

**Comparison of Alternatives Matrix**

PPA

Alternatives Sub-Alternatives Bridge Type Vertical Clearance (MHW)	1: No Build		2: Rehabilitation (A&B)		3: New Location, maintain existing bridge		4: West Alignment (A&B)					5: Same Alignment			6: Half-on/Half-off (A&B)		7: East Alignment (A&B)						8: Outer East Alignment					
	-	-	A	B	-	-	A		B			-			A	B	A			A - Modified	B			-				
	-	-	-	Modified	Movable	Fixed	Movable	Fixed	Movable	Fixed	Movable	Fixed	Movable	Fixed	Fixed	Fixed	Movable	Fixed	Fixed	Fixed	Movable	Fixed	Fixed	Movable	Fixed	Fixed		
Purpose & Need	1	Y/N?	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controlling Substandard Design Elements Improved																												
Lane Width	2	Y/N?	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Shoulder Width	3	Y/N?	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Structural Capacity	4	Y/N?	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Minimum Radius of Curves	5	Y/N?	N	N	N	Y	Y	Y	Y	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	Y <sup>1</sup>	
Cross Slope (L)	6	Y/N?	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Superelevation (L)	7	Y/N?	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Stopping Sight Distance (L)	8	Y/N?	N	N	N	Y	Y	Y	Y	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	Y <sup>2</sup>	
Mechanical & Electrical																												
Components Upgraded	9	Y/N?	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Multimodal & System Linkage																												
Vertical Clearance (% boat passing under closed condition)	10	%	54/74/78	54/74/78	54/74/78	79/89/97	100	54/74/78	79/89/97	100	54/74/78	79/89/97	100	54/74/78	79/89/97	100	100	100	54/74/78	79/89/97	100	100	54/74/78	79/89/97	100	54/74/78	79/89/97	100
Improves Reliability of Crossing	11	Y/N?	N	Y <sup>3</sup>	Y <sup>3</sup>	Y	Y	Y <sup>3</sup>	Y	Y	Y <sup>3</sup>	Y	Y	Y <sup>3</sup>	Y	Y	Y	Y <sup>3</sup>	Y	Y	Y	Y	Y <sup>3</sup>	Y	Y	Y <sup>3</sup>	Y	Y
Improves Pedestrian Access	12	Y/N?	N	N	N	Y <sup>4</sup>	Y <sup>4</sup>	Y	Y <sup>4</sup>	Y <sup>4</sup>	Y	Y <sup>4</sup>	Y <sup>4</sup>	Y	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>4</sup>	Y	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>4</sup>	Y	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>4</sup>	
Improves Bicycle Access	13	Y/N?	N	N	N	Y <sup>4</sup>	Y <sup>4</sup>	Y	Y <sup>4</sup>	Y <sup>4</sup>	Y	Y <sup>4</sup>	Y <sup>4</sup>	Y	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>4</sup>	Y	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>4</sup>	Y	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>4</sup>	
Improves Truck Traffic Accommodations	14	Y/N?	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Environmental																												
*Avoids Public Access Impacts	15	Y/N?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Avoids Floodplain Impacts	16	Y/N?	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Wetlands	17	# of acres	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Riparian Zone (L)	18	# of acres	0	0	0	1.0	1.0	0.7	0.7	0.7	0.6	0.6	0.6	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Avoids Federal/State T&E Species Impacts	19	Y/N?	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Marine Habitats Impacted	20	# of acres	0	0	0	3.9	3.9	3.1	3.1	3.1	3.2	3.2	3.2	3.5	3.5	3.5	3.6	4.3	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
Submerged Aquatic Vegetation Impacted	21	# of acres	0	0	0	0	0	0.6	0.6	0.6	0.9	0.9	0.9	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Avoids Potential Air & Noise Impacts	22	Y/N?	Y	Y	Y	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Cultural Resources	23	# Impacted	1	2	1	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+
Rights-of-Way																												
Public Parking	24	Y/N?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Full Residential Property Acquisition	25	# Impacted	0	0	0	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Partial Residential Property Acquisition	26	# Impacted	0	0	0	4	4	3	3	3	6	6	6	6	6	6	2	2	2	2	2	4	2	2	2	2	2	2
Full Commercial Property Acquisition	27	# Impacted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Partial Commercial Property Acquisition	28	# Impacted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tidelands Grants Acquisition (L)	29	# of acres	0	0	0	4.0	4.0	3.0	3.0	3.0	3.3	3.3	3.3	1.0	1.0	1.0	2.3	3.5	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.0
Number of Acres to be Acquired	30	# of acres	0	0	0	8.5	8.5	4.0	4.0	4.0	1.3	1.3	1.3	0.7	0.7	0.7	0.7	0.2	0.2	0.2	0.2	0.23	0.2	0.2	0.2	0.2	0.2	
Potential Access Impacts	31	# Impacted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
Construction Duration and Cost																												
**Maintenance & Operation Cost	32	millions \$/yr	\$1.7	\$1.7	\$1.7	\$1.6	\$0.0	\$1.7	\$1.6	\$0.0	\$1.7	\$1.6	\$0.0	\$1.7	\$1.6	\$0.0	\$0.0	\$0.0	\$1.7	\$1.6	\$0.0	\$0.0	\$1.7	\$1.6	\$0.0	\$1.7	\$1.6	\$0.0
Construction Duration	33	months	0	24	24	36	36	33	33	33	35	35	35	34	34	34	42	42	34	34	34	34	34	34	36	36	36	
Detour Duration	34	months	0	24	24	0	0	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Construction Cost	35	millions \$	\$0	\$172	\$179	\$180	\$145	\$155	\$163	\$126	\$155	\$164	\$127	\$157	\$165	\$128	\$135	\$147	\$165	\$175	\$138	\$138	\$166	\$176	\$139	\$165	\$174	\$137
Utility Relocation Cost	36	millions \$	\$0	\$8.6	\$8.9	\$9.0	\$7.2	\$7.7	\$8.2	\$6.3	\$7.8	\$8.2	\$6.4	\$7.8	\$8.3	\$6.4	\$6.8	\$7.4	\$8.3	\$8.7	\$6.9	\$6.9	\$8.3	\$8.8	\$7.0	\$8.2	\$8.7	\$6.9
Right of Way Cost	37	millions \$	\$0	\$1.4	\$1.4	\$17.1	\$17.1	\$8.2	\$8.2	\$8.2	\$2.7	\$2.7	\$2.7	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4
<b>Total Construction Cost</b>	38	<b>millions \$</b>	<b>\$0</b>	<b>\$182</b>	<b>\$189</b>	<b>\$206</b>	<b>\$169</b>	<b>\$170</b>	<b>\$179</b>	<b>\$141</b>	<b>\$166</b>	<b>\$175</b>	<b>\$136</b>	<b>\$166</b>	<b>\$175</b>	<b>\$136</b>	<b>\$143</b>	<b>\$156</b>	<b>\$174</b>	<b>\$184</b>	<b>\$145</b>	<b>\$145</b>	<b>\$175</b>	<b>\$185</b>	<b>\$147</b>	<b>\$173</b>	<b>\$183</b>	<b>\$145</b>
Construction Related Road User Costs	39	millions \$	\$3,000	\$217	\$217	\$0	\$0	\$19	\$19	\$19	\$19	\$19	\$19	\$146	\$146	\$146	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19
<b>Total Construction Cost and Construction Related Road User Cost</b>	40	<b>millions \$</b>	<b>\$3,000</b>	<b>\$399</b>	<b>\$406</b>	<b>\$206</b>	<b>\$169</b>	<b>\$189</b>	<b>\$198</b>	<b>\$160</b>	<b>\$185</b>	<b>\$194</b>	<b>\$155</b>	<b>\$312</b>	<b>\$321</b>	<b>\$282</b>	<b>\$162</b>	<b>\$175</b>	<b>\$193</b>	<b>\$203</b>	<b>\$164</b>	<b>\$164</b>	<b>\$194</b>	<b>\$204</b>	<b>\$166</b>	<b>\$192</b>	<b>\$202</b>	<b>\$164</b>
Life Cycle Cost (present value - 100 yrs.)	41	millions \$	\$15	\$167	\$167	\$104	\$56	\$90	\$90	\$42	\$90	\$90	\$42	\$91	\$91	\$43	\$43	\$48	\$96	\$96	\$48	\$48	\$96	\$96	\$48	\$95	\$95	\$47
<b>Total Construction Cost, Construction Related Road User Cost and Life Cycle Cost</b>	42	<b>millions \$</b>	<b>\$3,015</b>	<b>\$565</b>	<b>\$572</b>	<b>\$310</b>	<b>\$225</b>	<b>\$278</b>	<b>\$287</b>	<b>\$201</b>	<b>\$275</b>	<b>\$284</b>	<b>\$197</b>	<b>\$403</b>	<b>\$412</b>	<b>\$325</b>	<b>\$205</b>	<b>\$222</b>	<b>\$288</b>	<b>\$298</b>	<b>\$211</b>	<b>\$211</b>	<b>\$289</b>	<b>\$299</b>	<b>\$213</b>	<b>\$286</b>	<b>\$296</b>	<b>\$210</b>

**Key:**  
**1** Alternatives which address one of two substandard curves.  
**2** Alternatives which address substandard stopping sight distance at one of two locations.  
**3** Alternatives which continue to open with the same frequency as the existing bridge.  
**4** Alternatives which improve pedestrian and bike accommodations but increase grade while maintaining ADA requirements.  
 \* The details of public access will be developed during preliminary engineering (PE)  
 \*\* Maintenance and Operation Cost includes movable portion only

**(L) Legend:**  
 Cross Slope: The horizontal slope of the roadway from the center to the outer edge. Enables drainage from the travel lanes.  
 Superelevation: The amount by which the outer edge of the curve on a road is banked above the inner edge. Improves driver comfort.  
 Stopping Sight Distance: The minimum distance a driver must be able to see objects clearly in order to have room to stop and avoid a collision.  
 Riparian Zone: Lands that occur along waterbodies.  
 Tidelands Grants: Permission to access all lands that are currently and formerly flowed by mean high tide of a natural waterway.