Portland / Vancouver
I-5
Transportation and Trade
Partnership

Final Strategic Plan
June 2002

About this Document

This is the Final Strategic Plan for the I-5 Corridor. It has been approved for transmittal to the Governors of Washington and Oregon, RTC and Metro, WSDOT and ODOT, as the recommendations of the Portland/Vancouver I-5 Transportation and Trade Partnership Task Force for the I-5 Corridor.

Task Force Members

Oregon
Lenny Anderson, Swan Island TMA
Mike Burton, Executive Officer Metro *(Andy Cotugno, Participating Representative)*
Commissioner Serena Cruz, Multnomah County
Brian Fitzgerald, Market Transportation *(Bill Maris, Participating Representative)*
Stu Hall, Liberty Mutual
Fred Hansen, General Manager Tri-Met
Henry Hewitt, Stoel Rives, LLP
Mayor Vera Katz, City of Portland
Dick Reiten, Northwest Natural *(Gary Bauer, Participating Representative)*
Jeri Sundvall, Environmental Justice Action Group
Walter Valenta, Bridgeton Neighborhood Association
Bill Wyatt, Executive Director Port of Portland *(Dave Lohman, Participating Representative)*
Bruce Warner, Director Oregon Dept. of Transportation

Washington
Commissioner Ed Barnes, Washington Transportation Commission
Jeff Beverly, Manager of Facility Engineering S.E.H. America, Inc.
Lora Caine, Fairgrounds Neighborhood Association
Lynne Griffith, C-Tran Executive Director
Scott Patterson, Executive Director Greater Vancouver Chamber of Commerce
Anne McEnerny-Ogle, President Shumway Neighborhood Association
John McKibbin, J. Simpson McKibbin Company, Inc.
Rick Sant' Angelo, Board Member Friends of Clark County
Larry Paulson, Executive Director Port of Vancouver
Mayor Royce Pollard, City of Vancouver
Commissioner Craig Pridemore, Clark County
Elson Strahan, President Clark College Foundation
Councilman Dan Tonkovich, City of Vancouver

Table of Contents

Introduction and Background 1
Overview of the I-5 Partnership Planning Process 3
The Work Behind the Strategic Plan 4
Public Involvement and Outreach 4
Transportation and Transportation-Related Analyses 5
Other Work 6
Cost Estimates in this Report 6
Key Definitions 6

Vision for the Corridor 8

Strategic Plan Findings and Recommendations 9

I. The Need for Action
A1.1. Key Findings –Portland/Vancouver's Unique Advantage 9
A1.2. Key Findings – Future Growth 9
A1.3. Key Findings – Freeway System 9
A1.4. Key Findings – Transit System 10
A1.5. Key Findings – Heavy Rail System 11
A1.6. Key Findings – Overall 11
B1. Recommendations – Overall 12

II. Additional Transit Capacity and Service
A1.1. Key Findings – Transportation Performance 13
A1.2. Key Findings – Environmental and Community Impacts 13
A1.3. Key Findings – Cost 14
A1.4. Key Findings – Other 14
B1. Recommendations – Transit 14

III. Additional Freeway Capacity
A1. Key Findings – Fixing 2-Lane Sections 16
B1. Recommendations – Fixing 2-Lane Sections 16

A2.1. Key Findings – Overall Freeway Improvements 17
A2.2. Key Findings – Environmental and Community Impacts 18
A2.3. Key Findings – Cost 19
B3. Recommendations – Overall Freeway Capacity 19

A3. Key Findings – High Occupancy Vehicle (HOV) Lanes 19
B3. Recommendations – High Occupancy Vehicle (HOV) Lanes 20

A4. Key Findings – Columbia Blvd. Interchange 20
B4. Recommendations – Columbia Blvd. Interchange 20

IV. Bridge and Bridge Influence Area (SR500 – Columbia Blvd)
A1.1. Key Findings – Freight Mobility and the Economy 21
A1.2. Key Findings – River Crossing Capacity/Bridge Influence Area.....21
A1.3. Key Findings – Cost.....22
A1.4. Key Findings – Property Impacts 23
A1.5. Key Findings – Environmental Impact 23
A1.6. Key Findings – Safety.....23
A1.7. Key Findings – Implementation.....24
B1. Recommendations – Bridge Influence Area 25

V. Additional Rail Capacity
A1.1. Key Findings – Freight and Inter-City Passenger Rail 27
A1.2. Key Findings – Commuter Rail 28
B1. Recommendations – Freight Rail.....30
B2. Recommendations – Inter-City Passenger Rail 31
B3. Recommendations – Commuter Rail 31

VI. Land Use and Land Use Accord
A1. Key Findings – Land Use 32
B1. Recommendations –Land Use and Land Use Accord 32

VII. Transportation Demand/System Management (TDM/TSM)
A1. Key Findings – TDM/TSM.....34
B1. Recommendations – TDM/TSM.....35

VIII. Environmental Justice
A1. Key Findings – Environmental Justice 39
B1. Recommendations – Environmental Justice 39

IX. Additional Elements and Strategies
A1. Key Finding – West Arterial Road 41
B1. Recommendations – West Arterial 41

A2.. Key Findings – Additional Elements and Strategies 41
B2. Recommendations – Additional Elements and Strategies 42

X. Financing Options
A1. Key Findings – Financing Options 43
B1. Recommendations – Financing Options 44

XI. Next Steps/Implementation
B1. Recommendations – Next Steps and Implementation 45

Table of Attachments

(See Attachments Document)

Attachment A: Option Package Information A2

Attachment B: Bridge Influence Area Information A17

Attachment C: Land Use Compatibility of Task Force Recommendations A23

Attachment D: I-5 Bi-State Coordination Accord A36

Attachment E: TDM/TSM Action Items and Rough Cost Matrix.....A43

Attachment F: Potential Impacts of Recommendations to be Assessed in an EIS A49

Attachment G: Potential Benefits of Recommendations to be Considered in an EIS A54

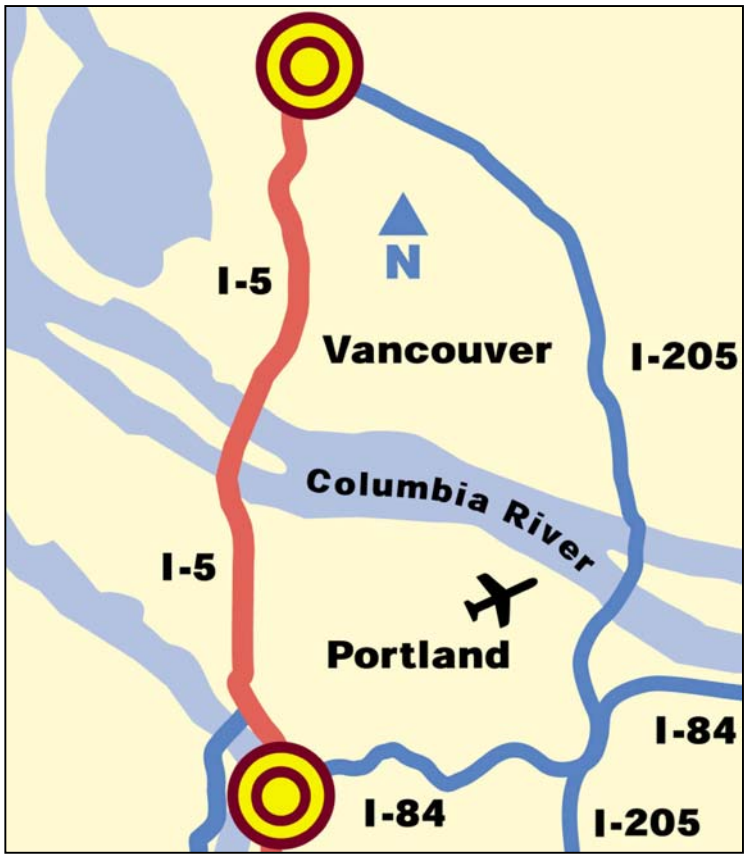
Attachment H: Outreach to Environmental Justice Communities During the EIS.....A60

Attachment I: Promising Financing Tools.....A65

Introduction and Background

The I-5 Partnership brought together Washington and Oregon citizens and leaders to respond to concerns about growing congestion on I-5. Governors Gary Locke and John Kitzhaber have appointed a bi-state Task Force of community, business and elected representatives to develop a recommended Strategic Plan for the I-5 Corridor between I-84 in Oregon and I-205 in Washington.

As the only continuous Interstate on the West Coast, I-5 is critical to the local, regional and national economy. At the Columbia River I-5 provides a critical connection to two major ports, deep-water shipping, up-river barging, two transcontinental rail lines, and much of the region's industrial land.



In 1997, 14 million tons of freight (valued at $17 billion) was shipped from the Oregon side of the metro area to locations in Washington. Shipments southbound from Washington into the Oregon side of the region totaled 28.5 million tons (worth an estimated $7.5 billion).

Both the Ports of Portland and Vancouver are located in the I-5 Trade Corridor, as is much of the Portland/Vancouver industrial land.

For residents in the Portland and Vancouver area, I-5 provides one of two crossings of the Columbia River for transit and automobiles. It connects the communities of Portland and Vancouver for work, recreation, shopping and entertainment purposes. An average of 125,000 trips are made across the I-5 Bridge every day.

In 1999, a bi-state leadership committee considered the problem of growing congestion on the highway and rail systems in the I-5 Corridor. The committee recommended that the Portland/Vancouver region initiate a public process to develop a plan for the I-5 Corridor based on the following findings:

- **Doing nothing in the I-5 Corridor is unacceptable.** While there are some transportation improvements planned in the corridor, they are insufficient to address the transportation and economic needs of the corridor. Without additional improvements, congestion in the corridor will increase to unacceptable levels. Further, the increased congestion will have a significant impact on our economy, potentially limiting attraction and retention of business throughout our industrial areas.

- **There must be a multi-modal solution in the I-5 Corridor – there is no silver bullet.** The needs of the corridor will require highway, transit, and rail improvements, and better management of traffic demand. In other words, constructing new highway capacity alone will not solve the problem; neither does constructing only new transit capacity or new rail capacity.

- **Transportation funds are limited. Paying for improvements in the I-5 Corridor will require new funds.** The scale of improvements needed in the corridor far exceeds presently available state and federal funds. These sources can contribute but cannot completely pay for the improvements. Assuming the current structure of public funding, tolling will be required to pay for a new Columbia River crossing and other corridor improvements. From a historical perspective, tolls are not new. Tolls were used to construct the original I-5 bridges.

- **The region must consider measures that promote transportation- efficient development.** This includes a better balance of housing and jobs on both sides of the river and other measures that manage additional demand. Even with improvements in the I-5 Corridor, there will be a significant capacity problem that must be managed.

In January 2001, based on the above findings, Washington Governor Locke and Oregon Governor Kitzhaber initiated the Portland/Vancouver I-5 Transportation and Trade Partnership, also known as the I-5 Partnership. A 28-member Task Force was established to guide the development of the Strategic Plan for the corridor. This group worked for a year and a half, hosting 6 rounds of public meetings to get ideas and feedback from the community. In addition, a Community Forum of interested stakeholders from both states was invited to closely follow the strategic planning process and to provide input at each milestone in the study. The diagram on the following page depicts the overall planning process that was undertaken to develop the Strategic Plan.

The overall goal of this strategic planning effort was to determine the overall level of investment needed in the corridor for highways, transit and heavy rail, and to determine how to manage the transportation and land use system to protect investments in the corridor.

The Task Force's final product will be sent to the Oregon Transportation Commission, the Washington Department of Transportation, and to the metropolitan planning organizations in Portland and SW Washington for review and potential adoption into their transportation plans. After adoption, the environmental review and project development phase may begin.

Before any improvements suggested in this plan can be made, a formal environmental process must to be conducted under the requirements of the National Environmental Policy Act (NEPA) to identify the specific design of improvements and the impacts. The NEPA process is designed to ensure public participation in the process and a thorough assessment of environmental and community impacts. Through the NEPA process, plans for mitigating impacts that cannot be avoided will need to be developed. In addition, issues of environmental justice will receive a thorough exploration.

Overview of I-5 Partnership Planning Process

January 2001 – May 2001:
Visioning and Development of Options

Activities included: development of a Problem, Vision and Values Statement, identification of a wide range of ideas for the corridor, development of evaluation criteria, development and selection of a range of multi-modal option packages for the corridor to be evaluated.

June – November 2001:
Evaluation of Option Packages/Land Use Analysis

Activities included: evaluation of option packages, and analysis of the land use implications of making and not making transportation investments.

December 2001 – January 2002:
Draft Recommendations

Activities included: consideration of evaluation results, and feedback from the public and Community Forum members to develop draft recommendations. The draft recommendations primarily focused on transit and highway investments for the I-5 Corridor.

February 2002 – May 2002:
Re-Evaluation
and
Development of Additional Draft Recommendations

Activities included: additional design and evaluation work in the Bridge Influence Area (SR 500 to Columbia Blvd) to assess the level of improvements needed in this section of the corridor and to develop new conceptual designs that had less community impact, particularly in Vancouver. During this period, work was also conducted to evaluate the needs of the heavy rail system, to analyze commuter rail, and to develop draft recommendations in the areas of: Transportation Demand Management and Transportation System Management (TDM/TSM), Environmental Justice, Land Use, and Finance.

May – June 2002:
Development of Final Recommendations

Activities included: consideration of evaluation results and feedback from the public and Community Forum members to develop final recommendations for the I-5 Corridor.

The Work Behind the Strategic Plan

Public Involvement and Outreach

Public involvement has been a key element in the development of this Strategic Plan. Community Forum meetings and Open Houses were held at each critical milestone. The table below is a listing of the meetings held.

Date	Event	Subject
January 2001	Community Forum Mtg.	Visioning/Brainstorming
February 2001	Open Houses	Visioning/Brainstorming
April 2001	Open Houses	Review of Draft Option Package Combos
May 2001	Community Forum & Open Houses	Review of Final Draft Option Packages
November 2001	Community Forum & Open Houses	Review of Evaluation Results
January 2002	Community Forum & Open Houses	Review of Working Draft Recommendations
May 2002	Community Forum & Open Houses	Review of Additional Work and Additional Draft Recommendations
June 2002	Open Houses	Review of Final Draft Recommendations

Public involvement was encouraged through a variety of tools including:

- Advertisements in regional and local papers
- Development of a 10,000 person mailing list
- Development of a 2,000 person e-mail list
- Door to door delivery of project information to businesses, homes and apartments along the potential improvement corridors
- Billboard advertisement
- Bus advertisement
- Project website that has been accessed over 400,000 times
- Web-based survey tools
- Press releases
- Public notices
- Toll-free telephone line
- Participation in community-based events such as neighborhood fairs
- Solicitation of speaking engagements to 275 business, community, and neighborhood groups
- Presentations to over 70 groups

Outreach efforts resulted in participation by nearly 1,700 people.

Transportation and Transportation-Related Analyses

To develop this Strategic Plan two separate analyses were undertaken, the first in the Summer-Fall 2001 when five multi-modal option packages were selected for further analysis. The option packages were based on ideas and comments from the public and consistency with the Problem, Vision and Values Statement. The option packages that were analyzed all included new river crossing capacity across the Columbia River for transit and vehicles. The option packages were:

- Express Bus/3 Lanes
- Light Rail/3 Lanes
- Express Bus/4-Lanes
- Light Rail/4-Lanes
- West Arterial Road

Each of the option packages was compared to three additional scenarios:

- Existing Conditions 2000 - the current state of the I-5 Corridor,
- No Build 2020 - what is expected to happen in the year 2020 if the Region builds only the currently funded projects, and
- Baseline 2020 - what is expected to happen in the year 2020 if the Region constructs the funded projects in "No Build" AND the other projects listed in the Region's 20 year plans.

The option packages also included a substantial increase in basic transit service levels in Portland and Clark County and the implementation of a strong transportation demand management program on both sides of the river. Maps of the option packages, with descriptions of the physical improvements and a comparison of transportation performance, can be found in **Attachment A, page A2**.

After adopting Draft Recommendations for the Corridor in January 2002, the Task Force asked for additional evaluation and design work to be completed on the Bridge Influence Area, between (SR500 and Columbia Blvd, and including light rail between the Expo Center and Downtown Vancouver). This focused examination of the bridge and its influence area resulted in the development of four river crossing concepts, which can be found in **Attachment B, page A17**.

This plan also has a component that focuses on the needs of the freight and passenger rail system. This analysis was a cooperative effort among the owners of the rail system (Burlington Northern/Santa Fe and Union Pacific) and the users of the system (Amtrak, the States of Oregon and Washington, the Ports of Vancouver and Portland, and the Cities of Portland and Vancouver). The rail analysis focused on an agreement among the parties about existing conditions, expected growth rates, short-term/incremental improvements to gain capacity and the long-term needs of the system.

Other Work

Other areas of analysis and work that contributed to the findings and recommendations in this report include:

- A new land use and transportation model, Metroscope, was used to conduct an analysis of the implications of making or not making improvements in the I-5 corridor. This analysis compared two scenarios: doing nothing more than Baseline improvements, and an improvement scenario similar to the LRT/4-Lane option package.

- An analysis of commuter rail as a component of a multi-modal system between Portland and Vancouver was undertaken.

- Two work groups of community stakeholders, one in Oregon and one in Washington, were invited to help the Task Force to develop findings and recommendations around the area of Environmental Justice. Ideas from these two work groups form the basis for much of the ongoing work that will need to be done in this corridor to: 1) identify, avoid and mitigate impacts from potential improvements, 2) ensure that benefits and impacts are equitably distributed, and 3) ensure that outreach efforts include meaningful involvement of low income and minority residents in the corridor.

- Three different work groups of technical staff from Oregon and Washington agencies were brought together to assist the Task Force in the development of findings and recommendations in the following areas:
    - Land Use Accord
    - Transportation Demand Management and Transportation System Management (TDM/TSM)
    - Financing options and tools

Cost Estimates in this Report

Within time and budget constraints this study has used the best travel-forecasting techniques and cost estimation methods available for the analysis. However, the purpose of the analysis was to compare alternative options. Although the cost estimates are fully appropriate for comparison of alternatives they were based on "conceptual designs" that are not developed in sufficient detail for budgeting purposes. In addition, all costs are estimated as if the options were constructed in 2001 and use 2001 dollars. No finance costs are included. More detailed cost estimates will be prepared in the EIS phase of the study and again for those projects selected for construction after preliminary engineering has been completed.

Key Definitions

Existing Conditions is the term used to describe the current state of the I-5 Corridor.

No Build is the term used to describe what is expected to happen in the year 2020 if the Region builds only the currently funded projects. The currently funded projects include: construction of Interstate Max light rail from the Rose Garden to the Expo Center in Portland; widening of I-5 to three lanes in each direction between 99th and Main in Vancouver; and other transit and highway projects outside the I–5 Corridor that have funding for construction over the next 4-6 years.

Baseline is the term used to describe what is expected to happen in the year 2020 if the Region constructs the funded projects in No Build AND the other projects listed in the Regions 20 year plans. Those projects include: widening of I-5 to 3 lanes in each direction between Delta Park and Lombard in Portland; widening of I-5 to 3 lanes in each direction between 99th and I-205 in Vancouver; the West Hayden Island Bridge, increased basic transit service throughout the Region; increased TDM/TSM throughout the Region; and other transit and highway capital projects outside the I-5 Corridor that are planned, but unfunded, over the next 20 years.

Option Packages is the term used to describe the various improvements and sets of improvements evaluated by the Task Force. The main option packages included: a) Express Bus/3 Lanes, b) LRT/3 Lanes, c) Express Bus/4 Lanes, d) LRT/4 Lanes, and e) West Arterial.

Express Bus - Short is an option for an express bus system in Clark County to the Expo Center Transit Center where riders would then transfer to the light rail system. It includes: express buses on I-5 in HOV lanes between 134th in Clark County and the Expo Transit Center; a new bridge to carry HOV lanes across the Columbia River; expanded park and ride and more feeder bus service.

Express Bus - Long is an option for an express bus system in Clark County to downtown Portland. It includes: express bus on I-5 in HOV lanes between 134th in Clark County and downtown Portland; a fourth lane in each direction between 134th and the Fremont Bridge that would operate as an HOV lane during peak periods; and expanded park and ride and more feeder bus service

Light Rail Loop is an option for a light rail system in Clark County. It includes a new bridge to carry light rail and expanded park and ride and more feeder bus service

Bridge Influence Area – The I-5 corridor, between Columbia Blvd. in Portland and SR 500 in Vancouver. Includes light rail between the Expo Center in Portland and downtown Vancouver.

Other Terms Used in the this Document:

- *CO* - carbon monoxide
- *EA* - Environmental Assessment
- *EIS* - Environmental Impact Statement
- *HOV* - high occupancy vehicle
- *LRT* - light rail transit
- *MAX* (Metropolitan Area Express) is Tri-Met's light rail system serving the greater Portland metropolitan area.
- *NEPA* - National Environmental Policy Act
- *NOx* – oxides of nitrogen
- *SR* – State Route
- *TDM* - transportation demand management**.** The purpose of TDM is to reduce, shorten or eliminate auto trips.
- *TSM* - transportation system management. It means managing the transportation system to increase efficiency.
- *VOC* – volatile organic compound

Vision for the Corridor

The foundation for this Strategic Plan is the Problem, Vision and Values Statement. This statement was crafted, edited and revised based on feedback from Community Forum members and public input. The recommendations in this document have been crafted to address the identified corridor problems and to do them in a manner that reflects the collective vision for the community. In other words, the Task Force has been guided by the Problem, Vision and Values Statement in developing this Plan.

Problem, Vision and Values Statement:

Problem

The Interstate 5 Corridor is the most critical segment of the regional transportation system in the Portland/Vancouver metropolitan area. The Corridor provides access to many of the Region's most important industrial sites and port facilities, and is a link to jobs throughout the Portland/Vancouver Region. Due to infrastructure deficiencies, lack of multi-modal options, land use patterns, and increasing congestion, businesses and individuals experience more frequent and longer delays in the Corridor. Without attention, the Corridor's problems are likely to increase significantly, further impacting the mobility, accessibility, livability and economic promise of the entire Region.

Vision and Values

This plan is a multi-faceted, integrated plan of transportation policies, capital expenditures, personal and business actions, and incentives to address the future needs of the I-5 Corridor.

The final plan, when implemented, will improve our quality of life by:

- Providing travel mobility, safety, reliability, accessibility and choice of transportation modes for users whether public, private, or commercial and recognizing the varied requirements of local, intra-corridor, and interstate movement;
- Supporting a sound regional economy by addressing the need to move freight efficiently, reliably, and safely through the Corridor;
- Supporting a healthy and vibrant land use mix of residential, commercial, industrial, recreational, cultural and historical areas;
- Respecting and protecting natural resources including air quality, wildlife habitat and water resources;
- Supporting balanced achievement of community, neighborhood, and regional goals for growth management, livability, the environment, and a healthy economy with promise for all;
- Distributing fairly the associated benefits and impacts for the region and the neighborhoods adjacent to or affected by the Corridor.

The result will protect our future with an improved and equitable balance of: livability, mobility, access, public health, environmental stewardship, economic vitality and environmental justice.

Strategic Plan Findings and Recommendations

I. The Need for Action

A1.1 Key Findings – Portland/Vancouver's Unique Trade and Transportation Advantage:

(a) The Portland/Vancouver area's location at the convergence of two major rivers, two transcontinental rail lines, two interstate highways, and one international airport is a unique transportation advantage. This advantage allows companies to transport goods from ships and planes to trucks and rail cars in a low-cost, timely manner. The transportation facilities in the I-5 Corridor are at the heart of this system.

(b) Because of this advantage, Portland ranks first on the West Coast in terms of the value of wholesale trade per capita. Employment in the transportation and distribution sectors represents a higher share of total employment than it does in most other cities, including Seattle, Los Angeles, and Houston.

(c) The critical mass of trade and transportation companies allows all businesses to benefit from "bulk" prices in the transportation industry that they would not enjoy in other, more populated regions.

(d) More than 6,000 distribution and logistics companies employ more than 100,000 people in the metro area and pay them family wages. This accounts for 10% of the region's workforce. The combined payroll for these sectors totals $4.7 billion – which is 13% of the region's total $36 billion annual payroll.

(e) Of the freight moving in the Portland/Vancouver metro area, the majority, 64% is carried by truck. The remainder is carried by a variety of modes including: pipeline (10.8%) ocean (9.7%), rail (5.6%), barge 5.4%, intermodal (4.5%), and air (.1%).

A1.2 Key Findings – Future Growth:

(a) Projected regional growth and an increase in trade are driving the demand for more travel in the I-5 Corridor. Today the Portland/Vancouver area's population is about 1.7 million, by 2020, population is expected to increase to 2.4 million. Likewise, the amount of trade in the region is expected to increase from 168 million tons in 1996 to 275 million tons in 2020.

(b) The I-5 Corridor will experience a significant growth in truck traffic over the next 20 years. Compared to today, conditions will decline in the future under the "No Build" scenario. Vehicle hours of delay on truck routes will increase by 93%, congested lane-miles on truck routes will increase by 58%, and the value of truck delay will increase by 140%.

A1.3 Key Findings – Freeway System:

(a) Over 10,000 trucks are in the I-5 Corridor every day – carrying goods ranging from auto parts and furniture to fruit juice and clothing. Half of the goods they carry come from or are bound for Portland. The value of these shipments is more than $26

billion a year. The value of these shipments is equivalent to one third of the metro area's gross product.

(c) Compared to "Existing Conditions", freeway conditions will decline in the future. As a result of growth, daily traffic demand volumes on I-5 are expected to increase 44 percent from 125,000 in 2000 to 180,000 by 2020. Without transportation improvements in the corridor there will be a significant impact on travel time, delay and congestion.

(d) Under a "No Build" scenario during the evening peak period[1]:
- Vehicle travel times between Downtown Portland and Salmon Creek increase 22%, from 38 minutes in 2000 to 44 minutes in 2020,
- Vehicle hours of delay on all routes in the study area in will increase by 77% from, 18,000 hours in 2000 to 32,000 hours in 2020,
- Congested lane-miles on I-5 and I-205 will increase by 40%, from 24% congested lane miles in 2000 to 33.7% congested lane miles in 2001,
- The value of truck delay in the study area will increase by 140% from $14.1 million in 2000 to $34 million in 2020, and
- Vehicle hours of delay on truck routes in the study area will increase by 92%, from 13,390 hours in 2000 to 25,767 hours in 2020.

(e) "Baseline" improves these measures of transportation performance, but conditions remain worse than today. Comparing Baseline 2020 with today's conditions during the evening peak period:
- Vehicle travel times increase by 5%, from 38 minutes in 2000 to 40 minutes in 2020,
- Vehicle hours of delay for all routes in the study area will increase by 18%, from 18,000 hours in 2000 to 21,477 hours in 2020,
- Congested lane-miles on I-5 and I-205 will increase by 26%, from 24% congested lane miles in 2000 to 30.4% congested lane miles in 2020,
- The value of truck delay in the study area will increase by 88% from $14.1 million in 2000 to $26.5 million in 2020, and
- Vehicle hours of delay on truck routes in the study area will increase by 28%, from 13,390 hours in 2000 to 17,088 hours in 2020.

A1.4 Key Findings – Transit System:

(a) Compared to "Existing Conditions," transit conditions will decline in the future under the "No Build" option. Travel times in the I-5 Corridor will double from 27.3 minutes in 2000 to 55 minutes in 2020. This increase results due to the fact that transit riders will face a transfer from MAX to the bus system at the Expo Center and buses will encounter congestion at the freeway on ramps and across the bridge. Due to the increase in travel time, the number of people using transit in the I-5 Corridor from downtown Vancouver declines from 5.6% in 2000 to 4.9% in 2020, and the operating cost of maintaining current levels of bus service increase significantly due to longer travel times.

[1] Charts that graphically display transportation findings on pages 10 – 20 of this report can be found in Attachment A, starting on page A2.

(b) "Baseline" improves transit travel times due to increased overall transit service in the Region, but travel times remain significantly higher than today (27 minutes today; 41 minutes in 2020). The operating cost to maintain the same level of bus service would likely increase proportionately with the travel time increase.

A*1.5 Key Findings – Heavy Rail System:*

(a) Healthy and viable rail service in the I-5 Corridor is a critical component of the regional economy. It is an integral part of the region's comparative advantage in providing an inter-modal focus of marine, barge, highway, and rail services that contributes to the Portland/Vancouver area's recognition as a major national and international trade and distribution center.

(b) The Region contains five major rail yards and numerous smaller yards and port terminals. The Region's rail system serves the states' largest collection of industrial customers and accesses a major, deep draft, ocean port. Inter-City passenger service (Amtrak/Cascades) operates over private railroad tracks; and the two transcontinental railroads (BNSF and UP) along with Amtrak operate over the BNSF Columbia River Rail Bridge.

(c) Currently, 63 freight trains and 10 Amtrak trains per day cross the BNSF Bridge, not including local switching operations. Freight trains are projected to reach 90 per day in 20 years and long-range, inter- city passenger service plans call for 26 trains per day. Congestion on the region's rail system is approximately 100 hours of accumulated delay per day – this is roughly 50% of the delay experienced in Chicago or Los Angeles. Relatively speaking, there are fewer trains experiencing more delay on our system.

(d) Congestion in the Portland/ Vancouver rail network presents a constraint on the viability of the region's continued economic growth.

(e) Congestion in the rail network further constrains the opportunity for enhanced intercity passenger rail and commuter rail service along this segment of the federally designated Pacific Northwest High Speed Rail Corridor.

(f) The capacity of the Portland-Vancouver rail network is not sufficient to meet current and future freight and inter-city passenger needs. There is insufficient capacity to support future development of the Ports of Portland and Vancouver. There will not be capacity to support increased inter-city passenger service from Eugene to Portland/Vancouver to Seattle.

A1.6 Key Findings – Overall:

(a) Overall, in the absence of both freeway and transit investment in the I-5 Corridor, congestion and delay will grow steadily resulting in the AM and PM periods of congestion spreading into the early morning, mid-day, and evening hours.

(b) Rush hour congestion is a fact of life in an urban area and is to be expected and tolerated to some degree. However, unpredictable delays and congestion throughout

the day cannot be tolerated without an adverse impact on the Portland/Vancouver region's economy and quality of life.

(c) Future delays in the I-5 Corridor could impact the economy in the following ways:
- Freight and trade will incur additional cost from congestion especially during the midday.
- The lack of reliability will increase transportation costs more than the increases in delay.
- Increases in cost and uncertainty will influence business location and expansion decisions.
- The lack of accessibility will limit the ability to attract future jobs in key industrial areas such as the Columbia Corridor.

(d) Congestion on the rail system threatens our region's status as the Pacific Coast's low-cost rail port and puts rail companies and their regional customers at a disadvantage relative to other regions. It also threatens our plans to expand intercity passenger rail between Oregon and Washington.

(e) The problems in the I-5 Corridor cannot be solved with freeway improvements alone. A high quality bi-state transit system is needed to provide an alternative to driving that provides an improvement in transit travel times and reliable service throughout the day.

(f) The problems in the I-5 Corridor cannot be solved with transit, land use, and demand management actions alone. Additional capacity will need to be added to the road system to ensure that today's accessibility and reliability can be maintained and improved.

B1 Recommendation – Overall:

(a) Physical improvements in the I-5 Corridor beyond those "Baseline" projects are warranted and necessary to meet the transportation, economic, and livability needs of the Portland/Vancouver Region.

II. Additional Transit Capacity and Service

A1.1 Key Findings - Transportation Performance:

(a) Express Bus – Long and the Light Rail Loop significantly improve travel times compared to Baseline 2020, and slightly improves travel times compared to today.

(b) Express Bus - Short provides a slight improvement to travel times compared to Baseline 2020, however when compared to existing transit travel times transit trips can be expected to be approximately nine minutes longer than they are today.

(c) Transit ridership across the Columbia River (I-5 and I-205 corridors) is expected to increase under all transit options, with the greatest increase resulting from the Light Rail Loop. Compared to Baseline 2020, Express Bus- Short increases ridership by 38%, Express Bus – Long increases ridership by 63% and Light Rail Loop increases ridership by 94%.

(d) The light rail loop provides the most consistent travel time and the best reliability of the transit options considered due to the fact that it runs in its own right of way, and is not impeded by roadway congestion.

A1.2 Key Findings - Environmental and Community Impacts:

(a) There could be impacts to historic resources for all transit options, however, most of the impacts to historic resources appear to either be indirect or minor.

(b) All transit options are likely to have a moderate impact on fish habitat, due to the fact that they involve new bridges that could have in-stream piers potentially affecting rearing or migration habitat.

(c) Because the improvement area in the I-5 Corridor is highly urbanized, impacts to wildlife habitat, wetlands and native plant communities are likely to be minor for the highway improvements needed to support Express Bus options.

(d) For light rail, the I-5 and I-205 segments would have minor impacts to wildlife, wetlands and plant communities. The current concept for the east/west segment could have moderate impacts to natural areas. Actual impacts for each of the segments would depend on the final alignment.

(e) While it is not possible to make the transportation improvements considered in this planning effort without some level of impact to existing properties, the impacts to properties are highly dependent on the design and alignment of the projects.

(f) For freeway improvements in the I-5 Corridor that are needed to support Express Bus, the greatest potential for impacts to property is on Hayden Island.

(g) For the light rail loop, the I-5 and I-205 segments would have few displacements. As studied for this planning effort, it appears that there is a greater potential for property impacts on the east/west segment of the light rail loop. Refinement of various alignment options could reduce or avoid many of these impacts.

A1.3 Key Findings - Cost:

(a) Express bus is the lowest cost of transit options due to the fact that it operates on the highway in an already established right of way (Express Bus – Short = $14 million and for Express Bus – Long = $32 million (in 2001 dollars)).

(b) Light rail is the highest cost of the transit options due to the fact that it operates in its own right-of-way with a track system ($1.222 billion (in 2001 dollars)).

(c) The actual costs will vary depending on the final design, mitigation, inflation and other factors.

A1.4 Key Findings - Other:

(a) Compared to light rail, buses have the following advantages:
- Buses can be flexibly routed to serve different origins and destinations, and to address particular traffic congestion problems.
- Buses can more effectively serve outlying population centers such as Battle Ground and Ridgefield.
- Buses can be readily placed on new routes.

(b) Compared to light rail, express buses serve a more limited transportation market. As evaluated, express bus was a point-to-point system that served the commuter market and ran Monday – Friday in the morning and evening peak periods only.

(c) Compared to express bus, light rail has the following advantages:

- Does the most to promote balanced (multi-modal) use of the system – transit ridership in downtown Vancouver increases by 40-50% with light rail, compared to 8-10% for express bus.
- Serves a range of trip purposes throughout the day, seven days a week.
- Provides consistent service to multiple points along the line and can be a catalyst for community redevelopment.
- Is consistent with regional and local goals, and reinforces the Vancouver and Portland Central cities and regional centers such as Vancouver Mall and Gateway.

(d) Across all measures, I-5 performs better when paired with light rail than with the express bus packages that were tested because light rail attracts more riders.

B1 Recommendations –Transit:

(a) Light rail loop system, including feeder buses, and new and expanded park and ride lots, should be established in Clark County. In the interim, bi-state transit needs will continue to be served by express bus.

(b) The light rail loop system should provide transit mobility, both within Clark County and between Washington and Oregon, in the I-5 and I-205 Corridors.

(c) The light rail loop system may be constructed in phases.

(d) Peak-hour, premium express bus service in the I-5 and I-205 Corridors to markets not well served by light rail may be provided as a supplemental service to light rail.

(e) Transit service in the Corridor should be increased over the next 20 years as planned in the Metro and RTC 20-year transportation plans.

III. Additional Freeway Capacity

A1 Key Findings –Fixing 2-Lane Sections:

(a) There are three, remaining two-lane sections on I-5 in the study area: 1) I-84-Fremont Bridge in the vicinity of the Rose Quarter, 2) Delta Park to Lombard, and 3) 99th St. to I-205 in Clark County.

(b) Widening these two lane sections to three lanes, combined with an overall improvement in transit service throughout the Portland/Vancouver region as called for in Baseline 2020, allows freeway travel times though the corridor to remain about the same as they are today.

(c) An environmental impact statement (EIS) has been completed for the project to widen I-5 to 3-lanes in each direction between 99th St. to I-205 in Clark County. This project is ready for construction and awaits funding.

(d) An environmental assessment is currently underway for the project to widen I-5 to 3 lanes in each direction between Delta Park and Lombard. The environmental impacts of this project (air quality, natural resources, property impacts) are not expected to be significant.

(e) At Columbia Boulevard in Portland, the on-ramp currently joins the freeway to become the third-lane on the freeway, thus providing ease of entry to the freeway for trucks. With the widening to three lanes, the Columbia Boulevard on-ramp would become a merge lane. Analysis shows that we can expect the reconfigured on-ramp merge from Columbia Boulevard to operate acceptably with this improvement. The existing ramp has a rising grade of 6% and enables heavy trucks to attain a speed of only 25 mph when entering the freeway. The Proposed ramp would have a 4% grade and a 1,400 foot acceleration lane enabling trucks to attain a speed of 45 mph within the acceleration lane before entering the freeway. The new on-ramp would operate at a level-of-service "C-D" during the peak periods which indicates generally smooth merging conditions.

(f) Widening I-5 to 3-lanes in the vicinity of the Rose Quarter is likely to have implications for the entire freeway loop around downtown Portland. Changes to this or any other part of the freeway loop should consider the implications on the entire loop.

(g) There are significant challenges at the junction of I-5 and I-84 near the Rose Quarter. These include safety and operational problems due to closely spaced interchanges and the land use objectives for the Rose Quarter area and Lloyd Center district.

B1 Recommendations – Fixing Two-Lane Sections:

(a) I-5 should be widened to 3-lanes in each direction between: a) Delta Park and Lombard and b) 99th St. and I-205 in Clark County.

(b) The Delta Park to Lombard project should go to construction as quickly as possible.

(c) The transportation issues south of the I-5/Fremont Bridge junction must be addressed and solved. The Mayor of Portland, the Governor of the State of Oregon, and JPACT should join together to appoint a group of public and private sector stakeholders to study and make recommendations for long-term transportation solutions for the entire I-5/I-405 freeway loop.

A2.1 Key Findings –Overall Freeway Improvements:

(a) Two central questions for this planning effort have been:
- Should the freeway be 3-through lanes in each direction between I-84 in Portland and I-205 in Clark County, or it should be expanded to 4-lanes in each direction?
- Should there be new river crossing capacity for vehicles?

(b) The current configuration of interchanges close to the existing Interstate Bridges results in operational problems that make the 6-lane bridge function more like a 4 lane bridge. This results in significant congestion and delay during the morning and evening peak periods. All option packages for making the freeway 3-lanes or for expanding it to 4-lanes assumed an additional or new bridge in the I-5 Corridor to address the problems with the existing bridges.

(c) Compared to Baseline 2020, both the 3-lane and 4-lane options significantly improve travel times in the Corridor.
- During the evening peak periods, the Baseline 2020 travel time between downtown Portland and downtown Vancouver for autos and trucks is 30 minutes. Under the 3-lane options travel times are reduced by about 9 minutes; under the 4-lane option travel time is reduced by 12 minutes.
- During the evening peak periods, travelers will experience about 21,450 hours of delay. Under the 3-lane options vehicle hours of delay is reduced by between 22-26% to approximately 16,000 hours of delay. Under the 4-lane option delay is reduced by 26%, also about 16,000 hours of delay.

(d) Improved travel times and reduced delay observed in the 3-lane and 4-lane option packages are primarily attributable to the new capacity across the Columbia River in the I-5 Corridor.

(e) If the 4 lanes are configured as a reversible express lane system (5-lanes in the peak direction and 3 lanes in the non-peak direction) additional transportation performance benefits can result. Time travel savings increase by an additional 10 minutes and delay is reduced by an additional 13% to approximately 13,000 hours of delay.

(f) Options that add a 4th lane to the freeway in each direction have the potential to significantly impact traffic operations on the Portland freeway loop. The 4-lane options would increase southbound traffic volumes on I-405 by 9-12%, from 18,293 vehicles under 2020 Baseline to 20,000-25,000 vehicles under the 4 lane options. Near the Rose Quarter traffic volumes would by 15-30%, from 12,525 vehicles under 2020 Baseline to 14,361-16,351 vehicles under the 4-lane options. The higher traffic volumes would be observed if the 4th lane were added as a reversible express lane.

(g) Options that limit the freeway to 3-lanes in each direction would increase southbound volumes on I-405 by less than one percent compared to Baseline 2020, and would increase southbound volumes on I-5 near the Rose Quarter by 5-7%, also compared to Baseline 2020.

(h) I-5 is the most direct route for the majority of trips across the Columbia River due to the high number of employment and other activity centers that are served by I-5. With a new river crossing, people have a better ability to choose the shortest and most direct path for their trip.

(i) With the improvements on I-5, volumes on the I-205 Bridge decrease because some trips that now occur on I-205 would shift to I-5. This allows the I-205 to better serve future planned growth in the I-205 corridor.

A2.2 Key Findings –Environmental and Community Impacts:

Historic:

(a) There could be impacts to historic resources for both the 3-lane and the 4-lane options, however, most of the impacts to historic resources appear to either be indirect or minor.

(b) Expanding the freeway to four lanes in each direction results in the potential for one major impact to one historic property owned by Multnomah County.

(c) A replacement bridge would involve a full impact on the Columbia River Bridges. The existing northbound bridge is listed on the National Register of Historic Places and the southbound bridge is eligible for listing.

Natural Resources:

(a) Both the 3-lane and the 4-lane options would have a moderate impact on fish habitat, because they involve new bridges that could have in-stream piers that would potentially effecting rearing or migration habitat.

(b) Because the improvement area in the I-5 Corridor is highly urbanized, impacts to wildlife habitat, wetlands and native plant communities are likely to be minor for the Baseline, 3-lane and 4-lane options.

Property Impacts:

(a) While it is not possible to make the transportation improvements considered in this planning effort without some level of impact to existing properties, these impacts are highly dependent on the design and alignment of the projects.

(b) For improvements in the I-5 Corridor, the greatest potential for impacts to property is on Hayden Island. A replacement bridge has the least number of impacts due to the fact that it follows near the existing bridge and freeway alignment. In Washington, the design of freeway interchange improvements between SR 14 and SR 500 can greatly influence property displacements and impacts. Interchange improvements in Washington can be designed to minimize the number of property impacts.

Air Quality

(a) In the future air quality is expected to be considerably better than it is today for CO, VOC and NOx. This is primarily due to cleaner burning fuels and lower emission vehicles. Comparing Existing Conditions to Baseline (2020) CO = 30% reduction, VOC = 73% reduction and NOx = 85% reduction.

(b) While air quality is expected to improve in the future, the 3-lane and the 4-lane options have the potential to increase CO, VOC, and NOx emissions when compared to Baseline 2020.

(c) Based on the analysis completed to date, the differences among option packages regarding air quality are relatively small. Adding a fourth lane to the freeway appears to have the most impact on air quality, compared to other options.

(d) Air quality impacts are a concern that has been raised by advocates and community members alike. Additional examination of air quality impacts is warranted.

A2.3 Key Findings –Cost:

(a) As conceptualized, preliminary cost estimates for the freeway options in 2001 dollars are:

- 3-lane = $1 billion (includes costs for interchange improvements between SR 500 and Lombard, and new river crossing capacity).
- 4-lane =$1.6 billion

(b) The actual costs will vary depending on the final design, mitigation, inflation and other factors.

B2 Recommendations – Overall Freeway Capacity:

(a) The Task Force recommends the I-5 freeway between the Fremont Bridge in Portland and the I-205 interchange in Vancouver be a maximum of 3 through lanes in each direction.

(b) The Task Force considered expanding the capacity of the Corridor to 4 through lanes in each direction, but does not recommend this option.

A3 Key Findings –High Occupancy Vehicle (HOV) Lanes:

(a) Provision of new river crossing capacity makes a continuous HOV system between Portland and Vancouver a possibility.

(b) HOV performance is highly dependent upon the design of the new freeway system. Current design concepts require changes to better accommodate the HOV system. In some cases the bridge design affects HOV performance, for example, multiple bridges split freeway traffic and would limit HOV access. In addition, direct access ramps will need to be considered at key locations such as SR 500.

B3 Recommendations - High Occupancy Vehicle (HOV) Lanes:

(a) Further exploration of HOV in the EIS is required to optimize the design of the system and to determine its overall effectiveness.

(b) One of the 3 through lanes should be designated for use as a high occupancy vehicle (HOV) lane during the peak period, in the peak direction. Further exploration is required in the environmental impact statement to optimize its design, particularly within the Bridge Influence Area; and to determine its overall effectiveness in meeting the Regional objectives for the I-5 Corridor.

A4 Key Findings –Columbia Blvd Interchange:

(a) Making Columbia Blvd. into a full access interchange will provide a direct connection to I-5 for one of the Region's busiest freight routes. It will reduce congestion at the Marine Dr. interchange, improve truck utilization of Columbia Blvd., and reduce traffic in the Kenton neighborhood.

(b) Design of this interchange needs to be done in conjunction with the design of the entire Bridge Influence Area to ensure overall system functionality.

B4 Recommendations – Columbia Blvd. Interchange:

(a) The Columbia Blvd. interchange in Oregon should be made into a full interchange (add ramps for southbound traffic to exit at Columbia Blvd. and for northbound traffic to enter the freeway from Columbia Blvd.).

(b) Both the Delta Park to Lombard project and the Columbia Blvd. interchange project should be considered for design at the same time. As part of this design effort, there needs to be a phasing and financing plan, with the recognition that the Delta Park project is the first priority.

IV. Bridge and Bridge Influence Area (SR 500 to Columbia Blvd.)

A1.1 Key Findings – Freight Mobility and the Economy

(a) According to USDOT's Freight Analysis Framework the I-5 Corridor carries the highest volume of freight in the states of Oregon and Washington. It is the key route for freight originating or destined for Portland and Seattle.

(b) USDOT's Freight Analysis Framework also shows this segment of I-5 as one of the most congested freight routes in the nation.

(c) By 2020, if we make no improvements in both our freeway and transit system, we can expect delay to nearly double from about 18,000 hours today to about 32,000 hours in 2020. This delay and the resulting congestion and loss of reliability have an economic cost to our community. Not only will the cost of doing business increase, individual business productivity will be reduced, resulting in a poor quality transportation system to key employment and industrial centers also threatens our long-term ability to attract and retain living wage employment in the region.

(d) The BIA improvements would:
   i. Reduce bottlenecks on the freeway and balance traffic flow.
   ii. Improve key freight interchanges including Columbia Blvd., Marine Drive, and Mill Plain Blvd.
   iii. Increase reliability and predictability on I-5.
   iv. Improve bi-state transit service.

(e) The benefits for the economy and freight include:

   i. Improved access to and from key industrial destinations such as Port of Vancouver, Rivergate and Columbia Corridor.
   ii. Improved access to and from key employment centers such as downtown Portland and downtown Vancouver, Columbia Corridor, Swan Island, and Lloyd Center.
   iii. Improved travel times and reduced congestion on I-5.
   iv. Increased reliability and predictability in transit service.

(f) The benefits of BIA improvements help to create a positive business climate and help make the Region an attractive place to locate and expand business.

A1.2 Key Findings – River Crossing Capacity/Bridge Influence Area

(a) Overall, the Bridge Influence Area (BIA) concepts show an improvement in freeway traffic speeds during the peak periods compared "Existing Conditions" and "Baseline."

(b) Within the range of concepts considered, however, there are some important differences:

   i. A replacement bridge provides the best performance in both the morning and the afternoon peak period.

ii. A 8-lane system plus the arterial connection performs better in the afternoon than in the morning. The morning problems with this concept are primarily a function of design. The Concept places the HOV lane on a separate bridge. Because access to the separate bridge is limited in the BIA, many of the HOV trips return to the mainline just as they approach the existing bridge. This is occurring in about the same location as where the SR 14 on-ramp merges onto I-5 south. In combination, the two merges in the same location create congestion on the freeway. Additional engineering work may be able to solve the problems we observe for this Concept.

iii. A collector/distributor system shows the least improvement in performance. In the morning it provides some improvement over "Existing Conditions" and "Baseline," however, in the afternoon it provides little benefit. The design problems associated with this system are the least "fixable" due to its configuration.

(c) An arterial bridge, constructed in combination with additional freeway lanes across the river could benefit the overall performance of the freeway system. It would provide a separate local connection across the river, reducing the need to use the mainline freeway system. The "Baseline" analysis shows that an arterial roadway would be heavily used primarily by localized trips.

(d) A two lane arterial-only bridge (no increase in freeway lanes) will not address the problems on the freeway. The arterial-only connection would only slightly improve freeway performance by removing local trips. Users of the freeway system would continue to experience a significant increase in congestion and delay throughout the I-5 Corridor.

(e) BIA improvements are likely to result in minimal traffic increases on I-5 outside the Bridge Influence Area. Traffic, however, will increase on roadways with direct access to the BIA. These traffic increases are different in Portland and Vancouver. Portland would see increases on arterial streets near the BIA, while Vancouver's increases would be on state freeways.

A1.3 Key Findings – Cost

(a) Potential highway and transit costs in the BIA are all in the range of $1.2 billion (in 2001 dollars). This estimate includes major maintenance and seismic retrofit costs for the existing bridges.

(b) The actual costs will vary depending on the final design, mitigation, inflation and other factors.

(c) There is not a significant enough cost differential to eliminate any of the options based on cost alone. A full exploration of life cycle costs of the existing bridges and seismic retrofit costs should be completed during the EIS.

A1.4 Key Findings – Property Impacts

(a) Potential property impacts vary depending on the Concept. Potential impacts range between 15-43 displacements and 42-59 encroachments for the full bridge influence area (SR 500 to Columbia Blvd.). Generally, for all Concepts, the greatest number of potential displacements and encroachments would be to non-residential properties.

(b) The replacement bridge Concept has the least number of likely property impacts due to the fact that the structure would be located near the existing bridge and freeway alignment.

(c) The majority of the property impacts would occur in Portland where improvements cross Hayden Island.

(a) Additional survey, engineering and design work in the EIS process is needed before the actual number and extent of the displacements and encroachments is known.

A1.5 Key Findings – Environmental Impacts

(a) Since all Concepts included additional crossings of the Columbia River and North Portland Harbor, there may be potential impacts to fish habitat associated with bridge construction.

(b) Three of the four Concepts encroach into the Delta Park green space area (60-120 feet depending on concept).

(c) Three of the four Concepts have encroachments onto the radio tower wetlands site (100-240 feet depending on concept).

(d) All Concepts have encroachments onto the Ft. Vancouver Historical Site (60-120 feet depending on concept). An encroachment over 60' would impact the FHWA building located near the SR14 ramp to I-5 northbound. However, no historic buildings would be impacted.

(e) All Concepts would impact the Historic I-5 Columbia River Bridge with the full replacement bridge providing the most impact to the historic structure. The existing northbound bridge is registered on the National Register of Historic Places and the southbound bridge is eligible for registration.

(f) The EIS process will allow a full exploration of impacts to natural, cultural, historic, fish and park resources to determine the best balance for the environment and the community. Additionally, potential impacts to the radio tower wetland and Delta Park vary by design concept and would under go a detailed evaluation in an EIS process.

A1.6 Key Findings – Safety

(a) BIA improvements address traffic safety concerns resulting from the high number of closely spaced entrances and exits. Improvement concepts would significantly reduce the number of entrances and exits, by utilizing collector-distributor lanes adjacent to

the freeway lanes. In addition, for those locations where ramps remained closely spaced bridges would typically be used to separate the entering and exiting traffic.

(b) None of the concepts considered would encroach on the restricted air space for the Pearson Air Park.

(c) Impacts to marine navigation would be highest for those concepts that build a supplemental bridge. Multiple bridges with low-level lift span bridges would be built in close proximity to one another. Marine navigation hazards in the shipping channel would increase. The replacement bridge concept designed a high level-fixed span bridge that would relocate the navigational channel from the north shore to the center of the Columbia River. (Improvement to the rail bridge would also occur.) This concept would virtually eliminate the need for barge operators to navigate a curved path between the bridges.

(d) Life-safety and emergency response to a catastrophic event is also a safety concern. The existing bridges do not meet current seismic standards and in the event of a major earthquake, they could fail. New bridges would be built to higher standards and would have a higher probability of withstanding a major earthquake.

A1.7 Key Findings – Implementation

(a) Bridge concepts with 10 freeway lanes, and bridge concepts with 8 freeway plus arterial lanes, appear promising.

(b) Collector-distributor bridge systems have design problems and therefore provide little transportation benefit; such design problems will be difficult to overcome.

(c) A joint use (HWY/LRT) bridge could be cost effective, but needs further study in an EIS. Constructing both LRT and freeway improvements on a single bridge could potentially result in some cost savings compared to building separate bridges. However, many other factors should also be considered, including right-of-way impacts, whether the existing bridges will be maintained or replaced, implications for siting the LRT station on Hayden Island, and construction staging.

(d) Supplemental or Replacement Bridge: The existing bridges provide three lanes of traffic in each direction. They cannot be widened economically. To provide an addition of two lanes of traffic in each direction (for a total of up to five lanes), the bridges will either have to be replaced with a wider bridge, or a supplemental bridge will need to be constructed adjacent to the existing bridges. While further study is needed to conclude whether a new bridge should be supplemental to the existing bridges or should replace them, the analyses have identified several factors that will influence that decision:

i. Traffic Operations: With a supplemental bridge, freeway traffic in one or both directions would be split into two traffic streams across the river. With two separate traffic streams, along with many closely spaced interchanges near the river, it is difficult to balance traffic flows, and the analyses indicated that congestion would be significant on the bridge serving the near-by interchanges.

By comparison, a replacement bridge would keep all directional traffic on one bridge, resulting in more balanced traffic flow.

ii. Cost: Current cost estimates indicate that there is little cost differential between a supplemental and a replacement bridge. Further exploration of cost issues will need to continue in an EIS.

iii. Right-of-way impacts: Replacing the existing bridges with a new bridge would focus the new construction within the existing right-of-way, thus minimizing impacts to adjacent parcels on Hayden Island and in downtown Vancouver.

iv. Impacts to Property and Natural, Cultural and Historic Resources: All concepts are likely to have an impact on one or more of the key resources in the BIA. Concepts that build a new bridge (either supplemental or replacement) east of the existing bridges (upstream) have a higher probability of impacting the Fort Vancouver National Historic Site than those that replace the existing bridges in place, or those that build a new supplemental bridge to the west (downstream).

(e) Some river crossing Concepts include the conversion of one of the existing freeway bridges for LRT use. While that is technically feasible, the cost of retrofitting the bridges to include the modified decking, electric systems, cathodic protection, and other conversion costs would be significant. If upgrading the bridge to meet current seismic standards is required, the retrofit costs could easily exceed the costs of a new LRT bridge. Further study of this concept would require a detailed investigation of the retrofit costs, and a comparison of those costs to a new bridge.

(f) Concepts that provide for separate LRT and freeway bridges could potentially allow the LRT and highway projects to move forward independently of each other. However, further analyses are required to address the joint or separate bridge decision. Such a decision is likely to be based on LRT and highway alignment design requirements, right-of-way and environmental impacts, land use opportunities and constraints relative to siting an LRT station on Hayden Island, construction costs, traffic staging, operating concerns, and potentially other concerns as well.

(g) If subsequent studies indicate that the two modes can and should be considered separately, there is potential timesaving for LRT, which may be implemented in a shorter time period given that substantial environmental and design work has already been completed in the South/North EIS.

B1 Recommendations –Bridge Influence Area:

(a) New transit and vehicle capacity should be constructed across the Columbia River in the I-5 Corridor.

(b) For vehicles, there should be 3 through lanes (and not more than 3) in each direction and up to two auxiliary and/or arterial lanes in each direction across the Columbia River (total 5 lanes in each direction). For transit, there should be two light rail tracks across the Columbia River in the I-5 Corridor.

(c) In the Bridge Influence Area, SR 500 to Columbia Blvd., the freeway needs to be designed to balance all of the on and off traffic, consistent with 3 through lane Corridor capacity and up to 5 lanes of bridge capacity, in each direction.

(d) In adding river-crossing capacity and making improvements in the Bridge Influence Area, every effort should be made to: A) avoid displacements and encroachments, and B) minimize the highway footprint in the Corridor, and C) minimize use of the freeway for local trips.

(e) The proposed design should include safety considerations.

(f) As a first step towards making improvements, the bi-state region should undertake an Environmental Impact Study for a new river crossing and potential improvements in the Bridge Influence Area.

(g) In the EIS, the following BIA elements should be studied:
   i. 8 or 10 lane freeway concepts;
   ii. Replacement or Supplemental Bridge;
   iii. Joint use or non-joint use Freeway/LRT Bridge;
   iv. 8-lane freeway with joint LRT/2-lane arterial; and
   v. HOV throughout the I-5 Corridor.

(h) Evaluate whether or not a 6-lane freeway plus two 2-lane arterials, one in the vicinity of the I-5 corridor and one in the vicinity of the railroad bridge, is a viable alternative for consideration in the EIS.

(i) The following concepts do not show promise for addressing the Corridor's problems and should not be considered in an EIS:
   i. Collector-Distributor bridge concepts;
   ii. Arterial-only bridge concepts; and
   iii. Tunnel concepts.

(j) Special consideration needs to be given to the architectural aesthetics of any new structures to be built, particularly any new bridge structures.

V. Additional Rail Capacity

A1.1 Key Findings – Freight and Inter-City Passenger Rail

(a) Several low-to-medium cost solutions can significantly improve existing rail capacity. A series of projects have been identified by the railroads, Ports and the Oregon and Washington Departments of Transportation as viable, if funding were available. They are already well into planning or development, are operational, or are "relatively" low cost ($132 million) compared to more major improvements.

(b) Additional passenger service in the Portland-Vancouver corridor will require major rail capacity improvements north of Vancouver, and south of Portland, as well as agreements between the railroads and affected state departments of transportation.

(c) The principal "incremental" improvements include:

i. Two-main track bypass around BNSF's Vancouver Yard;
ii. Revised crossovers and higher turnout speeds at North Portland Junction;
iii. Second main track and increased track speeds between N. Portland Junction, Peninsula Junction, and Fir on UP's Kenton Line;
iv. Expanded capacity and longer tracks at Ramsay and Barnes Yards; and
v. Connection in the SE quadrant at E. Portland between UP's Brooklyn and Graham Lines.
vi. Increased track speeds between UP Willsburg Junction and UP Albina.
vii. An upgraded "Runner" or River Lead between Albina and East Portland, and a second track through the East Portland interlocking.

(d) The "incremental improvements" are sufficient to address capacity needs for approximately 5 – 10 years, given a growth rate of 1.625% - 3.25% per year, at a performance level of 200 hours of delay (96 hours).

(e) In approximately 10 - 20 years, additional improvements beyond the identified "incremental improvements" will be needed to accommodate growth of both inter-city passenger and freight rail, depending on economic growth rates and acceptable levels of service.

(f) Within the next 10 to 20 years, improvements to accommodate the growth on the rail system may include: the separation of the UPRR and BNSF rail lines in the N. Portland Junction and additional capacity across the Columbia River.

(g) The incremental improvements, and later additional improvements noted in (e) above, will provide acceptable freight capacity for 10 – 20 years, and some marginal capacity to accommodate the 10-year plans for 8 additional inter-city passenger trains, but not for commuter rail service.

(h) Determining the exact nature and cost of these incremental and additional, future improvements will require further study.

(i) If rail capacity does not increase, reliability will decline and travel time and shipping costs may increase. Rail shippers may be forced to divert traffic, change modes or relocate. Inter-city passenger service may not be able to be expanded.

(j) If inter-city passenger rail service is to expand, privately-owned rail facilities will require public-private cooperation to address capacity issues that constrain the system.

(k) The economics of freight movement make freight rail not as competitive with trucks at distances less than 500 miles, depending on commodity shipped.

(l) If capacity improvements are not implemented, rail congestion will increase, and shippers will consider alternative modes of moving freight, particularly by truck.

(m) The cost of delay to the freight railroads ----- as related to direct rail operating costs --- will vary depending on geographic area, and types of trains and commodities shipped. An average direct cost of delay is estimated at $300 per hour of train delay. This figure, however, does not reflect the full impacts of the costs of delay, to both the railroads (potential loss of business revenue), and to the regional economy (jobs; loss of local businesses; and impacts on port development).

(n) A lift span in the center of the railroad bridge would result in greater and safer use of the center span of the Interstate Bridges by barge traffic, resulting in fewer lifts of the Interstate Bridge and reducing delay on I-5.

A1.2 Key Findings – Commuter Rail

(a) Commuter rail service cannot operate effectively on the freight rail network over the next 10 – 20 years, even with the identified incremental and additional network improvements. Commuter rail service could be instituted only on a separated passenger rail-only network. A separated passenger rail-only, high-speed rail system would improve intercity passenger rail service and could drive the feasibility of commuter rail in the region. However, the capacity analysis shows taking intercity passenger rail service off of the freight rail network would not free up enough capacity on the existing rail network.

(b) The unconstrained commuter rail system modeled for the I-5 Partnership process provides fast travel times. It serves areas not well served by transit, particularly suburban and outlying areas (Salmon Creek, North Clark County, I-205 Corridor and East Clark County). It does not appear to serve the same market as light rail.

(c) The cost of a separated passenger network is $1.5 -$1.7 billion. These higher costs have a higher level of uncertainty than the other studied options. This uncertainty is attributed to geologic issues, the potential for significant right-of-way costs, the need for environmental mitigation, and the need for additional connecting transit service, feeder bus service, and Rose Quarter station and connections.

(d) The Commuter Rail service modeled assumes new dual tracks over the entire length of service area (Ridgefield to Washougal). Train frequencies, average speed, travel times, and estimated ridership is based on dual tracks throughout proposed network.

A combination of dual tracks, and single tracks with periodic sidings for train meets and passing may be possible, but will likely result in less frequent service, slower average speed, longer travel times, and reduced ridership.

(e) Potential commuter rail right-of-way displacements associated with a new, dual-track system, include approximately: 35 residences on the Ridgefield line, 55 residences on the Washougal line, 4 to 5 industrial properties in Portland and 8 in Vancouver. The alignment may also require the relocation of SR 14 or the Evergreen Highway at several "pinch points" along the Washougal line. Finally, there will likely be additional neighborhood impacts from noise, traffic, retaining walls, and the high volume of feeder bus connections necessary to serve the 78th St./Lakeshore and Ridgefield stations.

(f) Further study would be needed of the capacity of a joint LRT/transit bus/commuter rail service transit center at the Rose Quarter Transit Center to accommodate the high volume of transferring transit riders anticipated. The commuter rail service modeled assumes sufficient LRT and bus capacity for the necessary regional connections, but does not include the cost for a Transit center. Finally, this particular alignment is not consistent with the City of Portland's plan designation of Union Station as its Regional Transportation Center.

(g) Commuter rail may impact the direction of growth in the region by facilitating the development of lower density residential housing patterns in suburban and outlying areas of Clark County, instead of to more serviceable urban locations.

(h) The environmental impacts from commuter rail include the crossing of significant wetlands by the Ridgefield line, and the mitigation costs are not included in the above cost estimates.

(i) In regions with similar population characteristics as the Portland/Vancouver area, all-day commuter rail service is not common. Most such systems operate peak-period service only. Systems that offer limited mid-day service have generally experienced a 10 - 20% increase in ridership over their daily, peak period ridership. Four-hour PM peak ridership estimates is 8,150, and using the 10 - 20% factor, 8,965 - 9,780 all-day riders.

(j) As modeled, commuter rail with the light rail transit loop will reduce river crossings by 1,700 vehicles during the 4-hour PM peak period, or about 560 vehicles in the peak hour, both directions, both bridges. This is a 2% reduction in vehicle crossing of the Columbia River in the PM peak four hours.

(k) Commuter rail creates potential funding competition between it and LRT because both are eligible for the same federal "New Starts" funding pool.

B1.1 Recommendations – Freight Rail

(a) The proposed Bi-State Coordination Committee should establish a public/private forum to implement these rail recommendations. The "Bi-State Rail Forum" should be comprised of representatives from Oregon and Washington Departments of Transportation, regional planning agencies (Metro, RTC), Ports of Portland and Vancouver, cities of Portland and Vancouver, Amtrak and the Union Pacific and Burlington Northern/Santa Fe Railroads. The Rail Forum would serve as an advisory group to the Bi-State Coordination Committee for the identification of needed rail capacity improvements, highway/rail grade separations, and Port access projects.

(b) The Bi-State Coordination Committee, through the Rail Forum, should initiate an aggressive program to:

i. Facilitate the efficient rail movement of freight in the Portland/Vancouver region;

ii. Coordinate the multi-modal transportation services offered in the area to increase port access and streamline the movement of freight throughout the I-5 Corridor;

iii. Coordinate with other freight movers (truck, barge, marine, aviation) to facilitate inter-modal connections, minimize conflicts among modes, and maximize cooperation; and

iv. Develop strategies to implement the specific findings of the I-5 Partnership Rail Capacity Study, including prioritizing and scheduling the "incremental improvements."

v. Study and pursue the rail infrastructure improvements required to accommodate anticipated 20 year freight rail growth in the I-5 Corridor and frequent, efficient intercity passenger rail service between Seattle, Portland and Eugene. This may include: the separation of the UPRR and BNSF rail lines in the N. Portland Junction and additional capacity across the Columbia River.

(c) The Bi-State Coordination Committee, through the Rail Forum, should also:

i. Negotiate the cost allocation responsibilities between public and private stakeholders;

ii. Work collaboratively with regional governments and agencies to advocate for the funding and implementation of rail projects at federal, state, regional and local levels; and

iii. Explore means to facilitate the operation of the BNSF Columbia River Rail Bridge by seeking funding for the replacement of the existing "swing span" with a "lift span" located closer to the center of the river channel. Locating a "lift span" in the center of the river will facilitate safer barge movements between the I-5 Interstate Bridge and the BNSF rail bridge. A "lift span" can

be opened and closed more quickly than a "swing span", thus reducing the delay of crossing the river for freight rail.

iv. Coordinate with the Congressional delegations of both states, regional agencies, and railroads, to encourage the US Coast Guard to recognize the hazard to navigation caused by the existing BNSF railroad bridge, and to award Truman-Hobbs Act funding to replace the existing "swing span" with a "lift span."

B1.2 Recommendations – Inter-City Passenger Rail

(a) The Bi-State Coordination Committee, through the Rail Forum, should:

i. Coordinate efforts by both states to encourage greater funding at the state and federal level for additional inter-city passenger rail service along the federally designated, Pacific Northwest High Speed Rail Corridor, recognizing the need to ensure compensating capacity to the private railroads for any loss of freight capacity;

ii. Coordinate with the Congressional delegations of both states to encourage passage of pending federal legislation for enhanced funding of High Speed Rail service in the Corridor; and

iii. Work cooperatively with freight railroads to add capacity to the existing rail lines, where appropriate, to enable additional operation of inter-city passenger rail service. This capacity might be achieved either by compensating capacity used by the addition of inter-city passenger trains on the freight network rail lines, or by separating passenger train service from the freight network and putting it on a passenger rail-only network, as appropriate; and

iv. Support efforts to add capacity outside the Portland/Vancouver region that will improve train speeds and enable additional intercity passenger rail service.

B1.3 Recommendations – Commuter Rail

(a) Commuter rail should not be studied in an EIS at this time.

VI. Land Use and Land Use Accord

A1 Key Findings –Land Use:

(a) Without changes in land use policy, the following land use development trends can be expected, regardless of the transportation actions taken in the I-5 Corridor:

i. Population and employment growth in the Portland/Vancouver region are developing in a dispersed pattern. A significant share of households and employment are locating at the urban fringe, within adopted zoning.

ii. There will be more job growth in Clark County than anticipated in our current adopted plans. Even with a reduced percentage of commuters crossing the river, I-5 will be congested.

iii. Industrial areas are at risk of being converted to commercial uses, threatening the availability of industrial land in the Portland/Vancouver region and increasing traffic congestion in the I-5 Corridor.

(b) Without investment in the I-5 Corridor, we can expect that traffic congestion and reduced travel reliability will have an adverse economic effect on industries and businesses in the Corridor.

(c) With highway and transit investments in the Corridor, there will be travel-time savings that can be expected to have the following benefits:

i. Attract employment growth toward the center of the region to the Columbia Corridor along the I-5 Corridor from elsewhere in the region;

ii. Strengthen the regional economy by attracting more jobs to the region;

iii. New job opportunities for residents near the I-5 Corridor because of their close proximity to the Corridor improvements being considered; and

iv. Mixed use and compact housing development around transit stations.

(d) Highway and transit investments in the Corridor also carry risks if growth is not well managed:

i. Increased demand for housing in Clark County due to the location of jobs in the center of the region;

ii. Increased pressure to expand the Clark County urban growth area along the I-5 Corridor to the north; and

iii. Industrial areas are at greater risk of being converted to commercial uses at new and improved interchanges with the improved travel times at these locations.

(e) Growth must be managed to ensure that:

i. Growth in Clark County does not result in new capacity being used by commuters, instead of for goods movement;

ii. The expected life span of investments is not shortened;

iii. Scarce industrial land is not converted to commercial uses; and

iv. Local jurisdictions implement necessary zoning and regulatory changes to attract mixed use and compact housings around transit stations.

(f) The recommendations and potential improvements called for in this strategic plan are largely compatible with state, regional and local land use plans. **(See Attachment C, Page A23.)**

B.1. Recommendations – Land Use and Land Use Accord

(a) To protect existing and new capacity and support economic development, RTC and Metro, along with other members of the current Bi-State Transportation Committee, should adopt and implement the Bi-State Coordination Accord. **(See Attachment D, Pages A36)**. Key elements of the Accord include the following:

i. Jurisdictions and agencies agree to protect the I-5 Corridor and will manage development to:
   1. Preserve mobility and protect industrial land along I-5;
   2. Protect existing, modified and new interchanges;
   3. Adopt development plans for transit station areas; and
   4. Coordinate management plans.

ii. The Bi-State Transportation Committee will expand its role to review and advise JPACT, RTC, other councils, commissions and boards on:
   1. Management plans, interchange plans and agreements and transit station plans for the I-5 Corridor; and
   2. Other transportation, land use and economic development issues of bi-state significance.

iii. Jurisdictions and agencies agree before new river crossing capacity is added to adopt drafts of management plans, agreements and actions and include in environmental documents.

iv. Jurisdictions and agencies agree before I-5 is widened at Delta Park to:
   1. Form the Bi-State Coordination Committee; and
   2. Have the Committee review environmental documents.

v. Complete plans to manage existing interchanges with deliberate speed.

(b) The Accord signatories need to develop the operational details of the Accord through the proposed Bi-State Coordination Committee.

VII. Transportation Demand/System Management (TDM/TSM)

A1 Key Findings – TDM/TSM:

(a) Transportation Demand Management (TDM) and Transportation System Management (TSM) are essential strategies for improving our mobility. TDM is about reducing auto trips, shortening some, eliminating others, and making our transportation systems more efficient. TSM measures are designed to manage the transportation system to improve its operation, reliability and efficiency for all users. TSM measures can also be targeted to improve the transportation system for specific users such as carpools, transit or freight.

(b) TDM/TSM can be thought of like a package of common business-management practices known as "asset management." Just as business tries to increase efficiency, respond to its market and use new technology, so does TDM/TSM. Just as business tries to maximize its capital return through adding second employee shifts, TDM tries to maximize the existing highway capacity by managing peak demand and reducing the share of single occupant vehicle trips. Business may use "just-in-time" inventory while TSM uses traffic signal timing and timed transfers. A business uses express checkout stands and frequent flyer benefits while TDM offers HOV bypasses and discounted transit passes. Business develops new products – or new and improved products – while TDM develops new services like vanpooling – or new and improved transit routing.

(c) There is no single silver bullet in the TDM/TSM arsenal. However, additional transit service is the single most important investment necessary to achieve TDM/TSM targets and TDM/TSM strategies are most effective when used in a coordinated approach. Current TDM measures focus primarily on peak period commute trips. Future TDM/TSM activities must be broadened to face the challenge of non-work trips as well.

(d) Some TDM/TSM actions can be specifically targeted to the I-5 Corridor. However, most TDM/TSM actions can only be broadly applied, region-wide. The Bi-State Region has basic TDM/TSM service levels in place. Policies and employer-based programs have increased the visibility and success of demand management programs and have helped to extend them throughout the Region.

(e) TDM and TSM actions are an important part of the I-5 Corridor Strategic Plan. They can minimize transportation capacity needed in the I-5 Corridor and maximize the transportation system's reliability, efficiency and useable life. While the focus is on achieving Corridor-wide targets, these targets cannot be met without Regional goals being in place.

(f) The TDM/TSM recommendations will be most effective only if the Region also provides and implements the other Strategic Plan recommendations, especially:

i. Transit services will be provided to Clark County with an LRT loop and supplementary express bus service;

ii. Current planned park and ride lots will be funded and constructed. Additional park and ride spaces will be made available to support the light rail system;

iii. An HOV lane will operate in both directions between Going Street in Portland and 134th Street in Vancouver;

iv. The new river crossing(s) will include a quality bicycle/pedestrian facility; and

v. Land use actions that support alternative mode share will continue to be pursued in the Region and I-5 Corridor.

(g) Costs and effectiveness for the most-promising TDM/TSM actions have not currently been quantified due to the interrelated nature of the activities and lack of detailed accounting for individual TDM and TSM costs. For example, TDM education program success depends on the availability of good transit service, the price of parking, the quality of the education program and many other costs that are not estimated separately in practice.

B1 Recommendations – TDM/TSM:

(a) Final targets: Ultimately, the proposed Bi-State Coordination committee should adopt final TDM/TSM targets for the I-5 Corridor and the Region that are acceptable, attainable and measurable.

(b) The following **interim targets** should be adopted now by the jurisdictions and agencies in the I-5 Corridor; and ultimately by the proposed "Bi-State Coordination Committee." The Region's Travel Demand Forecasting Model, monitoring programs, or other mutually agreeable methods should measure them:

i. Increase Non-Single Occupancy Vehicle share, including transit and vanpools, across the Columbia River (I-5 and I-205) in the peak periods to 43%[2] by the year 2020. Year 2000 non-SOV use is estimated at 38%[3] for the PM peak.

ii. Maintain average, mid-day travel speeds through the I-5 Corridor at 70% of the maximum posted speed limits (50 to 60 mph) for trucks on I-5 traveling between I-405 and I-205 to avoid spreading the peak hours of congestion into the mid day period when the most trucks are on the road. Currently the

[2] Data Source: Metro's Regional Travel Forecast Model for year 2020. This scenario assumes additional TDM measures beyond Metro's Regional Transportation Plan TDM assumptions. The percentage excludes trucks and inter-regional trips i.e. external-to-external trips.

[3] Data Source: Metro's Regional Travel Forecast Model for year 2000. The percentage excludes trucks and inter-regional trips i.e. external-to-external trips.

average mid-day speed is at 58 mph between I-84 and I-205 on I-5 (speed limits in the corridor range between 50 and 60 miles per hour).

iii. Reduce daily VMT/capita for the urban areas of the four-county region by 10% by 2020. Current daily regional VMT/capita is estimated at 16.4 miles/person.

iv. Increase peak period, travel reliability through the I-5 Corridor and major arterials in the Corridor by maintaining travel times for all vehicles.[4]

(c) **Overall Objectives**: In addition to the other Task Force infrastructure and land use recommendations, the Region's commitment to basic TDM/TSM services should be expanded and enhanced, existing gaps in services should be filled, and funding should be increased beyond current levels. A mix of promising TDM/TSM actions described in the attached "Action Items and Rough Costs Matrix" should be implemented for:

i. *Alternative Mode Services* that provide an option to driving alone;
ii. *Alternative Mode Support* that makes it easier to use other modes;
iii. *Worksite-Based Strategies* that focus on education and incentives at the workplace;
iv. *Public Policy and Regulatory Strategies* that influence mode choice;
v. *Pricing Strategies* that change parking or road prices; and
vi. *TSM Strategies* that improve efficiency of the road system.

(d) **Support Transit**: Additional transit service is the single most important investment necessary to achieve the TDM/TSM targets. Additional service coverage, frequency and availability throughout the day will provide the foundation for success. The Region's transit agencies, with the support of other jurisdictions and agencies, should seek the necessary public funding for transit service improvements. On a region-wide basis, the Region spends $162 million per year to operate the transit system. An additional $155 million per year is needed to operate transit services at the "Priority" level assumed in the Task Force's "Baseline" for 2020. (Note: Tri-Met needs the higher "Preferred" level of funding to meet Metro's 2040 Goals.)

(e) **Fund Study for Plan**: The regional transportation partners, with the guidance of the proposed "Bi-State Coordination Committee," should collaboratively prepare an "I-5 TDM/TSM Corridor Plan" to identify the final TDM/TSM targets, implementation details, funding sources, priorities and costs. Upon its completion, the proposed "Bi-State Coordination Committee" should review the plan, finalize both Corridor and Regional targets, and lead an effort to secure additional funding for the selected TDM/TSM measures. The proposed Bi-State Coordination Committee should establish a geographically balanced TDM subcommittee to assist its I-5 Corridor and Regional TDM/TSM target-setting and plan implementation. The cost of completing the "I-5 TDM/TSM Corridor Plan" is approximately $250,000.

---

[4] This issue and the final target reference points should be part of the study noted in section s F and G, below. Travel time reliability could be improved by decreasing the number, severity and duration of incidents in the Corridor through improved incident response. Improving the travel time reliability on I-5 should be balanced with the suitable travel times on the adjacent arterials.

(f) **Plan Elements**: The Plan should:

i. Evaluate the proposals in the "Action Items and Rough Cost Matrix; **(See Attachment E, page A43)**;
ii. Include person and truck travel survey results to document existing travel patterns and supplement other ongoing behavior survey data;
iii. Identify the short-term (before construction of improvements), mid-term (during construction) and long-term (after construction) TDM/TSM actions for the I-5 Corridor and Region, in addition to the "Recommended Current Actions" noted below;
iv. Identify the level of funding needed to achieve the level of trip reduction agreed to by the proposed Bi-State Coordination Committee (based on final Corridor and Regional targets); and
v. Identify lead agency/jurisdictional responsibilities for implementation and tracking success.

(g) **Recommended Current Actions**: The jurisdictions and agencies in the I-5 Corridor and the Region should take action now. At a minimum, the Region should maintain and strengthen the TDM and TSM programs on both sides of the river. Additionally, the Task Force recommends implementation of the "current actions" and the additional "new money" investments noted in the following chart. The estimated annual costs for these "current actions" are roughly $1.9 million per year or about $9.5 million over five years. While the recommended TDM/TSM actions are I-5 Corridor-focused, the Task Force recommends a regional approach, given the inherent inter-relationship of the I-5 Corridor and the Regional transportation system.

Recommended Current Action Items – I-5 Corridor Focused	**Annual Cost Estimates**
1. Education and outreach to provide information about work destination based, peak hour travel options. The first phase would be a survey to document existing origin and destination travel patterns.	$1,000,000
2. Promote business subsidy of transit passes for employers.	$10,000
3. Promote carpoolmatchNW.org to assist in carpool formation.	$150,000
4. Offer guaranteed rides home at work sites.	$20,000
5. Explore methods to better integrate C-Tran and Tri-Met printed and real-time customer information to expedite Bi-State travel using both systems. (E.g. C-TRAN service information on Tri-Met Real Time Kiosks and expanding the number of kiosks would cost approximately $300,000.)	$300,000
6. Explore business and community interest for additional and/or expanded Transportation Management Association in the I-5 Corridor between the Columbia River and Lloyd District, including Swan Island, Rivergate and Interstate Avenue. (One-time study)	$50,000
7. Increase coordination between Oregon and Washington Transportation Management Centers to improve freeway management and operations, including incident management.	$200,000
8. Identify priority locations for planned ramp meters and deploy integrated, bi-state, ramp meter timing for the I-5 and I-205 Corridors.	$140,000
Total Estimated Annual Cost	**$1,870,000**

(h) **Recommended Mid-Term Actions**: The regional partners should begin planning for the TDM/TSM measures necessary during the construction of the I-5 Corridor improvements.

(i) **Recommended Long-Term Actions**: TDM and TSM strategies from the "I-5 TDM/TSM Corridor Plan" should be evaluated further in the environmental process for the I-5 Corridor improvements. The TDM/TSM strategies should be part of any final I-5 Corridor project.

(j) **Timing**: The proposed Bi-State Coordination Committee needs to agree on the "I-5 TDM/TSM Corridor Plan, " TDM/TSM targets for the I-5 Corridor and the Region, and the appropriate levels of financial commitment and implementation that must be in place before construction begins on any new river-crossing capacity.

VIII. Environmental Justice

A1 Key Findings – Environmental Justice:

(a) The states of Washington and Oregon have initiated the Portland/Vancouver I-5 Transportation and Trade Partnership in response to the problem of growing congestion on the highway and rail systems.

(b) The I-5 Partnership Task force has adopted a problem, vision and values statement to guide its work. The statement reads, in part: "The principles of environmental justice will be followed in developing the Strategic Plan and making recommendations for the corridor."

(c) There are four fundamental environmental justice principles:

i. To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.

ii. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.

iii. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

iv. To incorporate analysis in the EIS process of cumulative risks and disparate impacts due to multiple exposures.[5]

(d) Highway and transit projects recommended by the I-5 Partnership Task Force are in or near low-income and/or minority communities both in Oregon and Washington.

(e) To begin defining how the draft recommendations for improvements to the I-5 Corridor may impact and benefit low-income and minority residents, a series of meetings – two meetings in each state – were held with community stakeholders.

B1 Recommendations – Environmental Justice

(a) A community enhancement fund for use in the impacted areas in the I-5 Corridor in Oregon and Washington should be established. Such a fund would be in addition to any impact mitigation costs identified through an environmental impact statement and would be modeled conceptually after the "1% for Arts" program, the I-405 Mitigation Fund and the St John's Landfill Mitigation Fund. The Bi-State Coordination Committee would recommend the specific details in conjunction with the Environmental Justice Work Group noted in (g) below.

(b) Continued work should be done to complete a list of communities, organizations and agencies to outreach to low income and minority communities during the EIS process.

[5] A reasonable effort, consistent with applicable EPA standards should be made in the EIS to assess cumulative impacts.

(c) ODOT and WSDOT, in cooperation with the potentially impacted communities, should develop a methodology and criteria to map low income and minority communities in areas potentially affected by the recommendations from the I-5 Partnership. The methodology and criteria will be applied to 2000 Census data (currently income data only exists for 1990 and new data will not be available until the summer of 2002) for use in the EIS.

(d) A list of potential positive and negative community impacts were identified by the stakeholders and should be taken into the EIS process to be used as a beginning point to conduct further analysis on impacts. (See Attachment F, page A49).

(e) Should there be a finding during the EIS process that there are disproportionate impacts for environmental justice communities, the list of potential community benefits identified by the stakeholders should be a starting point for a community conversation about how to offset impacts and/or bring benefits to the impacted community. (See Attachment G, page A54).

(f) During the EIS process, special attention needs to be paid in conducting outreach to low-income and minority residents in the study area. Community stakeholders generated a list of outreach and involvement ideas. This list should be taken into the EIS process and used as the basis to develop a public outreach and involvement plan that includes outreach to low income and minority communities. (See Attachment H, page A60).

(g) A Public Involvement and Environmental Justice Working Groups should be formed at the beginning of the EIS. Work group membership should include representatives from EJ communities along the corridor. The Public Involvement working group should address public outreach. The Environmental Justice working group membership should include liaisons to the Public Involvement working group to ensure community concerns are incorporated into the EIS and that adequate emphasis is placed on the potential impacts and benefits to low income and minority communities.

IX. Additional Elements and Strategies Considered

A1 Key Findings – West Arterial Road

(a) The West Arterial Road is a possible complement to, but does not substitute for I-5 improvements. While this potential improvement falls slightly behind on all measures of transportation performance it does provide significant benefits. Compared to Baseline 2020 time travel savings between downtown Portland and downtown Vancouver are approximately 6 minutes, delay is reduced by 20%, and congestion is reduced by 17%.

(b) This option has several benefits to the regional transportation system including: relieving traffic on I-5, providing an additional connection between Oregon and Washington, relieving the St. Johns neighborhood of through truck traffic, and providing an efficient south-north arterial for a) freight movement between key industrial areas in the Portland/Vancouver area and b) other traffic in North Portland.

(c) However, the traffic impacts to Vancouver neighborhoods and the downtown Vancouver district are significant. It is very likely that arterial roads leading to this new connection would need to be widened to accommodate the traffic traveling between the West Arterial Road and the freeway. The widening of these arterial roads would need to be mitigated.

(d) The West Arterial Road, as currently conceived, would have similar property impacts as improvements in the I-5 Corridor. This does not account for property impacts that would occur if arterial roads need to be widened to accommodate traffic access to this new road.

(e) Due to the fact that the West Arterial road crosses Hayden Island, home to a variety of wildlife species and a high quality wetland, it has the greatest potential for impacts to natural resources of all the option packages with moderate to major impacts likely.

(f) While the West Arterial Road appears to result in less emissions directly at the freeway, emissions would increase on arterial roads.

(g) The estimated cost of West Arterial Road is $947 million ($2001)

B1 Recommendation – West Arterial Road:

(a) Further study of this option should be pursued and identified as a potential transportation solution for consideration in the future and should not be an alternative studied in the EIS for the Bridge Influence Area.

A2 Key Findings – Additional Elements and Strategies:

(a) As part of the Task Force's work it considered many potential elements and strategies that are not specifically commented upon in this draft document. They include:

i. Addressing the Corridor's problems with land use actions and/or transportation demand management alone;
ii. A new freeway with bridge outside the I-5 Corridor

(East of I-205, West of I-5) to connect Oregon and Washington;

iii. Monorail;
iv. Personal rapid transit;
v. Hovercraft buses;
vi. People-movers;
vii. Water taxi;
viii. Ferry;
ix. Helicopters; and
x. Gondola, etc.

(b) The Task Force also considered various combinations of these elements and strategies.

B2 Recommendations – Additional Elements and Strategies

(a) The Task Force does not believe that they show promise for addressing the Corridor's problems and should not be considered in an EIS.

X. Financing Options

A1 Key Findings – Financing Options

(a) Highway and transit improvements in the I-5 Corridor between Portland and Vancouver will be an expensive undertaking. Capital costs (in 2001 dollars) are estimated as follows:

Bridge Influence Area[6]	$1.2 billion
Light Rail Loop	$1.0 billion

(b) Capital projects of the magnitude recommended by the Task Force typically require a variety of funding and financing mechanisms. The region will not be able to rely on any single revenue source.

(c) There are several promising federal, state and local revenue sources that could be available for financing the proposed projects. **(See Attachment I, page A65)**.

(d) The revenue generating capacity of several of these sources taken together is quite large and provides the ability to bond all or most of the capital cost of the projects.

(e) While it will be a difficult undertaking, requiring substantial political leadership, Oregon and Washington, in cooperation with federal and local governmental partners and, perhaps, private sector entities, have the financial capacity to construct the projects.

(f) By constructing elements of the highway and transit improvements as separate components or in phases the financial impacts can be spread over a greater number of years and can enable a wider range of funding sources to be used for construction.

(g) Developing a final funding package for the bi-state improvements will be a complicated process that will involve a number of diverse entities, including state legislatures, federal agencies, and various financial institutions.

(j) To be fully effective, the capital investments must be supported by a significant increase in basic transit service. The light rail loop in Clark County must be served by frequent bus service. In addition, the single most important investment necessary to achieve the TDM/TSM targets is additional transit service coverage, frequency and availability throughout the day. Successful implementation of the draft recommendations will require a significant increase in transit operating revenue.

(i) A focused bi-state and regional effort is needed to determine how to meet the region's goals for increased transit service. C-Tran operating revenue and service is particularly at risk. Due to the passage of I-695 in 2000, C-Tran's tax revenue was cut in half. They are currently filling that revenue gap with funds in their reserve

[6] BIA costs include light rail costs of approximately $150 - $200 million. The costs, in 2001 dollars, could range from $1.2 – 1.5 billion for the BIA, and $1 – 1.3 billion for light rail depending on the final design, mitigation measures, and other unanticipated factors.

account, however, without an increase in basic operating revenue by 2007, transit services will be cut dramatically.

B1 Recommendations – Financing

(a) Oregon and Washington, and the Portland/Vancouver region, should work together to identify opportunities to fund the widening of I-5 to 3 lanes in each direction between Delta Park and Lombard. This project is anticipated to be ready for construction by September 04.

(b) Other capital elements of the transit and highway recommendations will take longer to fund. As a first step towards development of a financing plan for the highway and transit improvements, Oregon and Washington, together with regional partners and representatives of both legislatures should begin working together to explore long-term funding opportunities.

(c) Tri-Met and C-Tran should undertake separate, yet coordinated efforts, to develop a plan to increase operating support to enable an expansion in transit service starting within the next five years. For C-Tran, a Transit System Development Plan should be developed in conjunction with the next planning steps for the light rail loop system.

(d) Efforts to increase transit operating revenue for Tri-Met and C-Tran should be coordinated and discussed by the new Bi-State Coordinating Committee. The goal should be to establish regional transit financing commitments that will allow for an aggressive bi-state TDM program and expansion of transit service to support construction of the phased light rail loop.

XI. Next Steps and Implementation

B1 Recommendations – Next Steps and Implementation:

(a) This Strategic Plan should be sent to the Oregon Transportation Commission, the Washington Department of Transportation, and to the metropolitan planning organizations in Portland and SW Washington for review and potential adoption into their transportation plans.

(b) Parallel with the adoption of the transportation recommendations into the regional transportation plans, the metropolitan planning organizations in Portland and SW Washington should adopt a Bi-State Coordination Agreement and establish the Bi-State Coordination Committee. Once established, the Bi-State Coordination Committee should proceed with all deliberate speed to:

i. Form the TDM/TSM Forum and begin its work on the I-5 TDM/TSM Corridor Plan,

ii. Begin discussions and planning for investing more in the I-5 Corridor, including focused TDM/TSM actions that can be taken now, and

iii. Form the Rail Forum and begin its work.

(c) As to highway and transit capital investments in the corridor:

i. Oregon and Washington, and the Portland/Vancouver region, should work together to identify opportunities to fund the widening of I-5 to 3 lanes in each direction between Delta Park and Lombard. This project is anticipated to be ready for construction by September 04.

ii. As a first step towards making improvements, the bi-state region should undertake an Environmental Impact Study for a new river crossing and potential improvements in the Bridge Influence Area. That study and the implementation of these recommendations should be guided by the Task Force's Problem Vision and Values Statement.

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

1. 8 or 10 lane freeway concepts;
2. Replacement or Supplemental Bridge;
3. Joint use or non-joint use Freeway/LRT Bridge;
4. 8-lane freeway with joint LRT/2-lane arterial; and
5. HOV throughout the I-5 Corridor.

In addition, a 6-lane freeway plus two 2-lane arterials, one in the vicinity of the I-5 corridor and one in the vicinity of the railroad bridge, should be evaluated to determine if it is a viable alternative for consideration in the EIS.

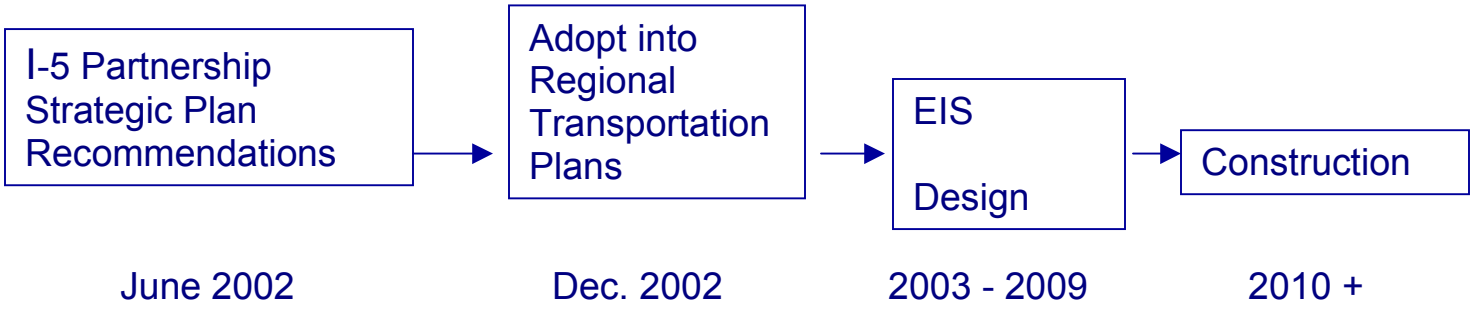
The following concepts do not show promise for addressing the Corridor's problems and should not be considered in an EIS:

1. Collector-Distributor bridge concepts;

2. Arterial-only bridge concepts; and
3. Tunnel concepts.

iv. A Public Involvement and Environmental Justice Working Groups should be formed at the beginning of the EIS. Work group membership should include representatives from EJ communities along the corridor. The Public Involvement working group should address public outreach. The Environmental Justice working group membership should include liaisons to the Public Involvement working group to ensure community concerns are incorporated into the EIS and that adequate emphasis is placed on the potential impacts and benefits to low income and minority communities.

v. Parallel to this EIS process a plan for funding the highway and transit capital expenditures should be developed.

(d) As to transit operations, Tri-Met and C-Tran should work with all deliberate speed to undertake efforts to increase operating support to enable an expansion in transit service starting within the next five years. This effort should be coordinated through the Bi-State Coordinating Committee.

(e) ODOT and WSDOT should continue to work with environmental justice stakeholders to complete the research to identify groups and communities to conduct outreach with during the EIS process, and to identify the low income and minority communities that could be affected by the recommendations in this plan.