

Magnolia Bridge Replacement Project
Preliminary Alternative Evaluation

DRAFT

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**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE EVALUATION SUMMARY**

Alternative	COMMENTS		EVALUATIONS				RESULTS
	Advantages	Disadvantages	Environmental	Transportation	Urban Design	Cost	Recommended Alternatives for Further Development
A	<ul style="list-style-type: none"> ▪ No business or residential displacements identified. ▪ Good access to Magnolia. ▪ Retains dramatic views and entry into Magnolia. ▪ Lowest right-of-way costs. 	<ul style="list-style-type: none"> ▪ Requires construction adjacent to or over shoreline. ▪ Existing bridge shut down for extended periods. ▪ Interbay property separated from water. ▪ High construction costs. 	**	*		*	
B	<ul style="list-style-type: none"> ▪ No business displacements identified. ▪ Improved access to waterfront and Magnolia center. ▪ Could create a beautiful route into Magnolia. ▪ Medium construction, right-of-way & relocation costs. 	<ul style="list-style-type: none"> ▪ Potential direct impacts to aquatic shoreline and relatively high geological hazard impacts. ▪ Less direct route to Galer and Thorndike areas. ▪ Much more compatible with a second access route. ▪ Highest mitigation costs. 		**	**	**	
C	<ul style="list-style-type: none"> ▪ No residential displacements identified. ▪ Improved access to waterfront from Magnolia. ▪ Low relocation and right-of-way costs. 	<ul style="list-style-type: none"> ▪ Requires construction adjacent to or over shoreline. ▪ Less direct and slower route to Magnolia. ▪ All Magnolia traffic comes through center of Port property. ▪ High construction and mitigation costs 	*	*		*	
D	<ul style="list-style-type: none"> ▪ No residential displacements identified. ▪ Improved access to waterfront, Magnolia, and Port property. ▪ Allows land to be connected to water. ▪ Low mitigation and right-of-way costs 	<ul style="list-style-type: none"> ▪ Potential displacement of businesses on Port of Seattle properties. ▪ Some bridge closures during construction. ▪ Some view blockage of water from Port uplands. ▪ Highest construction costs. 	**	**	**		

**** = Best Alternatives * = Good Alternatives Blank = Not Recommend Alternatives**

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE EVALUATION SUMMARY**

Alternative	COMMENTS		EVALUATIONS				RESULTS Recommended Alternatives for Further Development
	Advantages	Disadvantages	Environmental	Transportation	Urban Design	Cost	
F	<ul style="list-style-type: none"> ▪ No shoreline impacts. ▪ Possible traffic benefits along 15th Ave. ▪ Include Thorndyke improvement per Olmsted plan. ▪ Medium construction costs. 	<ul style="list-style-type: none"> ▪ Business and residential displacements. ▪ No direct access from Magnolia to waterfront. ▪ Ramps impact land use along 15th Avenue corridor. ▪ Highest relocation and right-of-way costs. 					
F	<ul style="list-style-type: none"> ▪ No shoreline impacts. ▪ Possible traffic benefits along 15th Ave. ▪ Original Olmsted route: include Thorndyke improvement per Olmsted plan. ▪ Highest relocation costs. 	<ul style="list-style-type: none"> ▪ Business and residential displacements. ▪ No direct access from Magnolia to waterfront. ▪ Does not adequately support development on Port property. ▪ Highest relocation costs. 				**	
G	<ul style="list-style-type: none"> ▪ No shoreline impacts. ▪ Improved access to waterfront and Port property. ▪ Central access for Port property. ▪ Medium construction costs. 	<ul style="list-style-type: none"> ▪ Requires significant construction in steep slope areas. ▪ Less direct route to Magnolia. ▪ Ramps impact land use along 15th Avenue corridor. ▪ High mitigation and right-of-way costs. 	*			**	
H	<ul style="list-style-type: none"> ▪ No shoreline impacts. ▪ Two access points to Magnolia. <p>Choices will reduce unnecessary traffic on bluff and Thorndyke. Lowest mitigation costs.</p>	<ul style="list-style-type: none"> ▪ Business displacements on Port of Seattle properties. ▪ Worse access to waterfront and port property from 15th Ave. ▪ Ramps impact land use along 15th Avenue corridor. ▪ High construction costs. 	**	**	**		
I	<ul style="list-style-type: none"> ▪ No shoreline impacts. ▪ Good access to Magnolia. ▪ Parcelization of Port property is workable. ▪ Medium construction costs. 	<ul style="list-style-type: none"> ▪ Business and residential displacements. ▪ No direct access from Magnolia to waterfront. ▪ Neighborhood has heavy localized impacts along Boston. ▪ High relocation costs. 					

** = Best Alternatives * = Good Alternatives Blank = Not Recommend Alternatives

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE ENVIRONMENTAL EVALUATION**

Alternative	Air Quality	Geologic Hazards	Habitat	Wetlands	Shorelines	Water Quality/Stormwater	Cultural and Historic Resources	Hazardous and Problem Waste	Business Displace/Relocation	Residential Displace/Relocation	Public Lands	Noise	Best Ranked Alternatives for Environmental Evaluation
A	U	-	++	++	O	+	++	O	++	++	+	O	**
B	U	--	-	++	-	-	++	O	++	-	-	+	
C	U	-	++	++	O	O	++	O	O	++	O	-	*
D	U	O	++	++	++	+	++	O	-	++	+	-	**
E	U	O	++	++	++	O	++	O	-	--	+	-	
F	U	O	++	++	++	O	++	O	-	--	+	-	
G	U	-	++	++	++	O	++	O	-	++	-	-	*
H	U	O	++	++	++	O	++	O	-	++	+	-	**
I	U	O	++	++	++	+	++	O	-	--	+	--	

LEGEND:
-- Heavy Impact
- High Impact
O Moderate Impact
+ Low Impact
++ No Impact
U Unknown

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE ENVIRONMENTAL EVALUATION**

Alternative	Air Quality		Alternative	Geologic Hazards	
	Rating	Note		Rating	Note
A	U	<p>Transportation system air quality impacts are often associated with emissions of idling vehicles at roadway intersections or in slow-moving traffic.</p> <p>At this time traffic modeling has not been completed and a comparison of air quality impacts among the alternatives cannot be made. Generally, those alternatives that result in greater delay at intersections and slower moving traffic would be more likely to result in higher pollutant emissions. If the alternatives improve traffic flow and prevent congestion on or around the Magnolia Bridge, air quality could be improved in the localized area compared to existing conditions.</p>	A	-	Alternative A would require construction along the shoreline in the liquefaction zone.
B	U		B	--	Alternative B would require construction within potential landslide hazard areas and steep slopes along the shoreline and 32 nd Ave W.
C	U		C	-	Alternative C is affected by the liquefaction zone and requires significant construction in steep slope areas.
D	U		D	o	Alternative D is affected by the liquefaction zone and somewhat greater impacts to steep slope areas.
E	U		E	o	Alternative E is affected by the liquefaction zone impacts to the potential landslide and steep slope areas at Wheeler – Thorndyke connection.
F	U		F	o	Alternative F is affected by the liquefaction zone and impacts to the potential landslide and steep slope areas at Wheeler – Thorndyke connection.
G	U		G	-	Alternative G is affected by the liquefaction zone and requires significant construction in steep slope areas.
H	U		H	o	Alternative H is affected by the liquefaction zone and moderate impacts to steep slopes from the second bridge.
I	U		I	o	Alternative I is affected by the liquefaction zone with moderate impacts to landslide and steep slopes at the Boston – Thorndyke connection.

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE ENVIRONMENTAL EVALUATION**

Alternative	Habitat		Alternative	Wetlands	
	Rating	Note		Rating	Note
A	++	No designated wildlife habitat areas for terrestrial wildlife species have been identified along any of the alignments. All or portions of most of the proposed alignments are within 1000 feet of Puget Sound, which is designated critical habitat for the listed threatened Puget Sound Endangered Species Unit of the chinook salmon. Based on preliminary engineering drawings, Alternative B is the only alignment that appears to have potential direct impacts on potential habitat for chinook salmon. There are no known occurrences of other listed species within 1 mile of any of the proposed alignments.	A	++	No wetlands are known to exist along any of the proposed alignments, based on City of Seattle GIS data.
B	-		B	++	
C	++		C	++	
D	++		D	++	
E	++		E	++	
F	++		F	++	
G	++		G	++	
H	++		H	++	
I	++		I	++	

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE ENVIRONMENTAL EVALUATION**

Alternative	Shorelines		Alternative	Water Quality/Stormwater	
	Rating	Note		Rating	Note
A	o	Alternative A would require construction adjacent to or over approximately 1,600 feet of Smith Cove shoreline.	A	+	Net changes to impervious surfaces; minimal impacts to water quality or stormwater.
B	-	Same impacts as Alternative A plus additional 1,000 feet of aquatic shoreline west of Elliott Bay Marina, where roadway would have to be supported on fill or pilings.	B	-	Alternative B would add impervious surface in shoreline areas. Concerns include water quality impacts from roadway stormwater runoff.
C	o	Alternative C would require construction adjacent to or over approximately 800 feet of Smith Cove shoreline.	C	o	Alternative C would add impervious surface along the east slope of Magnolia with potential impacts to stormwater runoff along the hillside.
D	++	No shoreline impacts.	D	+	Net impervious surface changes would be minimal and unlikely to significantly affect water quality/stormwater.
E	++	No shoreline impacts	E	o	Net impervious surface changes would be minimal; potential for construction – related impacts at Wheeler flyover.
F	++	No shoreline impacts	F	o	Net impervious surface changes would be minimal; potential for construction – related impacts at Wheeler flyover.
G	++	No shoreline impacts	G	o	Alternative G would add impervious surface along the east slope of Magnolia and require careful control of stormwater runoff along the hillside.
H	++	No shoreline impacts	H	o	Second bridge in Alternative H would add impervious surface; potential for construction – related impacts at Wheeler – Thorndyke connection.
I	++	No shoreline impacts	I	+	Net impervious surface changes would be minimal; potential for construction – related impacts at Boston – Thorndyke connection.

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE ENVIRONMENTAL EVALUATION**

Alternative	Cultural and Historic Resources		Alternative	Hazardous and Problem Waste	
	Rating	Note		Rating	Note
A	++	No archaeological sites or sites listed on the National Register of Historic Places were identified within the study area. A number of sites on or near the study area were identified on Historic Property Inventory forms, but none of those sites were listed on the National Register. Inventoried sites included the Magnolia Bridge (which is inherently affected by all alignments), warehouses on Pier 91, and Pier 90. In addition, single family residences in the Magnolia neighborhood were listed on the forms. At this time, it appears that all inventoried historic structures, other than the Magnolia Bridge itself, are outside of potential bridge construction areas and would not be affected.	A	o	Detailed analysis identifying specific sites requiring cleanup under each Alternative has not been performed. However, based on total disturbed area for each Alternative, preliminary evaluation of the potential for hazardous waste issues was conducted.
B	++		B	o	
C	++		C	o	
D	++		D	o	
E	++		E	o	
F	++		F	o	
G	++		G	o	
H	++		H	o	
I	++		I	o	

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE ENVIRONMENTAL EVALUATION**

Alternative	Business Displacement/Relocation*		Alternative	Residential Displacement/Relocation*	
	Rating	Note		Rating	Note
A	++	No business displacements identified.	A	++	No residential displacements identified.
B	++	No business displacements identified.	B	-	Alternative B could displace up to 9 single-family residential structures along the shoreline west of the Elliott Bay Marina.
C	o	Displace at least 1 existing business on Port of Seattle properties	C	++	No residential displacements identified.
D	-	Displace 1 major business (City Ice) on Port properties and portions of 2 businesses east of the rail yard.	D	++	No residential displacements identified.
E	-	Wheeler Street ramp would displace at least 1 business fronting the east side of 15th Avenue W between Boston and Wheeler Streets.	E	--	The Wheeler Street ramp would displace approximately 15 single-family residences and 3 multifamily residential buildings east of 15th Avenue W.
F	-	Wheeler Street ramp would displace at least 1 business fronting the east side of 15th Avenue W. Armory Street ramp may displace 2 businesses fronting the east side of 15th Avenue W.	F	--	The Wheeler Street ramp would displace approximately 15 single-family residences and 3 multifamily residential buildings east of 15th Avenue W.
G	-	The Armory Street ramp may displace 2 businesses fronting the east side of 15th Avenue W. near Newton and Howe Streets.	G	++	No residential displacements identified.
H	-	Potential to displace 2 existing businesses on Port properties. Armory Street ramp may displace 2 businesses fronting the east side of 15th Avenue W.	H	++	No residential displacements identified.
I	-	The Armory Street ramp may displace 2 businesses fronting the east side of 15th Avenue W near Newton and Howe Streets.	I	--	Potential for full or partial displacement of 7 multifamily buildings along Boston Street, east of Thorndyke Avenue.

* Estimates based only on review of aerial photos and land use maps; to be refined for the final study phase using City of Seattle GIS database.

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE ENVIRONMENTAL EVALUATION**

Alternative	Public Lands		Alternative	Noise*	
	Rating	Note		Rating	Note
A	+	West bridge approach places bridge closer to Smith Cove Park; net amount of affected lands would not increase	A	o	Approximately 250 residences affected by existing corridor from west approach to McGraw. No net change in operational noise; potential improvement because west bridge approach farther from existing residences.
B	-	Bridge would cross surplus Navy land being considered for acquisition by City of Seattle; cross City-owned aquatic lands west of marina; affect greenbelt parcels in 32 nd Ave. W. corridor; potential at-grade crossing of existing bike routes.	B	+	Approximately 140 residences affected by operational noise; includes 45 residences not currently affected, 95 currently affected (net improvement of 110 residences over Alternative A).
C	o	Potential crossing of 9 designated greenbelt parcels along the east Magnolia hillside.	C	-	Approximately 75 additional residences (over Alternative A) affected by operational noise.
D	+	Minimal impacts to greenbelt and bike routes due to elevated crossings.	D	-	Approx. 30 additional residences (over Alternative A) affected by operational noise.
E	+	Construction adjacent to the south boundary of the Interbay Golf Course.	E	-	Approx. 140 residences at Wheeler ramp; and approx. 60 residences at Thorndyke terminus affected by operational noise.
F	+	Construction adjacent to the south boundary of the Interbay Golf Course.	F	-	Approx. 140 residences at Wheeler ramp; and approx. 60 residences at Thorndyke terminus affected by operational noise.
G	-	Potential crossing of 9 designated greenbelt parcels and potential impacts to bike route at base of Magnolia hillside.	G	-	Minimum 100 additional residences (over Alternative A) affected by operational noise.
H	+	Potential at-grade crossing of existing bike route adjacent to rail yard.	H	-	Approx. 10 additional residences (over Alternative A) at southern alignment; and approx. 60 residences at Thorndyke terminus affected by operational noise.
I	+	Minimal impacts to bike routes due to elevated crossings.	I	--	Approx. 350 residences in the vicinity of Boston – Thorndyke intersection potentially affected by operational noise.

* Estimates based only on review of aerial photos and land use maps; to be refined for the final study phase using City of Seattle GIS database.

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**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE TRANSPORTATION EVALUATION**

Alternative	Traffic Impacts			Access				Emergency Service Impacts	Bicycle & Pedestrian Connection	Transit Connection	Impacts to Railroad	Best Ranked Alternatives for Transportation Evaluation
	Magnolia Street Motor Vehicle Traffic Impacts	15 th W/Elliott W Corridor Motor Vehicle Traffic Impacts	Traffic Impacts during Construction	Motor Vehicular Access to Magnolia	Motor Vehicular Access to Waterfront from 15 th W/Elliott W	Motor Vehicle Access to Waterfront from Magnolia	Motor Vehicle Access to Port Property					
A	o	o	:-	+	o	+	-	o	o	o	+	*
B	o	o	-	o	+	++	+	+	++	-	+	**
C	o	o	-	-	-	+	+	o	o	o	+	*
D	o	o	-	+	+	++	++	+	o	o	o	**
E	-	+	o	o	-	o	++	-	-	-	-	
F	-	+	o	o	:-	o	:-	-	-	-	o	
G	+	+	-	-	-	+	+	o	o	-	-	
H	+	-	-	++	-	++	-	+	++	+	-	**
I	-	+	o	+	o	o	++	-	-	-	-	

LEGEND:
 :- Considerably Worse Than Existing
 - Somewhat worse Than Existing
 o Minimal Change From Existing
 + Minor Improvement From Existing
 ++ Substantial Improvement From Existing
 U Unknown

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE TRANSPORTATION EVALUATION**

Alternative	Magnolia Street Motor Vehicle Traffic Impacts		Alternative	15 th W/Elliott W Corridor Motor Vehicle Traffic Impacts	
	Rating	Note		Rating	Note
A	o	The use of existing alignment will not change traffic movements within Magnolia	A	o	Similar to existing conditions
B	o	Traffic volumes will decrease near the Bridge but will increase on other streets, including on Dravus St.	B	+	Route goes directly to Smith Cove
C	o	As the bridge access point (W Galer St) is same, little change in traffic movements in Magnolia	C	-	Similar to existing conditions but additional intersections
D	o	As the bridge access point (W Galer St) is same, little change in traffic movements in Magnolia	D	+	Direct interchange connection to waterfront route
E	-	The narrow, steep east-west streets will increase traffic volumes; some decrease along Galer.	E	-	Less direct from south using Galer overpass; ok from north
F	-	The narrow, steep east-west streets will increase traffic volumes; some decrease along Galer.	F	--	Less direct from north and south using Galer overpass
G	+	The additional N-S access street (21 st Ave) will reduce traffic on W Gale and other streets	G	-	Less direct from south using Galer overpass; ok from north
H	+	The additional access combined with N-S access street (21 st Ave) will reduce traffic on W Gale and other streets	H	-	Less direct from north and south using Galer overpass
I	-	The narrow, steep east-west streets will increase traffic volumes	I	o	Good access from north; less direct from south using Galer overpass

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE TRANSPORTATION EVALUATION**

Alternative	Traffic Impacts During Construction	
	Rating	Note
A	--	Existing bridge requires complete closure during construction of the east one-third, for the tie-in at west end and one lane closure for construction required for middle one third. Entrance ramp from 23 rd requires closure during construction
B	-	Existing bridge requires complete closure during construction of replacement over railroad.
C	-	Existing bridge requires complete closure during construction of replacement over railroad and tie-in at west end.
D	-	Existing bridge requires complete closure during construction of replacement for tie-in at west end.
E	o	Minor traffic impacts on Wheeler at 15 th and on Thorndyke and 15 th at replacement tie-in.
F	o	Minor traffic impacts on Armory Way and on Thorndyke and 15 th at replacement tie-in.
G	-	Existing bridge requires complete closure during construction of replacement for tie-in at west end. Minor traffic impacts on Wheeler at 15 th and on 15 th at replacement tie-in.
H	-	Existing bridge requires complete closure during construction of replacement for tie-in at west end. Minor traffic impacts on Armory Way and on Thorndyke and 15 th at replacement tie-in.
I	o	Minor traffic impacts on Armory Way and on Thorndyke and 15 th at replacement tie-in.

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE TRANSPORTATION EVALUATION**

Alternative	Motor Vehicular Access to Magnolia		Alternative	Motor Vehicular Access to Waterfront from 15 th W/Elliott W	
	Rating*	Note		Rating**	Note
A	+	Positive on added access but no change in directness and quality of travel	A	o	Similar to existing conditions
B	o	Reduced quality of travel due to at-grade intersections but positive on added access	B	+	Route goes directly to Smith Cove
C	-	Reduced directness and quality of travel	C	-	Similar to existing conditions but additional intersections
D	+	No change to directness and quality of travel, added additional access is positive	D	+	Direct interchange connection to waterfront route
E	o	Reduced directness offsets additional access	E	-	Less direct from south using Galer overpass; ok from north
F	o	Reduced directness offsets additional access	F	--	Less direct from north and south using Galer overpass
G	-	Reduced directness and quality of travel with at-grade intersections	G	-	Less direct from south using Galer overpass; ok from north
H	++	Additional access better than others and increased directness	H	--	Less direct from north and south using Galer overpass
I	+	Positive on added access but little change in directness and quality of travel	I	o	Good access from north; less direct from south using Galer overpass

* The ratings represent summaries of detailed rating categories. Please see Attachment A* and Attachment B** for more detailed evaluation on these criteria.

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE TRANSPORTATION EVALUATION**

Alternative	Motor Vehicle Access to Waterfront from Magnolia		Alternative	Motor Vehicle Access to Port Property	
	Rating	Note		Rating	Note
A	+	Improves access from Magnolia	A	-	Tight interchange design limits access to north
B	++	Provides most direct access from Magnolia	B	+	Additional port access points along alignment; at-grade intersections with signals on the port property is less desirable
C	+	Improves access from Magnolia	C	+	Additional access points; at-grade intersections with signals on the port property is less desirable
D	++	Provides most direct access from Magnolia	D	++	Improved interchange access design; centrally located
E	o	Circuitous access via N-S street (21 st Ave W) and travel time is same as the existing condition	E	++	Provides second access point to north; improved interchange access design
F	o	Circuitous access via N-S street (21 st Ave W) and travel time is same as the existing condition	F	--	Reduced accessibility at south end; no direct access to the new bridge
G	+	Improves access from Magnolia	G	+	Provides second access point to north; At-grade intersections with signals on the port property is less desirable; slightly worse than Alt E
H	++	Provides most direct access from Magnolia	H	-	Additional port access points along alignment; at-grade intersections with signals on the port property is less desirable; reduced accessibility at south end.
I	o	Circuitous access via N-S street (21 st Ave W) and travel time is same as the existing condition	I	++	Provides second access point to north; improved interchange access design

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE TRANSPORTATION EVALUATION**

Alternative	Emergency Service Impacts		Alternative	Bicycle & Pedestrian Connection	
	Rating	Note		Rating ***	Note
A	o	Minimal change from existing	A	o	Added ramp connections from Magnolia but high speed ramp crossings
B	+	Some emergency travel time savings for Engine Co 41 (Magnolia) to Smith Cove and Pier 90-91	B	++	Good connections to trail system and lower grades to the existing trails
C	o	Slight emergency travel time savings for fire and medic services	C	o	Good connections to trail system possible, but longer distance and relocation of the trail is negative
D	+	Emergency travel time savings for fire and medic services	D	o	Adds ramp connections from Magnolia but high speed ramp crossings
E	-	Longer travel times for Engine Co. 41 and Medic from Harbor View than existing	E	--	No easy connection to the trails; longer distance for South Magnolia
F	-	Longer travel times for Engine Co. 41 and Medic from Harbor View than existing	F	-	No easy connection from east or west; safe connection but longer distance
G	o	Slightly negative travel times for emergency vehicles	G	o	Good connections to trail system possible; some longer distance; long grade, and relocation of trail needed
H	+	Some emergency travel time savings for Engine Co 41 (Magnolia)	H	++	Good connections to trail system possible; multiple options to the N-S trails
I	-	Longer travel times for Engine Co. 41 and Medic from Harbor View than existing	I	-	No easy connections from Magnolia to trail system; good E-W connections from Magnolia

*** The ratings represent summaries of detailed rating categories. Please see Attachment C for more detailed evaluation on this criterion.

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE TRANSPORTATION EVALUATION**

Alternative	Transit Connections		Alternative	Impacts to Railroad	
	Rating	Note		Rating ***	Note
A	o	No change to bus routes is needed	A	+	Minor operational impacts during construction.
B	-	Coverage in SE Magnolia on Rt. 19 and 24 is reduced	B	+	Minor operational impacts during construction.
C	o	Minimal change to bus routes is needed	C	+	Minor operational impacts during construction.
D	o	Minimal change to bus routes is needed	D	o	Minor operational impacts during construction. Requires a pier between tracks that may limit track location in the future.
E	-	Increases bus travel time	E	-	Crossing switching yard will require closing three adjacent tracks for one month to allow room for falsework during steel erection.
F	-	Increases bus travel time	F	o	May interfere with sight line from switching control room. Requires a pier between tracks that may limit track location in the future.
G	-	Increases bus travel time	G	-	Crossing switching yard will require closing three adjacent tracks for one month to allow room for falsework during steel erection.
H	+	Maintains the existing routes and add service flexibility	H	-	Crossing switching yard will require closing three adjacent tracks for one month to allow room for falsework during steel erection.
I	-	Increases bus travel time	I	-	Crossing switching yard will require closing three adjacent tracks for one month to allow room for falsework during steel erection.

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE TRANSPORTATION EVALUATION**

Attachment A

Alternative	Motor Vehicle Access to Magnolia						
	Directness		Quality of Travel		Added Access		Overall Rating
	Rating	Note	Rating	Note	Rating	Note	
A	o	Similar to the existing conditions	o	Similar to the existing conditions	+	North-south street connection increases access options	+
B	o	Similar to the existing conditions	-	At-grade intersection adds time	+	North-south street connection increases access options	o
C	-	Circuitous route	-	At-grade intersection adds time	+	North-south street connection increases access options	-
D	o	Similar to the existing conditions	o	Similar to the existing conditions	+	North-south street connection increases access options	+
E	-	Out of direction travel for some	o	No at-grade intersection	+	North-south street connection increases access options	o
F	-	Out of direction travel for some	o	No at-grade intersection	+	North-south street connection increases access options	o
G	-	Circuitous route	-	At-grade intersection adds time	+	North-south street connection increases access options	-
H	+	Direct 4 th access	o	Added access provides flexibility; south access has at-grade intersections	++	Provides direct 4 th access	++
I	o	Out of direction travel for some but direct connection provided	o	No at-grade intersection	+	North-south street connection increases access options	+

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE TRANSPORTATION EVALUATION**

Attachment B

Alternative	Motor Vehicle Access to Waterfront from 15 th Ave West						
	Directness		Quality of Travel		Driver Understanding of Route		Overall Rating
	Rating	Note	Rating	Note	Rating	Note	
A	o	Similar to the existing conditions	o	Similar to existing conditions	o	Similar to existing conditions	o
B	o	Similar to existing conditions	-	At-grade intersections add time	++	Road goes directly to Smith Cove	+
C	o	Similar to the existing conditions	-	At-grade intersection adds time	o	Similar to existing conditions	-
D	o	Similar to the existing conditions; slightly longer	+	Access improved at main interchange	++	Clear routing possible	+
E	-	Similar from north; less direct from south	-	More at-grade intersections	--	Separate routes from north and south	-
F	-	Galer St connection less direct	--	Several at-grade intersections	--	Separate routes from north and south; Galer St circuitous	--
G	o	Similar to existing conditions; slightly longer from south	-	More at-grade intersections	-	Separate routes from north and south	-
H	-	Galer St connection less direct	-	More at-grade intersections	--	Most access through Galer St; more circuitous	-
I	o	Similar to existing conditions; better from north; slightly longer from south	+	Access improved at main interchange	-	Separate routes from north and south	o

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE TRANSPORTATION EVALUATION**

Attachment C

Alternative	Pedestrian and Bicycle Connections				Overall Rating
	North-South Trail Connections		East-West Trail Connections		
	Rating	Note	Rating	Note	
A	+	Adds ramp connections from Magnolia to trail system	-	High speed ramp crossings	o
B	++	Good connections to trail system	+	Lower grades but less convenient for south Magnolia residents	++
C	+	Good connections possible	-	Longer distance; relocate portion of trail	o
D	+	Adds ramp connections from Magnolia to trail system	-	High speed ramp crossings	o
E	--	No easy connections from Magnolia	-	Longer distance for South Magnolia residents	--
F	--	No easy connections from east or west	o	Safe connection but longer distance	-
G	+	Good connections possible	-	Multiple options; some longer distance; long grade; relocate trail	o
H	+	Good connections possible	++	Multiple options	++
I	-	No easy connections from Magnolia to trail system	o	Good connections, slightly longer	-

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**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE URBAN DESIGN EVALUATION**

Alternative	Effects on Magnolia Neighborhood	Effects on Magnolia Village	Effects on Interbay	Effects on 15 th Avenue Corridor	Views	Effects on Quality of Shoreline	Effects on Olmsted Legacy	Effects on Parks	Support for Transit Oriented Development	Best Ranked Alternatives for Urban Design Evaluation
A	o	o	-	o	+/-	-	o	-	-	
B	+/-	+	+	o	+	+/-	+	+/-	+	**
C	-	o	o	o	-	o	-	-	+	
D	+	o	+	o	+	+	o	o	+	**
E	-	-	o	-	o	o	+	o	-	
F	-	-	-	-	o	-	+	-	-	
G	-	o	o	-	-	+	-	-	+	
H	+	o	o	-	+	+	+	+	++	**
I	-	-	o	-	o	o	+	o	o	

LEGEND:

- Considerably Worse Than Existing
- Somewhat worse Than Existing
- o** Minimal Change From Existing
- +** Minor Improvement From Existing
- ++** Substantial Improvement From Existing
- U** Unknown

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE URBAN DESIGN EVALUATION**

Alternative	Effects on Magnolia Neighborhood		Alternative	Effects on Magnolia Village	
	Rating	Note		Rating	Note
A	o	Same as existing, with good entry and identity for neighborhood	A	o	Similar to existing.
B	+/-	Could provide beautiful entry into Magnolia if designed well. Too large a road would be detrimental.	B	+	Most direct route for finding the Village. Entry via Clise supports pedestrians
C	-	Loss of entry sequence into Magnolia, and diminished neighborhood identity.	C	o	Similar to existing, but less appealing.
D	+	Retains entry sequence and emphasizes dramatic views.	D	o	Similar to existing.
E	-	Less dramatic entry into Magnolia. More cars come through neighborhood on Thorndyke.	E	-	Longer route; less visible. Increases traffic on McGraw
F	-	Less dramatic entry into Magnolia. More cars come through neighborhood on Thorndyke	F	-	Longer route; less visible. Increases traffic on McGraw
G	-	Entry to Magnolia through Interbay; diminished sense of entry and identity.	G	o	Similar to existing. Longer and less visible.
H	+	Weaker gateway, but better connects Magnolia and improves choice of destinations	H	o	Similar to existing. Longer and less visible.
I	-	Less dramatic entry into Magnolia. Traffic redirection would impact neighborhood character on Boston.	I	-	Longer route; less visible. Increases traffic on McGraw

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**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE URBAN DESIGN EVALUATION**

Alternative	Effects on Interbay		Alternative	Effects on 15 th Avenue Corridor	
	Rating	Note		Rating ***	Note
A	-	Impacts connection of property to water. Location of access not ideal.	A	o	Similar to existing.
B	+	Leaves site contiguous, without visual blockage. Flexible surface access.	B	o	Similar to existing.
C	o	Brings all Magnolia through center of Interbay. Builds part of internal street network.	C	o	Similar to existing.
D	+	Allows more land to be associated with water. Leaves most of site contiguous.	D	o	Similar to existing.
E	o	Much of site contiguous; no division from water. Half intersection limits access.	E	-	Ramps on east side of 15 th detrimental to properties and character.
F	-	Leaves of the site contiguous, but poor access	F	-	Ramps on east side of 15 th detrimental to properties and character.
G	o	Access is central to the Interbay site, but all Magnolia traffic comes through.	G	-	Ramps on east side of 15 th detrimental to properties and character.
H	o	Allows land to be associated with the water, but brings Magnolia traffic through.	H	-	Ramps on east side of 15 th detrimental to properties and character.
I	o	Bisects site, but better parcelization. Access central, but only half intersection.	I	-	Ramps on east side of 15 th detrimental to properties and character.

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE URBAN DESIGN EVALUATION**

Alternative	Views		Alternative	Effects on Quality of Shoreline	
	Rating	Note		Rating ***	Note
A	+/-	Good from above; major view blockage from grade to water.	A	-	Bridge underside near shoreline detracts.
B	+	Good views from road, without an elevated structure to block views	B	+/-	If designed well, allows motorists to enjoy shoreline. Could impact bike and ped character.
C	-	Road through winds through Interbay; views good up hill, but impacts the greenbelt.	C	o	Road pulled back from water, but could conflict with bike route to Smith Cove.
D	+	Dramatic views on road, less impact on ground level than A.	D	+	More land becomes part of waterfront. Allows trail along greenbelt to Smith Cove.
E	o	Less dramatic views from bridge, but less impact at grade	E	o	No structured impediments along water. Magnolia's route to water through full length of Interbay.
F	o	Less dramatic views from bridge, but less impact at grade	F	-	No structured impediments along water. Poor route for Magnolia to water.
G	-	Road through winds through Interbay; views good up hill, but impacts the greenbelt.	G	+	No structured impediments along water.
H	+	Retains views up hill, and relatively low amount of at-grade view blockage	H	+	Reduces structure along the water.
I	o	Less dramatic views from bridge, but less impact at grade	I	o	No structured impediments along water. Poor route for Magnolia to water.

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE URBAN DESIGN EVALUATION**

Alternative	Effects on Olmsted Legacy		Alternative	Effects on Parks	
	Rating	Note		Rating	Note
A	o	No improvements, but visibility of bluff route retained.	A	-	Proximity of bridge to the water detracts. May require Park property at bluff.
B	+	Could have a character modeled on Olmsted system along Lake Washington	B	+/-	May bring more people to Smith Cove. Adds noise to shoreline and park above.
C	-	Does not utilize Olmsted boulevards or capture Olmsted spirit	C	-	More visibility of Smith Cove. Requires Park property along greenbelt.
D	o	No improvements, but visibility of bluff route retained.	D	o	May require Park property at bluff.
E	+	Could incorporate improvements to Thorndyke. Need improvements to retain visibility of existing bluff road	E	o	Park access not very visible. May use Park property at west connection
F	+	This alignment shown in original plan, perhaps due to water line at the time. Improve Thorndyke.	F	-	Limited access to Smith Cove
G	-	Not in Olmsted spirit, and no related improvements	G	-	Park property at greenbelt.
H	+	Could incorporate improvements to Thorndyke. Need improvements to retain visibility of existing bluff road	H	+	Good connection of Magnolia and Smith Cove. Reduces traffic on Olmsted route headed for east slope
I	+	Could incorporate improvements to Thorndyke. Need improvements to retain visibility of existing bluff road	I	o	Few impacts, but little access increase

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE URBAN DESIGN EVALUATION**

Alternative	Support for Transit Oriented Development	
	Rating	Note
A	-	Inhibits cluster development near water and dense Amgen site
B	+	Surface route could serve multimodal development near water and Amgen
C	+	Surface route could serve multimodal development near water and Amgen
D	+	Encourages clustering near water.
E	-	Bus connections too far north for pedestrian oriented cluster near Amgen and water.
F	-	Does not encourage cluster at south of site.
G	+	Access south and north of potential cluster; surface connection in Interbay is flexible.
H	++	Surface route could serve multimodal cluster; some Magnolia traffic bypasses pedestrian oriented area
I	o	Access south and north of potential cluster; but only half intersection

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**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE COST EVALUATION**

Alternative	Replacement Construction Costs	Right-of-Way Costs	Business Relocation Costs	Residential Relocation Costs	Mitigation Costs	Fourth Access Costs	Protection of Infrastructure Costs	Secondary Impacts on Business Relocation Costs	Best Ranked Alternatives for Cost Evaluation
A	-	++	++	++	+	o	U	U	*
B	o	o	++	o	o	o	U	U	**
C	-	+	+	++	o	+	U	U	*
D	--	++	o	++	+	o	U	U	
E	o	--	+	--	++	o	U	U	
F	++	++	-	--	++	o	U	U	**
G	o	--	o	++	o	++	U	U	**
H	-	-	--	++	++	o	U	U	
I	o	+	o	--	++	o	U	U	

LEGEND:
 -- Highest Potential Costs
 - High Potential Costs
 o Average Potential Costs
 + Low Potential Costs
 ++ Lowest Potential Costs
 U Unknown

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE COST EVALUATION**

Alternative	Replacement Construction Costs		Alternative	Right-of-Way Costs	
	Rating	Note		Rating	Note
A	-	Long bridge, short roadway and a temporary bridge & roadway during construction. Relative construction cost is 2.0 as compared to Alt. F.	A	++	Lowest estimated right-of-way costs along with Alt. F.
B	o	Medium length bridge, long roadway and a temporary bridge & roadway during construction. Relative construction cost is 1.6 as compared to Alt. F.	B	o	Relative estimated right-of-way cost is 1.4 as compared to Alternatives A & F.
C	-	Medium length bridge, long roadway and a temporary bridge & roadway during construction. Relative construction cost is 1.9 as compared to Alt. F.	C	+	Relative estimated right-of-way cost is 1.3 as compared to Alternatives A & F.
D	--	Long bridge, medium length roadway and a temporary bridge & roadway during construction. Relative construction cost is 2.3 as compared to Alt. F.	D	++	Relative estimated right-of-way cost is 1.1 as compared to Alternatives A & F.
E	o	Medium length bridge and short roadway. Relative construction cost is 1.7 as compared to Alt. F.	E	--	Relative estimated right-of-way cost is 1.7 as compared to Alternatives A & F.
F	++	Medium length bridge and short roadway. Least expensive construction cost alternative.	F	++	Lowest estimated right-of-way costs along with Alt. A.
G	o	Medium length bridge and roadway. Relative construction cost is 1.7 as compared to Alt. F.	G	--	Relative estimated right-of-way cost is 1.7 as compared to Alternatives A & F.
H	-	Medium length bridge and long roadway. Relative construction cost is 1.9 as compared to Alt. F.	H	-	Relative estimated right-of-way cost is 1.5 as compared to Alternatives A & F.
I	o	Medium length bridge and short roadway. Relative construction cost is 1.6 as compared to Alt. F.	I	+	Relative estimated right-of-way cost is 1.3 as compared to Alternatives A & F.

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**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE COST EVALUATION**

Alternative	Business Relocation Costs		Alternative	Residential Relocation Costs	
	Rating	Note		Rating	Note
A	++	No business displacements identified.	A	++	No residential displacements identified.
B	++	No business displacements identified.	B	o	Could displace up to 9 single-family residential structures along the shoreline west of the Elliott Bay Marina.
C	+	Displace at least 1 existing business on Port of Seattle properties	C	++	No residential displacements identified.
D	o	Displace 1 business on Port properties and portions of 2 businesses east of the rail yard.	D	++	No residential displacements identified.
E	+	Wheeler Street ramp would displace at least 1 business fronting the east side of 15th Avenue W.	E	--	The Wheeler Street ramp would displace approximately 15 single-family residences and 3 multifamily residential buildings east of 15th Avenue W.
F	-	Wheeler Street ramp would displace at least 1 business fronting the east side of 15th Avenue W. Armory Street ramp may displace 2 businesses fronting the east side of 15th Avenue W.	F	--	The Wheeler Street ramp would displace approximately 15 single-family residences and 3 multifamily residential buildings east of 15th Avenue W.
G	o	The Armory Street ramp may displace 2 businesses fronting the east side of 15th Avenue W.	G	++	No residential displacements identified.
H	--	Potential to displace 2 existing businesses on Port properties. Armory Street ramp may displace 2 businesses fronting the east side of 15th Avenue W.	H	++	No residential displacements identified.
I	o	The Armory Street ramp may displace 2 businesses fronting the east side of 15th Avenue W.	I	--	Potential for full or partial displacement of 7 multifamily buildings along Boston Street, east of Thorndyke Avenue.

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE COST EVALUATION**

Alternative	Mitigation Costs		Alternative	Fourth Access Costs	
	Rating	Note		Rating	Note
A	+	Medium environmental mitigation costs due to limited earthwork on Port and Railroad property.	A	o	Requires approximately 4400 feet of north-south surface roadway on Port property.
B	o	Highest environmental mitigation costs due to extensive earthwork on Port and Railroad property plus work along the shoreline.	B	o	Requires approximately 4400 feet of north-south surface roadway on Port property.
C	o	Higher environmental mitigation costs due to extensive earthwork on Port and Railroad property.	C	+	Requires approximately 1800 feet of north-south surface roadway on Port property.
D	+	Medium environmental mitigation costs due to limited earthwork on Port and Railroad property.	D	o	Requires approximately 4400 feet of north-south surface roadway on Port property.
E	++	Lower environmental mitigation costs due to limited earthwork on Port and Railroad property.	E	o	Requires approximately 4400 feet of north-south surface roadway on Port property.
F	++	Lower environmental mitigation costs due to limited earthwork on Port and Railroad property.	F	o	Requires approximately 4400 feet of north-south surface roadway on Port property.
G	o	Higher environmental mitigation costs due to extensive earthwork on Port and Railroad property	G	++	Alternative provides a fourth access without additional costs.
H	++	Lowest environmental mitigation costs due to limited earthwork on Port and Railroad property.	H	o	Requires approximately 4400 feet of north-south surface roadway on Port property.
I	++	Lower environmental mitigation costs due to limited earthwork on Port and Railroad property.	I	o	Requires approximately 4400 feet of north-south surface roadway on Port property.

**MAGNOLIA BRIDGE REPLACEMENT
PRELIMINARY ALTERNATIVE COST EVALUATION**

Alternative	Protection of Infrastructure Costs		Alternative	Secondary Impacts on Business Relocation Costs	
	Rating	Note		Rating	Note
A	U	Insufficient information available to rate alternative for this category.	A	U	Insufficient information available to rate alternative for this category.
B	U	Insufficient information available to rate alternative for this category.	B	U	Insufficient information available to rate alternative for this category.
C	U	Insufficient information available to rate alternative for this category.	C	U	Insufficient information available to rate alternative for this category.
D	U	Insufficient information available to rate alternative for this category.	D	U	Insufficient information available to rate alternative for this category.
E	U	Insufficient information available to rate alternative for this category.	E	U	Insufficient information available to rate alternative for this category.
F	U	Insufficient information available to rate alternative for this category.	F	U	Insufficient information available to rate alternative for this category.
G	U	Insufficient information available to rate alternative for this category.	G	U	Insufficient information available to rate alternative for this category.
H	U	Insufficient information available to rate alternative for this category.	H	U	Insufficient information available to rate alternative for this category.
I	U	Insufficient information available to rate alternative for this category.	I	U	Insufficient information available to rate alternative for this category.

MAGNOLIA BRIDGE REPLACEMENT PRELIMINARY ALTERNATIVE EVALUATION CRITERIA

ENVIRONMENTAL CRITERIA

Air Quality Transportation system air quality impacts are often associated with emissions of idling vehicles at roadway intersections or in slow-moving traffic. Based on the results of the traffic analyses in Task 2.D, project alternatives will be evaluated based on outputs from preliminary traffic modeling including vehicle miles traveled, volume to capacity ratios, and speeds.

Geologic Hazards Potential earth and soils impacts associated with each alternative will be evaluated in terms of the amount of proposed right-of-way that would be located in steep slope hazard areas, erosion hazard areas, seismic hazard areas, or other geotechnically sensitive areas (as defined by the City of Seattle).

Habitat Potential impacts to plant and animal species will be evaluated for each alternative based on Threatened, Endangered and Sensitive Species occurrence information obtained through consultation with USFWS, NMFS, WDFW, and DNR. Information to be evaluated will include the number and type of Threatened, Endangered, Candidate, Priority, or other sensitive plant or animal species known to occur in or use the project area, and whether the project would be located in or near any designated critical habitat.

Wetlands Potential impacts to wetlands will be evaluated based on the number, size, and quality of affected wetlands, and the corresponding mitigation requirements that would be imposed for each alternative. The wetland evaluation will include a review of City of Seattle critical area maps, US Fish and Wildlife Service NWI maps, aerial photographs, and a reconnaissance-level site visit.

Shorelines Consistency of the alternative alignment with regulations for shorelines as designated in the City of Seattle's Shoreline Master Program and SMC 23.60.

Water Quality/Stormwater Potential impacts to water quality associated with stormwater runoff during project construction and operation will be evaluated for each alternative. The evaluation of potential water quality effects will be based on the total amount of impervious surface generated for each alternative within the project termini.

Culture and Historic Resources Potential impacts to archaeological, historical and cultural resources will be evaluated for each alternative based on a review of the National Register of Historic Places, and information obtained in consultation with the State Historic Preservation Officer (SHPO), the City of Seattle, and appropriate Indian Tribes.

MAGNOLIA BRIDGE REPLACEMENT PRELIMINARY ALTERNATIVE EVALUATION CRITERIA

Hazardous and Problem Waste Based on consultation with WSDOT Environmental Affairs, Department of Ecology, the WSDOT Environmental GIS Workbench, and available maps from the City of Seattle, parcels containing identified CERCLA (Superfund) sites, RCRA sites, and Toxic Cleanup Program sites will be identified. Project alternatives will be evaluated based on a) the total area of designated sites that would be disturbed by project construction, and b) collective judgment of the Design Team as to the potential extent of required remediation.

Displacements Based on a review of aerial photos and alternative alignment drawings, the number of residential, commercial and community facility displacements (existing uses within the alternative ROW) will be estimated. Potential displacement impacts will be based on the number, type and size of such uses within the ROW that would require relocation.

Public Lands The number, approximate acreage and type of facility will be evaluated for any publicly owned parks, recreation areas, wildlife and waterfowl refuges; sites that are on or eligible for the National Register of Historic Places; historic bridges; and bikeways as identified in Section 4(f) of the Transportation Act of 1966 and/or 23 CFR 771.135. Potential impacts to 4(f) resources will be evaluated for each alternative based on the number and/or approximate area of any resources located within or adjacent to the proposed ROW.

Noise The noise evaluation will use "Proximity Effects" criteria to evaluate the potential for disruptive impacts to existing uses and activities during project operation as a result of being located near the proposed project. While it is not possible to fully evaluate the nature or degree of proximity effects during the screening phase of alternatives analysis, the relative potential for disruptive impacts can be estimated based on the number of existing uses that would be located within a fixed distance from the roadway. Based on a review of aerial photos and alternative alignment drawings, the number of existing uses (residences, businesses, civic and community facilities) that are located within 500 feet of the roadway edge of pavement (EOP), will be estimated for each alternative. The 500-foot distance is consistent with the effective distance for transportation noise modeling as recognized by FHWA.

TRANSPORTATION CRITERIA

Magnolia Street Motor Vehicle Traffic Impacts Relative impacts to existing street circulation based on the degree of change required for the alignment. This is a measure of the potential of an alignment to shift traffic to/or from arterial routes such as Magnolia Boulevard to other street, particularly local access streets.

MAGNOLIA BRIDGE REPLACEMENT PRELIMINARY ALTERNATIVE EVALUATION CRITERIA

15th W/Elliott W Corridor Motor Vehicle Traffic Impacts Relative impacts to existing 15th Avenue W/Elliott Avenue W traffic and freight mobility based on modeled effects on traffic flow on 15th Avenue W., Elliot Avenue W, and connecting arterials. Changes in traffic volumes will be evaluated at intersections operating at or near capacity. [Note: Current traffic counts have been made with the W. Galer Street at-grade crossing of the BNSF tracks open between 15th Avenue W. and Alaskan Way W. This crossing will close in early 2003 and traffic using this crossing will shift to the Galer Flyover ramp.]

Traffic Impact During Construction Relative disruption of existing traffic on the existing bridge during construction of the bridge replacement. This criterion assumes the existing Magnolia Bridge will remain in operation during most of the construction of the replacement bridge. The evaluation will consider the duration of any periods of temporary route closure, the location of the closures, and the use of the affected roadway(s).

Motor Vehicular Access to Magnolia Provisions for enhanced access to/from Magnolia. Consideration is given to the directness of travel between Magnolia and 15th Ave/Elliott, the quality of travel (e.g. grade separations vs. signalized intersections); and the provision for additional access routes. The number and quality of access routes will be considered.

Motor Vehicular Access to Waterfront From the 15th W/Elliott W Relative service of vehicular traffic to the waterfront (Smith Cove Park and marina area) to and from the east. Alternatives will be evaluated on the directness of the access (estimated travel distance), the quality of travel (e.g. grade separations vs. signalized intersections), and how clear the route is likely to meet driver expectations.

Motor Vehicular Access to Waterfront From Magnolia Relative service of vehicular traffic to the waterfront (Smith Cove Park and marina area) to and from the west. There is no current direct access from Magnolia Bluff to the park and marina. The Magnolia Bridge has a pair of ramps to and from the east that provide access to park and marina. These ramps can only be accessed from the west by going to 15th Avenue W and then back west on the Magnolia Bridge. This evaluation criterion will measure the effectiveness of an alternative in providing park and marina access from the bluff. Effectiveness will be determined by travel time.

MAGNOLIA BRIDGE REPLACEMENT PRELIMINARY ALTERNATIVE EVALUATION CRITERIA

Motor Vehicular Access to Port Property Relative service of freight and general vehicular traffic to and from Port property to the 15th Avenue W/Elliot Avenue W corridor. This evaluation will assume the W Galer Street at-grade crossing of the BNSF Railway has been closed (scheduled for early 2003). Effects of project alternatives on Port access will primarily consider Terminal 91 facilities, but will also consider access to Port facilities south of W Galer Street. Access evaluation will consider shared use of all or portions of the Galer Flyover and any other access project by or affected by a bridge replacement alternative.

Emergency Service Impacts Relative impacts to access for service emergency vehicles including police, fire and medical services. Impacts will be evaluated based on directness of travel and expected response time.

Bicycle & Pedestrian Connections Relative service of connections for bicycles and pedestrians. The criterion will address the directness and ease of travel of new non-motorized facilities provided by the project and project effect on and connections to the existing trails along the east and west sides of the Terminal 91 property, the Magnolia signed bicycle route (on Magnolia Boulevard, Thorndyke Avenue W, 20th Avenue W, and other streets), and the north-south trail connecting North Magnolia through Interbay.

Transit Connections The alignment alternatives effect on transit operations will be determined by reviewing existing use of the Magnolia Bridge by King County Metro Routes 19, 24, and 33, and 15th Avenue W/Elliot Avenue W by Routes 15 and 18, and estimating potential transit travel time impact. Travel time impacts will be considered for vehicles (operating costs) and transit riders. Compatibility with the proposed Green Line monorail, waterfront street car, and potential commuter rail access will be considered.

Impacts to the Railroad Relative impacts to the railroad operations and capacity of the alignment. This criterion will consider potential impacts to BNSF Railway facilities from project roadway alignments and structure crossings. Crossings will consider bridge column placement and the required clearances between structure protection crash walls and yard and mainline tracks. The acceptability of facility impacts (track displacement or relocation) will be considered.

URBAN DESIGN CRITERIA

Effects on Magnolia Neighborhood Includes increases and decreases of traffic on neighborhood streets, any need to take properties, changes (positive or negative) to street character, ability to serve areas with growth potential in the future.

MAGNOLIA BRIDGE REPLACEMENT PRELIMINARY ALTERNATIVE EVALUATION CRITERIA

Effects on Magnolia Village Increase or decrease in accessibility and visibility of the Village for vehicles. Impacts on pedestrian character in the Village.

Effects on Interbay Providing access to undeveloped parcels in order to support future desired job opportunities and economic development. Consideration of impacts on existing uses and phasing, the contiguous nature of parcels, and connections to an internal circulation system in the Interbay properties. Effects of the transportation system on the best use of property in relationship to the water, the greenbelt, and the railroad.

Effects on 15th Avenue Corridor Impact on the land use potential and the character of the 15th Avenue corridor.

View View impacts from ground level and from the nearby neighborhoods, as well as view potential from the bridge deck and as an entry into Magnolia.

Effects on Quality of Shoreline Impact on the character of the Elliott Bay shoreline. Location, safety and character of connections along the waterfront for all modes. Ability of new infrastructure to support public uses along the shoreline in terms of both access and configuration.

Effects on Olmsted Legacy Degree to which the alternative supports the spirit of Olmsted's planning for this important piece of the original plan. Clarifying and improving Olmsted linkages for the public benefit.

Effects on Parks Ability of new infrastructure to support new and existing park uses in terms of both access and configuration. (Environmental issues considered elsewhere).

Support for Transit Oriented Development Ability of transportation infrastructure to support future multi-modal use, connect between potential modes, and create a functional pedestrian realm in future development.

COST CRITERIA

Replacement Construction Costs Relative construction costs of bridges and retaining walls based on areas and lengths with consideration of long span and deep foundations plus relative construction costs of surface roadways based on areas and lengths with consideration of depth of embankments plus relative costs of provide an alternative route during construction for those alternatives that require removal of existing bridge prior to completion of new replacement facility.

MAGNOLIA BRIDGE REPLACEMENT PRELIMINARY ALTERNATIVE EVALUATION CRITERIA

Right-of-Way Costs Relative cost of acquiring required right-of-way based on area with consideration of commercial and residential property.

Business Relocation Costs Relative costs for relocating businesses based on the number of displacements.

Residential Relocation Costs Relative costs for relocating residents based on the number of displacements.

Mitigation Costs Relative mitigation costs based on items identified in the Environmental Evaluation such as wetlands mitigation, hazardous material disposal, etc. but excluding business/residential relocation costs.

Fourth Access Costs Relative costs for providing a fourth access to Magnolia from the 15th/Elliott Ave corridor based on area of surface roadway and structure.

Protection of Infrastructure Costs Relative costs for protection of existing public infrastructure plus private utility infrastructure such as protection or relocation of utilities including power, water, sewer, etc.; and protection or relocation of streets, bicycle paths, and sidewalks based on type, length and size of affected facility.

Secondary Impacts on Business Relocation Costs Relative costs associated with cost impacts to existing businesses within a cluster economy such as additional costs for transportation, time and inconvenience. This cost will be measured based on the number of businesses remaining in the existing cluster group per relocated business.