Summary	y of Bridge Influence Area (BIA) Concepts	cepts Traffic Volumes I Design Criteria (e.g. schematic, scaled single li				ria (e.g. schematic, scaled single line, d	detailed design) Air and Marine Navigation				Natural and Cultural/Historic Resources				1			
Concept Number	Concept Description	Year	Assignment Process (e.g. hand, model, none, growth factor?)	Level of Service (e.g. mainline, ramp, diverge, merge, ramp terminal	Travel Time	Mode of Travel	Vehicle Miles of Travel	Cross-Section	Horizontal	Profile	Air Navigation	Marine Navigation	Structures	Cost Estimating	Fish Habitat	Wetlands and Parks	Cultural/Historic Resources	Status (e.g. dropped, why? Or further evaluation why?)
8-1*	Five Northbound Lanes on Existing Bridge;	2020	Metro's EMME/2 travel demand model - Output	VISSIM Model - Input	Average Speed	Improve freight within BIA		New structures will be built to curren standards	t Providing for weaving and merging means adding lanes in some locations	High-level, fixed span bridges	Bridges in the vicinity of Pearson Air Park	r I-5 bridges across major shipping channel (Columbia River)	Further study needed to determine whether new bridge should be a replacement or supplemental	ı\$1,200 million (2002)	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands	No detailed analysis was undertaken i	Promising
	5 southbound lanes on new double-deck bridge;		Regional travel patterns	Freeway operations	Reduce congestion and delay	Assume HOV lanes - further analysis			- SR 500 to 4th Plain	Low-level movable span bridges	No impact to restricted air space		Joint use (highway/light rail) bridge	Part of EIS, need life cycle costs of	Actual impacts to natural resources	Actual impacts to natural resources	Actual impacts to cultural and	
	LRT on lower deck; west of existing bridges			Vehicle Hours of Delay					ı ı ı- 4th Plain to Mill Plain	1 1 1			I Separate Light rail bridge -	retrofit costs Displacements: 8 residential & 16	Number of river crossing will	Delta Park green space	determined in an EIS	
		ł								1			Substantial environmental & design work has already been completed in	non-residential	significantly influence the impact			
1 1 1		ł		ı ISafety - reduces merging and weaving					- Mill Plain to SR 14			 	Tunnels	Encroachments: 21 residential & 32		Radio tower wetlands	Historic I-5 Columbia River Bridge	
1 1 1		ł		Concept #1 and #4 same model, because both in Category #1					- In the vicinity of Hayden Island			 	Replacement bridge	Need additional survey, engineering and design work in EIS				
 									 SR 500 to 4th Plan SR 500 to 4th Plan 			 	Supplemental bridge	Based on major construction items				
									- SR 500 to 4th Plan Reduce number of exits and	1								
		{							entrances Alignment east/west of existing	 				 				
		}							Several interchange improvements	1								
8-2	Five northbound lanes on new bridge east of existing bridges,	}						I 			 	 				1 1 1		
	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	ł								1 1 1								
8-4*	New five lane double-deck bridge; northbound upper deck, southbound lower deck,	2020	Metro's EMME/2 travel demand model - Output	VISSIM Model - Input	Average Speed	Improve freight within BIA		New structures will be built to curren I standards	t Providing for weaving and merging means adding lanes in some locations	I High-level, fixed span bridges	Bridges in the vicinity of Pearson Air Park	I-5 bridges across major shipping channel (Columbia River)		1 1\$1,175 million (2002) 1 1	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands	No detailed analysis was undertaken	Promising
	LRT on new bridge west of existing bridges;			Freeway operations	Reduce congestion and delay	Assume HOV lanes - further analysis needed in EIS			- SR 500 to 4th Plain	Low-level movable span bridges	No impact to restricted air space		Separate Light rail bridge - Substantial environmental & design work has already been completed in	Part of EIS, need life cycle costs of the existing bridges and seismic retrofit costs	Actual impacts to natural resources need to be determined in an EIS	Actual impacts to natural resources need to be determined in an EIS	Actual impacts to cultural and historic resources need to be determined in an EIS	Best performance
	Only option to shift navigational channel			Vehicle Hours of Delay					ہ - 4th Plain to Mill Plain	1			the South/North EIS Light rail on existing bridge would	Displacements: 6 residential & 9 nor	-Number of river crossing will	Delta Park green space	Ft. Vancouver Historical Site	
		ł								1 			require retrofitting and the associated costs could easily exceed	ıresidential d ^ı	significantly influence the impact			
		{		Safety - reduces merging and weaving					I- Mill Plain to SR 14	1 1 1			Tunnels	I IEncroachments: 9 residential & 35 Inon-residential		Radio tower wetlands	Historic I-5 Columbia River Bridge	
1 1 1				Concept #1 and #4 same model, because both in Category #1				1 1 1	- In the vicinity of Hayden Island				Replacement bridge	Need additional survey, engineering and design work in EIS		Full impact to Columbia River		
1								 	- SR 500 to 4th Plan - SR 500 to 4th Plan			 	Existing structures do not meet	Based on major construction items				
 								1 1 1	 SR 500 to 4th Plan Reduce number of exits and 							1 1 1		
									entrances Alignment east/west of existing	1								
									Several interchange improvements	1 1 1				 				
8-5	New 6 lane bridge east of existing bridges;									 			 	 		1 1 1	 	
1 1 1	bridges; LRT on new bridge west of existing bridges							 								1		
										· · · · · · · · · · · · · · · · · · · ·								
I 8-6* I I	3 lanes northbound/southbound on existing bridges;	2020	I Metro's EMME/2 travel demand model - Output	I VISSIM Model - Input	Average Speed	Improve freight within BIA		New structures will be built to curren Istandards	I Providing for weaving and merging Imeans adding lanes in some Ilocations	High-level, fixed span bridges	Park	Columbia River)	Whether new bridge should be a	No cost estimate was developed for Concept #6	Limited screening focusing on fish	No detailed analysis was undertaken Limited screening focusing on fish habitat and wetlands	No detailed analysis was undertaken	overcome
	New 4-lane collector-distributor double deck bridge with LRT on	ł		Freeway operations	Reduce congestion and delay	Assume HOV lanes - further analysis			- SR 500 to 4th Plain	Low-level movable span bridges	No impact to restricted air space		Joint use (highway/light rail) bridge		Actual impacts to natural resources	Actual impacts to natural resources	Actual impacts to cultural and	Least improvement
1	llower deck			I Vehicle Hours of Delay		Ineeded in EIS			- 4th Plain to Mill Plain				I further investigation needed	Displacements: 20 residential & 23	need to be determined in an EIS	ineed to be determined in an EIS I Delta Park green space	historic resources need to be determined in an EIS Ft. Vancouver Historical Site	
 				Safety - reduces merging and					- Mill Plain to SR 14	 			Replacement bridge	Inon-residential Encroachments: 16 residential & 43	significantly influence the impact	Radio tower wetlands	Historic I-5 Columbia River Bridge	
				weaving					I I- In the vicinity of Hayden Island	1 1 1			Supplemental bridge	Inon-residential Need additional survey, engineering				
									- SR 500 to 4th Plan	1 1			Existing structures do not meet seismic standards					
									 SR 500 to 4th Plan SR 500 to 4th Plan Boduce number of exits and 	1 1 1				Based on major construction items				
1 1 1								1 1 1	Intrances Alignment east/west of existing							1 1 1		
1 1 1		}						 	bridges Several interchange improvements			 						
8-7*	3 southbound lanes on existing west bridge:	2020	Metro's EMME/2 travel demand	VISSIM Model - Input	Average Speed	Improve freight within BIA		New structures will be built to curren	I I I Providing for weaving and merging	ı High-level, fixed span bridges	Bridges in the vicinity of Pearson Air	I I I-5 bridges across maior shinning	Further study needed to determine	ı ı ı\$1,161 million (2002)	No detailed analysis was undertaken	No detailed analysis was undertaken	No detailed analvsis was undertaken u	Promising
			model - Output					I standards	means adding lanes in some locations	1 1	Park	channel (Columbia River)	whether new bridge should be a replacement or supplemental	· , · · · · · · · · · · · · · · · · · ·	Limited screening focusing on fish habitat and wetlands	Limited screening focusing on fish habitat and wetlands		
 	HOV only, southbound and northbound on existing east bridge;			Freeway operations	Reduce congestion and delay	Assume HOV lanes - further analysis			- SR 500 to 4th Plain	Low-level movable span bridges	No impact to restricted air space		Tunnels	Part of EIS, need life cycle costs of the existing bridges and seismic	Actual impacts to natural resources	Actual impacts to natural resources	Actual impacts to cultural and	
 	3 northbound lanes on new bridge east of existing bridges;			Vehicle Hours of Delay				 	- 4th Plain to Mill Plain	1	 		Replacement bridge	retrofit costs Displacements: 6 residential & 17	Number of river crossing will	Delta Park green space	determined in an EIS Ft. Vancouver Historical Site	
 	2 arterial lanes and LRT on new bridge west of existing bridges			I Safety - reduces merging and				1 1 1	- Mill Plain to SR 14		1	 	Supplemental bridge	inon-residential Encroachments: 13 residential & 29	significantly influence the impact	Radio tower wetlands	Historic I-5 Columbia River Bridge	
				Need additional engineering to resolve mergingat SR 14					- In the vicinity of Hayden Island	1 1 1			Existing structures do not meet seismic standards	Need additional survey, engineering and design work in EIS				
									 SR 500 to 4th Plan SR 500 to 4th Plan SR 500 to 4th Plan 	1				Based on major construction items			, , , , , , , , , , , , , , , , , , , ,	
1 1		ł						 	Reduce number of exits and entrances		1 1	 				- - - -		
 								I I I	Alignment east/west of existing ubridges	1	 					1 1 1		
 									·Several Interchange Improvements	- 				 				
8-8	New 8-lane Bridge east of existing bridges Local Arterials on existing northbound ridge								 	 				 			 	
	ILRI on southbound Bridge							1 1				 						
																	I	· · · · · · · · · · · · · · · · · · ·

*modeled in detail in BIA Study