



**TRANSPORTATION PRESENTATIONS FOR THE
PORTLAND / VANCOUVER
I-5 TRANSPORTATION AND
TRADE PARTNERSHIP**

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INTRODUCTION

In January 1999, a bi-state leadership committee considered the problem of growing congestion on the highway and rail systems in the Interstate 5 corridor within the Portland/Vancouver metropolitan region. The committee recommended in January 2000 that the region initiate a public process to develop a plan for the I-5 corridor.

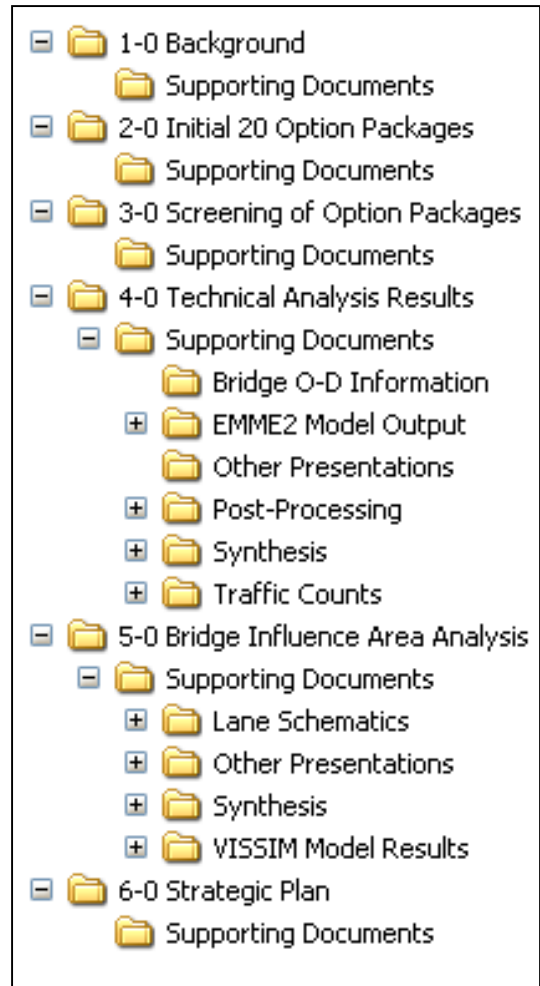
In January 2001, the governors of Oregon and Washington commenced the Portland/Vancouver I-5 Transportation and Trade Partnership (I-5 Partnership). The governors established a 28-member Task Force to guide the development of the strategic plan for the corridor and also invited a community forum of interested stakeholders from both states to provide input.

Under the I-5 Partnership, a series of technical reports were prepared addressing conceptual design, rail operations, environmental impacts, and regional land use impacts. This report summarizes the transportation analysis and evaluation completed from January 2001 through June 2002. The report contains material developed to guide alternatives development, travel demand modeling, alternatives evaluation, conceptual design, and traffic operations evaluation.

The report contains the following six chapters:

- Chapter 1: Background
- Chapter 2: Initial 20 Option Packages
- Chapter 3: Screening of Option Packages
- Chapter 4: Technical Analysis Results
- Chapter 5: Bridge Influence Area Analysis
- Chapter 6: Strategic Plan

Each chapter provides presentations or reports used during the project to inform the Task Force and community decision-making process. Some of the presentations are provided in PowerPoint (PPT) format and many documents are provided in Acrobat PDF format. When viewed in note view, presentation slides are annotated where appropriate citing data sources and some include speaker notes. Annotations direct the reader to information found within the “Supporting Documents” section of each chapter. In some cases, readers are further directed to material contained in other CDs maintained by ODOT that accompany this report.



The transportation reports and presentations are organized on a CD using the above folder structure.

1.0 BACKGROUND

The I-5 Trade Corridor study was initiated in January 1999 to evaluate existing and forecasted travel conditions within the I-5 corridor between I-84 in Portland and I-205 north of Vancouver. The bi-state study was managed by a leadership committee led by representatives from the Oregon and Washington Departments of Transportation (DOTs) with substantial involvement from other key agencies in the region and the consultant team.

The leadership committee was charged by regional transportation policy-makers to address five high level questions regarding transportation and congestion issues within the corridor:

1. What is the magnitude of the problem?
2. What are the costs of inaction?
3. What improvements are needed?
4. How can they be funded?
5. What are the next steps?

Key findings from this early work were that existing and forecast problems associated with congestion were substantial, they needed to be addressed, and that a range of improvements was feasible to address the I-5 corridor issues. Chapter 1.0 of this report includes three presentations that summarize these findings and provide an overall orientation and tour of the corridor. The presentations are their general contents follow:

“Corridor Tour Presentation”: Provides a photograph-based tour of the I-5 corridor highlighting key community, neighborhood, industrial, business, transportation, and environmental resources along and linked to the corridor.

“Corridor Themes Presentation”: Provides a photograph-based orientation of the I-5 corridor supporting a discussion of I-5’s regional significance with regard to several regional themes:

- *Trade and our Economy*
- *I-5: Part of an Integrated Transportation Network*
- *I-5 and Our Daily Lives*
- *Corridor Resources*



I-1 Corridor Tour Presentation (PPT)



I-2 Corridor Themes Presentation (PPT)

1.0 BACKGROUND, cont.

“What have We Learned Presentation”: Provides overview of responses to the five questions posed by regional policy-makers as listed above.

Chapter 1.0 includes the “I-5 Trade Corridor Final Report” dated January 27, 2000. The report is organized to answer the five high level questions posed by regional policy-makers. It compares the performance of a range of potential alternatives representing a wide range of investment.

Chapter 1.0 also contains the “Portland/Vancouver I-5 Trade Corridor Study Summary Report” dated December 1999. This seven-page summary provides a snap shot view of the study process and resulting findings. It includes quotes by vested stakeholders located along or near I-5.

In launching into the I-5 Partnership in January 2001, the project team used the presentations and drew heavily from the reports contained in this chapter to establish a baseline of understanding for the Governor’s Task force and Community Forum.



1-3 What Have We Learned So Far? (PPT)

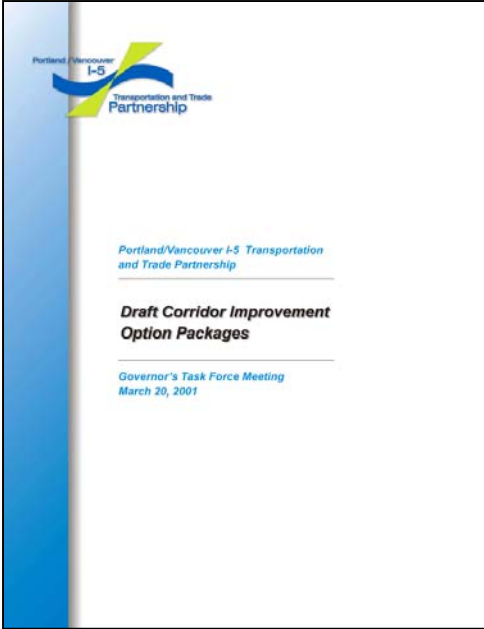
2.0 INITIAL 20 OPTION PACKAGES

The I-5 Trade Corridor work completed from January 1999 through January 2000 considered eight corridor improvement options representing a range of potential improvements within the I-5 corridor. The I-5 Partnership was initiated in January 2001 with an understanding that the broader “universe” of potential improvement options needed to be considered and presented to the public and Governor’s Task Force for initial consideration and feedback.

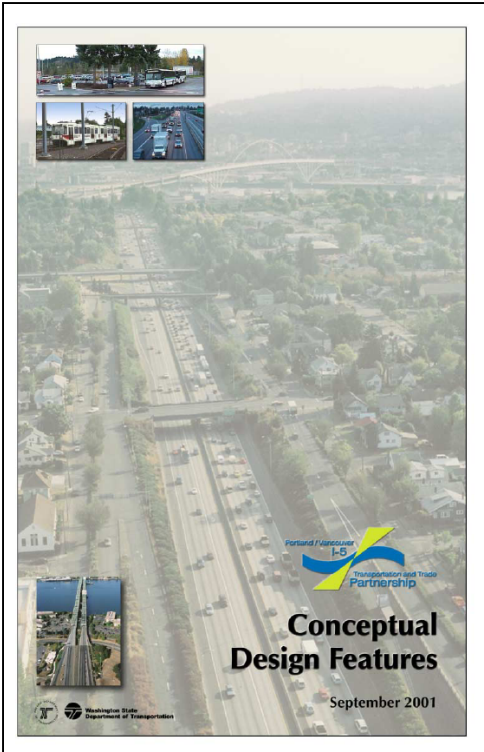
To begin the process of identifying the universe of potential improvements, ODOT and WSDOT sponsored a design charette at WSDOT in February 2001. The charette was attended by over 50 planners, engineers, and other technical experts in the field of transportation representing ODOT, WSDOT, Metro, RTC, City of Portland, City of Vancouver, Port of Portland, Port of Vancouver, Clark County, Multnomah County, Tri-Met, C-Tran, and the consultant team.

To set the stage for the event, members of the project team led the audience through the three high level presentations identified under Chapter 1.0. The project team also revisited the range of improvement options identified during the prior I-5 Trade Corridor work. People were then allowed several hours to work alone or in small groups to conceptually identify improvement options to be initially considered during the I-5 Partnership.

The resulting 20 multi-modal improvement options that emerged from the design workshop were captured in a March 20, 2001 report titled “Draft Corridor Improvement Option Packages”. This report was presented to the Governor’s Task Force in March 2001 garnering initial feedback and direction to the project team to identify similarities among options and consolidate the list of 20 draft improvement options into a shorter list.



2-1 Draft Corridor Improvement Option Packages (PDF)



2-2 Conceptual Design Features (PDF)

3.0 SCREENING OF OPTION PACKAGES

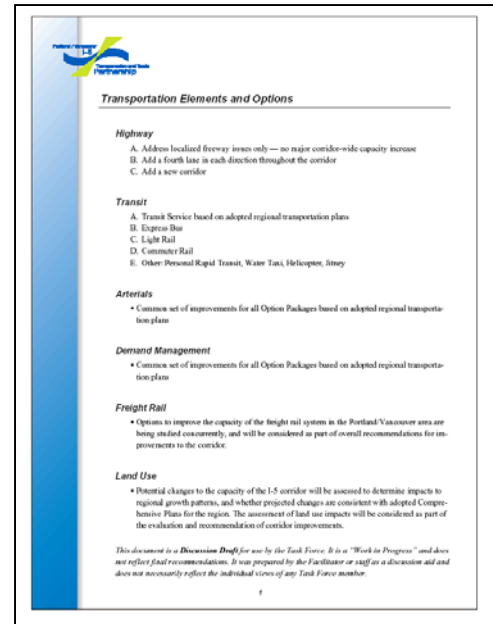
Materials contained in Chapter 3.0 describe the process by which the draft list of 20 build option packages was ultimately refined to result in eight option packages for further evaluation. It also contains material providing justification for dropping certain option packages from further consideration. Finally, it describes the process involved in preparing the option packages for travel demand modeling and conceptual design.

Upon inspection by the I-5 Partnership project team, several of the initial 20 option packages were determined to be conceptually similar from a corridor level in how they addressed issues. They differed primarily in the way they addressed isolated issues -- such as how to cross the Columbia River. By consolidating conceptually similar option packages, the project team refined the draft list of 20 option packages to nine option packages by April 2001. Throughout the refinement process, the project team was careful to capture unique features of options for possible evaluation as sub-elements of the nine remaining option packages.

From the revised list of nine option packages, continued coordination among the project team and Task Force between April and May 2001 led to decisions to drop two option packages from further consideration, resulting in a list of seven option packages. Justification for dropping specific option packages from further consideration is described in the supporting document in this chapter titled “Staff Recommendations to the Task Force on the Corridor Improvement Packages”. The addition of “Existing Conditions” as an option package rounded out the following final list of eight option packages initially evaluated.

Option Packages

1. Existing Conditions (2000)
2. No Build
3. Baseline
4. West Arterial
5. Express Bus/4 lanes
6. LRT/3 Lanes
7. Express Bus/4 Lanes
8. LRT/4 Lanes
9. *Freight/Passenger rail (evaluated through separate parallel study)*
LRT- Light rail transit



3-1 Option Package Descriptions (PDF)

3.0 SCREENING OF OPTION PACKAGES, cont.

The Baseline and all of the “Build” option packages involved a combination of highway and transit improvements that were modeled by Metro to generate initial transportation performance measures and ridership levels from which to operationally evaluate the options. The freight/passenger rail option was evaluated under a parallel planning effort led by ODOT as part of the I-5 Partnership.

The year 2020 Baseline option included improvements identified in Metro’s Regional Transportation Plan (RTP). Another option package involved a new arterial corridor parallel to I-5. The other four highway-oriented build option packages differed principally in the number of through lanes provided throughout the I-5 corridor (three versus four) and the type of transit investment (express bus versus light rail).

In May 2001, the Governors’ Task Force adopted the list of nine option packages presented by the project team for evaluation. The project team then initiated work to functionally describe the option packages in sufficient detail to guide the conceptual design and travel demand modeling efforts.

The project team developed a July 18, 2001 technical report titled “Functional Descriptions of I-5 Corridor Option Packages”. This report served as a blueprint to the design and modeling teams by describing and graphically illustrating in detail the overall intent of each option package (except for the freight/passenger rail option). It provided general design parameters to guide the conceptual design and modeling teams and provided transit assumptions including park-and-ride locations, parking supply, and station locations to guide the modeling team.

Tri-Met contributed substantially to this process by establishing conceptual alignments, station areas, and cost estimates for a new light rail loop connecting light rail along the I-5 and I-205 corridors in Oregon and Washington and between I-5 and I-205 in Washington. C-Tran was instrumental in establishing express bus service plans for modeling. All of this work is contained in the “Functional Description” report contained in this chapter. With the “Functional Description” report in hand, the conceptual design and modeling efforts advanced concurrently.

Option Packages: Decisions

The following table summarizes the decisions of the I-5 Task Force regarding Option Packages for the I-5 Corridor. Those packages designated as “study further” will be evaluated over the summer and results will be available in the fall of 2001. Those packages designated as “do not study” will be dropped from further consideration by the I-5 Task Force.

Package	Task Force Decision
1. Baseline (no new Columbia River Crossing)	Study further
2. Express Bus on New Bridge, Without Additional Freeway Corridor Capacity	Study further
3. Light Rail Transit on New Bridge Without Additional Freeway Corridor Capacity	Study further
4. Commuter Rail Without Additional Freeway Corridor Capacity	No Decision by Task Force yet. Recommendation is to defer further study until results from Rail Capacity Analysis are available (Fall 2001).
5. Planned Regional Bus With Additional Freeway Capacity	Do not study – refine as an option in Package 6
6. Express Bus to Downtown Portland With Corridor-Wide Freeway Capacity Increase (includes new Columbia River crossing)	Study further
7. Light Rail Transit With Corridor-Wide Freeway Capacity Increase (includes new Columbia River Crossing)	Study further
8. New Arterial Road: Mill Plain to US 30, with Columbia River Crossing	Study further
9. New Freeway Corridor	Do not study

Washington and Oregon working together for the economy, jobs and quality communities

3-2 Range of Option Packages Presentation (PPT)

3.0 SCREENING OF OPTION PACKAGES, cont.

A travel demand modeling team was convened to address the wide range of issues inherent in developing model networks for a planning effort of this magnitude. The modeling team met regularly to build consensus among the agencies represented regarding such issues as transit assumptions, performance measures, transportation demand management (TDM) assumptions, and others. This effort resulted in model output of key performance measures used to evaluate the option packages described in materials located in Chapter 4.0 .



3-3 Functional Descriptions of I-5 Corridor Option Packages (PDF)

4.0 TECHNICAL ANALYSIS RESULTS

Chapter 4.0 contains materials summarizing the operational performance of the eight highway-oriented option packages evaluated under the I-5 Partnership. The ninth option package, a freight/passenger rail option, was evaluated under a separate parallel study led by ODOT under the I-5 Partnership.

By late June 2001, the Task Force had adopted an extensive list of performance measures for use in evaluating the relative performance of each of the eight highway-oriented option packages. The list is contained in the supporting documents section of this chapter. The performance measures were categorized by their ability to help evaluate the degree to which each option package accomplished the following:

1. Maintain or improve transportation performance
2. Support trade and freight movement and the regional economy
3. Maintain or enhance quality of life
4. Avoid or minimize impacts to the environment
5. Support regional land use plans
6. Distribute benefits, costs, and impacts equitably
7. Evaluate costs

Most performance measures were quantitative and based on regional travel demand model output generated by Metro and on environmental impacts associated with the conceptual designs for each option package. Others, such as quality of life, were more qualitatively based.

The “Background” and “River Crossing” presentations contained in Chapter 4.0 present the relevant highlights from the initial transportation, conceptual design, and environmental impact evaluations. Additionally, detailed evaluation matrices comparing each performance measure among the option packages are contained in the “Synthesis” folder of the “Supporting Documents” section of this chapter.

From July through late October 2001, the project team concurrently advanced the transportation, conceptual design, and environmental impact evaluations. Performance measure results comparing each option package were presented to the Task Force at October 23 and October 30, 2001 meetings. Results were subsequently presented to the public and community forum during several meetings and open houses in November 2001.



4-1 Handout Package Presentation (PPT)

4.0 TECHNICAL ANALYSIS RESULTS, cont.

To further support the Task Force decision-making process, the project team developed a “Decision Summary” memorandum contained in the “synthesis” folder of the “supporting documents” section of this chapter. The memorandum provides technical support that served to help the Task Force decide the following:

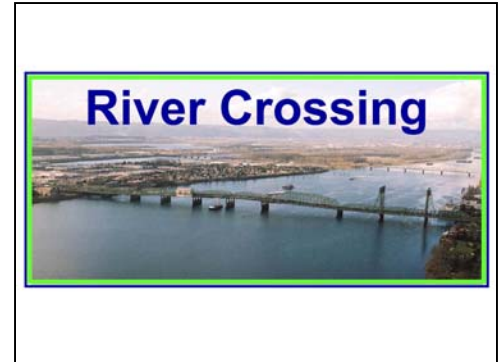
- Decision 0. What happens if you do nothing?
- Decision 1. Will a West Arterial Road, by itself, satisfy the Problem, Vision, and Values Statement?
- Decision 2. Will Commuter Rail, by itself, satisfy the Problem, Vision, and Values Statement?
- Decision 3. What type of overall transit investments best satisfy the Problem, Vision, and Values Statement?
- Decision 4. What type of overall road improvements best satisfy the Problem, Vision, and Values Statement?

Additionally, the project team compiled technical information to support the Task Force’s consideration of several isolated corridor improvements that could be developed as standalone projects or integrated into an overall corridor solution. These isolated improvements are included in the “Decision Summary” memorandum.

As referred to above, the I-5 Partnership’s Problem, Vision, and Values statement helped guide the Task Force’s decision-making process. The statement is contained in the Strategic Plan contained in Chapter 6.0 of this report.

By early December 2001, the Task Force, community forum, and public had considered the relative performance and impacts associated with each option package. In mid-December 2001, the Task Force developed draft corridor recommendations centered on the type of transit and roadway improvements to implement within the I-5 corridor.

By late January 2002, the Task Force adopted the draft corridor recommendations. Part of this recommendation included a directive to the project team to conduct additional and more detailed analysis of the defined Bridge Influence Area (BIA) to better understand the implications associated with how to provide additional roadway and transit capacity across the Columbia River within the I-5 corridor.



4-2 Task Force Presentation (PPT)

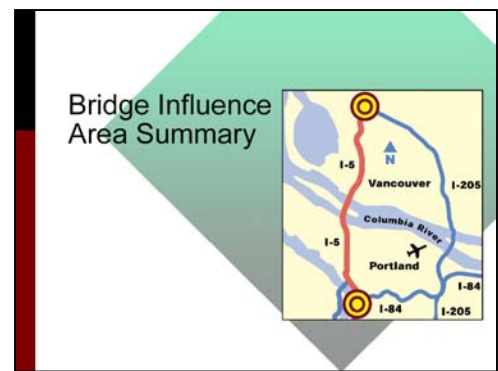
5.0 BRIDGE INFLUENCE AREA ANALYSIS

By late January 2002, the I-5 Partnership Task Force had adopted draft I-5 corridor recommendations establishing the following key recommendations:

- Three through-lanes in each direction on I-5, including southbound through Delta Park. ...
- A phased light rail loop in Clark County in the vicinity of the I-5, SR500/4th Plain and I-205 corridors.
- An additional span or a replacement bridge for the I-5 crossing of the Columbia River, with up to 2 additional lanes for merging and 2 light rail tracks.
- Interchange improvements and additional merging lanes where needed between SR500 in Vancouver and Columbia Boulevard in Portland. These include a full interchange at Columbia Boulevard.

Associated with these adopted draft recommendations, the Task Force recognized the special nature of integrating new roadway and transit capacity across the Columbia River and integrating interchange access within the I-5 corridor -- all while minimizing impacts to neighborhoods and the environment and integrating public comment into the design refinements. The Task Force asked the project team to conduct more detailed analysis of the defined Bridge Influence Area (BIA) to better understand these implications. The project team performed parallel additional analysis evaluating transportation operations, conceptual design, and environmental impacts.

The BIA was defined to extend from Columbia Boulevard in Portland through State Route (SR) 500 in Vancouver. Close interchange spacing, substandard merging and weaving sections, and the heaviest concentration of traffic within the larger project corridor characterize this area. Regional model forecasts further revealed that 80 percent of I-5 automobile trips crossing the Columbia River in the 2020 PM peak period are expected to begin or end within the BIA. The remaining 20 percent of PM peak period trips are expected to be through trips- beginning and ending outside of the BIA. The AM peak period is estimated to experience a similar 70/30 split of BIA versus through trips.



5-1 BIA Findings Report Presentation (PPT)

5.0 BRIDGE INFLUENCE AREA ANALYSIS, cont.

Between January and March 2002, the project team engaged in a detailed analysis of the BIA. Initially, the project team identified a list of eight Columbia River Crossing concepts that fell into the following three categories:

Category 1: River crossings that provide five freeway lanes in each direction (Concepts 1-4)

Category 2: A freeway and river crossing system that provides three mainline freeway lanes plus a four-lane collector-distributor system (Concepts 5-6)

Category 3: River crossings with four freeway lanes in each direction plus a two-lane arterial (Concepts 7-8)

The eight concepts considered a mix of options for using the existing I-5 Columbia River crossing structures, ranging from some combination of use with a new structure(s) to complete replacement by a new structure(s).

The project team realized they could answer specific operational and design questions relating to each concept by conducting a detailed analysis of only the following four concepts:

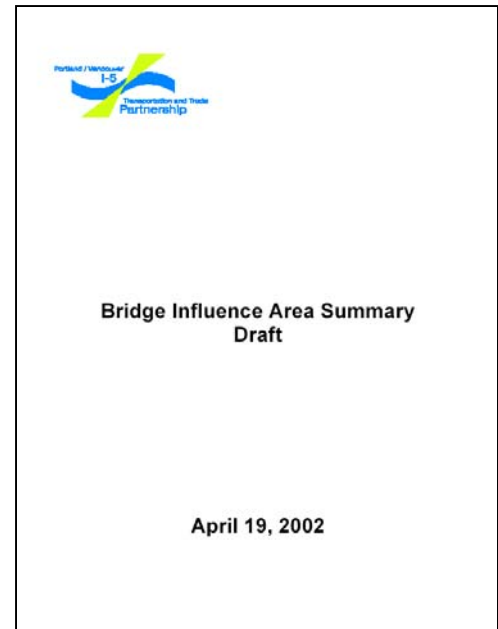
Concept 1: Five-lane southbound supplemental bridge for freeway traffic with LRT

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

Concept 6: Four-lane supplemental collector-distributor bridge with LRT, plus six-lane freeway bridge

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

The detailed transportation evaluation of each BIA concept was based on Metro regional model output developed for the LRT and 3-Lane highway option package. This option package most closely reflected the adopted corridor recommendations. The regional travel demand model output was manually assigned to each of the four BIA concept road systems to facilitate planning level review and feedback to the on-going and parallel conceptual design process. The project team also performed detailed micro-simulation modeling using the VISSIM traffic simulation model.



5-2 BIA Findings Report (Word)

5.0 BRIDGE INFLUENCE AREA ANALYSIS, cont.

The VISSIM model allowed the project team to evaluate intricate merging and weaving operations and to evaluate specific design elements of each concept. The VISSIM work led to several design revisions. It also provided important results regarding how to potentially provide HOV access.

By March 2003, the project team had evaluated the BIA results and established the following results:

- Each BIA concept showed a reduction in corridor delay and increase in corridor speeds relative to existing and Baseline 20202 conditions,
- The ten-lane replacement bridge (Concept 4) performed the best
- The eight-lane plus arterial system (Concept 7) provided improvements, but had less flexibility for managing ramp and arterial traffic, and
- The collector-distributor system (Concept 6) performed the worst, especially for HOV- several design problems exist that would be very difficult to overcome

The project team additionally considered several variations of adding arterial capacity across the Columbia River. Key findings of such a concept are listed in the BIA Summary presentation contained in Chapter 5.0.

The April 19, 2002 “Bridge Influence Area Summary Draft” report included in this chapter describes the BIA evaluation and findings in detail. It also summarizes project team recommendations to the Task Force incorporated into the adopted final Strategic Plan.

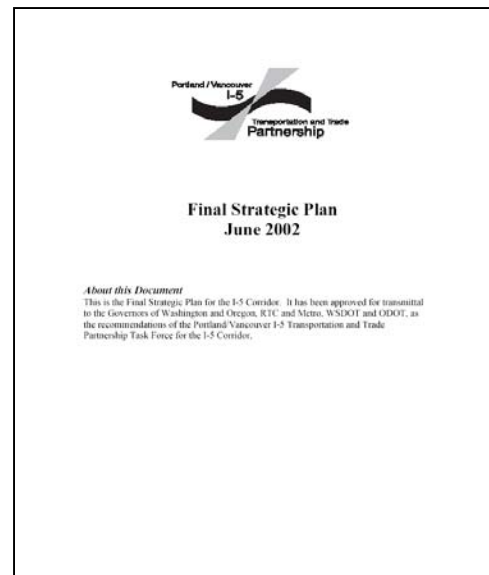
6.0 STRATEGIC PLAN

Following completion of the Bridge Influence Area evaluation in late March 2002, the Task Force received public feedback regarding several additional high level project issues including environmental justice, finance, regional land use, rail, and transportation demand management. The Task Force considered the public input and by late May 2002 published its Final Draft Recommendations.

Open houses in June 2002 offered the public an opportunity to comment on the Task Force's draft Final Corridor Recommendations. The Task Force considered the public input and by late June 2002 published its Final Draft Recommendations.

The next key step in realizing an I-5 corridor solution involves completion of an Environmental Impact Statement (EIS). This work is expected to occur between 2002 and 2009 and as funding becomes available.

For up to date information regarding the on-going I-5 Partnership, readers are encouraged to visit the I-5 Partnership web site at: www.i-5partnership.com or contact ODOT.



6-1 Strategic Plan (PDF)