridge	Supplemental Bridge
Highway noise impacts before mitigation	264	334	329
Highway noise impacts after mitigation	264	Approximately 80	Approximately 80

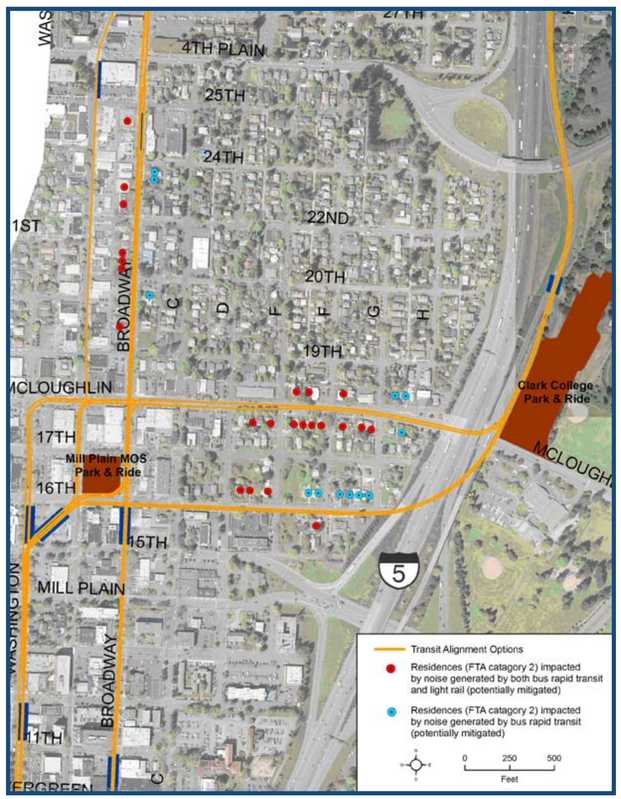
Transit Noise and Vibration

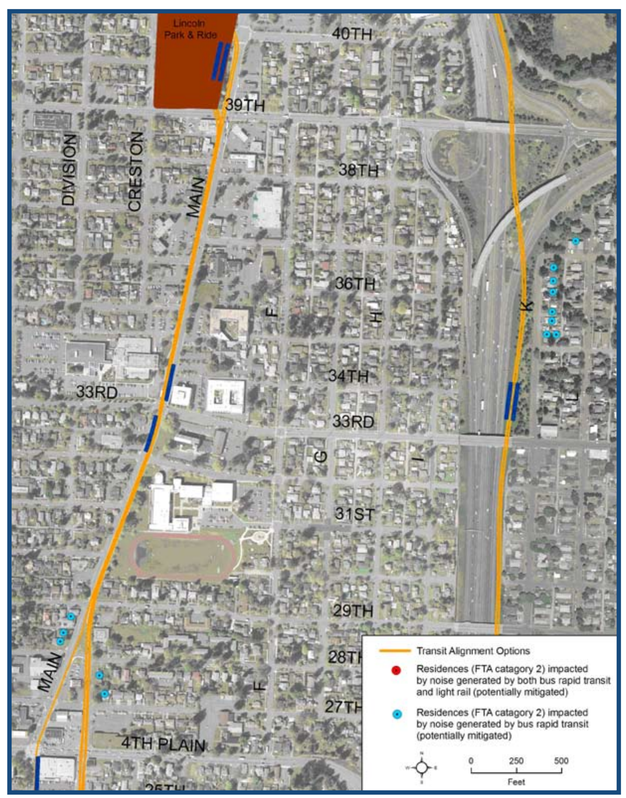
Impacts and Potential Mitigation in North Portland and Hayden Island



Impacts and Potential Mitigation in Downtown Vancouver

Impacts and Potential Mitigation in Northern Vancouver



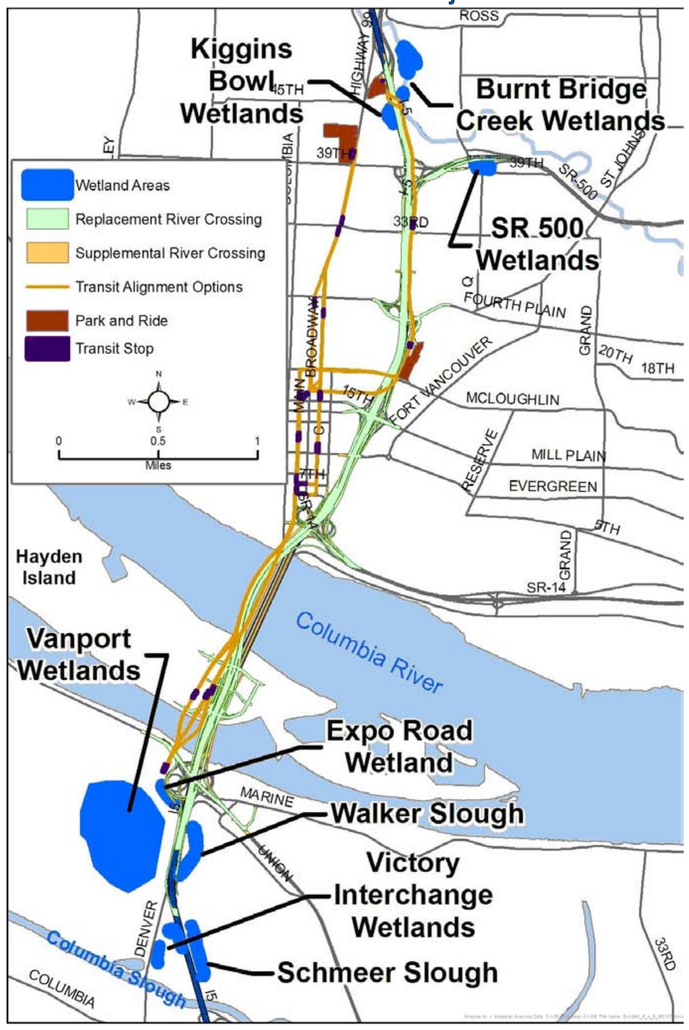


Transit Mode	No Build	Bus Rapid Transit	Light Rail
Transit noise impacts before mitigation	0	35-82	7-45
Transit noise impacts after potential mitigation	All noise impacts could be mitigated.		

Transit Terminus	Kiggins Bowl	Lincoln	Clark College	Mill Plain
Transit noise impacts before mitigation	17-37	7-45	7-37	7-21
Transit noise impacts after potential mitigation	All noise impacts could be mitigated.			

Fish Habitat, Water Quality and Wetlands

Identified Wetlands in Project Area



Alternative	No Build	Replacement Bridge with Bus Rapid Transit	Replacement Bridge with Light Rail	Supplemental Bridge with Bus Rapid Transit	Supplemental Bridge with Light Rail
Impacts on fish	No impacts from in-water construction, existing piers would remain, and water quality issues would remain.	Impacts from in-water construction, fewer piers would be in water, greatest improvement in water quality.		Impacts from in-water construction, more piers would be in water, some improvement in water quality.	
Direct wetland impacts	No impacts	0.11 acres	0.06 acres	0.16 acres	0.11 acres
Approximate untreated impervious surface area (acres)	162	42	42	43	43
Highway related	162	23	23	35	35
Transit related	n/a	16–19	16–19	16–19	16–19
Approximate Total impervious surface area (acres)	206	249	248	234	233

Earthquake Safety and Bridge Stability

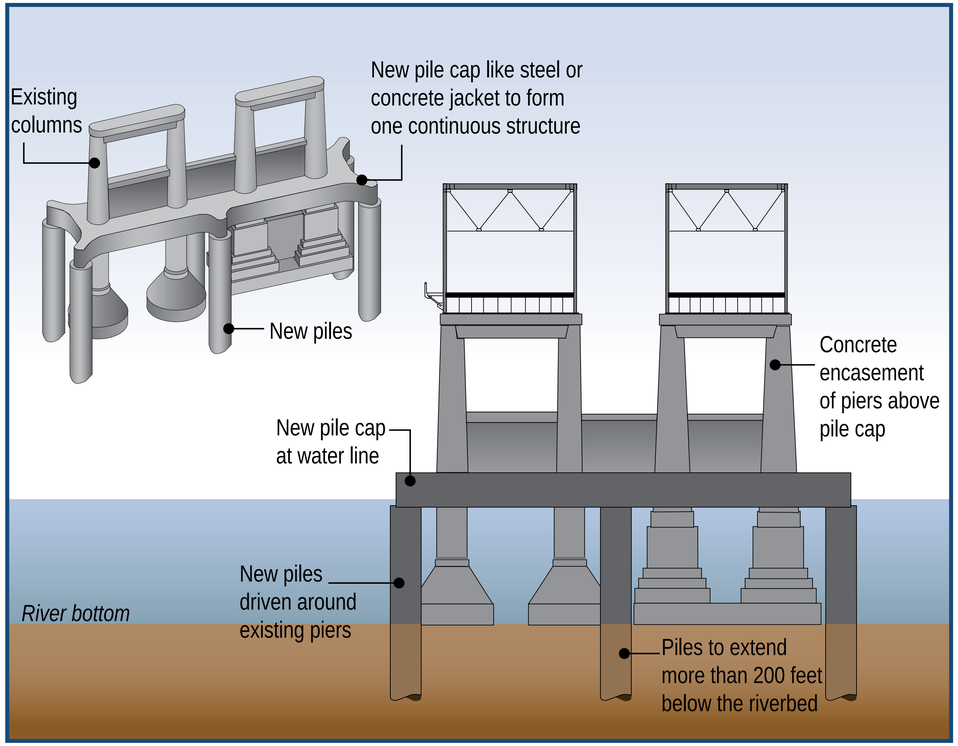
Existing Conditions:

- Bridge piers supported by wooden pilings in compacted sand.
- Sand could liquefy during a strong earthquake.
- Lift span counterweights potentially unstable during an earthquake.

Potential Effects:

- New structures would be built to current earthquake standards.
- Existing I-5 bridges could not be retrofitted to same standards as new structures.
- No build would retain existing conditions.

Seismic Retrofit Concept for Existing Bridges



Liquefaction

Liquefaction is a phenomenon associated with earthquakes in sandy, water-saturated soils. As seismic waves pass through the soil, the space between soil particles collapses, causing the soil to give way and act like a fluid instead of a solid.

Climate Change

CRC would implement these strategies to reduce climate change in the project area*:

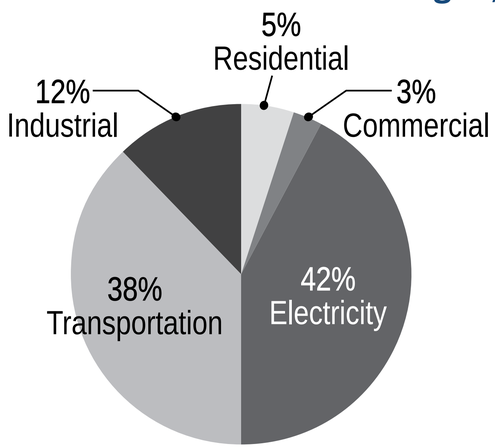
- ☑ Replace Aging Infrastructure in Existing Corridors
- ☑ Increase Efficiency of Transportation Systems
- ☑ Improve Pedestrian and Bicycle Access
- ☑ Provide Transit Options
- ☑ Support Transit-Oriented Development

*Guidance on climate change is from the Oregon Governor's Climate Change Integration Group, the Climate Action Team for the State of Washington and the United Nations' Intergovernmental Panel on Climate Change.

Greenhouse Gas Emissions

By 2030, population and job growth will increase emissions by 35%.

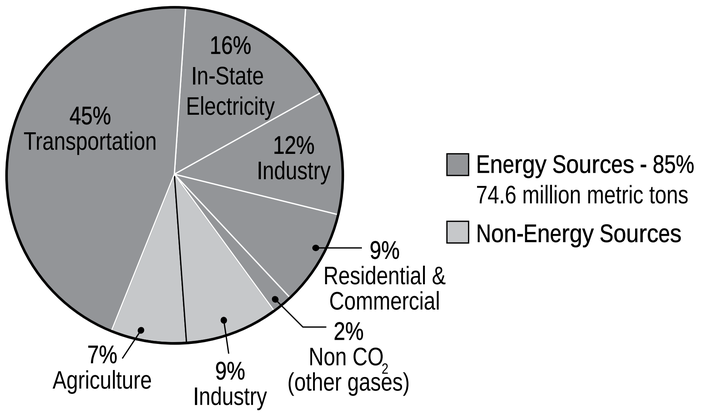
Greenhouse Gas Emissions in Oregon, 2008



Source: Oregon Department of Energy, January 2008

Greenhouse Gas Emissions in Washington, 2004

TOTAL= 88.3 million metric tons of CO_2 equivalent



Source: Washington Department of Community,
Trade and Economic Development (Preliminary Estimate)

Emissions influenced by:

- Vehicle fuel efficiency
- Carbon content of fuel
- Miles driven

Project Effects:

- Tolling, transit and improved pedestrian/bicycle path would decrease daily auto trips
- Emissions would decrease with reduced daily congestion:
  - » No build–15 hours
  - » Supplemental bridge–11 hours
  - » Replacement bridge–5 hours

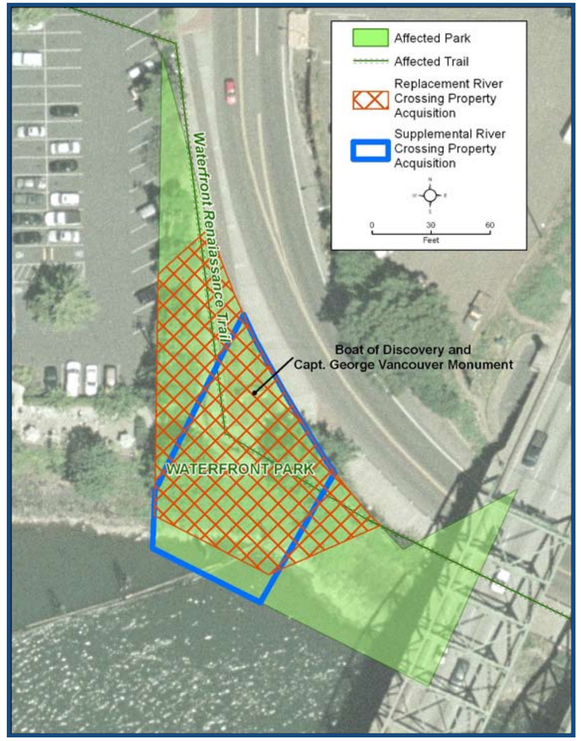
De minimis Impacts to Parks

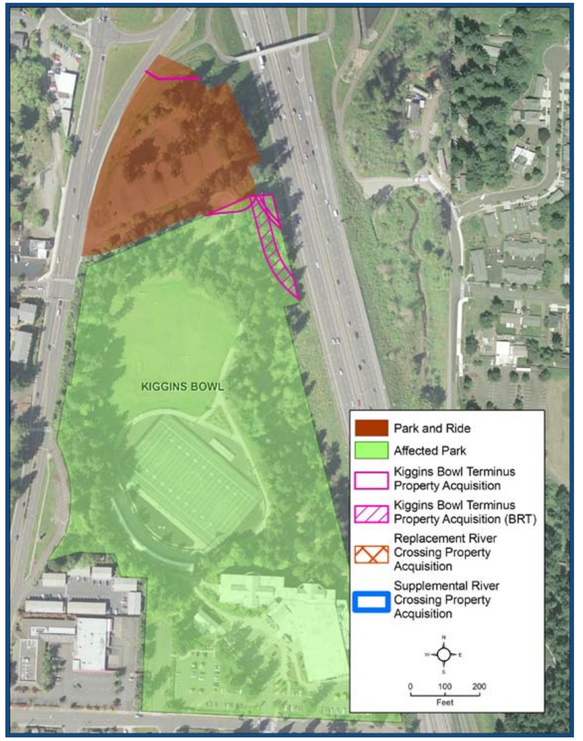
The Federal Highway Administration and Federal Transit Administration have proposed four *de minimis* sites for this project:

- Waterfront Park
- Waterfront Trail
- Leverich Park
- Kiggins Bowl and trail

The project seeks public input and review of these proposed *de minimis* impact findings, as well as other findings in the Section 4(f) evaluation.

Section 4(f) of the Department of Transportation Act (as described in federal regulations Title 23 CFR 774) states that use of public parks and other public lands can only occur if there is no other prudent alternative or the impacts are *de minimis*. *De minimis* impacts are those that do "not adversely affect the features, attributes or activities" of a site.





Cost and Funding

Preliminary Project Cost Estimates

Preliminary Cost Estimate

$3.1 – 4.2 billion* (year of expenditure dollars)**

Cost Breakdown by Component

Highway Costs

Replacement bridge $2.67 to $3.09 billion
(includes highway improvements from SR 500 to Victory Blvd)

Supplemental bridge $2.51 to $2.88 billion
(includes highway improvements from SR 500 to Victory Blvd)

High Capacity Transit Costs

Bus Rapid Transit $0.46 to $0.99 billion
(includes transit bridge across the Columbia River and all possible alignments and termini)

Light Rail $0.53 to $1.17 billion
(includes transit bridge across the Columbia River and all possible alignments and termini)

* $4.2 billion includes work to date and capital costs. The Draft EIS reports $4.1 billion which excludes work to date.

** Year of expenditure assumes construction would take place between 2010 and 2017.

Potential Funding Sources

The project would be funded by multiple sources. Examples include:

- Tolling I-5
- Federal
  - » New Starts transit funds
  - » Corridors of the Future
  - » Discretionary highway funds
- State and local (Washington and Oregon)
  - » Washington Transportation Partnership Account funds (secured for 2009)
  - » Fuel tax
  - » License fees for trucks, buses, for-hire vehicles
  - » License fees for passenger vehicles
  - » Sales and use tax
  - » Motor carrier tax and fees
  - » Department of Motor Vehicles fees

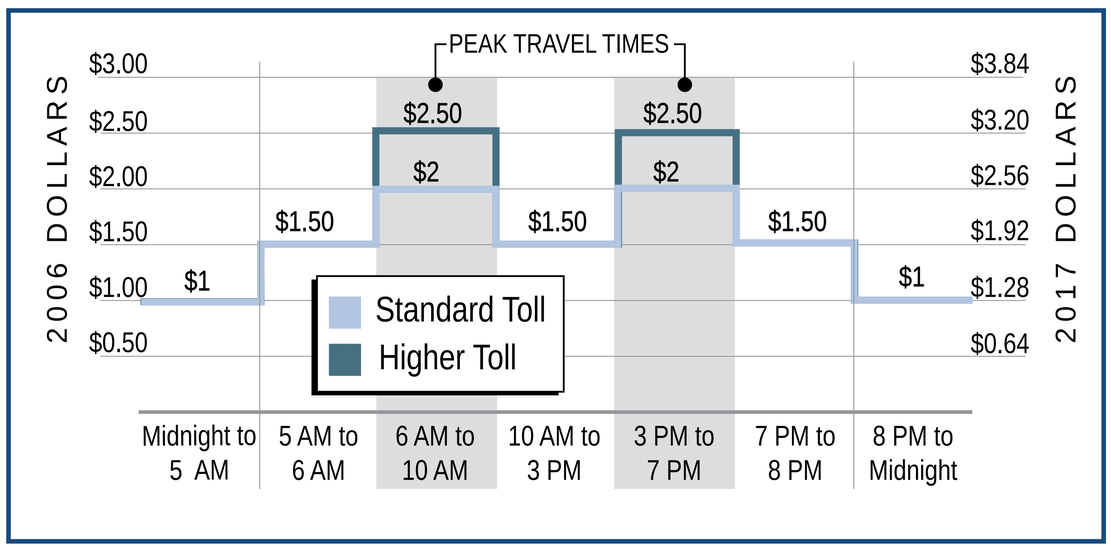
No decisions have been made about how the project will be funded.

Tolling the I-5 Bridge

Average Daily Trips per Tolling Scenario (Replacement bridge)

Tolling Scenario	I-5 Bridge	I-205 Bridge	Total
No Toll	210,000	200,000	410,000
Toll I-5	178,000	213,000	391,000

Tolls Studied for Passenger Cars



How would tolls be collected?
Tolls would be collected using an electronic toll collection system. Toll collection booths would not be required.

Example of Electronic Tolling

No decisions have been made about toll rate or policy.

Public Input

Since 2005, over 13,000 people have provided input on the project at over 500 events.

In addition, five advisory and working groups were formed to address specific project issues:

Community and Environmental Justice Group

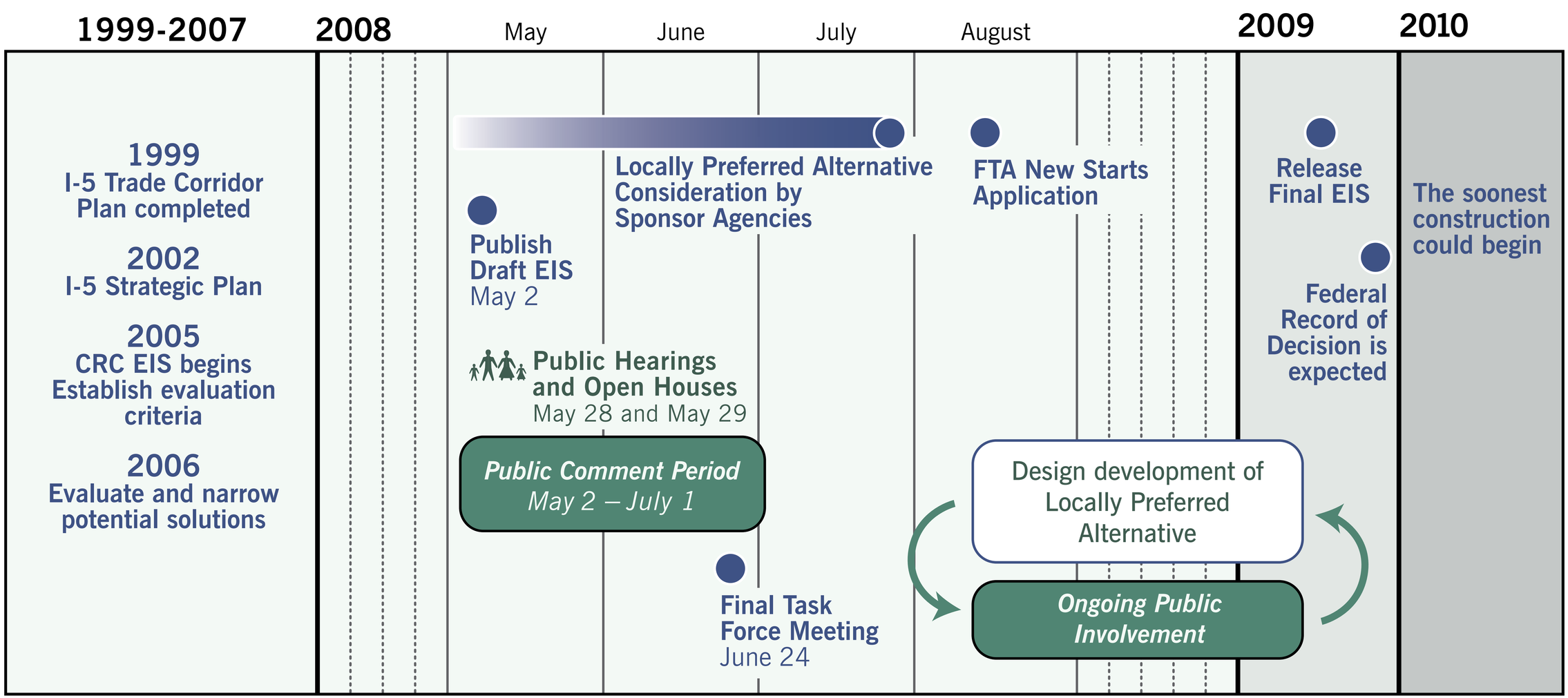
Freight Working Group

Pedestrian and Bicycle Advisory Group

Task Force

Urban Design Advisory Group

Project Schedule



Tribal Consultation

What tribes are involved?

- Cowlitz Indian Tribe
- Confederated Tribes of the Grand Ronde Community of Oregon
- Nez Perce Tribe
- Confederated Tribes of the Siletz
- Spokane Tribe of Indians
- Confederated Tribes of the Umatilla Indian Reservation
- Confederated Tribes of the Warm Springs Reservation of Oregon
- Confederated Tribes and Bands of the Yakama Nation
- Chinook Tribe

How are the tribes involved?

- On-going “government to government” consultation
- History seminar for tribes to talk about the importance of the area to tribal culture
- Tribal comment on permitting and environmental review
- Oral histories with tribal members

What issues are of interest to both the tribes and the project?

- Disturbance of human remains, sacred sites and cultural resources
- Potential impacts to fish and marine life
- Cultural resource monitoring for ground disturbing activities