

Overview of Concepts

Portland/Vancouver I-5
Transportation and Trade Partnership

Conclusion:

Transportation System Needs Overhaul

- Existing freeway capacity is inadequate
- Lack of arterial connections for short distance, local trips (auto, bicycle, pedestrian)
- Transit demand is underserved.
- Freight rail capacity is inadequate, and existing rail bridge configuration adds to freeway operational issues.

Conclusion:

Existing I-5 Bridges Can Not be Widened

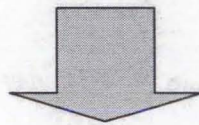
- Three lanes with no shoulder (breakdown) lanes
- Built in 1917 and 1956
- Through-truss design precludes economical widening

A Range of River Crossing Concepts Developed to Evaluate:

- Supplemental vs. replacement bridge concepts
- Joint use (LRT-highway) vs. separate bridges
- Alignments east and west of existing bridges
- Freeway lanes and arterial lanes

Decision Point:

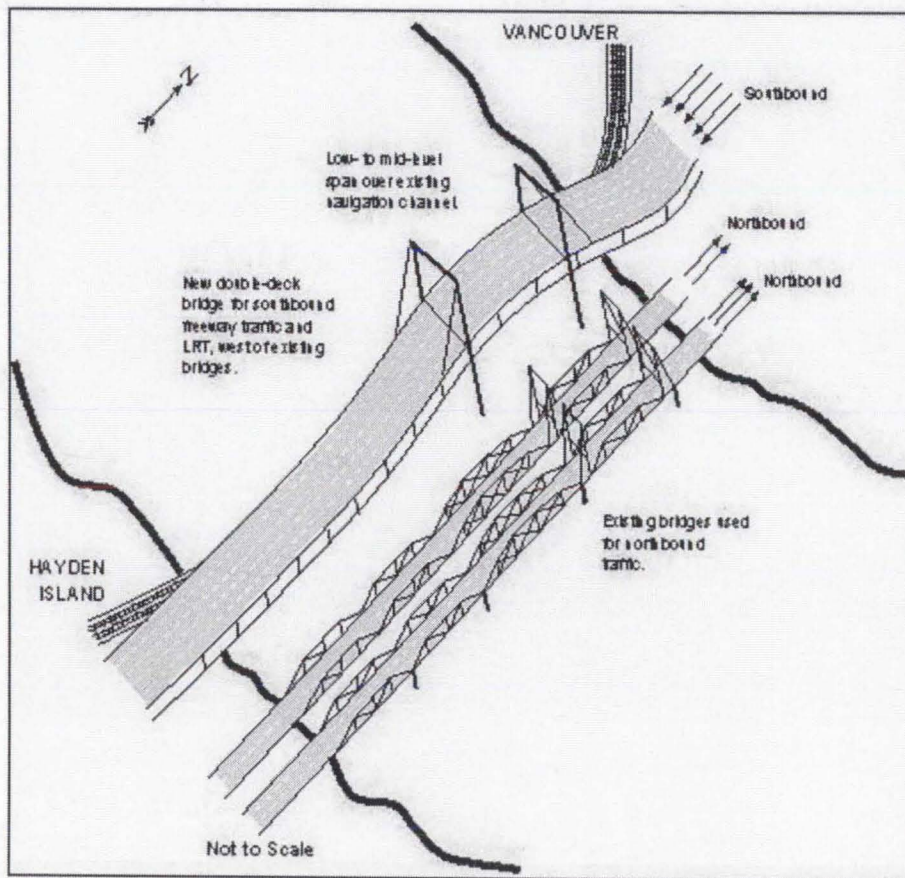
Task Force recommends three through lanes for I-5 (Jan. 2002)



Conclusion:

To balance upstream and downstream freeway capacity, ten lanes are needed at the Columbia River Crossing

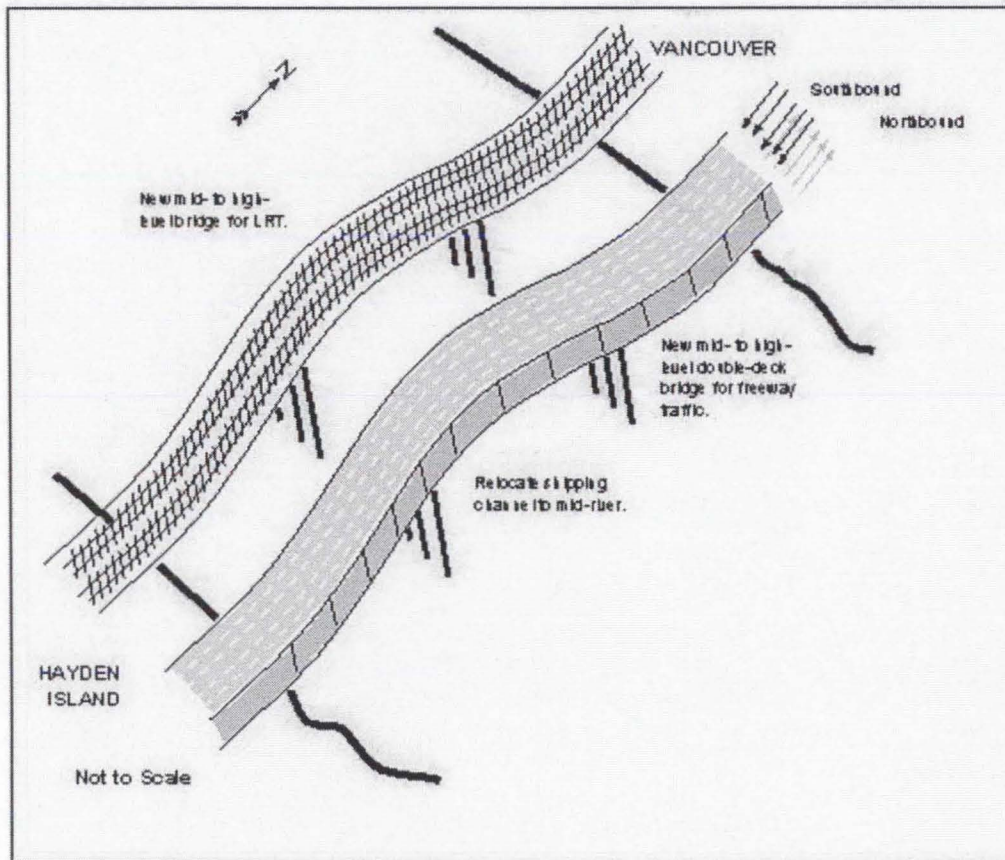
Category 1 - Crossing Options with Five Freeway Lanes in Each Direction



Concept 1: 5-lane southbound supplemental bridge for freeway traffic w/LRT

1. Southbound traffic on new five-lane bridge, LRT on lower deck -- west of existing bridges
2. Low- to mid-level bridge, with lift span over existing navigation channel
3. Northbound traffic would be split between the two existing bridges

Category 1 - Crossing Options with Five Freeway Lanes in Each Direction

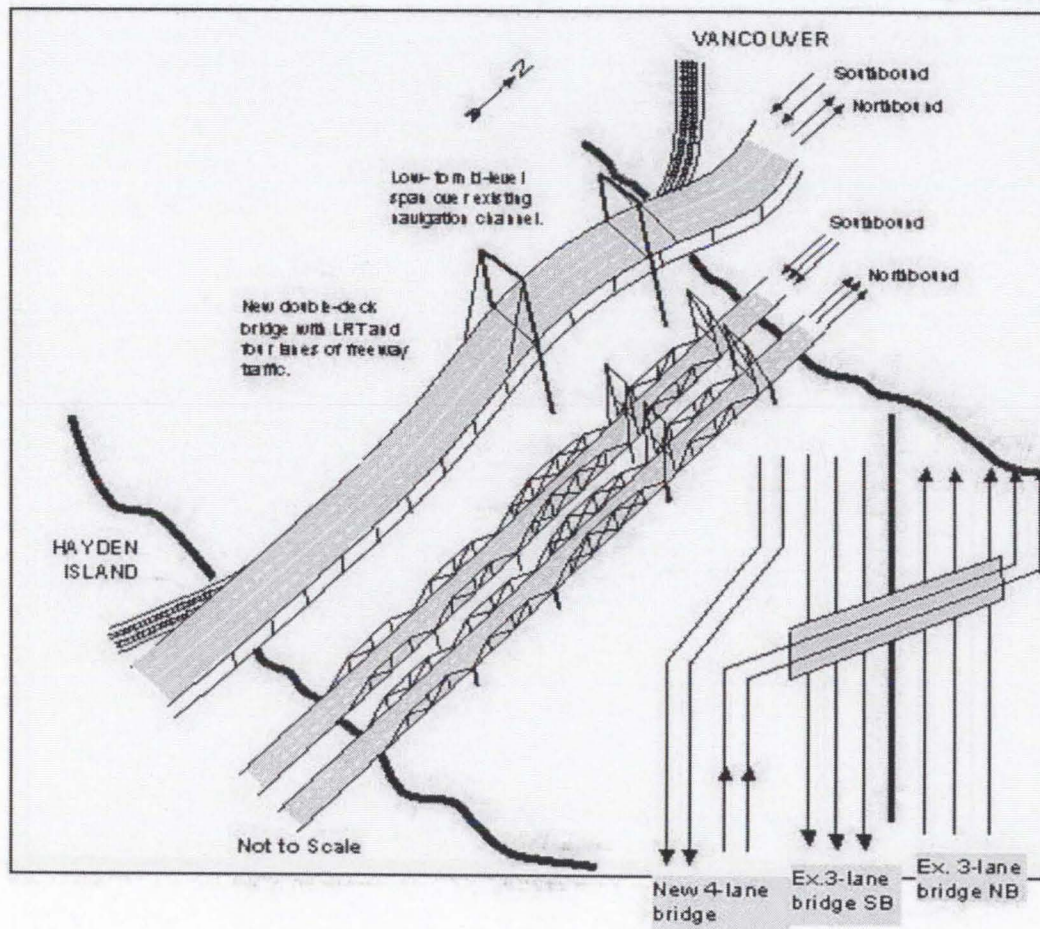


Concept 4:
10-lane double deck,
replacement bridge,
plus LRT on
separate new bridge

1. Mid- to high-level
bridges. Navigation
channel relocated to
center of river

2. Potential fixed spans
for highway and LRT
(with Coast Guard
reduction of existing lift
requirements), or lift
spans

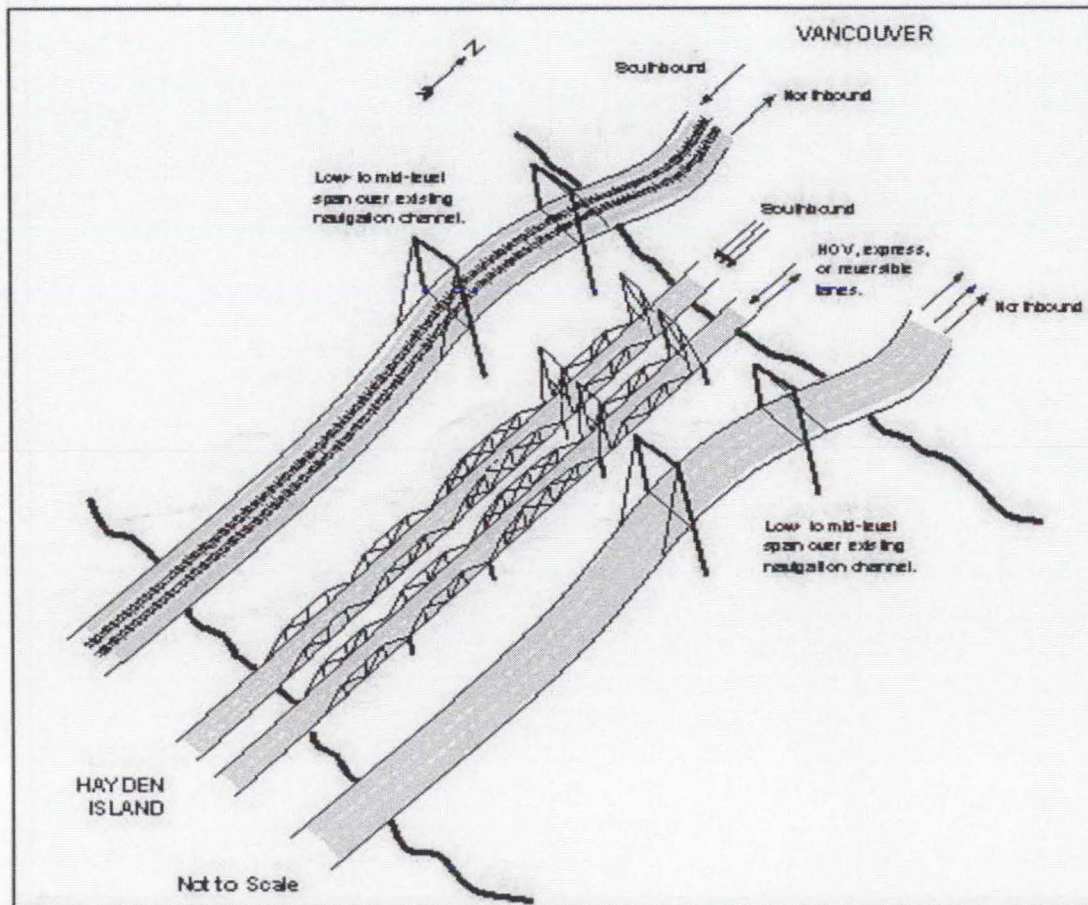
Category 2 - Crossing Options with Three Freeway Lanes and Two C-D Lanes in Each Direction



Concept 6: 4-lane supplemental collector-distributor bridge w/LRT, plus 6 lane freeway

1. Provides for new four-lane bridge with LRT west of the existing bridges
2. Low- to mid-level bridge with lift span over current navigation channel
3. Use four-lane bridge as collector-distributor (i.e., ramp access for Hayden Island, etc.). Requires fly-over ramps north and south, as shown in the schematic on the left

Category 3 - Crossing Options with Four Freeway Lanes in Each Direction Plus a Two-Lane Arterial



Concept 7: 8-lane freeway concept plus new LRT bridge with two-lane arterial

1. Provides for new four-lane bridge with LRT
2. Low- to mid-level bridges with lift spans over current navigation channel
3. Two lanes on existing northbound bridge could be used for HOV, express lanes, or (potentially) reversible lanes

Bridge Analysis

Changes in river crossing capacity affect the design requirements for the freeway between Columbia Boulevard and SR 500. Bridge improvements should be considered in conjunction with interchange improvements throughout that segment.

Vancouver Interchanges (SR 14 to SR 500)

If no bridge improvements are made, congestion at the I-5 river crossing will continue to obscure potential problems through downtown Vancouver:

- Northbound bottleneck at bridge restricts traffic entering 4th Plain/SR 500 weave section.



- Southbound queuing backs up traffic beyond the SR 500 merge area.

Performance of Concepts

- Overall, the concepts show a reduction in delay and an improvement in speeds compared Existing Conditions and Baseline 2020.
- Some important differences:
 - 10-lane replacement bridge performs the best
 - 8-lane plus arterial system also provides improvements, but has less flexibility for managing ramp and arterial traffic
 - The collector-distributor system performs worst -- design problems will be very difficult to overcome

Potential BIA Concept Impacts

- Encroachments and displacements
- Fish habitat
- Wetlands and parks
- Historic Resources

*Task Force Recommendations **

R4.2. For vehicles, there should be three through-lanes (and not more than three) in each direction and up to two auxiliary and/or arterial lanes in each direction across the Columbia River (total five lanes in each direction). For transit, there should be two light rail tracks across the Columbia River in the I-5 Trade Corridor.

R4.3. In the Bridge Influence Area, SR 500 to Columbia Boulevard, the freeway needs to balance all of the on and off traffic, consistent with three through-lane Corridor capacity and up to five lanes of bridge capacity, in each direction.

* Final Strategic Plan, June 2002

*Task Force Recommendations **

R4.4. In adding river-crossing capacity and making improvements in the Bridge Influence Area, every effort should be made to a) avoid displacements and encroachments, b) minimize the highway footprint in the Corridor, and c) minimize the use of the freeway for local trips.

R4.7. In the EIS, the following BIA elements should be studied:

- Eight or ten lane freeway concepts
- Replacement or supplemental bridge
- Joint use or non-joint use freeway/LRT bridge
- Eight-lane freeway with joint LRT/two lane arterial
- HOV throughout the I-5 Trade Corridor.

* Final Strategic Plan, June 2002

What about HOV?

- A corridor-wide HOV lane is a possibility with a new river crossing
- HOV utilization and performance is highly dependent on how it is designed
 - Direct access ramps should be considered at key locations (i.e., SR 500)
 - Bridge design affects HOV performance (a supplemental bridge splits freeway traffic, which limits HOV access)
- Further design work in an EIS is needed to ensure that it will operate well and have good utilization

*Task Force Recommendations **

R4.8. Evaluate whether or not a six-lane freeway plus two two-lane arterials -- one in the vicinity of the I-5 Trade Corridor and one in the vicinity of the railroad bridge -- is a viable alternative for consideration in the EIS.

R4.9. The following do not show promise for addressing the Corridor's problems and should not be considered in an EIS:

- Collector-distributor bridge concepts
- Arterial-only bridge concepts
- Tunnel concepts

* Final Strategic Plan, June 2002