Portland / Vancouver I-5 Transportation and Trade Partnership

Portland/Vancouver I-5 Transportation and Trade Partnership

Draft Corridor Improvement Option Packages

Governor's Task Force Meeting
March 20, 2001

Portland / Vancouver I-5 Transportation and Trade Partnership

Overview

The objective of the Portland/Vancouver I-5 Transportation and Trade Partnership study is to recommend specific actions (projects and policies) to address growing corridor congestion. A first step leading to a recommendation is to ensure that all reasonable improvement options of interest to the community at large have been identified for screening and evaluation.

The range of options presented in this packet builds on several sources. First, the Portland/Vancouver I-5 Trade Corridor study, completed in January 2000, resulted in the identification of eight improvement scenarios. The scenarios were designed to evaluate whether feasible solutions could be developed to address existing and forecast transportation system issues within the I-5 corridor from the I-84 interchange in Portland, Oregon, to the I-205 interchange north of Vancouver, Washington. A Leadership Committee comprised of appointed business and civic leaders identified the multi-modal scenarios.

The eight improvement scenarios from the previous study have been carried over as the initial set of Option Packages (packages are used to describe a particular combination of highway, transit, arterial, and demand management actions). To help expand the range of Option Packages to be considered, a staff work session was conducted in February 2001. The work session included a 30-person group of local, county, and state agency representatives and consultants from Oregon and Washington with technical expertise in fields including transportation engineering, land use, planning, and economics. The group engaged in a creative process that resulted in the identification of several new Option Packages, many with several variations.

In addition, several concepts for improving travel in the corridor have been suggested by community members through several outreach efforts, including a joint Task Force Community Forum meeting held in January 2001.

Inside This Handout

This handout contains a matrix of Option Packages with specific highway, transit, arterial, and demand management components, an overview of the broad concepts common to specific Option Packages, and a description of the 20 Option Packages.

What's Next

The information in this handout is intended to help the Governor's Task Force review the conceptual ideas so that the range of improvement packages can be presented to the public in April 2001 prior to screening and evaluation.

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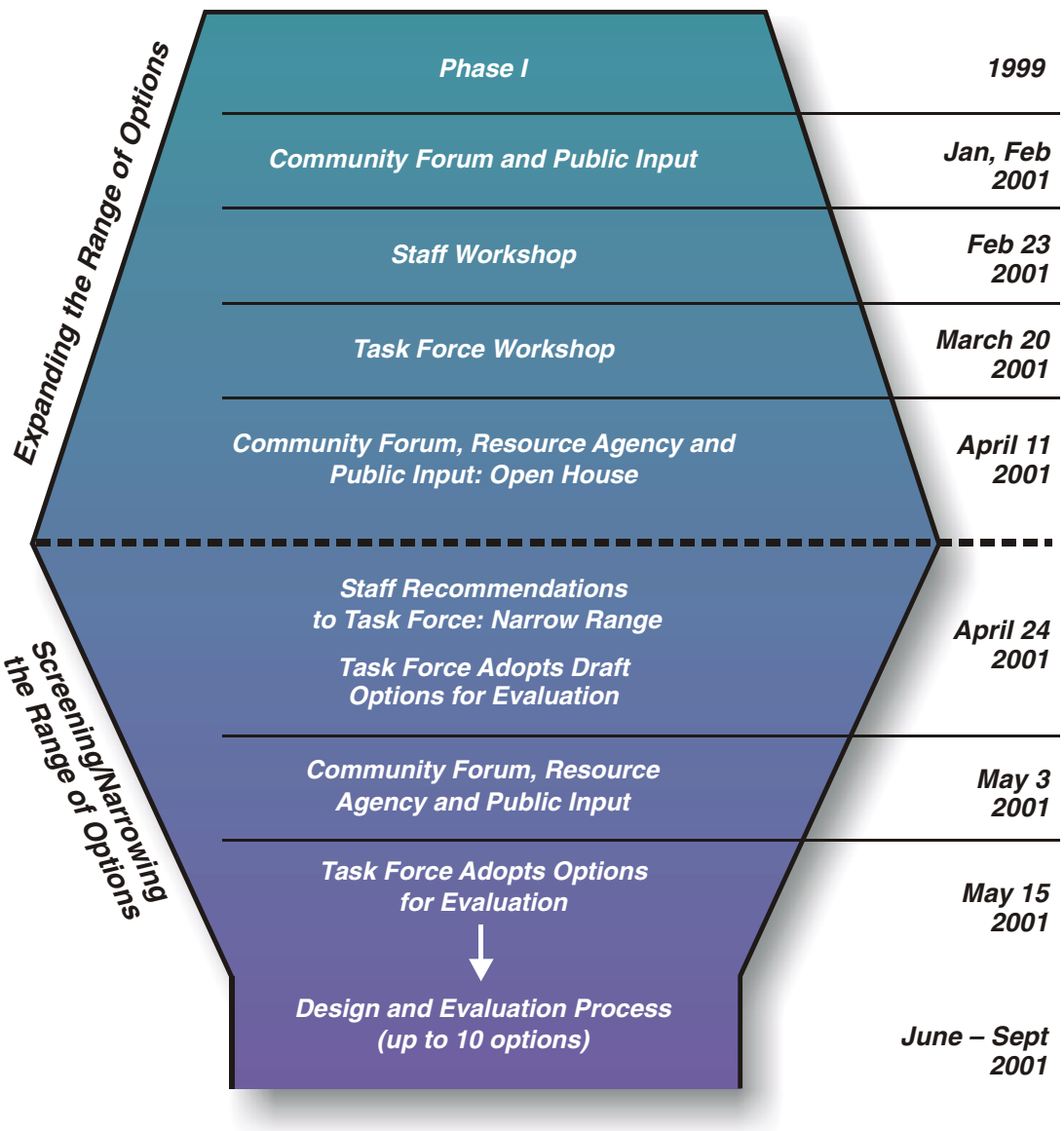
Options Development Process

The following graphic illustrates two processes: (1) identifying the full range of options to be considered and (2) selecting a short list of options for further evaluation.



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Corridor Investment Themes

The 20 Option Packages have been grouped into five themes based on where investment would be focused. Two groups of packages focus on minimizing investments in freeway improvements by (1) encouraging alternative modes of travel and changes in travel behavior or (2) providing an alternative north-south corridor to divert traffic from I-5. The remaining three packages vary principally in the level and type of investment in freeway improvements and high-capacity transit improvements but also include some packages that focus specifically on improving freight mobility. A brief description of the five themes follows.

Theme	*Description*	*Option Package Nos.*
A: Alternate Modes and Changing Travel Demand	Focuses on alternative mode use and changing travel demand within the defined I-5 corridor, without significant investment to increase freeway capacity, beyond that which is currently funded for construction.	**1-5**
B: Alternate Highway/Arterial Corridors	Focuses on new arterial or freeway corridors crossing the Columbia River. Some packages also include refinements to existing arterial corridors to complement the new crossings.	**6-8**
C: Addresses Localized Freeway Deficiencies	Based on improving segments of I-5 where operational problems exist today and are projected to worsen in the future. Typically, the improvements focus on adding a third through-lane in each direction.	**9-11**
D: Addresses Localized Freeway Deficiencies, Including the Columbia River Crossing	Based on improving localized problems in the I-5 corridor, including capacity deficiencies at the I-5 Columbia River Bridge.	**12-15**
E: Additional I-5 Capacity Throughout Corridor	Based on adding travel lanes to the freeway throughout the corridor. Most Option Packages in this group include express or HOV lanes.	**16-20**

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Option Package Matrix

This matrix identifies twenty I-5 Corridor Option Packages with specific highway and transit concepts. For example, Option Package No. 19 includes additional corridor capacity and expanded transit service based on express bus.

HIGHWAY / TRANSIT	No Major Capital or Operating Improvements	HCT* based on Express Bus	HCT* based on LRT**	Commuter Rail	HCT* based on other system(s)
Theme	**Option Package No.**				
A: Focus on Alternative Modes and changing Travel Demand	***1***		***2, 3, 5***	***3***	***4***
B: Alternative Highway and/or Arterial Corridors	***6, 7, 8***				
C: Address Localized Freeway Deficiencies (*not* including the Columbia River Crossing)	***9***	***11***	***10***		
D: Address Localized Freeway Deficiencies (including the Columbia River Crossing)	***12, 14, 15***		***13***		
E: Additional I-5 Capacity Throughout Corridor	***20***	***19***	***16, 17, 18***		

*HCT = High Capacity Transit

**LRT = Light Rail Transit

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Draft Corridor Improvement Option Packages

	A. Focus on Alternative Modes and Changing Travel Demand					B. Alternative Highway/ Arterial Corridors			C. Address Localized Freeway Deficiencies		
Option #	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
	Baseline	**Major Transit Improvements Only**	**Commuter Rail**	**Other Transit Modes**	**Enhanced Town Centers w/ LRT and Arterial Improvements**	**Freight Arterials**	**Extended Westside Freight Corridor**	**Third Freeway Corridor**	**Three Through Lanes**	**Three Through Lanes with Light Rail Transit**	**Three Through Lanes with Express Bus**
Basic Freeway Capacity (lanes each direction)	2/3	2/3	2/3	2/3	2/3	3	3	3 plus new freeway = 5	3	3	3
Clark Co. transit access across Columbia River	Bus	Light Rail	Commuter Rail and Light Rail	Bus plus other	Light Rail	Bus	Bus	Bus	Bus	Light Rail	Express Bus
Includes Arterial Bridge Across Columbia River?	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes (on Express Bus Bridge)
I-5 Improvements	● See Common Improvements noted below				● Remove Hayden Island ramps	● Provide 3 through lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th. ● Ramp improvements in downtown Vancouver ● Full interchange at Columbia Blvd. ● Remove interchange at Hayden Island		● New freeway corridor linking Clark County and Washington County	● See purple section above		● Queue jump ramps for buses ● Remove Hayden Island ramps
Arterial System Improvements	● See Common Improvements noted below		● New bridge from Marine Drive in Portland to Mill Plain in Vancouver for passenger rail, light rail and motor vehicles.		● Collector-distributors roadways adjacent to I-5: Columbia Blvd. to Hayden Island (including new bridge across N. Ptd Harbor).	● New bridge from Marine Drive in Portland to Mill Plain Blvd. in Vanvcouver ● Widen N. Portland Rd. and Columbia Blvd. to five lanes	● New corridor: From US 30 in Portland, north through N. Ptd "cut" to Mill Plain Blvd in Vancouver. (***Option:*** *to extend north include 179th/ NW 41st/NW 36th/ SR501 to Mill Plain.*				● New arterial connection and bridge from Marine Drive to Mill Plain Blvd. (via Hayden Is. w/ Express Bus)
Transit Improvements	● See Common Improvements noted below	● LRT from Expo Center to 134th, and from Portland airport to 134th. LRT From I-5 to I-205 at approx. SR 500. ● Feeder bus service to connect with LRT ● High level of transit service	● Commuter rail service on new rail alignment (including tunnel under N. Ptd), along with new stations at Portland and Vancouver and new bridge at Columbia River. ● Feeder bus service to rail stations ● LRT from Expo Center to Clark College via west Hayden Island on shared bridge (see above).	Options: ● Regional Personal Rapid Transit system ● Helicopters ● Water Taxi ● Jitneys ● Other?	● LRT from Expo Center to 134th, and from Portland airport to 134th. LRT From I-5 to I-205 at approx. SR 500. ● Feeder bus service to connect with LRT ● High level of transit service					● LRT from Expo Center to 134th, and from Portland airport to 134th. LRT From I-5 to I-205 at approx. SR 500. ● Feeder bus service to connect with LRT ● High level of transit service	● Clark County Express Bus system linking to LRT at PIR, including busway/HOV lanes on SR 500 and SR 14, new bridge at Columbia River and N. Portland Harbor
Demand Elements	● See Common Improvements noted below	● High level of Demand Management Strategies ● High level of parking pricing			● High level of Demand Management Strategies ● High level of parking pricing					● High level of Demand Management Strategies ● High level of parking pricing	● High level of Demand Management Strategies ● High level of parking pricing
Improvements Common to All Packages:											
I-5	● System management including ramp metering, reader boards and other intelligent transportation system measures. ● Additional travel lane each direction in Vancouver from Main St. to 99th.										
Arterial System	● Planned Regional Improvements										
Transit	● LRT Rose Quarter to Expo Center, with express bus service from Clark County park and ride lots to Portland International Raceway (PIR) LRT station. ● Minimal growth in transit service based on existing revenue sources										
Demand Management	● Northbound High Occupancy Vehicle (HOV) lane in p.m. peak from Going St. to Delta Park Interchange. ● Southbound HOV lane in a.m. peak from 99th-Mill Plain.										

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Draft Corridor Improvement Option Packages

	D. Address Localized Deficiencies, including the Columbia River Crossing				E. Additional I-5 Capacity Throughout Corridor				
Option #	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
	Columbia River Crossing with Supplemental Bridge (no new HCT)	**Columbia River Crossing with Supplemental Bridge (w/ LRT)**	**Columbia River Crossing w/ New Freeway Bridge or Tunnel**	**Freight Freeway**	**Widen Freeway for Reversible Express Lanes, including Light Rail**	**LRT Plus Widen Freeway for HOV lanes (Supplemental Columbia R. Bridge)**	**LRT Plus Widen Freeway for HOV lanes (New Columbia R. Bridge)**	**Express Bus Plus Widen Freeway for HOV lanes (New Columbia R. Bridge)**	**New Freeway parallel to existing freeway**
Basic Freeway Capacity (lanes each direction)	3 (plus 1 at Columbia River)	3 (plus 1 at Columbia River)	3 (plus 1 at Columbia River)	3	3 plus 2 reversible lanes	3 plus 1 HOV lane	3 plus 1 HOV lane	3 plus 1 HOV lane	3 plus new freeway = 5
Clark Co. transit access across Columbia River	Bus in HOV lane	Light Rail	Bus in HOV lane	Bus	Light Rail	Light Rail	Light Rail	Express Bus	Bus
Includes Arterial Bridge Across Columbia River?	No	No	Yes (on existing I-5 bridge)	Yes	Yes (on existing I-5 bridge)	No	Yes (on existing I-5 bridge)	Yes (on existing I-5 bridge)	No
I-5 Improvements	● Provide 3 through lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th. ● Ramp improvements in downtown Vancouver								
	● New Columbia River Crossing to add express or HOV lanes across the river ● Continue to use existing bridges for "local" freeway traffic	● New Columbia River Crossing to add express or HOV lanes across the river ● Continue to use existing bridges for "local" freeway traffic	● New Columbia River Crossing for all freeway traffic, with three through lanes and an auxiliary lane in each direction.	● New Columbia River Crossing for all freeway traffic, with three through lanes and an auxiliary lane in each direction.	● New Columbia River Crossing for all freeway traffic, with three through lanes and an auxiliary lane in each direction, plus reversible express lanes.	● New Columbia River Crossing to add express or HOV lanes across the river ● Continue to use existing bridges for "local" freeway traffic	● New Columbia River Crossing for all freeway traffic, w/ three general purpose lanes plus an HOV lane in each direction.	● New Columbia River Crossing for all freeway traffic, w/ three general purpose lanes plus an HOV lane in each direction.	● Express freeway: New four lane freeway segment, Delta Park to SR 500, with interchange connections at SR 14 and SR 500.
	● Provides HOV lanes 99th to Lombard	● Provides HOV lanes 99th to Lombard	● Provides HOV lanes 99th to Lombard	● Provides HOV lanes 99th to Lombard	● Reversible express lanes from 99th to 1-405, with a fourth lane in each direction between 99th and 134th	● HOV lanes from 134th St. to Going St. ● Queue jump ramps	● HOV lanes from 134th St. to Going St. ● Queue jump ramps	● HOV lanes from 134th St. to Going St. ● Queue jump ramps	
				● Modify Marine Dr. interchange for direct truck access ● Full interchange at Columbia Boulevard				● HOV ramps to/from PIR for Express Bus	
Arterial System Improvements			● Use existing I-5 Columbia River bridges for arterial connections to Hayden Island and/or Columbia Boulevard.	● New bridge from Marine Drive in Portland to Mill Plain Blvd. in Vanvcouver ● Widen N. Portland Rd. and Columbia Blvd. to five lanes ● Existing I-5 bridges will be used for arterial connection, Hayden Is. to Vancouver.	● Existing I-5 bridges will be used for LRT and arterial connection, Hayden Is. to Vancouver.		● Use existing I-5 Columbia River bridges for arterial and LRT connections to Hayden Island.	● Use existing I-5 Columbia River bridges for arterial.	
Transit Improvements	● Bus in HOV lane, 99th to Portland International Raceway (PIR) LRT station.	● LRT from Expo Center to 134th, and from Portland airport to 134th. LRT From I-5 to I-205 at approx. SR 500. ● Feeder bus service to connect with LRT	● Bus in HOV lane, 99th to Portland International Raceway (PIR) LRT station.		● LRT from Expo Center to 134th, and from Portland airport to 134th. LRT From I-5 to I-205 at approx. SR 500. ● Feeder bus service to connect with LRT	● LRT from Expo Center to 134th, and from Portland airport to 134th. LRT From I-5 to I-205 at approx. SR 500. ● Feeder bus service to connect with LRT	● LRT from Expo Center to 134th, and from Portland airport to 134th. LRT From I-5 to I-205 at approx. SR 500. ● Feeder bus service to connect with LRT	● Clark County Express Bus system linking to LRT at PIR, including busway/HOV lanes on SR 500 and SR 14.	
		● High level of transit service			● Moderate increase in service hours	● Moderate increase in service hours	● Moderate increase in service hours		
Demand Elements						● High level of Demand Management Strategies ● High level of parking pricing	● High level of Demand Management Strategies ● High level of parking pricing	● High level of Demand Management Strategies ● High level of parking pricing	
Improvements Common to All Packages:									
I-5	● System management including ramp metering, reader boards and other intelligent transportation system measures. ● Additional travel lane each direction in Vancouver from Main St. to 99th.								
Arterial System	● Planned Regional Improvements								
Transit	● LRT Rose Quarter to Expo Center, with express bus service from Clark County park and ride lots to Portland International Raceway (PIR) LRT station. ● Minimal growth in transit service based on existing revenue sources								
Demand Management	● Northbound High Occupancy Vehicle (HOV) lane in p.m. peak from Going St. to Delta Park Interchange. ● southbound HOV lane in a.m. peak from 99th-Mill Plain.								

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Theme A: Alternative Mode Use and Changing Travel Demand

Six Option Packages focus on alternative mode use and changing travel demand within the defined I-5 corridor, without significant investment to increase freeway capacity, beyond that which is currently funded for construction. The Options Packages are:

Option Package No. 1: Baseline
Option Package No. 2: Major Transit Improvements Only
Option Package No. 3: Commuter Rail
Option Package No. 4: Other Transit Modes
Option Package No. 5: Enhanced Town Centers with Transit and Arterial Improvements

Option Package No. 1 (Baseline) is a "No-Build" package. All of the other Option Packages are compared to it.

The five Option Packages in this theme have planned freeway, arterial, and transit components common to all 20 Option Packages. They are:

Planned I-5 Improvements

- System Management including ramp metering, reader boards, and other intelligent transportation system measures
- Additional travel lanes each direction in Vancouver from Main St. to 99th

Planned Arterial System Improvements

- Planned regional improvements

Planned Transit Improvements

- Light rail transit (LRT) from Rose Quarter to Expo Center (Oregon), with express bus service from Clark County park and ride lots to the Portland International Raceway (PIR) LRT station
- Minimal growth in service based on existing revenue sources

Demand Management

- PM peak northbound High Occupancy Vehicle (HOV) lane, Going St. to Delta Park interchange
- AM peak southbound HOV lane, 99th- Mill Plain

Descriptions of Option Packages Nos. 1-5 focus on concepts beyond the common planned improvements listed above.

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Theme B: Alternative Highway / Alternative Corridors

Three Option Packages include concepts based on alternative highway or arterial corridors. They are:

Option Package No. 6: Freight Arterials

Option Package No. 7: Extended Westside Freight Corridor including North Extension

Option Package No. 8: Third Freeway Corridor

Option Package No. 6 (Freight Arterials) was identified during the previous I-5 Trade Corridor study.

The three Option Packages in this theme have planned freeway, arterial, and transit components common to all 20 Option Packages. They are:

Planned I-5 Improvements

- System Management including ramp metering, reader boards, and other intelligent transportation system measures
- Additional travel lanes each direction in Vancouver from Main St. to 99th

Planned Arterial System Improvements

- Planned regional improvements

Planned Transit Improvements

- Light rail transit (LRT) from Rose Quarter to Expo Center (Oregon), with express bus service from Clark County park and ride lots to the Portland International Raceway (PIR) LRT station
- Minimal growth in service based on existing revenue sources

Demand Management

- PM peak northbound High Occupancy Vehicle (HOV) lane, Going St. to Delta Park interchange
- AM peak southbound HOV lane, 99th- Mill Plain

Descriptions of Option Package Nos. 6-8 focus on concepts beyond the common planned improvements listed above.

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Theme C: Address Localized Freeway Deficiencies

Three Option Packages include concepts based on improving segments of I-5 where operational problems exist today and are projected to worsen in the future. Typically, the improvements focus on adding a third through-lane in each direction. The Option Packages are:

Option Package No. 9: Three Through-Lanes

Option Package No. 10: Three Through-Lanes with Light Rail Transit

Option Package No. 11: Three Through-Lanes with Express Bus

Option Package Nos. 9 and 10 were identified during the previous I-5 Trade Corridor study.

The three Option Packages in this theme have planned freeway, arterial, and transit components common to all 20 Option Packages. They are:

Planned I-5 Improvements

- System Management including ramp metering, reader boards, and other intelligent transportation system measures
- Additional travel lanes each direction in Vancouver from Main St. to 99th

Planned Arterial System Improvements

- Planned regional improvements

Planned Transit Improvements

- Light rail transit (LRT) from Rose Quarter to Expo Center (Oregon), with express bus service from Clark County park and ride lots to the Portland International Raceway (PIR) LRT station
- Minimal growth in service based on existing revenue sources

Demand Management

- PM peak northbound High Occupancy Vehicle (HOV) lane, Going St. to Delta Park interchange
- AM peak southbound HOV lane, 99th- Mill Plain

Descriptions of Option Package Nos. 9-11 focus on concepts beyond the common planned improvements listed above.

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Theme D: Address Localized Freeway Deficiencies Including Columbia River Crossing

Four Option Packages include concepts based on improving localized problems in the I-5 corridor, including capacity deficiencies at the I-5 Columbia River Bridge. The Option Packages are:

Option Package No. 12: Columbia River Crossing with supplemental Bridge (no new HCT)

Option Package No. 13: Columbia River Crossing with supplemental Bridge (with LRT)

Option Package No. 14: Columbia River Crossing with New Freeway Bridge

Option Package No. 15: Freight Freeway

Option Package Nos. 14 and 15 were identified during the previous I-5 Trade Corridor study.

The four Option Packages in this theme have planned freeway, arterial, and transit components common to all 20 Option Packages. They include:

Planned I-5 Improvements

- System Management including ramp metering, reader boards, and other intelligent transportation system measures
- Additional travel lanes each direction in Vancouver from Main St. to 99th

Planned Arterial System Improvements

- Planned regional improvements

Planned Transit Improvements

- Light rail transit (LRT) from Rose Quarter to Expo Center (Oregon), with express bus service from Clark County park and ride lots to the Portland International Raceway (PIR) LRT station
- Minimal growth in service based on existing revenue sources

Demand Management

- PM peak northbound High Occupancy Vehicle (HOV) lane, Going St. to Delta Park interchange
- AM peak southbound HOV lane, 99th- Mill Plain

Descriptions of Option Package Nos. 12-15 focus on concepts beyond the common planned improvements listed above.

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Theme E: Additional I-5 Capacity Throughout The Corridor

Five Option Packages include concepts based on adding travel lanes to the freeway throughout the corridor. The Option Packages are:

Option Package No. 16: Widen Freeway for Reversible Express Lanes, Including Light Rail

Option Package No. 17: LRT Plus Widen Freeway for HOV lanes (Supplemental Columbia River Bridge)

Option Package No. 18: LRT Plus Widen Freeway for HOV Lanes (New Columbia River Bridge)

Option Package No. 19: Express Bus Plus Widen Freeway for HOV Lanes (New Columbia River Bridge)

Option Package No. 20: New Freeway Parallel to Existing Freeway

Option Package Nos. 16 and 17 were identified previously during the I-5 Trade Corridor study.

The five Option Packages in this theme have planned freeway, arterial, and transit components common to all 20 Option Packages. They are:

Planned I-5 Improvements

- System Management including ramp metering, reader boards, and other intelligent transportation system measures
- Additional travel lanes each direction in Vancouver from Main St. to 99th

Planned Arterial System Improvements

- Planned regional improvements

Planned Transit Improvements

- Light rail transit (LRT) from Rose Quarter to Expo Center (Oregon), with express bus service from Clark County park and ride lots to the Portland International Raceway (PIR) LRT station
- Minimal growth in service based on existing revenue sources

Demand Management

- PM peak northbound High Occupancy Vehicle (HOV) lane, Going St. to Delta Park interchange
- AM peak southbound HOV lane, 99th- Mill Plain

Descriptions of Option Package Nos. 16-20 focus on concepts beyond the common planned improvements listed above.

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Option Package No. 1: Baseline

Overview

This option is the bare-bones approach because it includes only the existing transportation system plus improvements included in the adopted transportation plans for Clark County and the metropolitan Portland area. The existing capacity of I-5 would not be enhanced except for the widening to three lanes in each direction of the section from Main Street (in Vancouver) to 99th Street.

I-5 Improvements

- System management including ramp metering, reader boards and other intelligent transportation system measures
- Additional travel lane each direction in Vancouver from Main St. to 99th

Arterial System Improvements

- Planned regional improvements

Transit Improvements

- Light rail transit (LRT) from Rose Quarter to Expo Center (Oregon), with express bus service from Clark County park and ride lots to the Portland International Raceway (PIR) LRT station
- Minimal growth in service, based on existing revenue sources

Demand Elements

- PM peak northbound High Occupancy Vehicle (HOV) lane, Going St. to Delta Park interchange
- AM peak southbound HOV lane, 99th- Mill Plain

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Option Package No. 2: Major Transit Improvements Only

Overview

This Option Package includes a major expansion of the LRT system to Clark County, with no major improvements to I-5.

I-5 Improvements

- Common improvements only

Arterial System Improvements

- Planned regional improvements only

Transit Improvements

- Expand LRT system from Expo Center to 134th Street, and from Portland airport to 134th Street; LRT from I-5 to I-205 at approximately SR 500
- Establish feeder bus service to LRT stations
- Increase bus transit service levels

Demand Elements

- High level of Demand Management Strategies
- High level of parking pricing

* For an illustration of the proposed LRT system in Clark County, see Option Package 10.

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Option Package No. 3: Commuter Rail

Overview

This Option Package focuses on development of commuter rail between downtown Portland and Clark County. It also includes LRT expansion to Clark County and feeder bus service to the rail stations.

I-5 Improvements

- Common improvements only

Arterial System Improvements

- Construct a new arterial between Marine Drive and Mill Plain Blvd. including shared auto/rail bridges over north Portland Harbor and the Columbia River
- Other planned regional improvements

Transit Improvements

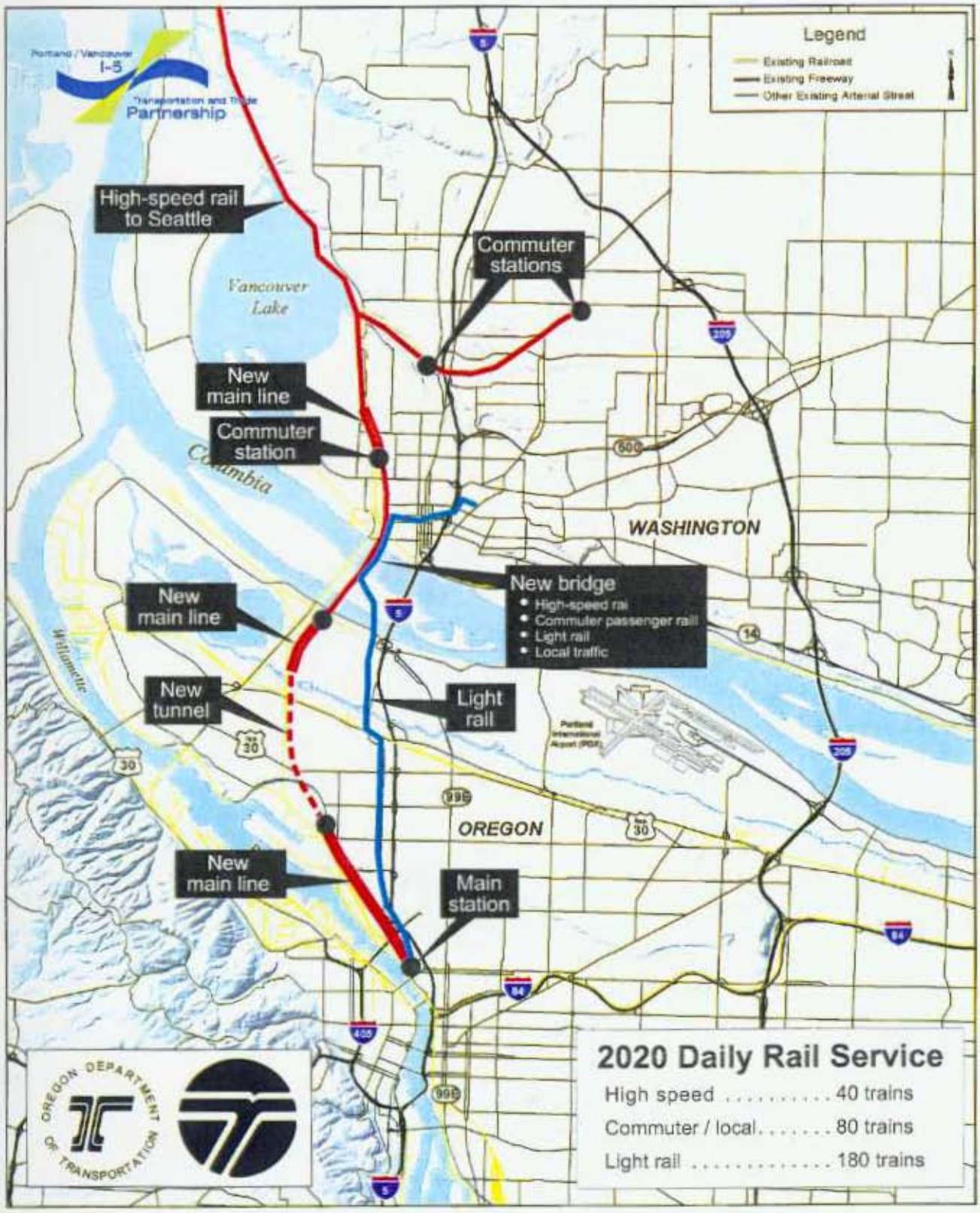
- Establish commuter rail service on new rail alignment including tunnel under North Portland, new stations in Portland and Vancouver, and a new rail bridge across the Columbia River and North Portland Harbor
- Expand LRT system from Expo Center to Clark College via west Hayden Island on shared bridge described under arterial improvements
- Establish feeder bus service to rail stations
- Other planned regional improvements

Demand Elements

- Common Elements only

Option Package No. 3

Commuter Rail



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Option Package No. 4: Other Transit Modes

Overview

This Option Package is a compilation of several other transit modes that have been suggested during the initial community outreach program. Proposed modes could be implemented individually, or in combination.

I-5 Improvements

- Common improvements only

Arterial System Improvements

- Planned regional improvements only

Transit Improvements

- Regional personal rapid transit (PRT)
- Helicopter transit
- Water taxi
- Jitneys
- Other

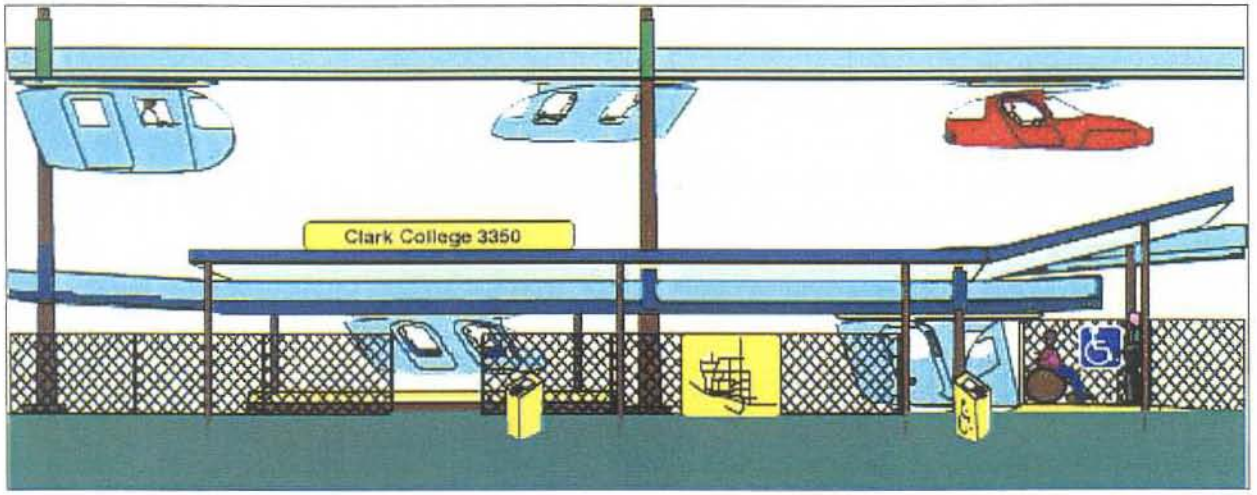
Demand Elements

- Common improvements only

Option Package No. 4

Other Transit Modes

Example: Personal Rapid Transit



This is a drawing of a minimal-cost, unattended suburban stop. The transit rider inserts his ride card into the card reader (like a credit card pay telephone) and keys in the number of his desired destination stop. The doors of the waiting *Higherway Nighthawk vehicle* open and he puts his bag on one seat and sits in the other. He pushes the "Close Doors" button in the vehicle and it accelerates up the track to merge into the high speed track of the arterial guideway where all the vehicles are traveling at 45 m/s (100 mph) at minimum 0.5 second intervals. The *Nighthawk doesn't stop* until it reaches the desired destination stop.

Central business district stops are located on third-floor balconies of buildings or outside with glass-wall elevators for handicapped riders. The *Higherway Nighthawk* and Pelican are electrically powered and computer-controlled.

A wheelchair user inserts her ride card in the handicapped/cargo card reader and keys in the destination code of her desired stop. The front door of the Higherway Pelican vehicle opens and the rider backs her wheelchair from the level loading area into the Pelican. She pushes a button to close the door and automatic restraints hold the wheelchair and her in place during the ride. The Pelican backs up to a Y-Section (below the "Clark College 3350" on the sign) and accelerates up the track to merge with the high-speed traffic.

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Option Package No. 5: Enhanced Town Centers with LRT and Arterial Improvements

Overview

This Option Package incorporates specific transit and arterial system improvements and development of new town center communities established around grid street systems near these locations:

- Rose Quarter east of I-5
- Portland Meadows east of I-5
- Hayden Island west of I-5 with connection across N. Portland Harbor
- Vancouver central business district (CBD)
- Hazel Dell, near 99th Street interchange both sides of I-5 with four I-5 crossings

I-5 Improvements

- Close I-5 ramps at Hayden Island and westbound to southbound ramp at SR 14
- Construct fully directional interchange at Columbia Blvd
- Improve select interchanges to accommodate new arterial connections
- Other planned regional improvements

Arterial System Improvements

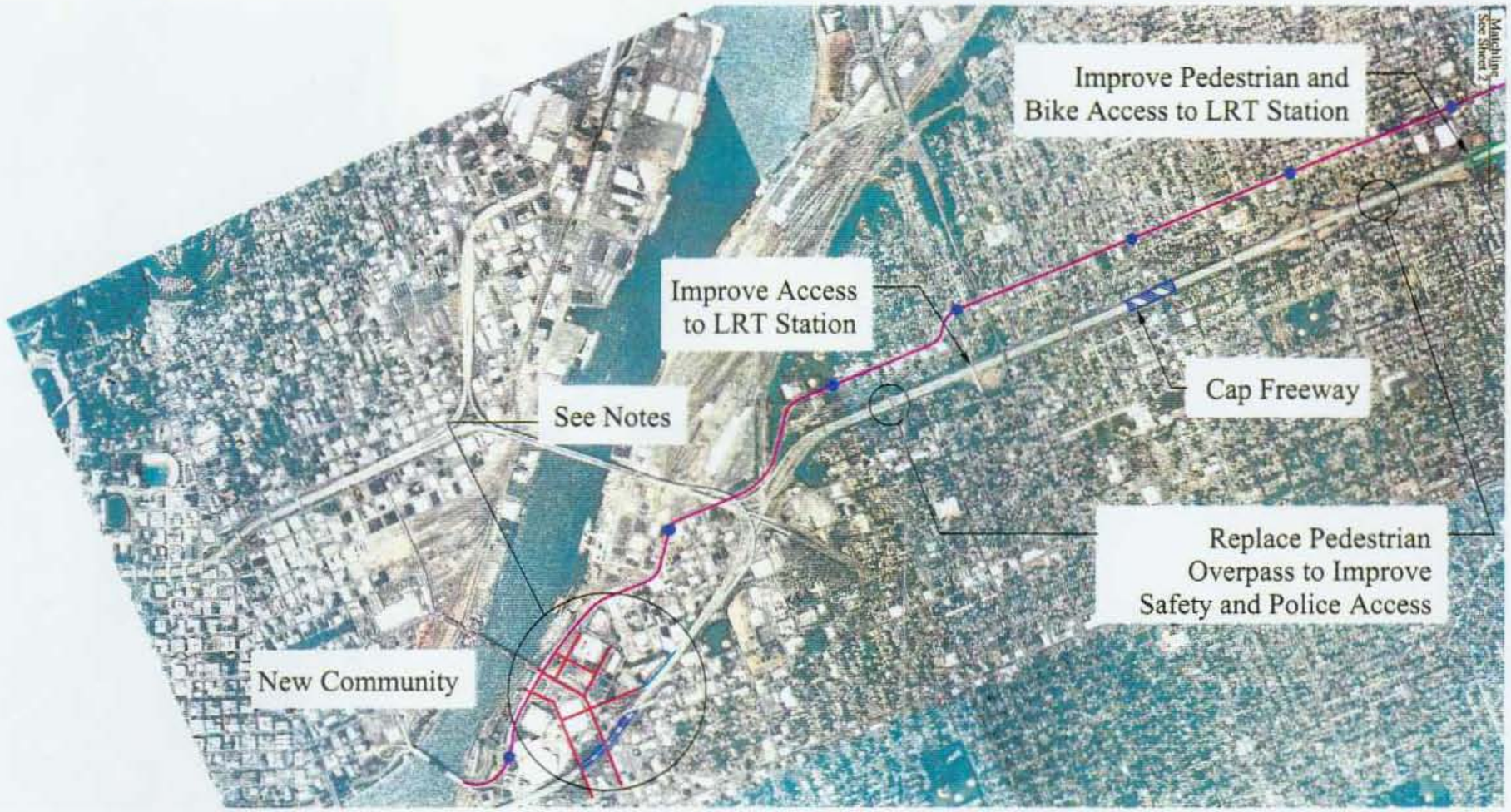
- Construct directional collector/distributor road system adjacent to I-5 from Columbia Blvd. to Hayden Island including new bridge across N. Portland Harbor
- Construct new arterial linking SR 14 to Mill Plain, east of Fort Vancouver
- Other planned regional improvements

Transit Improvements

- Expand LRT system from Expo Center to 134th Street, and from Portland airport to 134th Street; LRT from I-5 to I-205 at approximately SR 500
- Establish feeder bus service to LRT stations
- Increase bus transit service levels
- Additional LRT stations to serve new town center communities
- Other planned regional improvements

Demand Elements

- High level of Demand Management Strategies
- High level of parking pricing



Notes:

1) Move SB I-5 Off-Ramp to Flint
2) Move NB I-5 On-Ramp to Weidler
3) Extend Flint to Interstate
4) Extend Clackamas from NE 2nd too Winning Way
5) Cap Freeway

Portland / Vancouver I-5 Transportation and Trade Partnership

0 1000 2000 4000

SCALE: 1" = 2000'

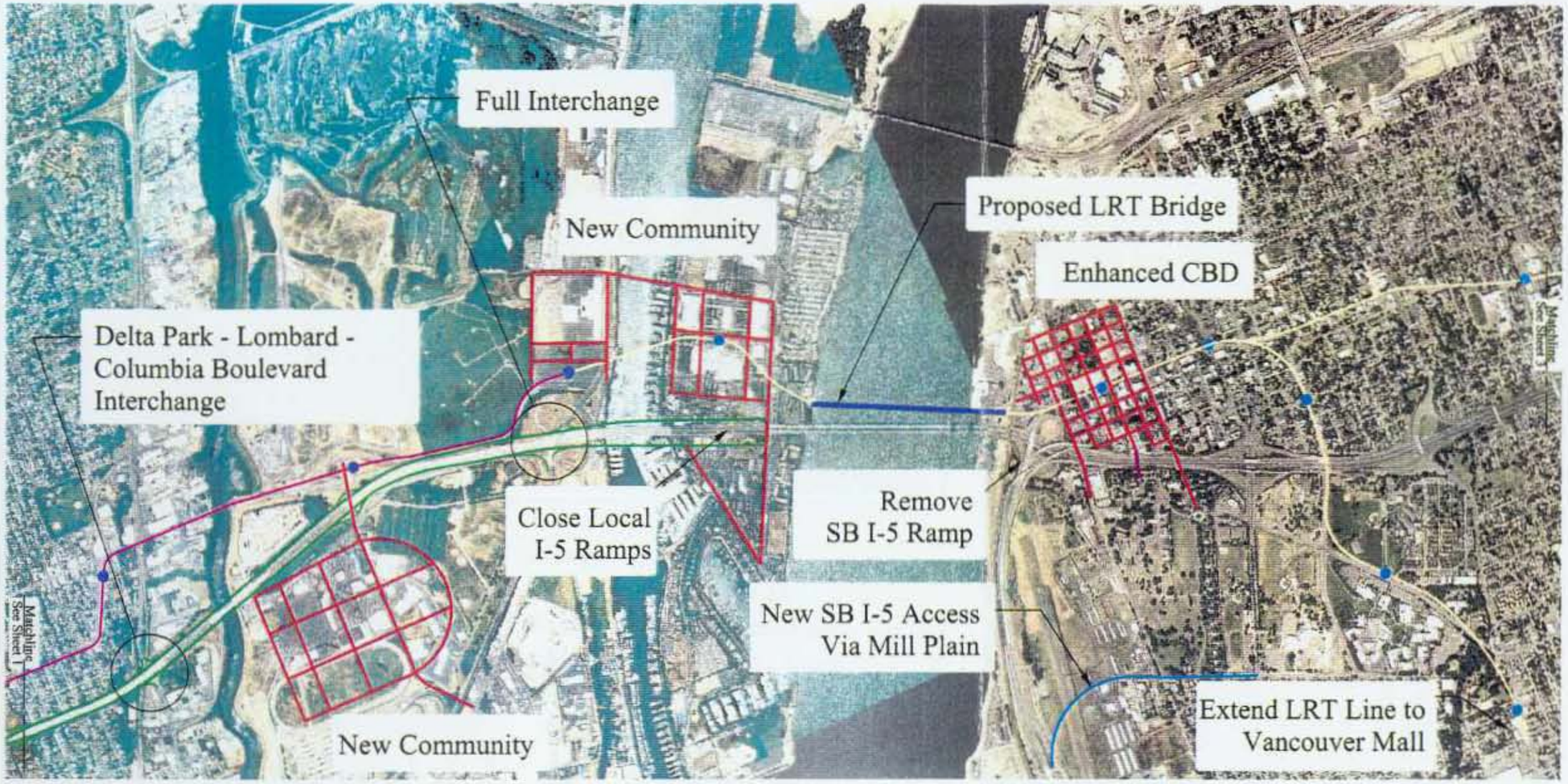
LEGEND:

- Planned LRT Line
- Proposed LRT Line
- Proposed Community
- Proposed SB I-5 Access
- Proposed Collector Distributor
- Proposed Freeway Ramp
- Proposed Freeway Cap
- Planned LRT Station
- Proposed LRT Station

PACKAGE 5 - Sheet 1 of 3

Options Workshop
Enhanced Town Centers with LRT and Arterial Improvements

David Evans and Associates, Inc.



LRT | SB I-5 Traffic | NB I-5 Traffic

Proposed Bridge | Existing SB | Existing NB

Portland / Vancouver I-5 Transportation and Trade Partnership

0 1000 2000 4000

SCALE: 1" = 2000'

LEGEND:

- Planned LRT Line
- Proposed LRT Line
- Proposed Community
- Proposed SB I-5 Access
- Proposed Collector Distributor
- Proposed Bridge
- Proposed Pedestrian Overpass
- Planned LRT Station
- Proposed LRT Station

PACKAGE 5 - Sheet 2 of 3

Options Workshop
Enhanced Town Centers with
LRT and Arterial Improvements

David Evans and Associates, Inc.

LEGEND:

- Planned LRT Line
- Proposed LRT Line
- Proposed Community
- Proposed SB I-5 Access
- Proposed Collector Distributor
- Planned LRT Station
- Proposed LRT Station

Portland / Vancouver I-5 Transportation and Trade Partnership

0 1000 2000 4000

SCALE: 1" = 2000'

PACKAGE 5 - Sheet 3 of 3

Options Workshop
Enhanced Town Centers with LRT and Arterial Improvements

David Evans and Associates, Inc.

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 6: Freight Arterials

Overview

This Option Package includes all components in Option Package No. 9 and also provides a new Columbia River bridge for truck traffic, creating a new four-lane arterial connecting the Mill Plain Extension with Columbia Boulevard west of the existing BNSF rail bridge over the Columbia River.

The new arterial could be a high-level, fixed-span bridge, or a lower-level, movable span bridge, and would include a new arterial interchange at Hayden Island. The new arterial interchange would serve traffic to the east (Jantzen Beach) and to the west (West Hayden Island). Freight and commercial traffic would be allowed to travel the entire length of the new arterial without paying a toll. However, general-purpose traffic not entering or exiting at the Hayden Island interchange would pay a toll. The I-5/Hayden Island interchange would be removed under this alternative, with access to the island provided via the new arterial.

The new roadway would have an interchange with Marine Drive and would intersect at-grade with North Portland Road. North Portland Road would become part of the new roadway and would be upgraded to a four-lane roadway. In addition, the Columbia Boulevard interchange would be upgraded to provide full access to and from I-5 northbound with single lane ramps. East of North Portland Road, Columbia Boulevard would be upgraded to a five-lane roadway all the way to NE 82nd Avenue.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Improve ramps in downtown Vancouver
- Construct full interchange at Columbia Blvd.
- Remove interchange at Hayden Island

Arterial System Improvements

- Construct new bridge from Marine Drive to Mill Plain Blvd. in Vancouver
- Widen N. Portland Rd. and Columbia Blvd. to five lanes

Transit Improvements

- Common improvements only

Demand Elements

- Common improvements only

Option Package No. 6

Freight Arterials

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 7: Extended Westside Freight Corridor

Overview

This Option Package involves construction of a new expressway connecting US 30 near downtown Portland to Vancouver near Fourth Plain Blvd. In concept, the expressway would be eight lanes (four in each direction) and would be grade separated above the existing BNSF rail lines south of the Columbia Slough and part of a double deck auto/rail bridge across the Columbia River. The expressway is intended to draw "local" freight and general-purpose traffic between North Portland and Vancouver from I-5 and major east-west arterials including Columbia Blvd. and Lombard Street.

A north expressway extension would connect near Fourth Plain Blvd. and follow an alignment west of Vancouver Lake to I-5 near NW 179th Street.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Ramp improvements in downtown Vancouver
- Other planned regional improvements

Arterial System Improvements

- Construct new arterial expressway connecting US 30 to Vancouver near Fourth Plain
- Accommodate rail and auto on double deck bridge across the Columbia River
- North expressway extension from Vancouver to NW 179th Street west of Vancouver Lake
- Other planned regional improvements

Transit Improvements

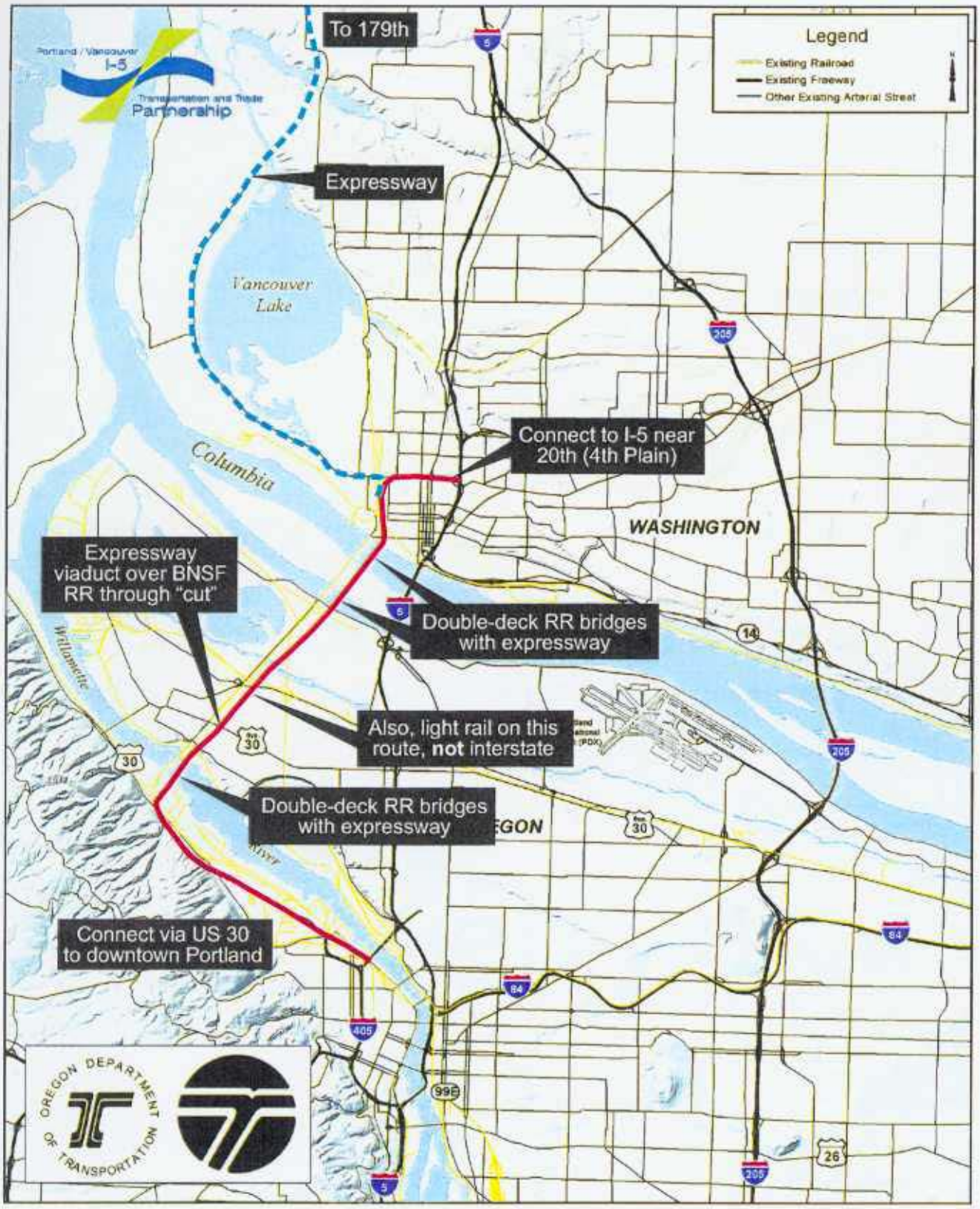
- Common improvements only

Demand Elements

- Common improvements only

Option Package No. 7

Extended Westside Freight Corridor



Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 8: Third Freeway Corridor

Overview

This Option Package generally involves construction of a new westside freeway corridor connecting Clark County with Washington County, Oregon. A specific alignment has not been established.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Improve ramps improvements Vancouver

Arterial System Improvements

- Planned regional improvements only

Transit Improvements

- Common improvements only

Demand Elements

- Common improvements only

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 9: Three Through-Lanes

Overview

This option focuses on improvement three major "bottlenecks" in the corridor, where the freeway includes only two through-lanes in each direction. It also addresses weaving problems associated with the freeway ramps in downtown Vancouver.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Improve ramps in downtown Vancouver

Arterial System Improvements

- Planned regional improvements

Transit Improvements

- Common improvements only

Demand Elements

- Common improvements only

Option Package No. 9

Three Through-Lanes

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 10: Three Through-Lanes with Light Rail Transit

Overview

This Option Package expands on the components in Option Package 9 by providing light rail transit service to Clark County. It also includes demand management policies to reduce commuter use of I-5.

MAX light rail would be extended from the Expo Center into Washington to 134th Street via I-5, from I-5 to I-205 at approximately SR 500, and from Portland airport to I-5 via I-205. Feeder bus service would be improved from employment centers in the Columbia Corridor, Swan Island, and other locations to connect with light rail. Light rail would cross the Columbia River on a new bridge west of the existing I-5 bridges. Bus transit and high occupancy vehicles (HOV) using I-5 would be allowed to bypass general traffic by using "queue jump" lanes at most major on ramps and off ramps. In the morning, queue jumps would operate at ramps from 99E in Vancouver south to Alberta Street, and in the evening at ramps from Broadway Street north to Hayden Island.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Improve ramps in downtown Vancouver

Arterial System Improvements

- Planned regional improvements

Transit Improvements

- Expand LRT system from Expo Center to 134th Street, and from Portland airport to 134th Street; LRT from I-5 to I-205 at approximately SR 500
- Establish feeder bus service to LRT stations
- Increase bus transit service levels

Demand Elements

- High level of Demand Management Strategies
- High level of parking pricing

Option Package No. 10

Three Through-Lanes with Light Rail Transit

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 11: Three Through-Lanes with Express Bus

Overview

Under this Option Package, high capacity transit in Clark County would be focused on an express bus system. A new bridge crossing the Columbia River and North Portland Harbor, connecting to a new busway/arterial to the LRT station at Portland International Raceway would provide a bypass of the freeway congestion at the Columbia River.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Ramp improvements in downtown Vancouver

Arterial System Improvements

- New busway/arterial linking the Portland International Raceway LRT station with Hayden Island and Vancouver
- Provide HOV/Express bus lanes on major corridors (SR 500, SR 14) feeding I-5

Transit Improvements

- Clark County express bus system linking to the LRT station at Portland International Raceway (PIR)

Demand Elements

- High level of Demand Management Strategies
- High level of parking pricing

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 12: Columbia River Crossing with Supplemental Bridge (no new HCT)

Overview

This Option Package would address congestion on I-5 at the Columbia River by providing express or HOV lanes across the river on a new bridge. Both existing I-5 bridges would continue to be used for general-purpose freeway traffic. In combination with the Delta-Lombard project, and widening I-5 between Main St. and 99th, the addition of HOV/express lanes at the river would provide for continuous HOV lanes between Lombard and 99th.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- ramp improvements in downtown Vancouver
- New Columbia River bridge for express or HOV lanes
- Provides HOV lanes between 99th and Lombard

Arterial System Improvements

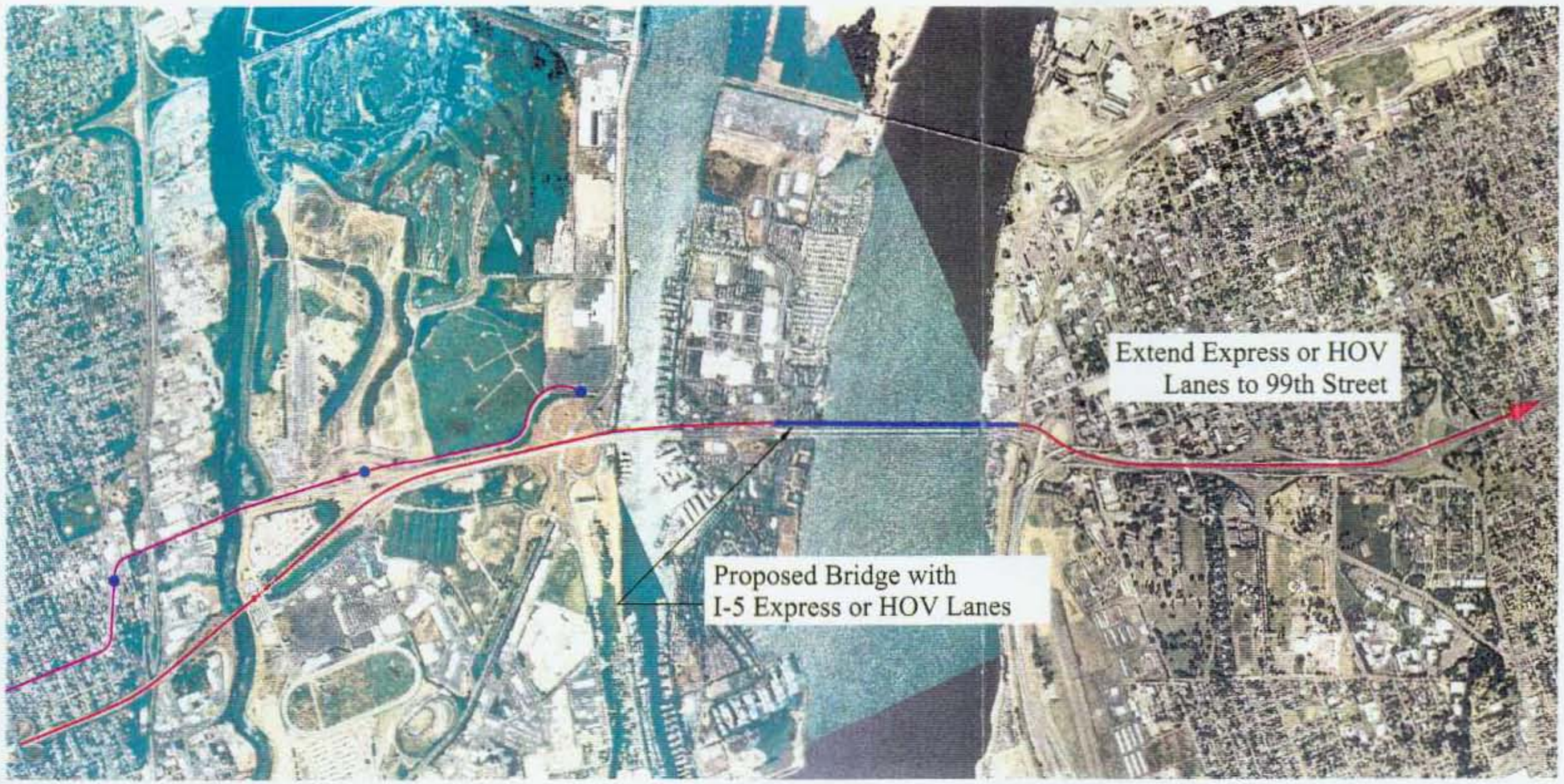
- Planned regional improvements only

Transit Improvements

- Common improvements only

Demand Elements

- Common improvements only



Portland / Vancouver I-5 Transportation and Trade Partnership

0 1000 2000 4000

SCALE: 1" = 2000'

LEGEND:

- Planned LRT Line
- Proposed Bridge
- Proposed Express or HOV Lanes
- Planned LRT Station

PACKAGE 12

Options Workshop
Columbia River Crossing
with Supplemental Bridge
(no new HCT)

David Evans and Associates, Inc.

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 13: Columbia River Crossing with Supplemental Bridge and LRT

Overview

This Option Package addresses freeway capacity constraints at the existing I-5 Columbia River crossing by adding express or HOV lanes across the river through construction of a supplemental bridge. One or both of the existing I-5 bridges would continue to be used for general-purpose freeway traffic. Six (6) variations of this Option Package have been identified and labeled A-F on the associated graphics. Each graphic describes and illustrates the key differences between variations. Primary differences include:

- Number and configuration of express/HOV and general purpose lanes
- Assignment of lanes (direction and type) to existing and supplemental structures
- Location of LRT on existing or supplemental structure
- Supplemental bridge design as a high bridge (no lift span) or medium high lift span design

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- ramp improvements in downtown Vancouver
- Additional I-5 freeway capacity across the Columbia River for HOV/express lanes
- Many Option Package variations include pedestrian and bicycle capacity enhancements
- Improvements localized to bridge crossing vicinity and do not suggest additional capacity in the corridor north or south of the Columbia River
- Provide HOV lanes between 99th and Lombard

Arterial System Improvements

- Planned regional improvements only

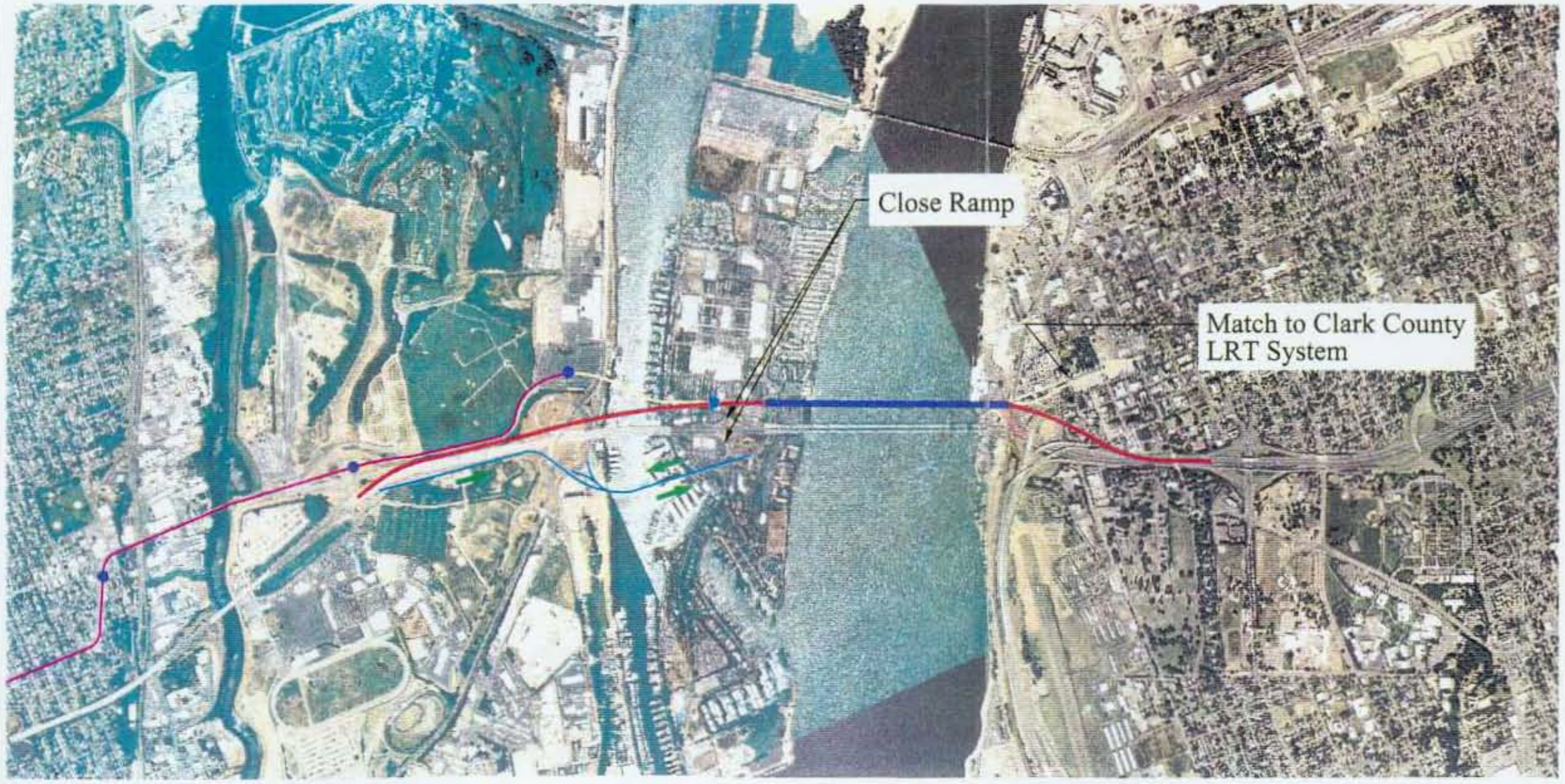
Transit Improvements

- Expand LRT system from Expo Center to 134th St., and from Portland airport to 134th St.; LRT from I-5 to I-205 at approximately SR 500
- Establish feeder bus service to LRT stations
- Increase bus transit service levels
- Other planned regional improvements

Demand Elements

- Common improvements only

See accompanying graphics for additional details of with the six (6) variations associated with this Option Package.



Portland / Vancouver I-5 Transportation and Trade Partnership

0 1000 2000 4000

SCALE: 1" = 2000'

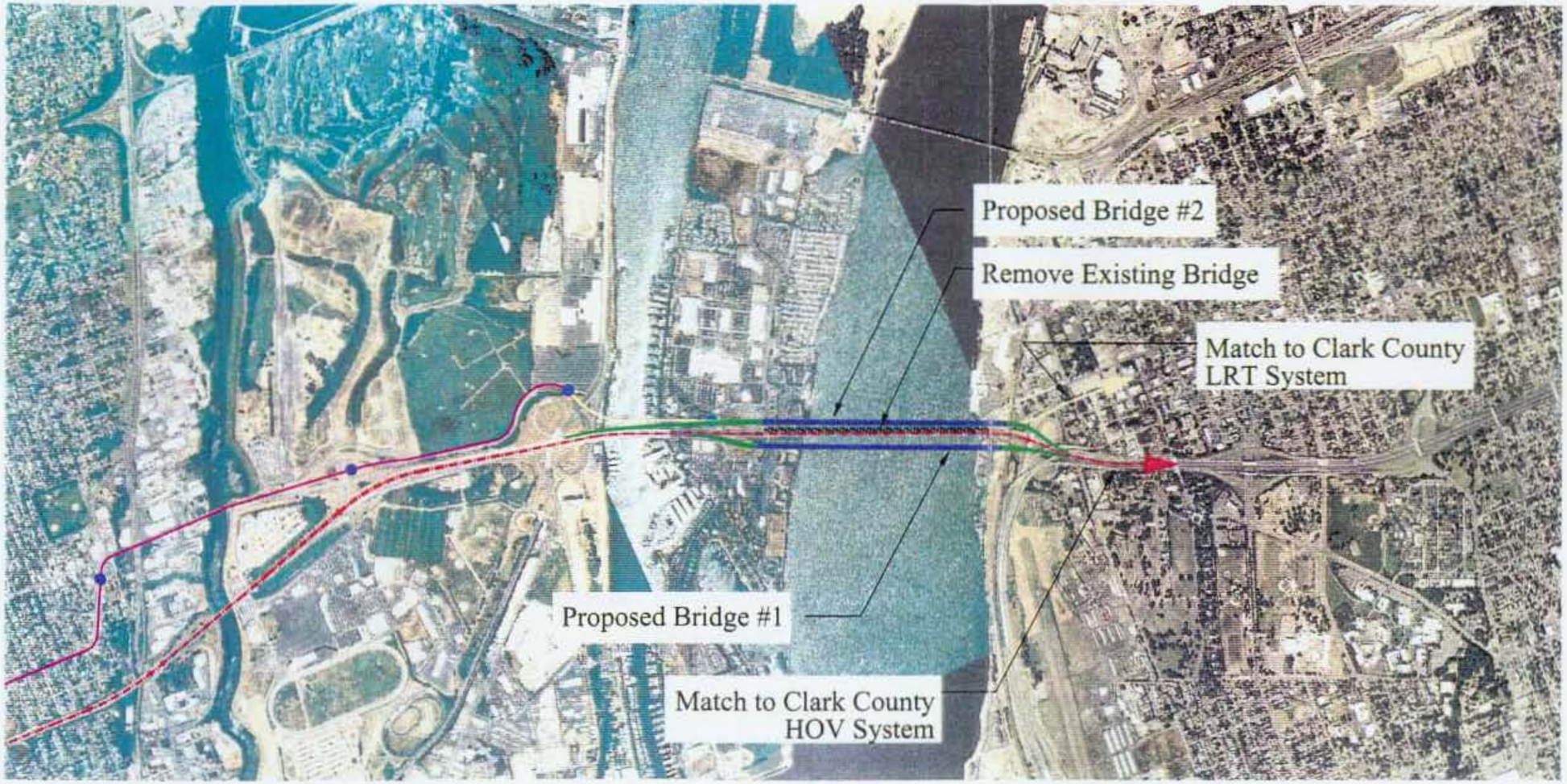
LEGEND:

- Planned LRT Line
- Proposed LRT Line
- Proposed Hayden Island Access
- Proposed Express Lanes
- Proposed Bridge
- Planned LRT Station
- Proposed LRT Station
- Direction of Travel

PACKAGE 13 - OPTION A

Options Workshop
Columbia River Crossing
with Supplemental Bridge
(with LRT)

David Evans and Associates, Inc.



Portland / Vancouver I-5 Transportation and Trade Partnership

0 1000 2000 4000

SCALE: 1" = 2000'

LEGEND:

- Planned LRT Line
- Proposed LRT Line
- Proposed Bridge
- Proposed HOV Lanes
- Proposed Freeway Lanes
- Planned LRT Station
- Proposed LRT Station

Phase 1

Demolish	SB I-5 Traffic	NB I-5 Traffic
Existing SB	Existing NB	Bridge #1

Phase 2

	SB I-5 Traffic & LRT	HOV or Express Traffic	NB I-5 Traffic
Fixed / Lift	Bridge #2	Existing NB	Bridge #1

Construction Phasing

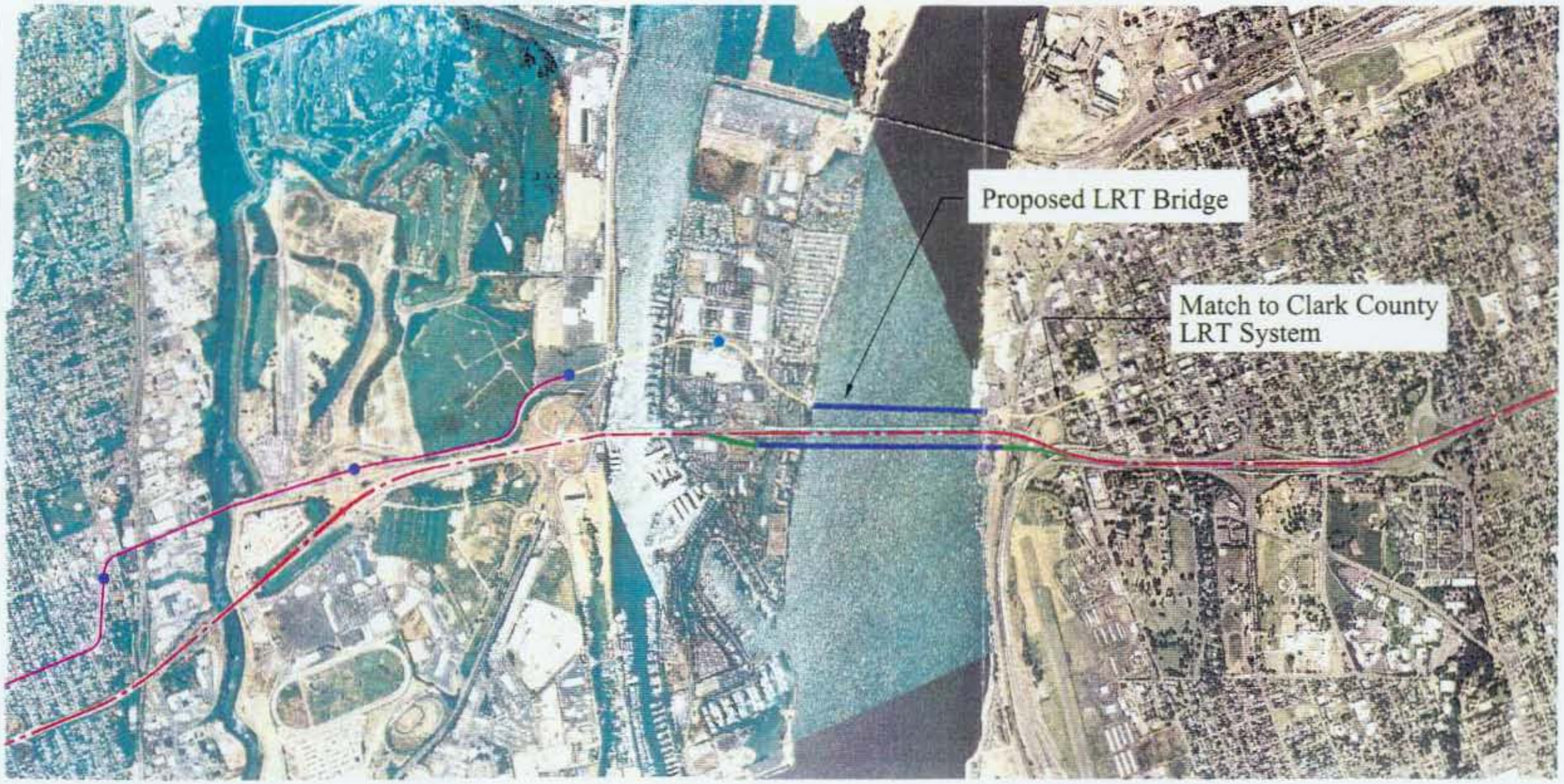
Phase 1
Build Bridge #1
Move NB I-5 to Bridge #1
Move SB I-5 to Existing NB Bridge

Phase 2
Remove Existing SB Bridge
Move SB I-5 to Bridge #2
Convert Existing NB Bridge to HOV

PACKAGE 13 - OPTION B

Options Workshop
Columbia River Crossing
with Supplemental Bridge
(with LRT)

David Evans and Associates, Inc.



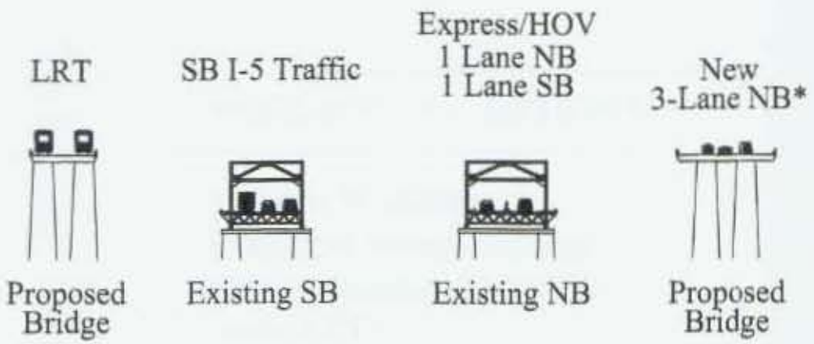
Portland / Vancouver I-5 Transportation and Trade Partnership

0 1000 2000 4000

SCALE: 1" = 2000'

LEGEND:

- Planned LRT Line
- Proposed LRT Line
- Proposed Bridge
- Proposed HOV Lanes
- Proposed Freeway Lanes
- Planned LRT Station
- Proposed LRT Station

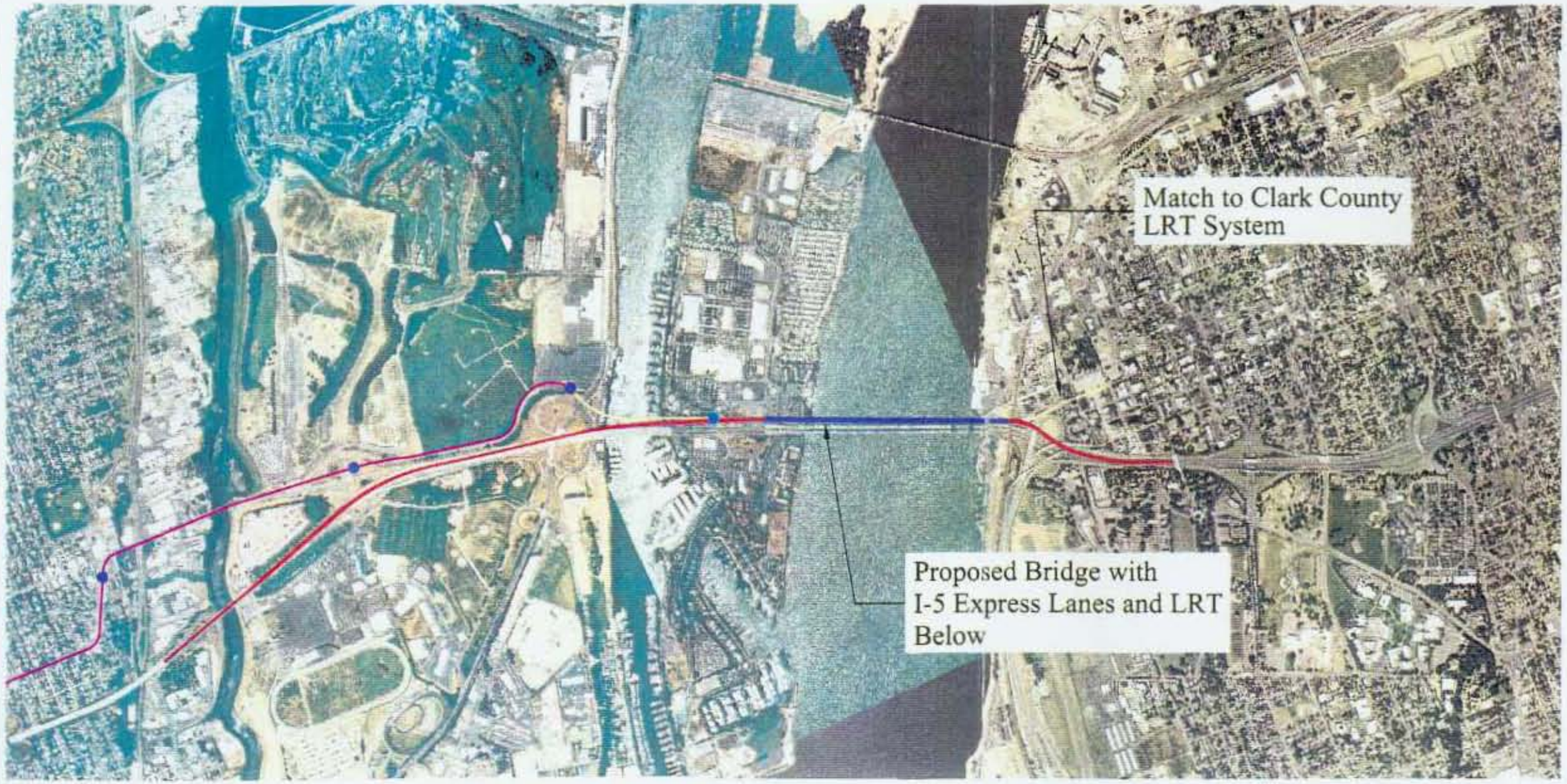


*Possibly 4 lane if weave requires it

PACKAGE 13 - OPTION C

Options Workshop
Columbia River Crossing
with Supplemental Bridge
(with LRT)

David Evans and Associates, Inc.



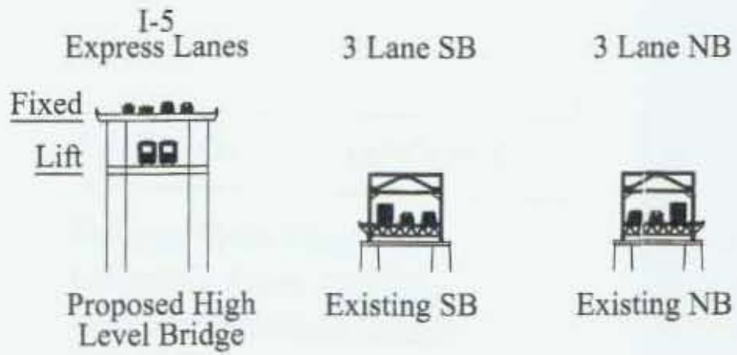
Portland / Vancouver I-5 Transportation and Trade Partnership

0 1000 2000 4000

SCALE: 1" = 2000'

LEGEND:

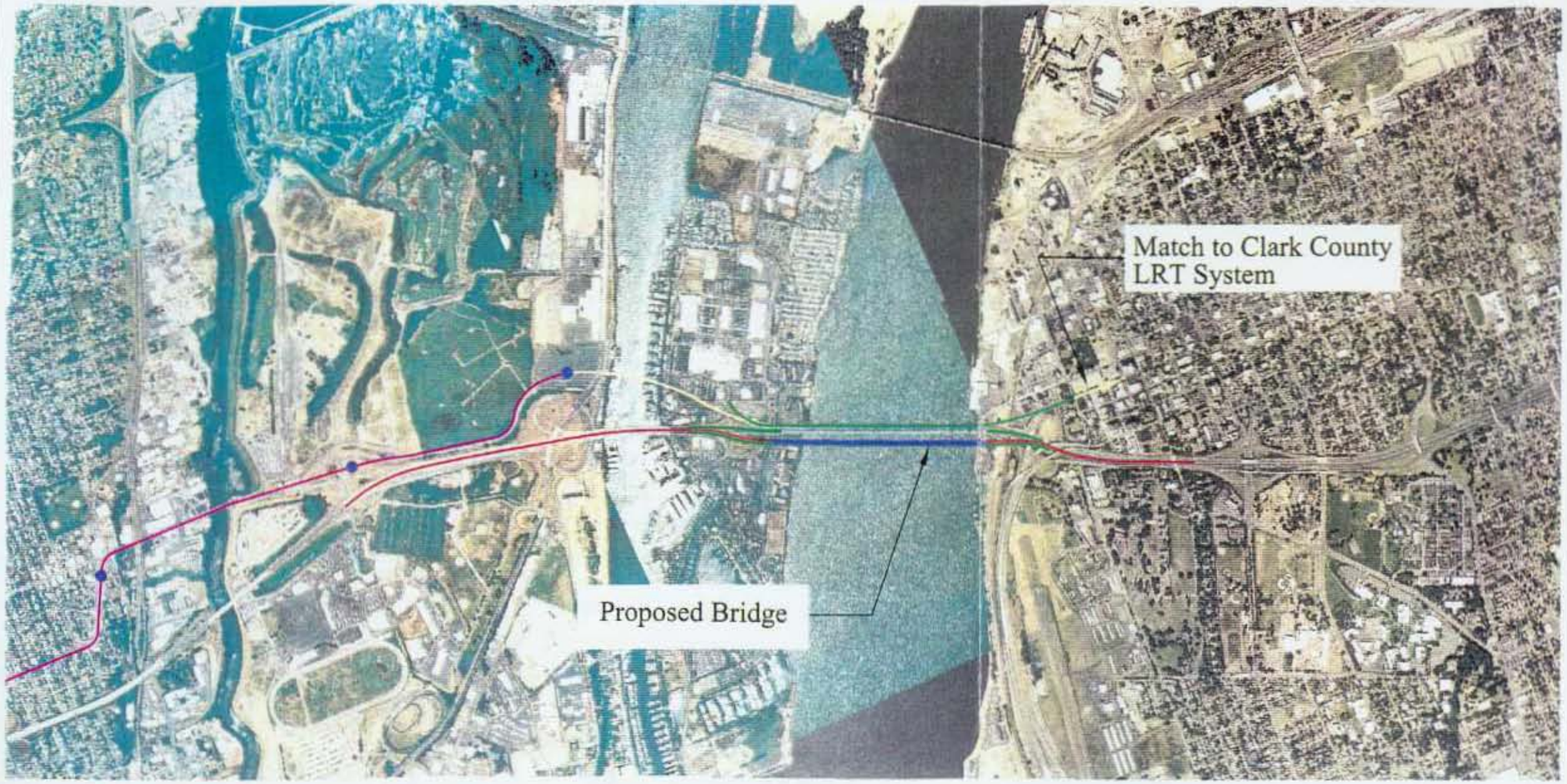
- Planned LRT Line
- Proposed LRT Line
- Proposed Bridge
- Proposed Express Lanes
- Planned LRT Station
- Proposed LRT Station



PACKAGE 13 - OPTION D

Options Workshop
Columbia River Crossing
with Supplemental Bridge
(with LRT)

David Evans and Associates, Inc.



Portland / Vancouver I-5 Transportation and Trade Partnership

0 1000 2000 4000

SCALE: 1" = 2000'

LEGEND:

- Planned LRT Line
- Proposed LRT Line
- Proposed Bridge
- Proposed Express Lanes
- Proposed Freeway Lanes
- Proposed Arterial Lanes
- Planned LRT Station
- Proposed LRT Station

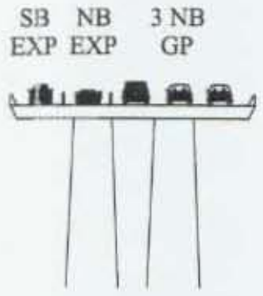
LRT & Arterial

Existing SB

3 Lanes SB

Existing NB

2 Lanes Express
3 Lanes NB

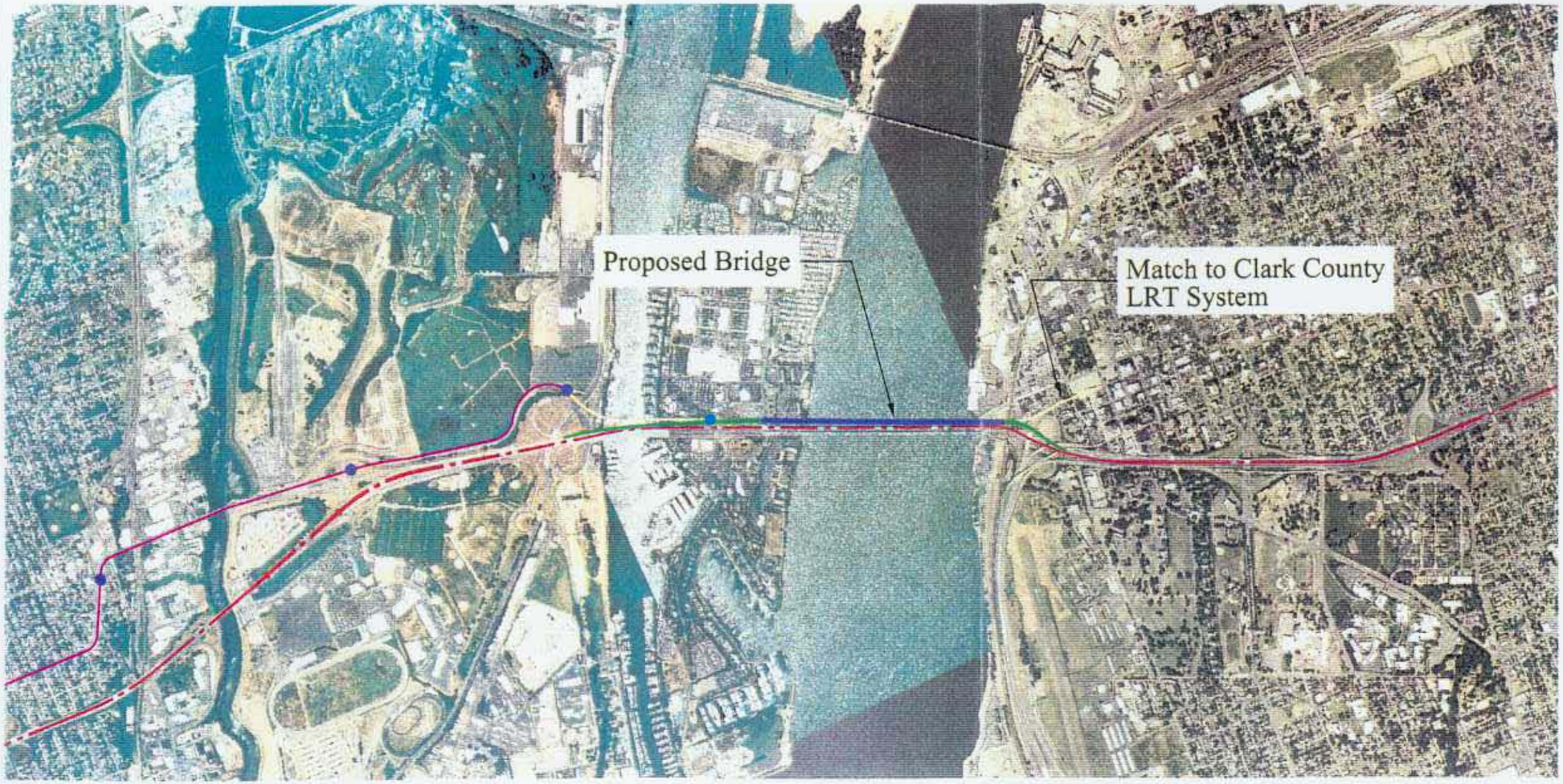


Proposed Bridge

PACKAGE 13 - OPTION E

Options Workshop
Columbia River Crossing
with Supplemental Bridge
(with LRT)

David Evans and Associates, Inc.



Portland / Vancouver I-5 Transportation and Trade Partnership

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SCALE: 1" = 2000'

LEGEND:

- Planned LRT Line
- Proposed LRT Line
- Proposed Bridge
- Proposed HOV Lanes
- Proposed Freeway Lanes
- Planned LRT Station
- Proposed LRT Station

Bike & Ped / LRT / SB I-5

New Bridge

Reversible HOT/HOV/Trucks?

Existing SB

NB I-5 Traffic

Existing NB

PACKAGE 13 - OPTION F

Options Workshop
Columbia River Crossing
with Supplemental Bridge
(with LRT)

David Evans and Associates, Inc.

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 14: Columbia River Crossing with New Freeway Bridge or Tunnel

Overview

This option would add increased freeway and arterial capacity over the Columbia River by constructing a new bridge or tunnel to accommodate all freeway traffic. The new bridge would include three through-lanes in each direction, plus auxiliary lanes between the Hayden Island and SR 14 ramps. If a tunnel option were developed, it would not include auxiliary lanes.

Conceptually, a new freeway bridge would consist of a new high-level, fixed-span bridge just east of the existing bridges, carrying all freeway traffic and connecting to the SR-14 and Hayden Island interchanges. The existing Interstate bridges would remain in place and new approach roadways would be constructed to provide direct arterial and LRT connections between downtown Vancouver and Hayden Island.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Improve ramps in downtown Vancouver
- Provide HOV lanes between 99th and Lombard
- Construct new Columbia River Crossing for all freeway traffic, with three through-lanes and an auxiliary lane in each direction

Arterial System Improvements

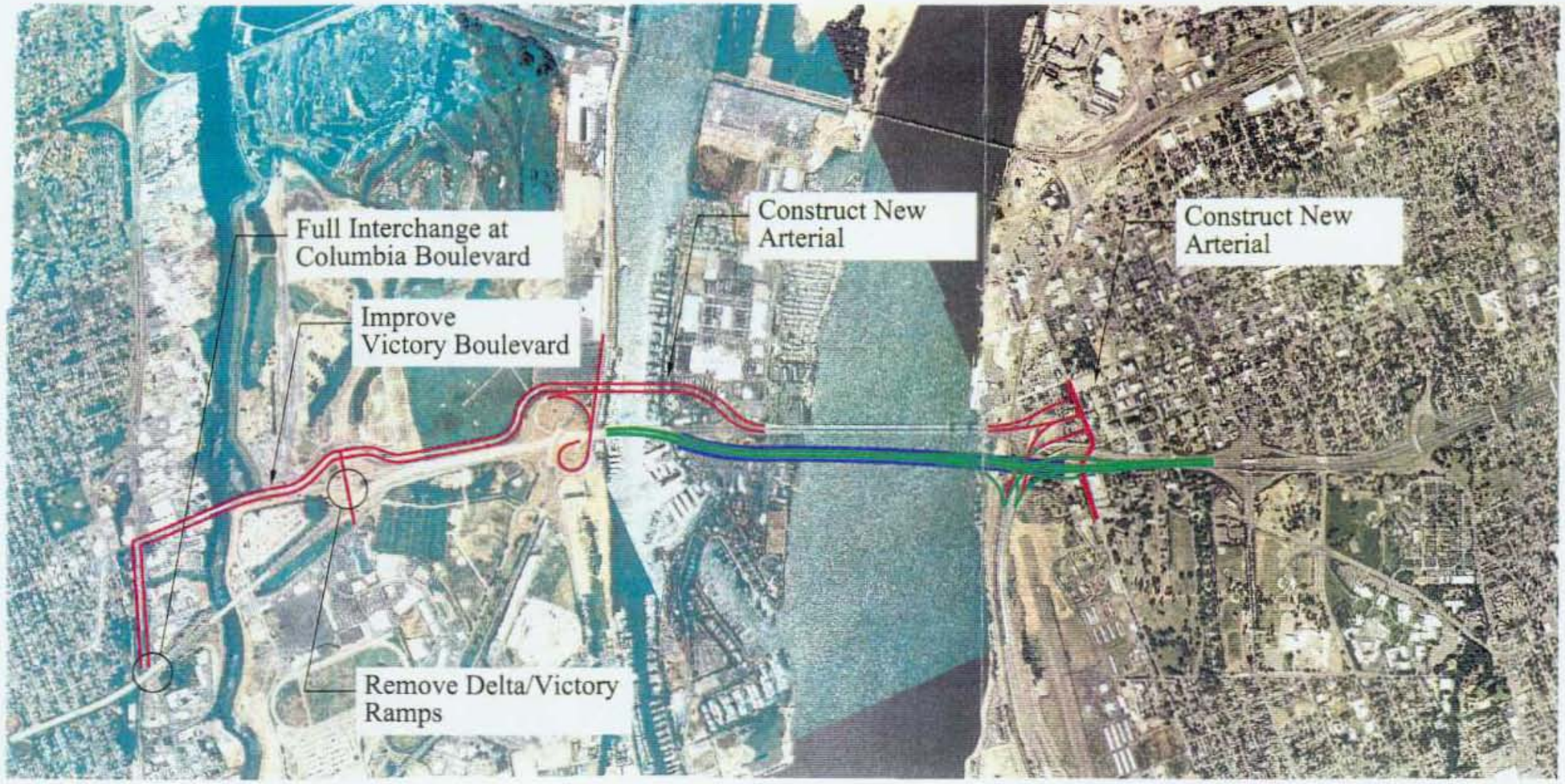
- Planned regional improvements
- Use existing I-5 Columbia River bridges for arterial connections to Hayden Island and/or Columbia Boulevard

Transit Improvements

- Common improvements only

Demand Elements

- Common improvements only



Portland / Vancouver I-5 Transportation and Trade Partnership

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SCALE: 1" = 2000'

LEGEND:

- Proposed Freeway Lanes
- Proposed Arterial Lanes
- Proposed Bridge

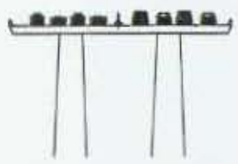
SB Arterial Traffic

NB Arterial Traffic

NB & SB I-5 Traffic

Existing SB

Existing NB



Proposed High Level Bridge

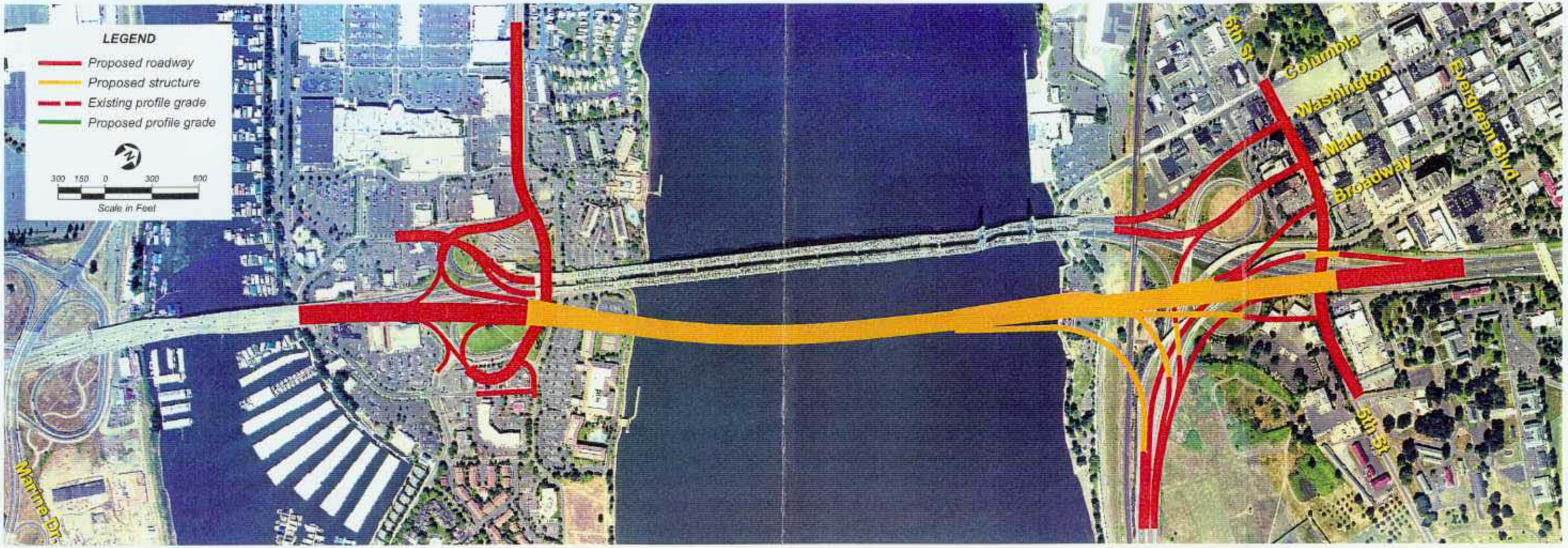
PACKAGE 14

Options Workshop
Columbia River Crossing with New Freeway Bridge or Tunnel

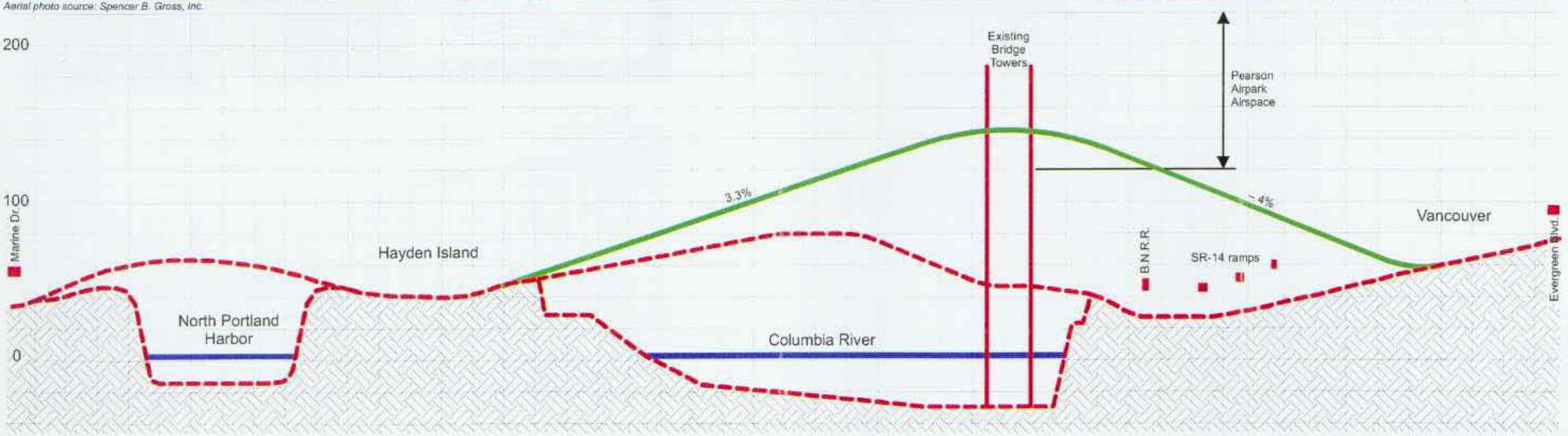
David Evans and Associates, Inc.

Option Package No. 14

Columbia River Crossing with New Freeway Bridge or Tunnel



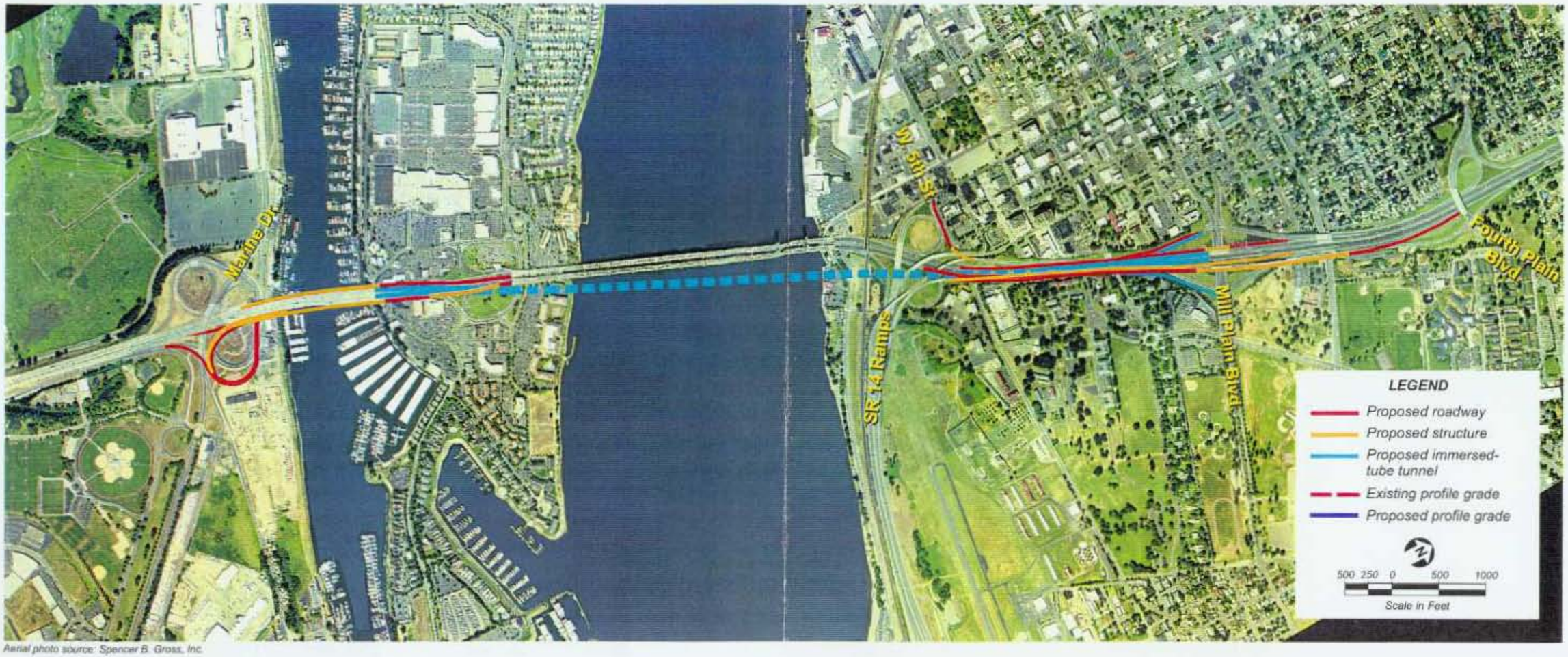
Aerial photo source: Spencer B. Gross, Inc.



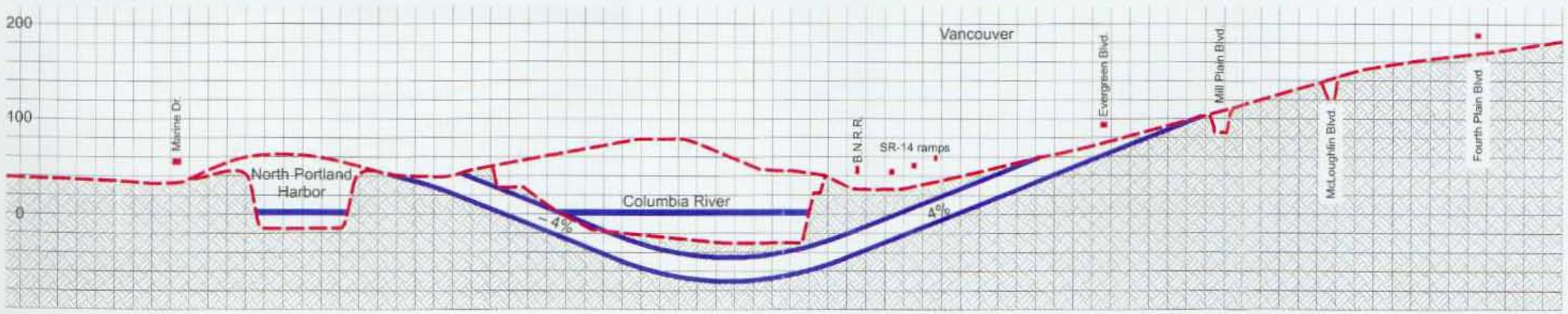
A. High-Level Bridge

Option Package No. 14

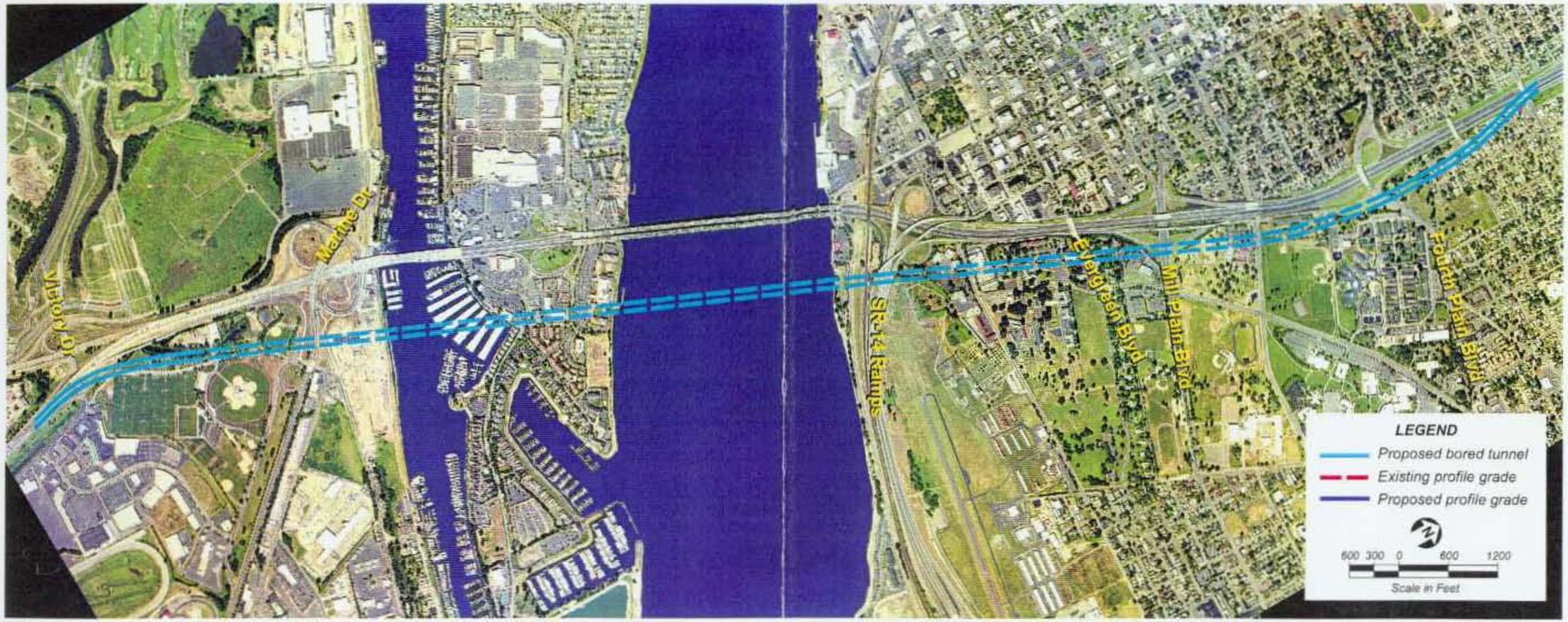
Columbia River Crossing with New Freeway Bridge or Tunnel



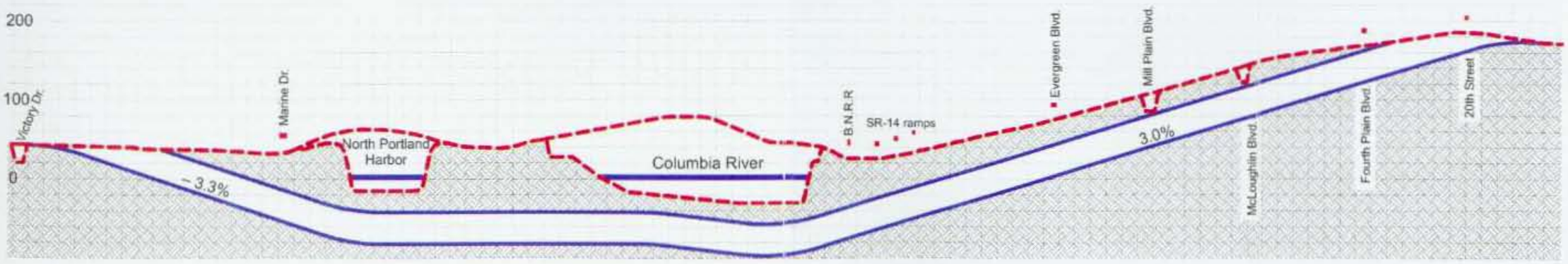
Aerial photo source: Spencer B. Gross, Inc.



B. Short Tunnel Option (Immersed Tube)



Aerial photo source: Spencer B. Gross, Inc.



C. Long Tunnel Option (Bored)

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 15: Freight Freeway

Overview

This option would expand on Option Package No. 14 by improving truck access between Marine Drive and I-5 to and from the north. It would also include a new arterial bridge across West Hayden Island, linking Marine Drive to Mill Plain Boulevard.

The Hayden Island interchange would be removed, with access to the island provided via the new arterial connection on West Hayden Island, and by converting one or both of the existing I-5 bridges to arterial use for Vancouver-Hayden Island traffic.

This option would also provide direct truck-only ramps to the new I-5 Bridge from Marine Drive (east and westbound), bypassing the general-purpose ramps. Finally, a new truck-only ramp would be built to connect the new southbound bridge lanes to Marine Drive (east and westbound), and new ramps would be constructed to connect Columbia Boulevard to and from I-5 northbound. Currently, Columbia Boulevard connects only to and from the southbound lanes on I-5.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Improve ramps in downtown Vancouver
- Construct new Columbia River Crossing for all freeway traffic, with three through-lanes and an auxiliary lane in each direction
- Provide HOV lanes between 99th and Lombard
- Modify Marine Dr. interchange for direct truck access
- Construct full interchange at Columbia Blvd.

Arterial System Improvements

- Planned regional improvements
- Construct new bridge from Marine Drive in Portland to Mill Plain Blvd. in Vancouver
- Widen N. Portland Rd. and Columbia Blvd. to five lanes

Transit Improvements

- Common improvements only

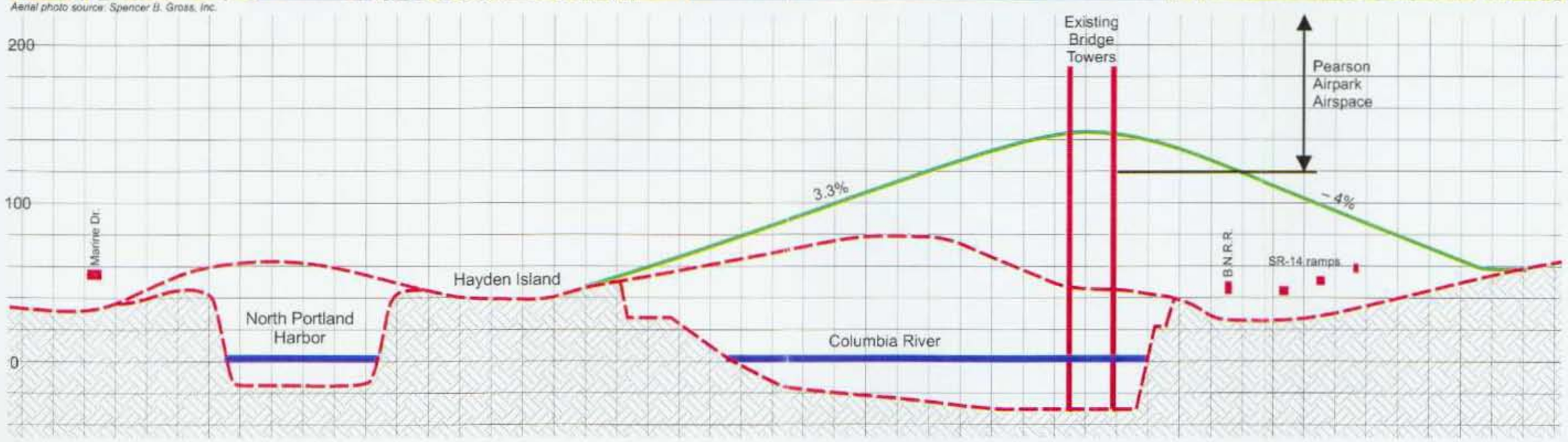
Demand Elements

- Common improvements only

Option Package No. 15

Freight Freeway

Aerial photo source: Spencer B. Gross, Inc.



Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 16: Widen Freeway for Reversible Express Lanes, Including Light Rail

Overview

This option includes all components in Option Package No 14, plus additional capacity along I-5 for separated express travel lanes as well as added capacity for mixed-flow vehicles.

Future travel demand is expected to be greatest in the southbound direction in the morning peak commute period, and northbound in the afternoon peak period. Therefore, two reversible express lanes would operate in the southbound direction during the morning and in the northbound direction during the evening, similar to the system in Seattle. The reversible express lanes would extend from the I-405 interchange in Portland to just north of the 99th Street interchange in Vancouver. The express lanes would be added to the new fixed-span bridge across the Columbia River (as described in Option Package No. 14), resulting in a total of ten lanes on the bridge.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Improve ramps in downtown Vancouver
- Construct New Columbia River Crossing for all freeway traffic, with three through-lanes and an auxiliary lane in each direction, plus reversible express lanes
- Add reversible express lanes from 99th to 1-405, with a fourth lane in each direction between 99th and 134th

Arterial System Improvements

- Planned regional improvements

Transit Improvements

- Expand LRT system from Expo Center to 134th Street, and from Portland airport to 134th Street; LRT from I-5 to I-205 at approximately SR 500
- Add Feeder bus service to connect with LRT
- Increase service hours moderately

Demand Elements

- Reversible express lane could be tolled, limited to HOV/transit use, or a combination of both (High Occupancy Toll [HOT] lanes)

Option Package No. 16

Widen Freeway for Reversible Express Lanes, Including Light Rail

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 17: LRT Plus Widen Freeway for HOV Lanes (Supplemental Columbia River Bridge)

Overview

This Option Package involves LRT to Clark County, and increased freeway capacity throughout most of the I-5 corridor through construction of HOV lanes. At the Columbia River, the additional capacity would be provided by constructing a new bridge for LRT and HOV use. Options for constructing a supplemental and/or joint use bridge are illustrated as part of Option Package 13. The existing bridges would continue to be used for general-purpose freeway traffic.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Improve ramps in downtown Vancouver
- Construct New Columbia River Crossing to add express or HOV lanes across the river
- Continue to use existing bridges for "local" freeway traffic
- Provide HOV lanes between 134th Street and Going Street
- Add queue jump ramps

Arterial System Improvements

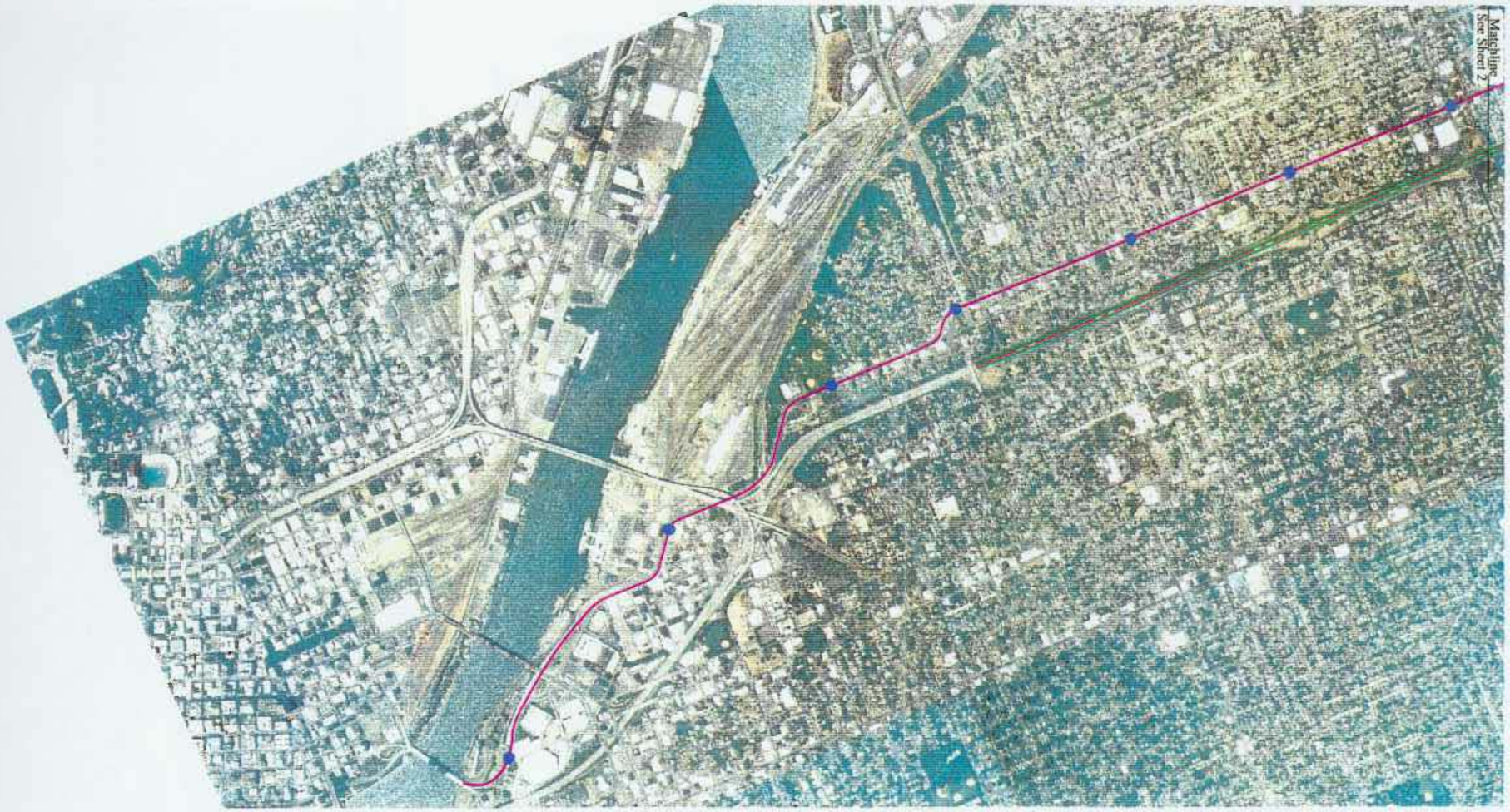
- Planned regional improvements only

Transit Improvements

- Expand LRT system from Expo Center to 134th Street, and from Portland airport to 134th Street; LRT from I-5 to I-205 at approximately SR 500
- Add feeder bus service to connect with LRT
- Increase service hours moderately

Demand Elements

- High level of Demand Management Strategies
- High level of parking pricing



Portland / Vancouver
I-5
Transportation and Trade
Partnership

0 1000 2000 4000

SCALE: 1" = 2000'

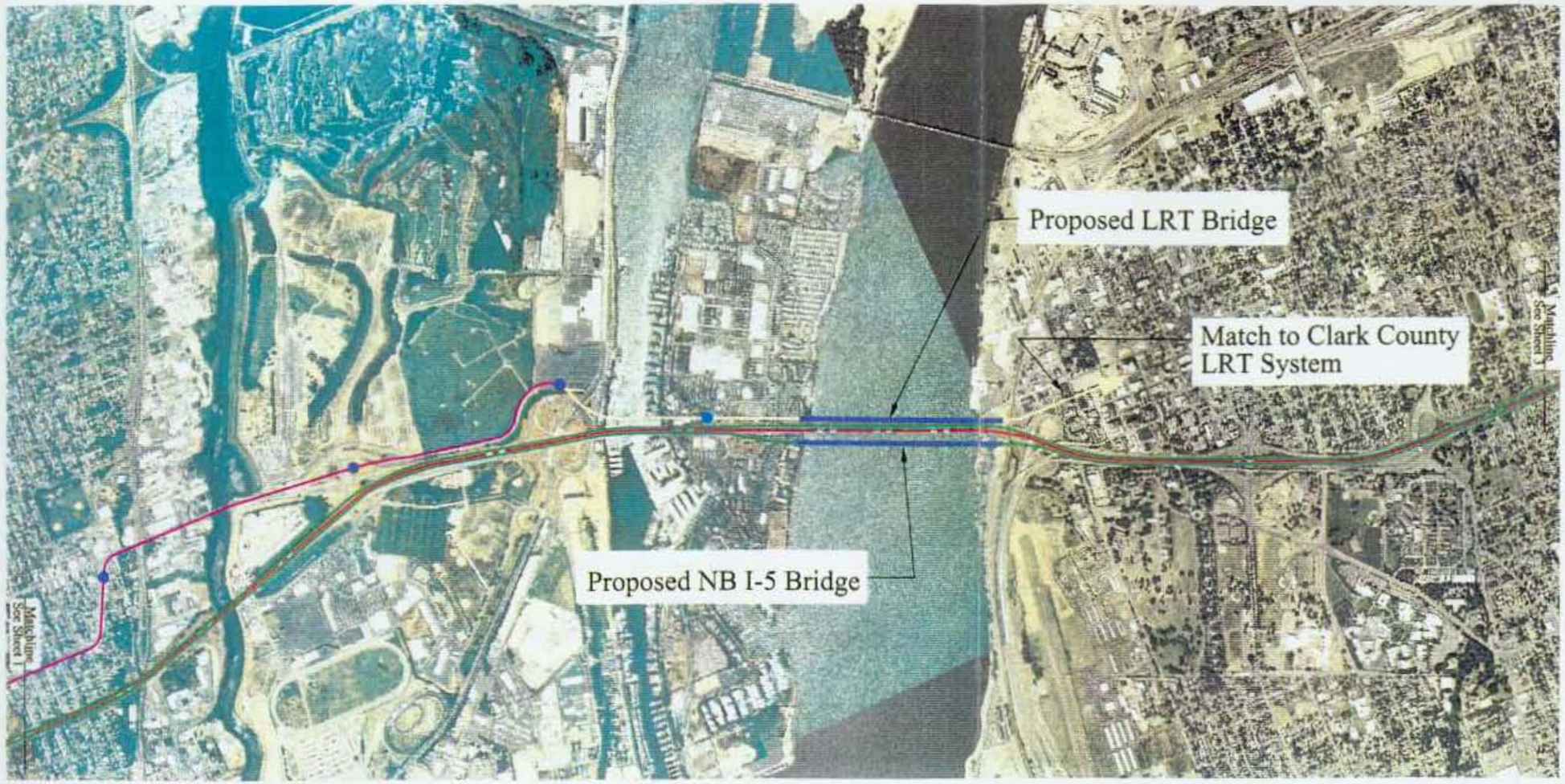
LEGEND:

- Planned LRT Line
- Proposed LRT Line
- Proposed HOV Lanes
- Relocate Freeway Lanes
- Planned LRT Station
- Proposed LRT Station

PACKAGE 17 - Sheet 1 of 3

Options Workshop
Light Rail Transit with
Supplemental Bridge
and HOV Lanes

David Evans and Associates, Inc.



Portland / Vancouver I-5 Transportation and Trade Partnership

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SCALE: 1" = 2000'

LEGEND:

- Planned LRT Line
- Proposed LRT Line
- Proposed HOV Lanes
- Proposed Bridge
- Relocate Freeway Lanes
- Planned LRT Station
- Proposed LRT Station

LRT	SB I-5 Traffic	HOV Traffic	NB I-5 Traffic
Proposed Bridge	Existing SB	Existing NB	Proposed Bridge

PACKAGE 17 - Sheet 2 of 3

Options Workshop
Light Rail Transit with
Supplemental Bridge
and HOV Lanes

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LEGEND:

- Planned LRT Line
- Proposed LRT Line
- Proposed HOV Lanes
- Relocate Freeway Lanes
- Planned LRT Station
- Proposed LRT Station

Portland / Vancouver I-5 Transportation and Trade Partnership

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SCALE: 1" = 2000'

PACKAGE 17 - Sheet 3 of 3

Options Workshop
Light Rail Transit with
Supplemental Bridge
and HOV Lanes

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Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 18: LRT Plus Widen Freeway for HOV Lanes (New Columbia River Bridge)

Overview

This Option Package builds on Package No. 14 by providing a new bridge for freeway traffic at the Columbia River, and HOV lanes throughout the corridor.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Improve ramps in downtown Vancouver
- Build new I-5 Columbia River Bridge with three GP and HOV each direction
- Provide HOV between 134th Street and Going Street
- Add Queue jump ramps

Arterial System Improvements

- Use existing I-5 Columbia River Bridges for arterial and LRT connection to Hayden Island

Transit Improvements

- Expand LRT system from Expo Center to 134th Street, and from Portland airport to 134th Street; LRT from I-5 to I-205 at approximately SR 500
- Add feeder bus service to connect with LRT
- Increase service hours moderately

Demand Elements

- High level of Demand Management Strategies
- High level of parking pricing

Option Package No. 18

LRT Plus Widen Freeway for HOV Lanes (New Columbia River Bridge)

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 19: Express Bus Plus Widen Freeway for HOV Lanes (New Columbia River Bridge)

Overview

This Option Package differs from Option Package No. 18 in that the transit component throughout Clark County is based on an express bus system rather than LRT.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Improve ramps in downtown Vancouver
- Construct new I-5 Columbia River Bridge with three GP and HOV each direction
- Provide HOV between 134th Street and Going Street
- Add queue jump ramps

Arterial System Improvements

- Provide HOV/express bus lanes on major corridors (SR 500, SR 14) feeding to I-5
- Use existing I-5 Columbia River Bridges for arterial and LRT connection to Hayden Island

Transit Improvements

- Clark County express bus system linking to LRT system at Portland International Raceway (PIR)

Demand Elements

- High level of Demand Management Strategies
- High level of parking pricing

Portland / Vancouver I-5 Transportation and Trade Partnership

Option Package No. 20: New Freeway Parallel to Existing Freeway

Overview

This Option Package involves construction of a new four-lane express freeway segment adjacent to I-5 between Delta Park and SR 500 with interchange connections at SR 14 and SR 500.

I-5 Improvements

- Provide three through-lanes in each direction at Rose Quarter, Delta-Lombard, 99th-134th
- Improve ramps in downtown Vancouver
- Construct a parallel freeway with limited ramp connects (at SR 14 and SR 500 only) to bypass weaving and congestion problem, Columbia Boulevard to SR 500

Arterial System Improvements

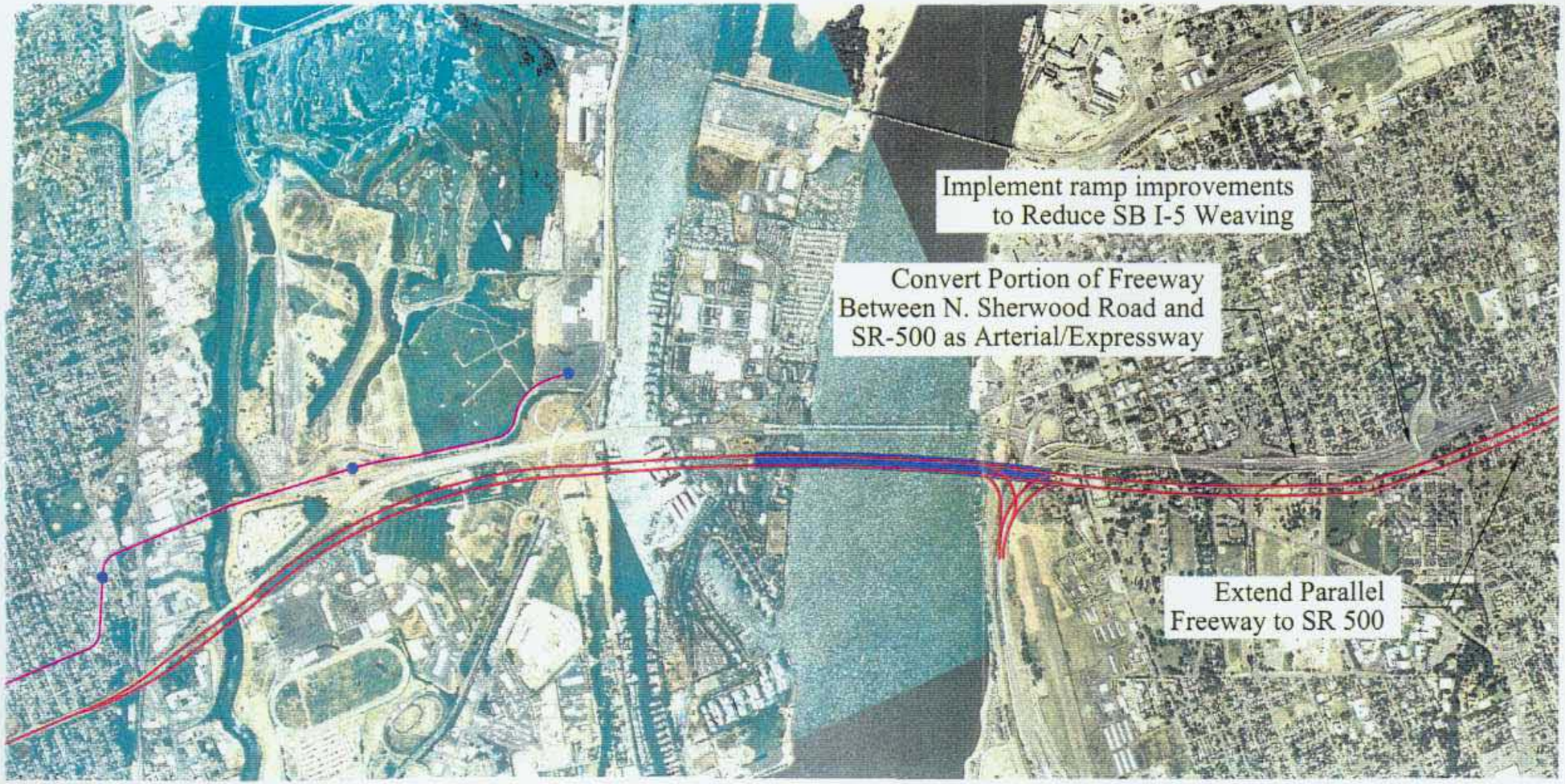
- Planned regional improvements only

Transit Improvements

- Common improvements only

Demand Elements

- Common improvements only



Portland / Vancouver I-5 Transportation and Trade Partnership

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SCALE: 1" = 2000'

LEGEND:

- Planned LRT Line
- Proposed Bridge
- Proposed Parallel Freeway
- Planned LRT Station

SB I-5 Traffic

Existing SB

NB I-5 Traffic

Existing NB

Parallel Freeway

Proposed High Level Bridge

PACKAGE 20

Options Workshop
New Freeway Parallel
to Existing Freeway

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