

HAYDEN ISLAND DESIGN GROUP

Hayden Island Interchange – Design Options

The goal of this design exercise was to develop alternatives to provide access to Hayden Island with a reduction in the amount of structure overhead on Tomahawk Island Drive (TID) and overall footprint of the interchange of the proposed “Locally Preferred Alternative” but with comparable or acceptable functionality. The approach was to develop an alternative focused on maintaining an interchange “On-Island” with I-5 and an interchange “Off-Island” providing access to Hayden Island through one or more arterial bridges and a modified Marine Drive interchange. If any option resulting from this exercise looks promising, further detailed evaluation will be required.

Description:

Locally Preferred Alternative Phase 1 (LPA) – Overlapping split diamond interchange with ramps to/from the north connecting to Jantzen Drive (JD), ramps to/from south connecting to Hayden Island Drive (HID), ramps for Marine Drive to/from north crossing the island, and ramps directly to Marine Drive connecting to Hayden Island Drive. Tomahawk Island Drive has no ramp terminals.

On-Island Interchange Alternative – Single-point urban interchange focuses interchange traffic on Tomahawk Island Drive. Ramps to/from the south connect to I-5 south of Marine Drive allowing northbound Marine Drive ramps to connect to I-5 without crossing the Island. Requires inclusion of Marine Drive southbound braided ramp with Victory Blvd. southbound exit. Hayden Island Drive and Jantzen Drive have no ramp terminals. A new arterial bridge adjacent to LRT provides connection from Hayden Island to Expo Rd., continuing south to Victory Blvd. and Kenton, replacing the access to Hayden Island via the Victory Blvd. ramps to I-5.

Off-Island Interchange Alternative – Access to/from Hayden Island via an extension of Martin Luther King Blvd. across the North Portland Harbor connecting to Avenue C. Provides separate southbound off-ramps for movements to Hayden Island and movements to westbound Marine Drive. Includes the eastbound Marine Drive to northbound I-5 flyover ramp. Adds an arterial bridge east of I-5 from Jantzen Drive to local street network near Bridgeton.

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Evaluation Matrix

	Locally Preferred Alternative Phase 1 (LPA)	On-Island Interchange Alternative	Off-Island Interchange Alternative
FOOTPRINT			
I-5 Footprint on Hayden Island	I-5 and its ramps include 21 lanes over TID on 10 structures; and TID drops 14' below grade	I-5 and its ramps involve 9 lanes over Tomahawk Island Drive on 2 structures; 13 lanes over HID on 4 structures; 16 lanes over JD on 6 structures; TID is depressed 8-12' below grade	I-5 involves 11 lanes on 3 structures over TID; a new 5-lane arterial bridge is added across North Portland Harbor to Avenue C; TID drops 6' below grade
Combined width of I-5 mainline and ramp structures over Tomahawk Island Drive	540'	175'	210'

	Locally Preferred Alternative Phase 1 (LPA)	On-Island Interchange Alternative	Off-Island Interchange Alternative
TRAFFIC			
Interchange Spacing	Close interchange spacing is handled by routing Marine Drive ramps to/from the north by bypassing Hayden Island interchange	Close interchange spacing is handled by routing Hayden Island ramps to/from the south by bypassing Marine Drive interchange	Close interchange spacing is handled by removing the Hayden Island Interchange and routing traffic through Marine Drive interchange
Regional Circulation	Regional traffic to Hayden Island is distributed between Hayden Island Drive and Jantzen Drive	Regional traffic to Hayden Island is concentrated on Tomahawk Island Drive	Regional traffic to Hayden Island is through out-of-direction access via Marine Drive Interchange and concentrates traffic on Avenue C
Local Circulation Concept	Tomahawk Island Drive is a local street	Hayden Island Drive and Jantzen Drive are local streets; Adds a new local street from Jantzen Drive to Bridgeton/Expo area	Hayden Island Drive, Jantzen Drive and Tomahawk Island Drive are local streets; adds a new local street from Jantzen Drive to Bridgeton/Expo area

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TRAFFIC (continued)			
Freight Access	Marine Drive interchange provides effective freight access	Marine Drive interchange largely unaffected except truck traffic to Marine Drive mixes with traffic to/from Hayden Island on Marine Drive off-ramps	Traffic to/from Hayden Island mixes with truck traffic through Marine Drive interchange except critical truck movements to/from the north on separate ramps; new local bridge east of I-5 mixes Hayden Island traffic with local streets and truck traffic near Jubitz
Bike/Pedestrian Circulation	Pedestrian District west of I-5 is intact; Hayden Island Drive, Tomahawk Island Drive and Jantzen Drive provide access under I-5; regional bike connection from Oregon to Washington provided adjacent to LRT	Pedestrian District west of I-5 is bisected by a high volume Tomahawk Island couplet; Hayden Island Drive, Tomahawk Island Drive and Jantzen Drive provide access under I-5; regional bike connection from Oregon to Washington provided adjacent to LRT	Pedestrian District west of I-5 is impacted by a high volume Avenue C; Hayden Island Drive, Tomahawk Island Drive and Jantzen Drive provide access under I-5; regional bike connection from Oregon to Washington provided adjacent to LRT

	Locally Preferred Alternative Phase 1 (LPA)	On-Island Interchange Alternative	Off-Island Interchange Alternative
IMPACTS			
SuperCenter and other retail impacts	Compatible with short and long-term SuperCenter redevelopment plans	Requires further assessment and refinement to determine compatibility with SuperCenter short and long-term redevelopment plans	Threatens SuperCenter short and long-term redevelopment plans due to indirect I-5 access and high volume traffic on Avenue C; threatens viability of businesses east of I-5 due to indirect I-5 access
Is Safeway displaced?	Yes	Yes	May be partially displaced and indirect I-5 access impacts long-term viability
Likelihood of replacement of full service grocery store	Possible	Maybe	Developer states highly unlikely due to indirect access
Access to properties	Access limits on JD and HID impact businesses	Access limits on TID east and west of I-5 and on JD east and west of I-5 impacts businesses	Access limit on Avenue C may impact possible intersection/residential access at Ave. C and JD
Business displacement adjacent to I-5 on Hayden Island	29	Similar to LPA	Displacements west of I-5 dependent on LRT alignment
Floating Home / Moorage Impacts	Limits impacts to the vicinity of I-5	May have additional displacements for new street connection adjacent to LRT west of I-5	Has additional displacements and impact area at Avenue C; will have additional displacements for new street connection east of I-5

	Locally Preferred Alternative Phase 1 (LPA)	On-Island Interchange Alternative	Off-Island Interchange Alternative
IMPACTS (continued)			
Marine Drive land uses west of I-5	No significant impact	New bridge connection from Hayden Island to Expo Road adds traffic between LRT and Expo	Alignment and expanded footprint to accommodate weave movements west of I-5 impact Expo and would require relocation of Diversified Marine and Ross Island Sand & Gravel
LRT Alignment	Alignment partially elevated adjacent to I-5 with station focused on Tomahawk Island Drive; 14' +/- above adjacent land	Alignment elevated adjacent to I-5 with station near Jantzen Drive; 20' +/- above adjacent land	More flexibility to adjust alignment east and west
Footprint in-water / Biological Assessment	Three new structures in North Portland Harbor	Additional ESA impacts from six new structures in North Portland Harbor	Additional ESA impacts from five new structures in North Portland Harbor
Construction schedule		Overall longer construction duration due to in-water construction	Overall longer construction duration due to in-water construction
Construction Cost		Trending higher but requires further evaluation	Trending higher but requires further evaluation
Hayden Island Plan	Neighborhood retail center east of I-5 needs to be revisited in HI Plan	HI Plan would need to be revisited	HI Plan would need to be revisited