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|---|--|---|-----------------------------|
|  | GOVERNMENT OF<br>NEWFOUNDLAND<br>AND LABRADOR<br>Department of Transportation and Infrastructure   | <b>BRIDGE INSPECTION REPORT</b><br><b>B09162021-2</b> |                             |
| <b>Date:</b> 9/1/2021   | <b>Inspected By:</b> Mike Button   | <b>Category:</b> Office - Bridge Office               |                             |
| <b>BRIDGE INFORMATION</b>   |  |   |                             |
| <b>Site:</b>  | 3-022 - TWILLICK BROOK BRIDGE  |   |                             |
| <b>Route:</b>   | 360  | <b>Overall Length:</b>                                | 58.7 m                      |
| <b>Year Built:</b>  | 1966   | <b>Est:</b> No  | <b>Overall Width:</b> 0 m   |
| <b>Year Last Rehab.:</b>  |  | <b>Est:</b> No  | <b>Roadway Width:</b> 7.3 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>                   | 3.1 m                       |
| <b>Type of Structure:</b>   | 01 - AASH to Girder  | <b>Max Depth of N.W.L.:</b>                           | 0.7 m                       |
| <b>Purpose of Structure:</b>  | 04 - Over Non-Navigable Waters   |   |                             |
| <b>Type of Handrail:</b>  | 02 - Concrete Rail   |   |                             |
| <b>Roadway Surface:</b>   | 02 - Asphalt   | <b>Span No.:</b>                                      | <b>Length</b>               |
| <b>Alignment Vertical:</b>  | 01 - Good  | 1   | 24.3                        |
| <b>Alignment Horizontal:</b>  | 01 - Good  | 2   | 0                           |
| <b>Restrictions:</b>  | No   | 3   | 0                           |
|   |  | <b>Span No.:</b>                                      | <b>Length</b>               |
|   |  | 4   | 0                           |
|   |  | 5   | 0                           |
|   |  | 6   | 0                           |
| <b>BRIDGE PHOTOS</b>  |  |   |                             |
| <b>SUBSTRUCTURE</b>   |  |   |                             |
| <b>Condition:</b>   | F1 - Fair  | <b>Bearings:</b>                                      | U - Uninspectable           |
|   |  | <b>Bearing Seat:</b>                                  | F1 - Fair                   |
| <b>Comments:</b>  | - Wingwalls have medium alligator cracking throughout. - All new creep blocks with exception of northeast corner.<br>- Both abutments recently rehabbed/patched. Patched areas, F2. Remaining areas have light-medium alligator cracking throughout, F1. - East abutment has mild erosion to the concrete surface at the high waterline mark. Southeast bearing area has a wide corner crack that will lead to a spall under or near the girder, F1. - Bearing areas are dry indicating no leakage from above, F2. Viewed from wingwall locations only, river side face is too high. - Pier has mild spalling on the northwest cantilevered section of the pier cap. Rust spots/staining showing on the pier cap throughout both faces. Mild concrete erosion at waterline level, F1.  |   |                             |
| <b>SUPERSTRUCTURE</b>   |  |   |                             |
| <b>Condition:</b>   | F1 - Fair  | <b>Expansion Joints:</b>                              | F1 - Fair                   |
| <b>Comments:</b>  | - No evidence of leakage through expansion joints, behind girders dry, F2. Pier has efflorescent stains on both sides of the pier cap, possible expansion joint leakage at this location. Stains could be old, monitor on future inspections, F1. - North girder has a medium spall to reinforcement between the west abutment and pier, spall adjacent to deck drain, F1. The north and south girders have leakage between the deck and the girders indicating cracking/leakage paths through the deck above. Curbs/deck area likely headed for a replacement within the next 5-10 years. North girder at the northeast bearing area has a small vertical spall to rebar with severe corrosion on its end block. Girders F1. - Small spall with efflorescence on the underside of deck located at ~1/4 span from the east abutment toward the pier. - East expansion joint replacement appears to have included a ~2m deck replacement towards the west. Construction joint is jagged (not saw cut) and has visible leakage with efflorescent deposits, F1. - Some of the deck drains have a void around the pipe at the deck intersection. |   |                             |
| <b>DECK</b>   |  |   |                             |

|                       |  |                           |           |
|-----------------------|--|---------------------------|-----------|
| <b>Condition:</b>     | F1 - Fair  | <b>Curbs:</b>             | F1 - Fair |
| <b>Hand Rail:</b>     | F2 - Fair  | <b>Roadway Condition:</b> | F1 - Fair |
| <b>Approach Rail:</b> | F2 - Fair  |                           |           |
| <b>Comments:</b>      | - East asphalt back to TCH, on structure and ~5m beyond each approach/exit, F2. Beyond ~5m on the west approach/exit, asphalt is heavily cracked with potholes, P3. - End blocks have small spalls with light-narrow alligator cracking throughout with rust staining. - Handrail in fair condition, F2. - Approach/exit rail still in fair condition and attached to end blocks, F2. - Curbs recently patched in numerous locations. Small spalls and hairline cracks exist in some locations, F1. - Southeast fascia/soffit has medium deterioration and heavy efflorescence around an old deck drain location. - See locations in "Superstructure" section of report for some additional details. |                           |           |

**HYDROLOGY**

|                        |               |                        |                |
|------------------------|---------------|------------------------|----------------|
| <b>Water Velocity:</b> | 0.4 m/s       | <b>Ice Problem:</b>    | N - No Problem |
| <b>Water Depth:</b>    | 0.4 m         | <b>Scour Problem:</b>  | N - No Problem |
| <b>Waterway:</b>       | 01 - Adequate | <b>Debris Problem:</b> | N - No Problem |
| <b>Comments:</b>       | - No comment. |                        |                |

**REPLACEMENT/REHABILITATION**

|                            |  |                          |      |
|----------------------------|--|--------------------------|------|
| <b>Next Rehab. Date:</b>   | 2025   | <b>Replacement Year:</b> | 2035 |
| <b>Antic. Rehab. Cost:</b> | \$0  | <b>Replacement Cost:</b> | \$0  |
| <b>Recommendations:</b>    | - Deck drains should be extended below girders. - Repair southeast bearing area. - North and south curb/deck area as it is likely has medium-heavy cracking with the degree of efflorescent deposits on the north and south girders below. - Repave sections as required. - Re-seal old deck drains and repair fascia around them if curbs are not replaced. |                          |      |

**OBSERVATIONS**

|                                 |   |                                     |    |
|---------------------------------|---|-------------------------------------|----|
| <b>Overall Condition:</b>       | F1 - Fair   | <b>Requires Further Inspection:</b> | No |
| <b>Additional Observations:</b> | - Monitor crack on southeast abutment bearing area for potential undermining of girder, potential leakage through pier expansion joint and efflorescence/leakage through the deck/curb area onto the north and south girders below on future inspections. - Hazards, steep slopes and mild traffic. |                                     |    |

**LEGEND:**

|                                    |            |                                |                             |                              |
|------------------------------------|------------|--------------------------------|-----------------------------|------------------------------|
| <u>Condition Definitions:</u>      |            |                                | <u>Problem Definitions:</u> | <u>Category Definitions:</u> |
| 1 - *Good - [discontinued code].   | F2 - Fair. | C - Unsafe (Closed to Public). | N - No Problem.             | Maint. - Maintenance.        |
| 2 - *Fair - [discontinued code].   | F1 - Fair. | U - Uninspectable.             | P - Possible Problem.       | Eng. - Engineering.          |
| 3 - *Poor - [discontinued code].   | P3 - Poor. | I - Inapplicable.              | K - Known Problem.          | Office - Bridge Office.      |
| 4 - *Unsafe - [discontinued code]. | P1 - Poor. |                                | NA - Not Applicable.        |                              |
| G - Good.                          | P - Poor.  |                                |                             |                              |

**PHOTO GUIDELINES:**

**Inspection Photos:**

Please provide photos using guidelines below:

- Any item which inspector feels should be documented by photograph
- All items noted above as being P3, P1, P, or C
- Any evidence of known ice, scour, debris, waterway problems

**INSPECTION PHOTOS**