

	GOVERNMENT OF NEWFOUNDLAND AND LABRADOR Department of Transportation and Infrastructure	<b>BRIDGE INSPECTION REPORT</b> <b>B09162021-9</b>	
<b>Date:</b> 9/2/2021	<b>Inspected By:</b> Mike Button	<b>Category:</b> Office - Bridge Office	
<b>BRIDGE INFORMATION</b>			
<b>Site:</b>	3-047 - BAY D'ESPOIR CAUSEWAY BRIDGE		
<b>Route:</b>	361	<b>Overall Length:</b>	89 m
<b>Year Built:</b>	1966	<b>Est:</b> No	<b>Overall Width:</b> 8.7 m
<b>Year Last Rehab.:</b>	1998	<b>Est:</b> No	<b>Roadway Width:</b> 7.4 m
<b>Region:</b>	CENTRAL WEST	<b>Sidewalk Width:</b>	0 m
<b>Jurisdiction:</b>	Provincial	<b>Clearance to R.D. or N.W.L.:</b>	4.5 m
<b>Type of Structure:</b>	01 - AASH to Girder	<b>Max Depth of N.W.L.:</b>	3.4 m
<b>Purpose of Structure:</b>	03 - Over Navigable Waters	<b>Spans:</b>	
<b>Type of Handrail:</b>	01 - Aluminum Rail	<b>Span No.:</b>	<b>Length</b>
<b>Roadway Surface:</b>	02 - Asphalt	1	22.5
<b>Alignment Vertical:</b>	01 - Good	2	0
<b>Alignment Horizontal:</b>	01 - Good	3	0
<b>Restrictions:</b>	No	6	0
<b>BRIDGE PHOTOS</b>			
			
<b>SUBSTRUCTURE</b>			
<b>Condition:</b>	P3 - Poor	<b>Bearings:</b>	F1 - Fair
		<b>Bearing Seat:</b>	F1 - Fair
<b>Comments:</b>	- Wingwalls on the west abutment have medium alligator cracking and AAR with some efflorescence. - West abutment has extreme scour the whole length of the footing and has lost contact with in-situ soils. Abutment ok due to support from concrete piles, P3. Light-medium alligator cracking evident throughout the face, F1. Southwest corner of abutment and creep block has severe cracking with efflorescence, P3. - Bearing areas in fair condition. - East abutment has light-medium alligator cracking evident throughout the face, scour starting on the northeast corner of the footing, F1. Bearing areas in fair condition. Medium-severe cracking with efflorescence to the side and behind the northeast bearing area. - Pier 1 has a large-wide vertical crack on the downstream tail. Creep blocks are nearing total disintegration on both the north and south sides. Pier has medium-severe erosion at the nose, P3 and mild erosion on the remainder. Bearings areas not inspectable over pier 1. - Pier 2 has a large wide crack and cavity forming at the water level on both sides of the pier. Hydraulic jump plus vortex shedding can be seen in the area, suspect severe erosion and scour. - North creep block ok, south is nearing total disintegration. Pier has medium-severe erosion at the nose, P3 and mild erosion on the remainder. Bearings areas not inspectable over pier 2.		

<b>SUPERSTRUCTURE</b>			
<b>Condition:</b>	F1 - Fair	<b>Expansion Joints:</b>	P3 - Poor
<b>Comments:</b>	- Underside of deck in fair condition on the west and east sides. Minimal efflorescence between deck and girders. Span between pier 1 & 2 un-inspectable. Underside of deck F1. - Girders from west abutment to pier 1 in fair condition with small localized areas showing reinforcement. Girders between piers un-inspectable. Girders from Pier 2 to the east abutment in fair condition with some leaks through the girder/deck connection above. Girders F1. - Expansion joints need replacement over both piers and abutments. Efflorescent deposits evident under expansion joints at all locations, P3.		
<b>DECK</b>			
<b>Condition:</b>	P3 - Poor	<b>Curbs:</b>	P3 - Poor
<b>Hand Rail:</b>	F2 - Fair	<b>Roadway Condition:</b>	P3 - Poor
<b>Approach Rail:</b>	F2 - Fair		
<b>Comments:</b>	- Roadway driving surface inspection limited due to traffic hazards. - Asphalt has a lot of potholes, cracks and patches throughout, P3. P1 near expansion joints. - Curbs have medium spalling with exposed reinforcement in numerous locations on the north side, P3. South side in fair condition, F1. - North fascia/soffit area is heavily cracked with efflorescent stalactites along the length of the bridge and the above is notably worse near both piers expansion joints. - South fascia/soffit area in fair condition from the west abutment to pier 1, same condition as the north side from pier 1 to the east abutment. - Efflorescent deposits on both the north and south fascias/soffits indicates curb/deck concrete is cracked and deteriorating, P3. - Approach rails in fair condition and connected to end blocks complete with hazard markers, F2. - Handrails in fair condition, F2. Deck P3, F1 remainder.		
<b>HYDROLOGY</b>			
<b>Water Velocity:</b>	1.5 m/s	<b>Ice Problem:</b>	P - Possible Problem
<b>Water Depth:</b>	Tidal & Hydro Controlled (Deep) m	<b>Scour Problem:</b>	K - Known Problem
<b>Waterway:</b>	01 - Adequate	<b>Debris Problem:</b>	N - No Problem
<b>Comments:</b>	- Piers not parallel to flow. Water hitting piers at a steep angle causing vortex shedding on the wake side of the pier. Both sides of pier 2 showing a large crack/forming cavity at the water level. Recommend a diving inspection on both piers. Tailrace of hydro station upstream. Current very strong at the time of inspection.		
<b>REPLACEMENT/REHABILITATION</b>			
<b>Next Rehab. Date:</b>	2024	<b>Replacement Year:</b>	2040
<b>Antic. Rehab. Cost:</b>	\$800000	<b>Replacement Cost:</b>	\$6000000
<b>Recommendations:</b>	- Arrange a diving inspection for both piers and inspect for scour, and cavities in concrete. Repair as required. - Replace pier noses. - Replace curbs on both the upstream and downstream sides. - Replace all expansion joints and associated concrete. - Repair scour on west abutment and scour starting on the east abutment. - Replace all creep blocks.		
<b>OBSERVATIONS</b>			
<b>Overall Condition:</b>	P3 - Poor	<b>Requires Further Inspection:</b>	Yes
<b>Additional Observations:</b>	- Overall bridge condition P3. - Formwork left in place on under the deck mid-span. Hazards, traffic, medium slopes and fast/deep water.		
<b>LEGEND:</b>			
<b>Condition Definitions:</b>		<b>Problem Definitions:</b>	
1 - *Good - [discontinued code].	F2 - Fair.	C - Unsafe (Closed to Public).	N - No Problem.
2 - *Fair - [discontinued code].	F1 - Fair.	U - Uninspectable.	P - Possible Problem.
3 - *Poor - [discontinued code].	P3 - Poor.	I - Inapplicable.	K - Known Problem.
4 - *Unsafe - [discontinued code].	P1 - Poor.		NA - Not Applicable.
G - Good.	P - Poor.		
<b>Category Definitions:</b>			
Maint. - Maintenance.			
Eng. - Engineering.			
Office - Bridge Office.			
<b>PHOTO GUIDELINES:</b>			
<b>Inspection Photos:</b>			
Please provide photos using guidelines below:			
<ul style="list-style-type: none"> <li>• Any item which inspector feels should be documented by photograph</li> <li>• All items noted above as being P3, P1, P, or C</li> <li>• Any evidence of known ice, scour, debris, waterway problems</li> </ul>			
<b>INSPECTION PHOTOS</b>			

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Department of Transportation and Infrastructure, Government of Newfoundland and Labrador 2021.