

Summary of Bridge Influence Area (BIA) Concepts																				
Concept Number	Concept Description	Traffic Volumes			Traffic Performance				Design Criteria (e.g. schematic, scaled single line, detailed design)				Air and Marine Navigation		Structures	Cost Estimating	Natural and Cultural/Historic Resources			Status (e.g. dropped, why? Or further evaluation why?)
		Year	Assignment Process (e.g. hand, model, none, growth factor?)	Level of Service (e.g. mainline, ramp, diverge, merge, ramp terminal intersections?)	Travel Time	Mode of Travel	Vehicle Miles of Travel	Cross-Section	Horizontal	Profile	Air Navigation	Marine Navigation	Fish Habitat	Wetlands and Parks			Cultural/Historic Resources			
8-1*	Five Northbound Lanes on Existing Bridge;  5 southbound lanes on new double-deck bridge;  LRT on lower deck; west of existing bridges	2020	Metro's EMME/2 travel demand model - Output  Regional travel patterns	VISSIM Model - Input  Freeway operations  Vehicle Hours of Delay  Safety - reduces merging and weaving Concept #1 and #4 same model, because both in Category #1	Average Speed  Reduce congestion and delay	Improve freight within BIA  Assume HOV lanes - further analysis needed in EIS		New structures will be built to current standards	Providing for weaving and merging means adding lanes in some locations  - SR 500 to 4th Plain  - 4th Plain to Mill Plain  - Mill Plain to SR 14  - In the vicinity of Hayden Island  - SR 500 to 4th Plain  - SR 500 to 4th Plain  - SR 500 to 4th Plain  Reduce number of exits and entrances Alignment east/west of existing bridges Several interchange improvements	High-level, fixed span bridges  Low-level movable span bridges	Bridges in the vicinity of Pearson Air Park  No impact to restricted air space	I-5 bridges across major shipping channel (Columbia River)	Further study needed to determine whether new bridge should be a replacement or supplemental  Joint use (highway/light rail) bridge further investigation needed  Separate Light rail bridge - Substantial environmental & design work has already been completed in the South/North EIS  Tunnels  Replacement bridge  Supplemental bridge Existing structures do not meet seismic standards	\$1,200 million (2002)	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to natural resources need to be determined in an EIS  Number of river crossing will significantly influence the impact	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to natural resources need to be determined in an EIS  Delta Park green space  Radio tower wetlands	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to cultural and historic resources need to be determined in an EIS  Pt. Vancouver Historical Site  Historic I-5 Columbia River Bridge	Promising		
8-2	Five northbound lanes on new bridge east of existing bridges, 5 southbound lanes on existing bridges, New LRT bridge west of existing bridges																			
8-3	New 5 lane double deck bridge, northbound upper deck, southbound lower deck, LRT on existing west bridge																			
8-4*	New five lane double-deck bridge; northbound upper deck, southbound lower deck,  LRT on new bridge west of existing bridges;  Only option to shift navigational channel	2020	Metro's EMME/2 travel demand model - Output	VISSIM Model - Input  Freeway operations  Vehicle Hours of Delay  Safety - reduces merging and weaving Concept #1 and #4 same model, because both in Category #1	Average Speed  Reduce congestion and delay	Improve freight within BIA  Assume HOV lanes - further analysis needed in EIS	New structures will be built to current standards	Providing for weaving and merging means adding lanes in some locations  - SR 500 to 4th Plain  - 4th Plain to Mill Plain  - Mill Plain to SR 14  - In the vicinity of Hayden Island  - SR 500 to 4th Plain  - SR 500 to 4th Plain  - SR 500 to 4th Plain  Reduce number of exits and entrances Alignment east/west of existing bridges Several interchange improvements	High-level, fixed span bridges  Low-level movable span bridges	Bridges in the vicinity of Pearson Air Park  No impact to restricted air space	I-5 bridges across major shipping channel (Columbia River)	Separate Light rail bridge - Substantial environmental & design work has already been completed in the South/North EIS Light rail on existing bridge would require retrofitting and the associated costs could easily exceed a new bridge  Tunnels  Replacement bridge  Supplemental bridge Existing structures do not meet seismic standards	\$1,175 million (2002)	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to natural resources need to be determined in an EIS  Number of river crossing will significantly influence the impact	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to natural resources need to be determined in an EIS  Delta Park green space  Radio tower wetlands  Full impact to Columbia River	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to cultural and historic resources need to be determined in an EIS  Pt. Vancouver Historical Site  Historic I-5 Columbia River Bridge	Promising  Best performance			
8-5	New 6 lane bridge east of existing bridges; 2 lanes northbound/southbound collector-distributor on existing bridges; LRT on new bridge west of existing bridges																			
8-6*	3 lanes northbound/southbound on existing bridges;  New 4-lane collector-distributor double deck bridge with LRT on lower deck	2020	Metro's EMME/2 travel demand model - Output	VISSIM Model - Input  Freeway operations  Vehicle Hours of Delay  Safety - reduces merging and weaving	Average Speed  Reduce congestion and delay	Improve freight within BIA  Assume HOV lanes - further analysis needed in EIS	New structures will be built to current standards	Providing for weaving and merging means adding lanes in some locations  - SR 500 to 4th Plain  - 4th Plain to Mill Plain  - Mill Plain to SR 14  - In the vicinity of Hayden Island  - SR 500 to 4th Plain  - SR 500 to 4th Plain  - SR 500 to 4th Plain  Reduce number of exits and entrances Alignment east/west of existing bridges Several interchange improvements	High-level, fixed span bridges  Low-level movable span bridges	Bridges in the vicinity of Pearson Air Park  No impact to restricted air space	I-5 bridges across major shipping channel (Columbia River)	Further study needed to determine whether new bridge should be a replacement or supplemental  Joint use (highway/light rail) bridge further investigation needed  Tunnels  Replacement bridge  Supplemental bridge Existing structures do not meet seismic standards	No cost estimate was developed for Concept #6  Displacements: 20 residential & 23 non-residential Encroachments: 16 residential & 43 non-residential Need additional survey, engineering and design work in EIS  Based on major construction items	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to natural resources need to be determined in an EIS  Number of river crossing will significantly influence the impact	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to natural resources need to be determined in an EIS  Delta Park green space  Radio tower wetlands	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to cultural and historic resources need to be determined in an EIS  Pt. Vancouver Historical Site  Historic I-5 Columbia River Bridge	Design problems will be difficult to overcome  Least improvement			
8-7	3 southbound lanes on existing west bridge;  HOV only, southbound and northbound on existing east bridge;  3 northbound lanes on new bridge east of existing bridges; 2 arterial lanes and LRT on new bridge west of existing bridges	2020	Metro's EMME/2 travel demand model - Output	VISSIM Model - Input  Freeway operations  Vehicle Hours of Delay  Safety - reduces merging and weaving Need additional engineering to resolve merging at SR 14	Average Speed  Reduce congestion and delay	Improve freight within BIA  Assume HOV lanes - further analysis needed in EIS	New structures will be built to current standards	Providing for weaving and merging means adding lanes in some locations  - SR 500 to 4th Plain  - 4th Plain to Mill Plain  - Mill Plain to SR 14  - In the vicinity of Hayden Island  - SR 500 to 4th Plain  - SR 500 to 4th Plain  - SR 500 to 4th Plain  Reduce number of exits and entrances Alignment east/west of existing bridges Several interchange improvements	High-level, fixed span bridges  Low-level movable span bridges	Bridges in the vicinity of Pearson Air Park  No impact to restricted air space	I-5 bridges across major shipping channel (Columbia River)	Further study needed to determine whether new bridge should be a replacement or supplemental  Tunnels  Replacement bridge  Supplemental bridge Existing structures do not meet seismic standards	\$1,161 million (2002)	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to natural resources need to be determined in an EIS  Number of river crossing will significantly influence the impact	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to natural resources need to be determined in an EIS  Delta Park green space  Radio tower wetlands	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands  Actual impacts to cultural and historic resources need to be determined in an EIS  Pt. Vancouver Historical Site  Historic I-5 Columbia River Bridge	Promising			
8-8	New 8-lane Bridge east of existing bridges Local Arterials on existing northbound ridge LRT on southbound Bridge																			

\*modeled in detail in BIA Study