



BIENNIAL BRIDGE INSPECTIONS

FINAL INSPECTION REPORT
Municipality of Dysart et al

December 2018

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1. INTRODUCTION

Tulloch Engineering Inc. was retained by the Municipality of Dysart et al to undertake detailed visual inspections of the municipally owned bridges and structural culverts within their Municipal jurisdiction. In accordance with Ontario Regulation 104/97 – Standards for Bridges, the structural integrity, safety and condition of every bridge shall be determined through the performance of at least one inspection in every second calendar year under the direction of a professional engineer (O. Reg. 472/10, s. 2). The Municipality's requirement was that the inspections be in accordance with the Ontario Structure Inspection Manual (OSIM).

The goal of the inspections is to ensure that an acceptable standard is being maintained for each bridge in terms of public safety, comfort, and convenience. The objectives of the inspections are as follows:

- To identify critical maintenance, rehabilitation, and/or replacement needs of the structures;
- To protect and prolong the useful life of the structures; and,
- To provide a basis for scheduling and funding of the maintenance, rehabilitation repairs, or replacement of the structures.

This report contains completed OSIM inspection forms, relevant photographs, suggested maintenance and capital repairs, and estimated capital costs for major repairs at each site.

The structures inspected as part of this assignment are shown on the key map provided in Figure 1.

2. INSPECTION PROCEDURES

Detailed visual inspections were completed in accordance with OSIM and involved a review of each primary structural element. The structural elements are identified by primary groupings and sub-groupings of each element. The condition of each element is quantified and assessed with a rating of 'excellent', 'good', 'fair', or 'poor'. The condition ratings are quantified for either a portion of the total structural element, or the entirety of the structural element. A glossary of definitions is given in Appendix A.

3. INSPECTION SUMMARIES

The results of the detailed visual inspections are recorded using standard Ontario Structure Inspection Manual (OSIM) forms. The forms provide a report of existing data and conditions at the time of the inspection for each bridge. Results of the previous inspections completed in 2016 were used as a starting-point template for this current round of inspections. Updated OSIM forms are located in Appendix B.

The reports identify additional recommended inspections, recommended maintenance work and recommended capital repair or rehabilitation work to address deficiencies along with estimated costs and schedule for such repairs. Each set of OSIM forms is preceded by a summary with key pictures to describe the observed conditions and results from each structure inspection. A brief summary for each structure follows.

3.1 Paddy's Pond (Bay) Bridge

Structure No: DY-1

Structure Description

Paddy's Pond Bridge is located on Kennisis Lake Road, approximately 5 km west of Kennisis Lake Narrows. The bridge was constructed in 1966 and is a 6.1 m single span, two-lane structure with a deck supported by timber piers and abutments. The bridge has an overall deck width of 6.7 m and 6.2 m wide surface treated wearing surface with timber curbs. There is steel beam guiderail across the structure but no guiderail on the approaches. The last major rehabilitation of this bridge took place in September – November of 2017 and included new deck curb, posts, railing, deck components, stringers, retaining walls (gabion baskets), and reinforcement of a northwest pile.

Structure Condition

The structure is good overall condition with a BCI of 78 and BSI of 67. The original ballast walls are in good to fair condition with some minor splitting. The original wingwalls were displaced but are now being reinforced by stacked gabion baskets. Both of the west hazards are damaged. The approaches are gravel and in good condition with minor pot holes and light ruts in the wheel tracks. The deck soffit and wearing surface are in excellent condition, with some checks on the deck surface. The armor stone and rip-rap embankments and slope protection are stable and in excellent condition. The piles are in good to fair condition with some checking and ice abrasion. The rehabilitated northwest pile is in good condition.

Recommendation

Due to the road profile at both approaches, it is recommended that a steel beam guiderail system be installed complete with end treatments for vehicular safety. The steel beams with energy attenuators would extend 12m beyond both approaches. The existing hazard signs should be adjusted. Continue to monitor for settling or loss of material at the joint area of both approaches as the gabion basket retaining wall, which is reinforcing the wood lagging behind it, continues to settle.

Recommended Maintenance

Urgent

- Install new hazard signs at south quadrants and raise hazard sign at northeast quadrant.

Recommended Repairs

1-5 years

- Install new guiderail at approaches.

3.2 Kennisis Lake Narrows Bridge

Structure No: DY-2

Structure Description

Kennisis Lake Narrows Bridge is located on Kennisis Lake Road, at Kennisis Lake Narrows, approximately 400 m west of Watts Road. The bridge was constructed in 1966 and is a 7 m single span, two lane structure with a timber deck, timber beams and timber abutments. The bridge has an overall 6.8 m deck width with 6.2 m wide surface treated wearing surface with timber curbs. There is steel beam guiderail with hazard markers across the structure but no guiderail on the approaches.

Structure Condition

The structure is in fair overall condition with a BCI of 69 and a BSI of 63. The abutments and wingwalls are in good condition. The approach wearing surfaces have large pot holes and some edge raveling at the southeast side. At the time of inspection there was significant ponding at the north side. The railing system is in fair condition, with minor impact damage at the north end. One fishtail end is detached from it's post and the beam is loose at the southeast end. The girders and deck top are in good condition. The drainage characteristics of the deck is causing runoff to seep through the deck top and over the girders below. This could cause rot and should be continue to be monitored. The deck wearing surface has localized alligator cracks and pot holes. The bolts on the vertical surface of the curb are not countersunk. The curb itself is in fair to poor condition. Sediment accumulation is preventing drainage on the north side of the bridge at the curbs.

Recommendation

Bridge cleaning should be conducted immediately to alleviate surface ponding issues. It is recommended that guiderail extensions with end treatments be added at the next structure rehabilitation. Ponding at approaches should be addressed by adding either swales at all quadrants to direct runoff away from the roadway. These swales should be either asphalt or lined with slope protection to prevent erosion.

Recommended Maintenance

1 year

- Sweep bridge.

Recommended Repairs

1-5 years

- Provide guiderail at approaches complete with end treatments.
- Provide drainage swales complete with slope protection along approaches.

3.3 Barry's Bridge

Structure No: DY-3

Structure Description

Barry's Bridge is located on Barry Line Road, 1 km west of Kennisis Lake Road. The bridge was constructed in 1960 and is an 18.7 m three-span, two-lane structure with a timber deck, timber piers and timber abutments. The bridge crosses a non-navigable watercourse on an east/west tangential alignment. The bridge has a 7.4 m overall deck width with a 6.8 m wide surface treated wearing surface with timber curbs. There is steel beam guiderail across the structure but no guiderail on the approaches.

Structure Condition

The structure is in fair overall condition with a BCI of 46 and a BSI of 43. The ballast walls are in fair condition with some deformations and evidence of material washout between piles on the west side. There is a broken ballast lagging timber on the lower west wall. The approaches and deck are in poor condition with significant patching, wheel ruts, rippling and an overall rough riding surface. There has been damage to the guiderail end post at the northeast corner, and minor impact damage at the mid-span. The beams and piers are in fair condition. There is one wide longitudinal split at the northwest beam and should be monitored. There are logs partially obstructing flow under the bridge at the northwest quadrant. The curb system has severe damage from abrasion, and there is a segment of curb on the south side with rot. Side has accumulated and is obstructing the curb gutters. There are indications of washout at the northwest quadrant, and slope protection is absent.

Recommendations

It is recommended the structure undergo rehabilitation in 1-5 years to repair the ballast walls, damaged beam, rebuild the approaches, install guiderail with end treatments and replace the deck and approach wearing surfaces. Maintenance should be undertaken to repair/replace the damaged guiderail post and clean the bridge deck and deck drains under the curb. Debris should be cleaned from stream in northwest quadrant at time of bridge cleaning. The area of washout at the northwest embankment should be monitored and slope protection added to prevent further erosion.

Recommended Maintenance

1 year

- Install lower section of timber ballast wall below existing grade to mitigate erosion of ballast.
- Sweep deck.
- Clear debris from embankments.

Recommended Repairs

Urgent

- Add slope protection to northwest quadrant.

1-5 years

- Replace deck and approach wearing surfaces.
- Replace curbs.
- Replace girders.
- Add guiderail to approaches complete with end treatments.

3.4 Redstone Brook Bridge

Structure No: DY-4

Structure Description

The Redstone Brook Bridge is located on Green Lake Road, 2 km west of Kennisis Lake Road. The bridge was constructed in 1960 and is a 16.3 m three-span, two-lane structure with a timber and concrete composite deck, timber piers and timber abutments. The bridge crosses a non-navigable watercourse on an east/west tangential alignment. The bridge has an 8.5 m overall deck width with a 7.4 m wide surface treated wearing surface with concrete curbs. There is steel beam guiderail across the structure but no guiderail on the approaches.

Structure Condition

The structure is in fair overall condition with a BCI of 42 and a BSI of 39. The east wingwalls are no longer accessible. There is evidence of washing out from separation of boards at the west ballast wingwall. These lagging boards appear to be new and should be monitored closely. The southwest wingwall has failed. The southwest hazard sign is bent and obscured by vegetation. The approaches and deck wearing surface have significant patching and are in fair to poor condition. The guiderail system is in fair condition, with wide post spacing. The anchor bolts for the railings are loose in places. There is significant ponding occurring at the north side mid-span on the deck surface, with some evidence of water seepage under the deck. The deck drainage system is not functional and is clogged with sediment.

Recommendations

It is recommended that the structure undergo a major rehabilitation in 1-5 years to repair the ballast walls, embankments, pad and resurface the approaches, deck wearing surface, and

replace the sidewalk, wingwalls, and guiderail over the structure. The southwest wingwall should be replaced at the next major rehabilitation and slope protection added. Guiderail extensions along both approaches should be added. The deck top should be cleaned, and the deck drain holes unplugged immediately to prevent surface ponding.

Recommended Maintenance

Urgent

- Install hazard sign at southwest quadrant near embankment and add slope protection.

1 year

- Clear vegetation from embankments.

Recommended Repairs

1-5 years

- Repave wearing surface.
- Replace southwest wingwall.

6-10 years

- Replace posts at deck.
- Replace railing system across deck.

3.5 Guilford Pine Lake Bridge

Structure No: DY-5

Structure Description

Guilford Pine Lake Bridge is located on Pine Lake Road, 0.5 km north of Eagle Lake Road. The bridge was constructed in 2008 and is an 18 m single span, two-lane structure with a concrete deck supported by steel girders on concrete abutments. The structure has a combination of sheet pile and armour stone wing walls. The bridge crosses a navigable waterway on a north/south alignment. The bridge has an overall 9.0 m wide concrete deck and 7.0 m wide driving surface with concrete parapet walls and steel railing. There is steel beam guiderail on the approaches with proper end treatments.

Structure Condition

The structure is in good condition with a BCI of 84 and BSI of 82. The ballast walls are in overall good condition, with the wingwalls showing moderate corrosion and surface staining. The girders, stringers, and soffit are in good condition, with some hairline cracks in the soffit. The deck top is in good condition. The approach barriers have sustained impact damage at the northwest corner

and are otherwise in good condition. The steel railings across the deck have some light impact dents and corrosion damage but are in good condition. Hazard signs are missing at the north end of the structure

Recommendations

The structure does not require any improvements currently. Two hazard signs should be installed at the north approach.

Recommended Maintenance

1 year

- Sweep deck.

Recommended Repairs

Urgent

- Install two hazard signs at north end.

6-10 years

- Patch spalls and cracks in barrier parapet wall.

3.6 Guilford Cranberry Lake Bridge

Structure No: DY-6

Structure Description

Guilford Cranberry Lake Bridge is located on Cranberry Lake Drive, 0.5 km north of Eagle Lake Road. The bridge was constructed in 2013 and is a 26 m single span, two-lane structure with a steel deck supported by steel girders on concrete bearing slabs with corrugated steel ballast walls. The structure crosses a navigable waterway on an east/west alignment. The structure has a deck width of 5.3 m with an asphalt wearing surface and no curbs; drainage is by sheet flow over the deck edge. There is steel beam guiderail across the structure and on the approaches.

Structure Condition

The structure and all individual elements are in good condition with a BCI of 84 and BSI of 81. The bridge wearing surface and approaches have recently been upgraded with hot mix asphalt wearing surfaces. The only deficiency noted was erosion and wash-out of the shoulders and wearing surface near the deck ends.

Recommendations

The structure does not require any improvements currently. Signage should be adjusted to be visible from the roadway as it is currently obscured by guiderails. Maintenance should be undertaken to address erosion of shoulders near deck ends.

Recommended Maintenance

None

Recommended Repairs

Urgent

- Raise hazard signs and install narrow bridge sign at southwest quadrant.

Now <1 year

- Provide drainage on southwest quadrant near embankment and provide slope protection.

1-5 years

- Rout and seal transverse crack in deck wearing surface.
- Seal crack at joints.

3.7 South Bay Bridge

Structure No: DY-8

Structure Description

The South Bay Bridge is located on Hodgson Road, 1.1 km east of Harburn Road. The bridge was constructed in 1960 and is a 20.1 m single span, two-lane structure with a concrete deck supported by timber piles and timber abutments. The structure crosses a navigable waterway on an east/west tangential alignment. The structure has an overall width of 7.8 m and 7.3 m wide surface treatment driving surface with concrete curbs. There is a steel barrier over the structure with concrete end posts. There is no guiderail on the approaches.

Structure Condition

The structure is in fair overall condition with a BCI of 55 and a BSI of 52. The substructure including timber piles, pile caps and abutments are in good condition with staining and narrow cracks. There is severe weathering and cracking of wood on the south side. Ballast material has been allowed to wash out from behind the ballast wall at the north end due to an absence of slope protection or retaining walls. The embankments appear stable, but runoff has deteriorated the northeast embankment edge. The concrete deck is in fair condition with frequent spalling, heavy raveling and asphalt patching.

Recommendations

Maintenance requirements include the tightening nuts on the bolts attached to the capping beams and adding some rip rap slope protection to the northeast quadrant until full slope protection can be added. The structure requires a minor rehabilitation including installation of geotextile and rip rap erosion protection on the approach embankments, rebuilding and resurfacing of the approaches and repairs to the deck. This work should be completed in the 6-10 year period. Guiderail extension on the approaches should be undertaken in the future when the structure undergoes a major rehabilitation.

Recommended Maintenance

1 year

- Tighten capping beam nuts.

Recommended Repairs

1-5 years

- Add slope protection.
- Patch concrete on deck top.
- Repave wearing surface.
- Replace barriers.

3.8 Koshlong Lake Bridge

Structure No: DY-9

Structure Description

Koshlong Lake Bridge is located on Koshlong Lake Road, 1.5 km east of County Road 1. The bridge was constructed in 1960 and is a 15.6 m three span, two-lane structure with a transverse timber deck on timber beams, piles and abutments. The bridge crosses a non-navigable watercourse on a north/south tangential alignment. The bridge has an overall width of 6.6 m and 6.1 m wide driving surface with timber curbs and a surface treated wearing surface. There is steel beam guiderail across the structure however it is not at the correct elevation. There is no guiderail on the approaches.

Structure Condition

The structure is in fair overall condition with a BCI of 55 and BSI of 53. There is light scouring and undermining below the ends of the ballast wall due to erosion of the embankments. The pier caps have light splitting and are in overall good condition, the piers show signs of rot at the bottom 0.25m near the level of fluctuating water levels. Mild rot was observed at the piers at the ballast walls only. The approaches are in good to fair condition, with the east side recently repaved. There is a narrow centerline seam crack with mild settling causing a bump at the transition from

approach to deck elevation. The steel beam guide rail system is set too high (1.4m). One steel beam has been replaced since the last inspection. There is light corrosion on the remaining steel beams. The deck wearing surface has light map cracking over the northwest quadrant with rippling and ponding throughout. The embankments and streams are in fair to good condition, with some erosion at the northwest and southwest quadrants. The slope beyond the ballast wall is stable. A new curb was installed on the east side of the structure, but bolts were not countersunk.

Recommendations

The structure requires a minor rehabilitation within a 1-5 year period including: rebuilding of eroded embankments and installation of proper erosion protection on approach side slopes, stabilization of embankments at deck ends with gabion baskets, replacement of the surface treated wearing surface and address guiderail height. Longer term rehabilitation needs include replacement of the deck wearing surface and possible replacement or repair of piles showing signs of rot.

Recommended Maintenance

1 year

- Install erosion control at ballast.
- Remove debris from drainage spaces.

Recommended Repairs

Urgent

- Adjust guiderail height to 0.6m.

1-5 years

- Add slope protection as needed.

6-10 years

- Replace wearing surface.

3.9 Kelly Lake Bridge

Structure No: DY-10

Structure Description

Kelly Lake Bridge is located on Kennisis Lake Road, 1.0 km west of Watts Road. The bridge was constructed in 1970 and is a 5.4 m single-span, two-lane structure with a transverse timber deck supported by timber beams on timber cribs. The structure crosses a navigable watercourse on an

east/west tangential alignment. The bridge has an overall width of 6.7 m and 6.1 m wide driving surface with a surface treated wearing surface and timber curbs. There is steel beam guiderail across the structure but no guiderail on the approaches.

Structure Condition

The structure is in good overall condition with a BCI of 74 and BSI of 71. The abutment cribs are in overall good condition with minor splits and checks. There is one loose section at the west abutment, and a large split on the north end of the east abutment. The diaphragms, soffit, and deck top are in good condition. The approach wearing surface is in good condition with some light wheel ruts. The deck top wearing surface has some ponding and transverse cracking from deflection. The curbs are in fair condition, and the gutter slots are clogged with sediment causing further deck ponding. The structure foundation has scour on the east side, there is significant deterioration of the bearing surface. The west foundation below the water level is in good condition. The guiderail over the structure is in good condition with minor corrosion and cracking/checking of timber support posts. There is a build up of wood debris along the embankments and erosion of the southeast road embankment leading to the road.

Recommendations

The structure requires rip-rap erosion protection around both abutments to prevent further scour of the foundations and to provide embankment protection. Guiderail extension on the approaches should be undertaken in the future when the structure undergoes a major rehabilitation. The build-up of debris on the deck should be removed as part of maintenance and to promote deck drainage. Slope protection should be added to the southeast road embankment to prevent further erosion.

Recommended Maintenance

1 year

- Fasten fishtail terminal end to guiderail at northeast quadrant.
- Clean out gutter and curb slots.

Recommended Repairs

1-5 years

- Repave deck wearing surface.

3.10 Burnt River Bridge

Structure No: DY-11

Structure Description

The Burnt River Bridge is located on Unicorn Road, 1.7 km south of Hutchings Road. The bridge was constructed in 2008 and is a 15.4 m single span, two lane structure with corrugated steel deck supported by steel girders on concrete bearing slabs with steel ballast walls. The bridge crosses a non-navigable watercourse on a north/south tangential alignment. The bridge has a 6.0 m wide deck with an asphalt covered wearing surface and gravel approaches. There is steel beam guiderail over the structure and on the approaches.

Structure Condition

The structure is in good overall condition with a BCI of 74 and BSI of 72. The concrete bearing slabs (bearing seats) are in good condition. There is some compression and bulging of a bearing pad at the northeast. All other bearings are in good condition. The approach wearing surfaces have settling at both deck joints with some minor potholes in the wheel tracks. The approaches are gravel. The deck wearing surface is in good condition. The railing system is missing nuts on base plate bolts securing the railing system in place. The girders are in good condition. The south seal has fallen out of the expansion joint gap and is allowing seepage and sediment to accumulate around the bearings on the bearing seat. The embankments are in good condition. There is a beaver dam located downstream and there is evidence of washout beginning at the northeast quadrant.

Recommendations

The structure requires no major improvements currently. Sediment should urgently be removed from the south bearing seat and the joints resealed. The defective joint is allowing moisture to accumulate in the sediment and corrode the bearing plates and surrounding structures. The joint gap should be re-sealed. Regrade approach wearing surfaces. Replace missing bolts on baseplates of steel flex beam on the northeast end of the deck. Continue to monitor northeast embankment and consider adding slope protection if required. Remove beaver dams downstream.

Recommended Maintenance

1 year

- Remove sediment from around south bearing seats.
- Regrade approaches.
- Replace missing bolts on baseplates and tighten beam at northeast quadrant.

Recommended Repairs

Now <1 year

- Replace joint seal.

1-5 years

- Add slope protection as needed.

3.11 Coleman Lake Bridge

Structure No: DY-12

Structure Description

The Coleman Lake Bridge is located on Coleman Lake Road, 0.5 km east of Kennisis Lake Road. The bridge was constructed in 2006 and is a 7.0 m single span, two lane structure with a transverse timber deck on steel girders and concrete abutments. The structure crosses a non-navigable watercourse on a north/south alignment. The bridge has a 7.0 m wide deck with a surface treated wearing surface. There is steel beam guiderail across the structure and on the approaches.

Structure Condition

The structure is in fair overall condition with a BCI of 66 and BSI of 63. The abutments show severe scouring, scaling, and undermining. The wingwalls are in good condition, however the wingwall at the northeast quadrant is severely undermined and has caused an unstable embankment. The girders are in good condition, the bearings are new and in excellent condition. The approach and deck wearing surface were recently repaved, however, the deck wearing surface is showing significant wear, with ponding, raveling, and general disintegration showing the wooden deck top underneath. It is suspected that the root cause of this wear is movement and twisting of the deck top laminated boards which can be seen from the side of the structure. The railing systems are in good condition, with one leaning post at the northwest quadrant of the deck. The embankments and slope protection are in fair to good condition.

Recommendations

The northeast wingwall urgently needs to have additional erosion protection added to prevent further damage. The deck and approaches should be repaved together at the next rehabilitation. Further deterioration of the deck wearing surface may be mitigated by driving additional laminated timbers into the deck wearing surface at the same time. Maintenance needs include clearing of vegetation around signage, repair of potholes near and across the bridge deck, and bridge sweeping.

Recommended Maintenance

Urgent

- Repair potholes and clear back vegetation and sediment along shoulders of approach.

1 year

- Clear vegetation around signs and approach guiderails

- Sweep deck.

Recommended Repairs

Urgent

- Repair undermined section of wingwall at northeast quadrant.

1-5 years

- Repave deck wearing surface.

3.12 Eagle Lake Bridge

Structure No: DY-13

Structure Description

Eagle Lake Bridge is located on Eagle Lake Road, 100 m east of Haliburton Lake Road. The bridge is a 6.1 m single span, single lane structure with concrete deck, concrete girders and concrete abutments and wingwalls. The age of the structure is unknown. The bridge has a 4.5 m wide driving surface with a surface treated wearing surface and concrete curbs. There is steel beam guiderail across the structure and on some of the approaches. The structure is situated immediately upstream of a dam owned by Trent Severn Waterway and for all intents and purposes is directly connected to the dam.

Structure Condition

The structure is in poor overall condition with a BCI of 44 and BSI of 40. The abutment walls are in fair condition and show scaling up to the high-water mark with a large moderate transverse crack across the east abutment. There is an electrical conduit line across the west abutment. The wingwalls have moderate to severe scour at the inlet with spalling and transverse cracking and are in fair condition. The deck soffit has severe delaminations, pop outs, and spalls which have exposed reinforcement bars. Localized areas have eroded such that exposed reinforcement bar has separated from the structure and now hangs loose. The girders are in a similar condition to the soffit, with severe cracking, spalling, delamination and exposed reinforcement bar. Areas where girders were previously patched have begun to delaminate. The approach wearing surface is in good to fair condition, with previously patched potholes and light to medium longitudinal transverse cracking. The deck wearing surface is in a similar condition with light wheel ruts. The steel beam guiderail system extends across the bridge deck and approaches. There is a build up of winter sand which has buried the railing ends. The terminal ends are not in compliance with Ontario Provincial Standards.

Recommendations

Recommended Maintenance

1 year

- Remove vegetation and sweep sand from around guiderails.

Recommended Repairs

1-5 years

- Replace structure.

3.13 Pelaw River Bridge

Structure No: DY-14

Structure Description

The Pelaw River Bridge is located on Redkenn Drive, 5.6 km south of Kennisis Lake Road. The bridge was constructed in 1979 and is an 18.4 m three span, two lane structure with a composite concrete/timber deck, supported by timber piles and pile caps. The bridge crosses a navigable watercourse on a north/south tangential alignment. The bridge has an overall deck width of 8.5 m and 7.3 m wide exposed concrete driving surface (it appears to have previously had a surface treated wearing course in the southeast quadrant). There is steel beam guiderail across the structure and on the approaches. The bridge is currently load limited / posted at 20 / 32 / 40 tonnes.

Structure Condition

The structure is in fair overall condition with a BCI of 64 and a BSI of 60. There is inward rotation of the ballast walls at the north side, with evidence of some material loss from behind the ballast boards. The wingwalls are in good condition, with the north walls rotated inward. The approach wearing surface has light raveling and wheel ruts at the north approach. Vegetation is encroaching into the roadway at both approaches. The guiderail at both approaches have minor impact damage and are too low. The blocks and posts of the guiderail across the deck have extensive checks and splits. The armouring piers show some rot (secondary element). The embankment are steep and there is evidence of a wide fluctuation in water levels.

Recommendations

The structure requires maintenance to remove the excess vegetation and to straighten signage. At the time of inspection, the warning signs were partially obstructed. Armour stone should be added along the waterline to reduce erosion. The guiderail should be replaced and have end treatments added. The approaches should be repaved.

Recommended Maintenance

1 year

- Clear vegetation from around signs, straighten southeast sign.
- Clear vegetation at the sides of approaches.

2 years

- Add armour stone protection along waterline.

Recommended Repairs

Urgent

- Replace end treatments and damaged posts on guiderail.

6-10 years

- Repave approaches.

3.14 Drag River Bridge

Structure No: DY-15

Structure Description

The Drag River Bridge is located on Maple Avenue in the Community of Haliburton, 0.2km north of Highland Street. The bridge was constructed in 1969 and is a 15.4m single span, two lane concrete rigid frame structure. The bridge crosses the Drag River on a north/south tangential alignment. The bridge has a 12.0m wide deck with a 9.4m wide asphalt wearing surface and sidewalks on both sides. There is a galvanized steel railing over the structure with concrete end posts; there is no guiderail on the approaches.

Structure Condition

The structure is in good to fair overall condition with a BCI of 70 and BSI of 66. The concrete abutments are in good condition with vertical cracks in the south abutment and scaling to the high-water mark on both sides. There is a small concrete retaining wall in the northeast quadrant with minor erosion. The wingwalls are in good condition. The soffit is in overall good condition with an area of severe delamination and a spall at the midspan along the center soffit joint on the west side. The approach and deck wearing surface is in overall good condition with some settling at the south approach near the joint causing potholes and some rippling. There is light wheel rutting at the north approach. The deck wearing surface has a narrow transverse crack in the east lane, and general wearing of the surface. The parapet walls have damage and spalls that have exposed

the interior reinforcement bar and should be repaired for aesthetics. The curb is severely damaged with abrasions and spalling throughout. The sidewalk is in fair to good condition.

Recommendations

The structure requires minor rehabilitation to repair concrete soffit, sidewalk, curb and end posts. The curb should be replaced at the next major rehabilitation. For aesthetics reasons, the steel railing system could be re-coated, and the parapet wall edges could be repaired.

Recommended Maintenance

None

Recommended Repairs

1-5 years

- Replace curb.
- Repair concrete parapet walls.
- Grind and repaint railings.

6-10 years

- Repair spall and delaminated areas at center soffit joint.

3.15 Highland Street Culvert

Structure No: DY-16

Structure Description

The Highland Street Culvert is located in the Community of Haliburton on Highland Street, 50m west of Pine Avenue. The culvert is a 5.5m span corrugated steel multi-plate pipe arch (open bottom) under a two-lane road. The culvert is approximately 25m long and extends under Highland Street which has a 9.0m width with 1.2m wide sidewalks and 3:1 embankment. The culvert crosses a non-navigable waterway at an approximate 30-degree skew. There is a steel railing system / barrier with concrete end posts on the south side of the structure and a steel beam guiderail on the north side, extending over the structure and the approaches.

Structure Condition

The structure is in poor condition with a BCI of 44 and BSI of 41. The approach and deck wearing surfaces are in poor to fair condition, with severe transverse cracks, raveling, longitudinal cracks and small potholes throughout. The hand railing system exists only on the south side and is in good condition. There are seven missing caps from the railing system posts that is allowing rain water to collect. There is an area of impact damage on the hand railing on the southeast quadrant.

The north steel beam guide rail system is in good condition. There are several rotten posts, with light to medium splits throughout. There is minor corrosion on the beams themselves with minor impact damage to the southeast quadrant. The culvert barrel is in fair condition. There is general corrosion at the waterline. The embankments are in good condition, well vegetated and protected by erosion with additional rock on the south side. The curb and sidewalk are in poor condition. There are areas of severe abrasion throughout, with delamination of wide areas of curb.

Recommendations

The structure requires rehabilitation of the roadway elements to prevent further damage. Both the approaches and deck wearing surface should be replaced. The curb and sidewalk should be replaced. The guiderail posts and damaged beam should be replaced for vehicular safety. Replace damaged segment of handrail barrier, post caps and repaint handrail. The high-water level prevented investigation of the interior of the barrel structure.

Recommended Maintenance

Urgent

- Sweep sand from sidewalk

1 year

- Clean debris and vegetation from around handrail.
- Cut back vegetation on embankments.

Recommended Repairs

1-5 years

- Replace curb and sidewalk.
- Replace guiderail.
- Replace handrail.

6-10 years

- Repave deck wearing surface.
- Repave approaches.

3.16 West Shore Kennisis Lake Culvert

Structure No: DY-17

Structure Description

The West Shore Kennisis Lake Culvert is located on West Shore Lake Road, 200m West of Lipsy Lake Drive. The culvert is a 4.27m span modular concrete box culvert under a two-lane road. The culvert is approximately 29.8m long and extends under West Shore Road on an east / west

alignment with approximately 4m of fill on top of the structure. The culvert crosses a non-navigable waterway. There is no barrier system on the structure or on the approaches.

Structure Condition

The structure is in good condition with a BCI of 99 and BSI of 98. The approach and deck wearing surface were recently paved and are in good condition. The embankments are in overall good condition and well vegetated, however, due to a recent rain event the northwest quadrant was showing signs of severe erosion and wash out. Debris have accumulated at the culvert inlet. The barrel, inlet, and outlet structures are in excellent to good condition.

Recommendations

A guiderail system should be installed for vehicular safety. Continue to monitor the northwest embankment for erosion.

Recommended Maintenance

Urgent

- Repair washout at southwest quadrant and add slope protection.

1 year

- Remove debris from stream channel at inlet.

Recommended Repairs

1-5 years

- Add railing system to culvert.

3.17 Footbridge Steel

Structure No: DY-18

Structure Description

The steel footbridge is located within Haliburton Rotary Park near the Rotary Park pavilion at the outlet of the Drag River. It is a 17.6m long pedestrian bridge with an overall structure width of 2.5m which connects from the Rotary Park from the south to the tennis courts and parking lot to the north. It is a steel arch bridge with a wooden plank wearing surface and concrete abutments. It is on a north\south alignment over a navigable waterway. There is an approximate 0.5km detour around the bridge crossing the wooden pedestrian foot bridge to the east.

Structure Condition

The structure is in fair condition with a BCI of 63. The concrete abutment and approaches are in good condition. The hand railings across the structure are in good condition with some paint chips and debris build up along the railing channel. The deck top wearing surface is in good condition, with some wear and splits on some boards with rust stains from the adjoining channel. The entirety of the substructure has severe corrosion and flaking of all steel components. The floor beams, stringers, and bottom chords are all at various degrees of corrosion. The condition of the steel components below the bridge deck is fair. The embankments and streams are in good condition.

Recommendations

A detailed structural investigation should take place to ensure corrosion has not compromised the integrity of the bridge. At the time of inspection, no deflection or movement was observed. If the steel components under the bridge are sound, the Municipality may consider grinding away corrosion and re-painting the whole structure to protect it from further damage and improve aesthetics. Recommend not salting the deck top as this is causing premature deterioration of beams.

Recommended Maintenance

None

Recommended Repairs

1-5 years

- Grind and repaint bottom chords, stringers, bracing, and beams.

3.18 Footbridge Timber

Structure No: DY-19

Structure Description

The timber footbridge is a previous railway bridge which is now used for a pedestrian pathway only. It is located between the Haliburton skateboard park and the Public Library. It is a creosote treated railroad tie structure with wooden pile piers, bracing, and ballast boards with a contemporary pedestrian walkway built on top. There is signage at the bridge advising that no ATVs should cross the bridge but there are no bollards preventing vehicular access.

Structure Condition

The structure is in overall poor condition with a BCI of 33. The superstructure and walking path on the bridge deck are in good condition, the original super structure that underlays the walkway is in fair to good condition. The substructure components and the piers are in very poor condition. The severity of condition of the substructure structural components is such that no heavy vehicular

traffic of any kind should cross the bridge without a detailed structural survey. The ballast walls, piers, and pier caps are all in poor condition.

Recommendations

Bollards should be installed at both bridge ends to prevent pedestrians from crossing with heavy vehicles such as ATVs or snowmobiles. Signage should be present at both sides of the bridge to advise the public that the bridge is not intended for crossing with vehicles. The municipality should consider having a detailed structural investigation done of the substructure components. Because the structure is intended for pedestrian use only, it may be possible to rehabilitate the structure to these standards at a lower cost than for a vehicular crossing bridge.

Recommended Maintenance

2 years

- Sand hand railing.

Recommended Repairs

Urgent

- Replace damaged piles.

1-5 years

- Replace ballast boards.

6-10 years

- Extend asphalt walkway at north side.
- Replace weathered top handrail boards.

4. SUMMARY OF CAPITAL IMPROVEMENTS

The table below summarizes the estimated capital cost of repair or rehabilitation to address the deficiencies identified through the inspection process. Cost estimates for the repairs and rehabilitation are outlined in the OSIM forms in Appendix B. For the purpose of this report, capital improvements are any significant work that will preserve or extend the life of the structure. This work is typically beyond the normal maintenance activities performed by the Municipality. This information along with the BCI and BSI is used to prioritize the improvements and develop a capital plan.

ID	Structure Name	Urgent	<1 Yr	1-5 Yr	6-10 Yr	BCI	BSI
DY-1	Paddy's Pond Bridge			\$10,000		78	67
DY-2	Kennisis Lake Narrows Bridge			\$15,000		69	65
DY-3	Barry's Bridge	\$2,000		\$135,000		52	49
DY-4	Redstone Brook Bridge			\$60,000	\$12,000	41	38
DY-5	Pine Lake Bridge	\$5,000			\$500	78	78
DY-6	Cranberry Lake Bridge	\$500	\$2,000	\$7,000		83	81
DY-8	South Bay Bridge			\$90,000		53	50
DY-9	Koshlong Lake Bridge	\$3,000		\$5,000	\$20,000	54	52
DY-10	Kelly Lake Bridge			\$10,000		74	71
DY-11	Burnt River Bridge		\$5,000	\$10,000		73	71
DY-12	Coleman Lake Bridge	\$10,000		\$20,000		65	62
DY-13	Eagle Lake Bridge			\$500,000		44	40
DY-14	Pelaw River Bridge	\$25,000			\$10,000	63	59
DY-15	Drag River Bridge			\$45,000	\$10,000	69	65
DY-16	Highland Street Culvert			\$60,000	\$20,000	44	41
DY-17	West Shore Kennisis Lake Culvert			\$20,000		74	72
DY-18	Footbridge 1 Steel	\$80,000				65	65
DY-19	Footbridge 2 Timber	\$200,000		\$5,000	\$7,000	33	33
TOTAL		\$325,500	\$7,000	\$992,000	\$79,000	62	59

BCI: Bridge Condition Index

BSI: Bridge Sufficiency Index

* Includes guiderail installation.

** It is recommended that the Eagle Lake Bridge be closed and removed unless passed following a detailed structural analysis.

5. CONCLUSIONS AND RECOMMENDATIONS

Upon completion of the biennial structure inspections, a number of recommendations have been identified for maintenance and capital improvement for both short and long term replacement and/or rehabilitation planning with municipal structures. The recommendations are summarized in the report along with cost estimates and schedule for planning purposes.

The municipal bridges and structural culverts in the Municipality of Dysart et al are in overall fair condition with an average BCI of 62. There are 6 of 18 structures rated as good. However, there are 5 of 18 structures rated as fair and 7 of 17 rated as poor indicating that approximately 38% of the structures should be scheduled for major rehabilitation or replacement within the next 1 to 5 years.

We trust that the contents of this report sufficiently outline the requirements for bridge and structural culvert maintenance, repair and replacement. Should you have any questions or comments on the contents of this report, please do not hesitate to contact the undersigned.

Respectfully submitted,
TULLOCH ENGINEERING INC.

A handwritten signature in blue ink, appearing to read 'Frank Palmay'.

Frank Palmay, P. Eng.
Structural Design Engineer
frank.palmay@tulloch.ca



APPENDIX A

Glossary of Definitions

Abutment - A substructure unit which supports the end of the structure and retains the approach fill.

Auxiliary Components - Any component which does not share in the load carrying capacity of the structure.

Biennial Structure Inspection - An inspection performed in every second calendar year to assess the condition of the structure, in accordance with the methodology described in OSIM.

Bridge - A structure which provides a roadway or walkway for the passage of vehicles, pedestrians or cyclists across an obstruction, gap or facility and is greater than or equal to 3 m in span.

Bridge Condition Index (BCI) - The BCI rating is a planning tool developed by the Ontario Ministry of Transportation that helps schedule maintenance and rehabilitation work. The BCI is not used to rate or indicate the safety of a bridge. The BCI result is organized into ranges from 0 to 100. To calculate the BCI rating, the current dollar value of the bridge is divided by the replacement cost of the bridge. The replacement value is based on the cost to reconstruct a new bridge. Using this formula enables the Owner to make an informed decision about the amount of work a bridge requires and whether or not to pursue replacement over repair in the near future.

Rating	Maintenance Schedule
Good: BCI Range 70 -100	Maintenance is not usually required within the next five years
Fair: BCI Range 60 -70	Maintenance work is usually scheduled within the next five years. This is the ideal time to schedule major bridge repairs to get the most out of bridge spending.
Poor: BCI Less than 60	Maintenance work is usually scheduled within one year.

Bridge Sufficiency Index (BSI) – The BSI rating is a planning tool developed by the Ontario Ministry of Transportation. The BSI is calculated using the BCI rating less ratings for Importance Factors including Traffic, Economic Implications, Bridge Width and Bridge Profile or Alignment. It is a planning tool with a range of 0 to 100 and helps prioritize maintenance and rehabilitation work, and replacement, with bridges of equal BCI but lower BSI having importance over bridges with higher BSI.

Chord - The upper and lower main longitudinal component in trusses or arches extending the full length of the structure.

Coating - The generic term for paint, lacquer, enamel, sealers, galvanizing, metallizing, etc.

Concrete Deck Condition Survey - A detailed inspection of a concrete deck in accordance with The Structure Rehabilitation Manual.

Culvert (Structural) - A Structure that forms an opening through soil and has a span of 3 metres or more

Defect - An identifiable, unwanted condition that was not part of the original intent of design.

- **Scaling** - Scaling is the local flaking, or loss of the surface portion of concrete or mortar as a result of the freeze-thaw deterioration of concrete. Scaling is common in non air-entrained concrete, but can also occur in air-entrained concrete in the fully saturated condition. Scaling is prone to occur in poorly finished or overworked concrete where too many fines and not enough entrained air is found near the surface.
- **Disintegration** - Disintegration is the physical deterioration or breaking down of the concrete into small fragments or particles. The deterioration usually starts in the form of scaling and, if allowed to progress beyond the level of very severe scaling is considered as disintegration. Disintegration may be caused by de-icing chemicals, sulphates, chlorides or by frost action.
- **Erosion** - Erosion is the deterioration of concrete brought about by water-borne sand and gravel particles scrubbing against concrete surfaces. Similar, damage may be caused by flowing ice. Erosion is sometimes combined with the chemical action of air and water-borne pollutants which accelerate the breakdown of the concrete. Erosion is generally an indication that the concrete is not durable enough for the environment in which it has been placed.
- **Corrosion of Reinforcement** - Corrosion is the deterioration of reinforcement by electrolysis. The alkali content in concrete protects the reinforcement from corrosion. However, when chloride ions above a certain concentration are dissolved in water and penetrate through the concrete to the reinforcement this protection breaks down and corrosion starts. In the initial stages, corrosion may appear as a rust-stain on the concrete surface. In the advanced stages, the surface concrete above the reinforcement cracks, delaminates and spalls off exposing heavily rusted reinforcement.
- **Delamination** - Delamination is defined as a discontinuity of the surface concrete which is substantially separated but not completely detached from concrete below or above it. Visibly, it may appear as a solid surface but can be identified as a hollow sound by tapping or chain dragging. Delamination begins with the corrosion of reinforcement and subsequent cracking of the concrete. Delamination or debonding may also occur in concrete that has been patched or overlaid due to the continued deterioration of the older concrete. This may happen even in the absence of any rusting of reinforcing steel.
- **Spalling** - A spall is a fragment, which has been detached from a larger concrete mass. Spalling is a continuation of the delamination process whereby the actions of external loads, pressure exerted by the corrosion of reinforcement or by the formation of ice in the delaminated area results in the breaking off of the delaminated concrete.
- **Cracking** - A crack is a linear fracture in concrete which extends partly or completely through the member. Cracks in concrete occur as a result of tensile stresses introduced in the concrete. Tensile stresses are initially carried by the concrete and reinforcement

until the level of the tensile stresses exceeds the tensile capacity of the concrete. After this point the concrete cracks and the tensile force is transferred completely to the steel reinforcement. The crack widths and distribution is controlled by the reinforcement in reinforced and prestressed concrete, whereas in plain concrete there is no such control.

- **Alkali-Aggregate Reaction** - In Ontario, there exists several sources of aggregates that react adversely with the alkalis in cement to produce a highly expansive gel. Currently, these sources of reactive aggregates are generally avoided, but they do exist in many existing structures and still may occur in newer structures. The two general types of reactions in Ontario are alkali-carbonate and alkali-silica reaction. The expansion of the gel and aggregates occurs due to hydroxyl ions in the concrete pore solution, which under moist conditions, leads to cracking and deterioration of the concrete.
- **Surface Defects** - Surface defects are not necessarily serious in themselves; however, they are indicative of a potential weakness in the concrete, and their presence should be noted but not classified as to severity, except for honeycombing and pop-outs.
 - **STRATIFICATION** is the separation of the concrete components into horizontal layers in over-wetted or over vibrated concrete. Water, laitance, mortar and coarse aggregates occupy successively lower positions. A layered structure in concrete will also result from the placing of successive batches that differ in appearance.
 - **SEGREGATION** is the differential concentration of the components of mixed concrete resulting in nonuniform proportions in the mass. Segregation is caused by concrete falling from a height, with the coarse aggregates settling to the bottom and the fines on top. Another form of segregation occurs where reinforcing bars prevent the uniform flow of concrete between them.
 - **COLD JOINTS** are produced if there is a delay between the placement of successive pours of concrete, and if an incomplete bond develops at the joint due to the partial setting of the concrete in the first pour.
 - **DEPOSITS** are often left behind where water percolates through the concrete and dissolves or leaches chemicals from it and deposits them on the surface.
 - **HONEYCOMBING** is produced due to the improper or incomplete vibration of the concrete which results in voids being left in the concrete where the mortar failed to completely fill the spaces between the coarse aggregate particles.
 - **POP-OUTS** are shallow, typically conical depressions, resulting from the breaking away of small portions of the concrete surface, due to the expansion of some aggregates or due to frost action. The shattered aggregate particle may be found at the bottom of the depression, with a part of the aggregate still adhering to the pop-out cone.
 - **ABRASION** is the deterioration of concrete brought about by vehicles or snow-plough blades scraping against concrete surfaces, such as, decks, curbs, barrier walls or piers.
 - **WEAR** is usually the result of dynamic and/or frictional forces generated by vehicular traffic, coupled with the abrasive influx of sand, dirt and debris. It can also result from the friction of ice or water-borne particles against partly or completely submerged members. The surface of the concrete appears polished.

- **SLIPPERY CONCRETE SURFACES** may result from the polishing of the concrete deck surface by the action of repetitive vehicular traffic.

Detailed Visual Inspection - An element by element visual assessment of material defects, performance deficiencies and maintenance needs of a structure.

Deterioration - A defect that has occurred over a period of time.

Distress - A defect produced by loading.

Elements - The individual parts of a structure defined for inspection purposes. Several bridge components may be grouped together to form one bridge element for inspection purposes

Environment - An element's exposure to salt spray:

- Benign - Not exposed (e.g. River Pier)
- Moderate - Exposed but element protected (e.g. Asphalt covered and waterproofed deck)
- Severe - Exposed and element not protected (e.g. Exposed concrete deck, Barrier Wall)

Evaluation - The determination of the load carrying capacity of structures in accordance with the requirements of the Canadian Highway Bridge Design Code.

Maintenance - Any action which is aimed at preventing the development of defects or preventing deterioration of a structure or its components.

Primary Components - The main load carrying components of the structure.

Rehabilitation - Any modification, alteration, retrofitting or improvement to a structure subsystem or to the structure which is aimed at correcting existing defects or deficiencies.

Remaining Service Life - Remaining Service Life is an estimate of the useful remaining life of the structure and is based on the year of construction or major rehabilitation and a service life of 50 years for culverts that are not plastic, polymer coated or concrete and a service life of 70 years for other structures.

Repair - Any modification, alteration, retrofitting or improvement to a component of the structure which is aimed at correcting existing defects or deficiencies.

Retaining Wall - Any structure that holds back fill and is not connected to a bridge.

Secondary Components - Any component which helps to distribute loads to primary components, or carries wind loads, or stabilizes primary components.

Sign Support - A metal, concrete or timber structure, including supporting brackets, service walks and mechanical devices where present, which support a luminaire, sign or traffic signal and which span or extend over a highway.

Span - The horizontal distance between adjacent supports of the superstructure of a bridge, or the longest horizontal dimension of the cross-section of a culvert or tunnel taken perpendicular to the walls.

Stringers - Stringers span between floor beams and provide the support for the deck above.

Structure - Bridge, culvert, tunnel, retaining wall or sign support.

Suspected Performance Deficiency - A Suspected Performance Deficiency should be recorded during an inspection, if an element's ability to perform its intended function is in question, and one or more performance defects exist.

APPENDIX B

OSIM Forms

Inventory Data:

Structure Name Paddy's Bay (Pond) Bridge			
Main Hwy/Road #	 ☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name North Kennisis Lake Road			
Structure Location 0.3 km West of Paddy's Court			
Latitude	45.224000	Longitude	-78.644800
Northing		Easting	
Owner(s)	Municipality of Dysart et al		
	Heritage designation: ☒ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List		
MTO Region			
	Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes		
MTO District		Posted Speed	50 No. of Lanes 2
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type	Bridge		
Total Deck Length	7.0 (m)	Interchange Structure Number	
Overall Str. Width	6.7 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	46.9 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	6.2 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	N to S
No. of Spans	1	Fill on Structure	 (m)
Span Lengths	6.1 (m)		

Historical Data:

Year Built	1966	Year of Last Major Rehab.	2017
Last OSIM Inspection	2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description)			
Northwest pile reinforcement (armor sheathing), various superstructure reinforcement. Beam replacement on west side.			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	Aug. 8, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Hip waders, tape measure, flashlight.		
Weather:	Rain		
Temperature:	19.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey	✓		
Detailed Deck Condition Survey:	✓		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓		
Concrete Substructure Condition Survey:	✓		
Detailed Coating Condition Survey:	✓		
Detailed Timber Investigation	✓		
Post-Tensioned Strand Investigation	✓		
Underwater Investigation:	✓		
Fatigue Investigation:	✓		
Seismic Investigation:	✓		
Structure Evaluation:	✓		
Monitoring	✓		
Monitoring of Deformations, Settlements and Movements:	✓		
Monitoring Crack Widths:	✓		

Investigation Notes:

None

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	Rehab completed in 2017. New curb, posts, railing, deck components, stringers, Overall in good/excellent condition, repair and replace signage.
Date of Next Inspection:	2020-08-09

Overall Bridge Condition:	78.33
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:	(m)	
Element Name:	Ballast Walls					Width:	7.2 (m)	
Location:	East and West					Height:	2.83 (m)	
Element Description:						Count:	2	
Material:	Wood					Total Quantity:	40.3 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	25.3	15.0	0.00	BCI TEV: 14105.0		BCI CEV: 8741.25
Comments:	Good condition. Some end splits.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Abutments					Length:	3.0 (m)	
Element Name:	Wingwalls					Width:	(m)	
Location:	All quadrants.					Height:	2.8 (m)	
Element Description:	Gabion baskets in front of wood lagging walls.					Count:	4	
Material:	Wood					Total Quantity:	33.6 (sq.m)	
Element Type:	Wood Piles and Lagging					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	10.2	15.0	8.4	BCI TEV: 11760.0	BCI CEV: 4777.5	
Comments:	Wingwalls are now reinforced by gabion baskets installed in autumn 2017. Wingwalls are no longer visible.							
Recommended work:						Maintenance Needs:		
Comments Type ☐ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Accessories					Length:		
Element Name:	Signs					Width:		
Location:						Height:		
Element Description:						Count:	4	
Material:	Steel					Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard		
	each	0.00	1.0	0.00	3.0	BCI TEV: 400.0		BCI CEV: 75.0
Comments:	Both west hazards are bent, SE hazard is damaged, NE hazard is too low for snowbank and needs to be raised.							
Recommended work:						Maintenance Needs: 17. Other		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☒ Urgent		
						Install new hazards at west end and SE, raise NE hazard.		

Element Group:	Approaches					Length:	6.0 (m)	
Element Name:	Wearing surface					Width:	6.2 (m)	
Location:	East and West					Height:	0.04 (m)	
Element Description:						Count:	2	
Material:	Gravel					Total Quantity:	74.4 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	62.0	12.4	0.00	BCI TEV: 446.4		BCI CEV: 308.76
Comments:	Very light wheel rutting. Slight settling in front of deck, continue to monitor.							
Recommended work:						Maintenance Needs:		
Comments Type Timing ☐ Rehab, ☐ Repair, ☐ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Barriers					Length:	6.8 (m)	
Element Name:	Railing Systems					Width:	(m)	
Location:	North and South					Height:	(m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	13.6 (m)	
Element Type:	Flex Beam on Wood Post					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanized					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	Pedestrian / vehicle hazard		
	m	13.6	0.00	0.00	0.00	BCI TEV: 2720.0	BCI CEV: 2720.0	
Comments:	Barrier replaced in 2017, install barriers at approaches.							
Recommended work:						Maintenance Needs:		
Comments Install guiderail system at both approaches c/w end treatments Type ☐ Rehab, ☐ Repair, ☒ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Deck					Length:	7.0 (m)	
Element Name:	Soffit - Thin Slab					Width:	6.7 (m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:	Laminated Wood Deck					Total Quantity:	48.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Penetrant applied					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	Load carrying capacity		
	sq.m	48.0	0.00	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	New soffit in excellent condition.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years,		
Type Timing						☐ Urgent		

Element Group:	Decks	Length:	6.7 (m)
Element Name:	Wearing Surface	Width:	6.6 (m)
Location:		Height:	
Element Description:		Count:	1
Material:	Wood	Total Quantity:	44.2 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Pressure treatment	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	44.2	0.00
	Fair	Poor*	
	0.00	0.00	
	BCI TEV: 1105.0		BCI CEV: 1105.0
Comments:	Overall in excellent condition. Light checks throughout.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Embankments & Streams	Length:	(m)
Element Name:	Embankments	Width:	(m)
Location:	NE/NW/SE/SW	Height:	(m)
Element Description:		Count:	4
Material:		Total Quantity:	4.0 (each)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	each	4.0	0.00
	Fair	Poor*	
	0.00	0.00	
	BCI TEV: 4000.0		BCI CEV: 4000.0
Comments:	Embankments stable in excellent condition		
Recommended work:		Maintenance Needs: -	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Slope Protection					Width:	(m)	
Location:	NE/NW/SE/SW					Height:	(m)	
Element Description:						Count:	4	
Material:	Gabion baskets, riprap, and armour stone					Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	4.0	0.00	0.00	0.00	BCI TEV: 1600.0	BCI CEV: 1600.0	
Comments:	Newly installed and in excellent condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Streams & Waterways					Width:	(m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:						Total Quantity:	1.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	1.0	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	In good condition							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Joints	Length:	6.6 (m)		
Element Name:	Seals/sealants	Width:			
Location:		Height:			
Element Description:		Count:	2		
Material:		Total Quantity:	13.2 (m)		
Element Type:		Not Inspected:	☐		
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐		
Protection System:		Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*
	m	13.2	0.00	0.00	0.00
			BCI TEV:	BCI CEV:	
Comments:	Recently installed. In excellent condition.				
Recommended work:			Maintenance Needs:		
Comments Type Timing			☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Pier	Length:	7.0 (m)		
Element Name:	Caps	Width:	0.3 (m)		
Location:	North and South	Height:	0.3 (m)		
Element Description:		Count:	3		
Material:	Wood	Total Quantity:	18.9 (sq.m)		
Element Type:		Not Inspected:	☐		
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☒		
Protection System:	Creosote	Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*
	sq.m	0.00	18.9	0.00	0.00
			BCI TEV:	BCI CEV:	
Comments:	Pile caps in good condition; light to medium splitting and checking at ends. No indication of rot.				
Recommended work:			Maintenance Needs: -		
Comments Type Timing			☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Pier					Length:	(m)	
Element Name:	Pile Bents					Width:	0.3 (m)	
Location:	East and West					Height:	2.0 (m)	
Element Description:						Count:	12	
Material:	Wood					Total Quantity:	22.6 (sq.m)	
Element Type:	Timber Piles with Capping Beam					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	13.6	9.0	0.00	BCI TEV:	BCI CEV:	
Comments:	Some checking and ice abrasion at waterline. Northwest pile rehabilitated.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Retaining walls					Length:	8.0 (m)	
Element Name:	Walls					Width:	2.0 (m)	
Location:	All quadrants.					Height:	0.5 (m)	
Element Description:	Replaced 2017					Count:	4	
Material:	Gabion Basket					Total Quantity:	64.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	64.0	0.00	0.00	0.00	BCI TEV: 22400.0	BCI CEV: 22400.0	
Comments:	New Gabion basket retaining walls in excellent condition.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Sidewalks/Curbs					Length:	7.1 (m)	
Element Name:	Curbs					Width:	0.2 (m)	
Location:	North and South					Height:	0.4 (m)	
Element Description:						Count:	2	
Material:	Wood					Total Quantity:	14.2 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	14.2	0.00	0.00	0.00	BCI TEV: 568.0	BCI CEV: 568.0	
Comments:	Minor splits, recently replaced overall in excellent condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Railing System	Install guiderail at approaches.			✓			\$10,000.00
Total							\$10,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General elevation, looking south.



Description: General elevation, north.



Description: General arrangement, looking west.



Description: Light checks on deck wearing surface.

Decks / Wearing Surface



Description: West side joint.

Joints / Seals/sealants



Description: Both west hazard sign posts are bent.

Accessories / Signs



**Description: SE hazard damaged,
Accessories / Signs**



**Description: East wall #1, northeast quadrant. High water level visible.
Abutments / Ballast Walls (East and West)**



Description: West wall, general condition. Staff gauge present.

Abutments / Ballast Walls (East and West)



Description: East wall #2, southeast quadrant.

Abutments / Ballast Walls (East and West)



Description: Light settling at joints throughout (west joint pictured).

Approaches / Wearing surface (East and West)



Description: Northwest corner, typical condition.

Deck / Soffit - Thin Slab



Description: Gabian basket with riprap and armour stone typical throughout.

Embankments & Streams / Embankments (NE/NW/SE/SW)



Description: Southwest slope protection pictured, large armour stone and riprap, typical throughout.

Embankments & Streams / Slope Protection (NE/NW/SE/SW)



Description: Rehabilitated pile, northwest quadrant, in good condition.

Pier / Pile Bents (East and West)



Description: Rehabilitated northwest pile, general arrangement.

Pier / Pile Bents (East and West)



Description: West pier caps, typical conditions.

Pier / Caps (North and South)



Description: Southeast end, general condition.

Pier / Caps (North and South)



Description: Southwest slope protection and gabion basket retaining wall. Typical condition to northwest and northeast quadrants.

Retaining walls / Walls (All quadrants.)



Description: Southeast slope protection and gabion basket retaining wall.

Retaining walls / Walls (All quadrants.)



Description: Southwest corner of curb system.
Sidewalks/Curbs / Curbs (North and South)



Description: Northeast corner of curb system.
Sidewalks/Curbs / Curbs (North and South)

Inventory Data:

Structure Name Kennisis Lake Narrows Bridge			
Main Hwy/Road #	 ☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name Kennisis Lake Road			
Structure Location 0.4 km West of Watts Road			
Latitude	45.241800	Longitude	-78.598200
Northing		Easting	
Owner(s)	Municipality of Dysart et al		
MTO Region		Heritage designation: ☒ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List	
		Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes	
MTO District		Posted Speed	50 No. of Lanes 2
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type	Bridge	Interchange Number	
Total Deck Length	13.8 (m)	Interchange Structure Number	
Overall Str. Width	6.8 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	94.0 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	6.2 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	E to W
No. of Spans	1	Fill on Structure	 (m)
Span Lengths	7.0 (m)		

Historical Data:

Year Built	N/A	Year of Last Major Rehab.	
Last OSIM Inspection	2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description) (Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	Aug. 8, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Tape, hammer, flashlight		
Weather:	Rain		
Temperature:	19.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring			
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:			

Investigation Notes:

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	
Date of Next Inspection:	

Overall Bridge Condition:	69.63
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:	(m)	
Element Name:	Abutment Walls					Width:	9.8 (m)	
Location:	East / West					Height:	2.5 (m)	
Element Description:						Count:	2	
Material:	Wood					Total Quantity:	49.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	49.0	0.00	0.00	BCI TEV: 44100.0	BCI CEV: 33075.0	
Comments:	In good condition, no defects noted.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Abutments					Length:	(m)	
Element Name:	Wingwalls					Width:	2.5 (m)	
Location:	All quadrants.					Height:	2.5 (m)	
Element Description:						Count:	4	
Material:	Wood					Total Quantity:	25.0 (sq.m)	
Element Type:	Wood Crib					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	19.0	4.0	2.0	BCI TEV: 8750.0	BCI CEV: 5547.5	
Comments:	No defects noted in good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Approaches					Length:	6.0 (m)	
Element Name:	Wearing Surface					Width:	6.2 (m)	
Location:	East and West					Height:	(m)	
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	74.4 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	68.4	4.0	1.2	BCI TEV: 446.4	BCI CEV: 317.4	
Comments:	Large pot holes and edge ravelled at southeast quadrant. West side has ponding at north side. South side is draining well.							
Recommended work:						Maintenance Needs: 02. Bridge Cleaning		
Comments Provide drainage swale c/w slope protection for proper drainage, all quadrants. Type ☒ Rehab, ☐ Repair, ☐ Replace						☒ 1 year, ☐ 2 years, ☐ Urgent Bridge cleaning, patch pot holes.		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Barriers					Length:	16.0 (m)	
Element Name:	Railing Systems					Width:	(m)	
Location:	Across structure only					Height:	(m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	32.0 (m)	
Element Type:	Steel Flex Beam on Wood Post					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanized / Creosote (or Pressure Treat)					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m	0.00	0.00	32.0	0.00	BCI TEV: 6400.0	BCI CEV: 2560.0	
Comments:	Minor impact damage at north side. Fishtail end at northeast side not attached to post. Southeast rail is loose. Guiderail should extend to end of approaches with appropriate end treatments.							
Recommended work:						Maintenance Needs:		
Comments Replace with extended guiderail system with end treatments at next major rehab. Type ☐ Rehab, ☐ Repair, ☒ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Beam / MLE	Length:	8.8 (m)
Element Name:	Girders	Width:	0.25 (m)
Location:	E/W	Height:	0.6 (m)
Element Description:		Count:	9
Material:	Wood	Total Quantity:	114.8 (sq.m)
Element Type:	Rectangular-solid	Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Creosote	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	92.8
		Fair	Poor*
		20.0	2.0
	BCI TEV:		BCI CEV:
Comments:	Checks throughout, overall in fair condition. Seepage running through and out of deck along girders. Monitor effect of run off on girders.		
Recommended work:		Maintenance Needs:	
Comments		☐ 1 year, ☐ 2 years,	
Type		☐ Urgent	
Timing			

Element Group:	Deck	Length:	13.8 (m)
Element Name:	Wearing Surface (Decks)	Width:	6.2 (m)
Location:		Height:	(m)
Element Description:		Count:	0
Material:	Surface Treatment	Total Quantity:	85.6 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	3.7
		Fair	Poor*
		37.6	44.3
	BCI TEV:		BCI CEV:
Comments:	Localized alligator cracks and forming potholes with some spalls. Significant ponding.		
Recommended work:		Maintenance Needs: 02,12	
Comments		☒ 1 year, ☐ 2 years,	
		☐ Urgent	
Type		Bridge Cleaning & surface repair in NE quadrant.	
Timing			
☐ Rehab, ☐ Repair,		☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years,	
☒ Replace		☐ Urgent	

Element Group:	Decks					Length:	13.8 (m)	
Element Name:	Deck Top					Width:	6.8 (m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:	Wood					Total Quantity:	94.0 (sq.m)	
Element Type:	Laminated Wood Decking - transverse					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:	Creosote / Surface Treatment					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	94.0	0.00	0.00	BCI TEV: 11280.0	BCI CEV: 8460.0	
Comments:	Limited inspection based on soffit. Overall good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	13.8 (m)	
Element Name:	Soffit - Thin Slab					Width:	6.2 (m)	
Location:						Height:		
Element Description:						Count:	0	
Material:						Total Quantity:	85.6 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	85.6	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	In good fair condition. Seepage of water from deck in SW quadrant.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Retaining Walls					Length:	3.0 (m)	
Element Name:	Walls					Width:	2.0 (m)	
Location:	NW Quadrant					Height:	0.5 (m)	
Element Description:						Count:	2	
Material:	Other					Total Quantity:	3.0 (sq.m)	
Element Type:	Gabions and wood at southwest quadrant					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanized					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	0.00	3.0	0.00	BCI TEV: 1050.0	BCI CEV: 420.0	
Comments:	Retaining walls show signs of previous settlement, no signs of continued settlement observed. Overall in fair condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Sidewalks/curbs					Length:	13.0 (m)	
Element Name:	Curbs					Width:	0.3 (m)	
Location:	North and South					Height:	0.3 (m)	
Element Description:						Count:	2	
Material:	Wood					Total Quantity:	15.6 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	1.6	10.0	5.0	BCI TEV: 624.0	BCI CEV: 208.0	
Comments:	Abrasion damage (bolts are not countersunk), sectional loss with minor checking. Some sediment accumulation. South curb clear and draining. Northwest quadrant needs sediment removal.							
Recommended work:						Maintenance Needs: 02. Bridge Cleaning		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☒ Urgent Bridge cleaning at northwest corner.		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Railing System	Provide guiderail at approaches c/w end treatments.			✓			\$10,000.00
Approach Drainage System	Provide drainage swales c/w slope protection.			✓			\$5,000.00
Total							\$15,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General elevation, south.



Description: East abutment (typical condition).

Abutments / Abutment Walls (East / West)



Description: Drainage from deck ponding behind abutment wall (pictured).

Abutments / Abutment Walls (East / West)



Description: Ponding at northwest approach.

Approaches / Wearing Surface (East and West)



Description: East approach, potholes.

Approaches / Wearing Surface (East and West)



Description: Large pot holes, some ravelling, east approach.

Approaches / Wearing Surface (East and West)



Description: Northeast fishtail end not attached to post.

Barriers / Railing Systems (Across structure only)



Description: South barrier, typical condition.

Barriers / Railing Systems (Across structure only)



Description: North barrier, typical condition.

Barriers / Railing Systems (Across structure only)



Description: Minor impact damage, north side.

Barriers / Railing Systems (Across structure only)



Description: Seepage through deck running along girders.

Beam / MLE / Girders (E/W)



Description: Deck drainage causing wet end girders and some checking.

Beam / MLE / Girders (E/W)



Description: Build up of sand, south draining well, north curb slots obstructed.

Sidewalks/curbs / Curbs (North and South)

Inventory Data:

Structure Name Barry's Bridge			
Main Hwy/Road #	 ☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☒ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name Barry Line Road			
Structure Location 0.05 km East of Binscrath Trail			
Latitude	45.126200	Longitude	-78.630000
Northing		Easting	
Owner(s)	Municipality of Dysart et al		
	Heritage designation: ☐ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List		
MTO Region			
	Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes		
MTO District		Posted Speed	50 No. of Lanes 2
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type	Bridge		
Total Deck Length	18.7 (m)	Interchange Structure Number	
Overall Str. Width	7.3 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	137.0 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	6.8 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	N to S
No. of Spans	3	Fill on Structure	 (m)
Span Lengths	6.2 (m)		

Historical Data:

Year Built	1960	Year of Last Major Rehab.	
Last OSIM Inspection	2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:		Comments
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Field Inspection Information:			
Date of Inspection:	Aug. 9, 2018	Inspection Type	
Inspector:	Ben Belfry		
Others in Party:	Sean Wetmore		
Access Equipment Used:	Tape, hammer, flashlight, waders		
Weather:	Cloudy		
Temperature:	24.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring			
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:			
Investigation Notes:			

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	
Date of Next Inspection:	

Overall Bridge Condition:	52.89
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:	(m)	
Element Name:	Ballast Walls					Width:	7.0 (m)	
Location:	East and West					Height:	2.0 (m)	
Element Description:						Count:	2	
Material:	Timber					Total Quantity:	28.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	03. Continuing settlement		
	sq.m	0.00	0.00	26.0	2.0	BCI TEV: 9800.0		BCI CEV: 3640.0
Comments:	Ballast walls in good to fair condition with localized small deformations. Material washout, between piles. Broken bottom ballast timber on west wall.							
Recommended work:						Maintenance Needs: 13. Erosion Control at Bridges		
Comments						☒ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing						Install lower timber section of ballast below existing to mitigate erosion of ballast at west wall.		

Element Group:	Approaches					Length:	6.0 (m)	
Element Name:	Wearing Surface					Width:	7.5 (m)	
Location:	East and west					Height:	(m)	
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	90.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	0.00	15.7	74.3	BCI TEV: 540.0		BCI CEV: 37.68
Comments:	Significant patching observed at approaches, as well as potholes and cracking, rutting and rippling.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Replace asphalt wearing surface. Type Timing ☐ Rehab, ☐ Repair, ☒ Replace								
☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Barriers	Length:	20.1 (m)		
Element Name:	Railing Systems	Width:	(m)		
Location:	E /W	Height:	(m)		
Element Description:	SBGR on wood posts.	Count:	2		
Material:	Steel Flex Beam on Wood Post	Total Quantity:	40.2 (m)		
Element Type:		Not Inspected:	☐		
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐		
Protection System:	Galvanized / Creosote (Pressure Treat)	Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*
	m	0.00	15.0	18.0	5.0
				BCI TEV: 8040.0	BCI CEV: 3690.0
Comments:	Damage to guiderail and end post in N/E corner; minor collision damage mid-span. No guiderail on approaches.				
Recommended work:					Maintenance Needs:
Comments Add SBGR to approaches at next major rehab. Type Timing ☐ Rehab, ☐ Repair, ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Replace ☐ Urgent					☐ 1 year, ☐ 2 years, ☐ Urgent

Element Group:	Beams/Main Longitudinal Elements	Length:			
Element Name:	Bracing	Width:			
Location:	At piles	Height:			
Element Description:		Count:	4		
Material:	Wood	Total Quantity:	4.0 (each)		
Element Type:		Not Inspected:	☐		
Environment:	☒ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐		
Protection System:		Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*
	each	0.00	0.00	4.0	0.00
				BCI TEV:	BCI CEV:
Comments:	Bracing in good condition.				
Recommended work:					Maintenance Needs:
Comments Type Timing					☐ 1 year, ☐ 2 years, ☐ Urgent

Element Group:	Beams/Main Longitudinal Elements					Length:	18.7 (m)	
Element Name:	Girders					Width:	0.25 (m)	
Location:	North and south					Height:	0.6 (m)	
Element Description:						Count:	9	
Material:	Wood					Total Quantity:	328.0 (sq.m)	
Element Type:	Rectangular-solid					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	200.0	127.0	1.0	BCI TEV: 65600.0	BCI CEV: 40160.0	
Comments:	Beams in general good condition with minor checking and splits.							
Recommended work:						Maintenance Needs:		
Comments Replace damaged girder at northwest quadrant as part of bridge rehabilitation. Type ☐ Rehab, ☐ Repair, ☒ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Decks					Length:	18.7 (m)	
Element Name:	Deck Top					Width:	7.3 (m)	
Location:	Under Asphalt					Height:	(m)	
Element Description:						Count:	1	
Material:	Wood					Total Quantity:	137.0 (sq.m)	
Element Type:	Laminated Wood Decking - transverse					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	None		
	sq.m	0.00	137.0	0.00	0.00	BCI TEV: 16440.0		BCI CEV: 12330.0
Comments:	Deck appears to be in good condition with light to moderate signs of water penetration on underside.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Decks					Length:	18.7 (m)	
Element Name:	Wearing Surface					Width:	6.8 (m)	
Location:	Deck Top					Height:	(m)	
Element Description:						Count:	1	
Material:	Asphalt					Total Quantity:	127.2 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	Rough riding surface		
	sq.m	0.00	0.00	31.3	95.9	BCI TEV: 3180.0		BCI CEV: 313.0
Comments:	Deck in poor condition. Extensive patching and alligator map cracking. Ravelling along edges with severe transverse crack throughout. Deck has no drains; therefore, water is penetrating into the wood deck below.							
Recommended work:						Maintenance Needs: 02. Bridge Cleaning		
Comments Replace asphalt wearing surface Type Timing ☐ Rehab, ☐ Repair, ☒ Replace ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent						☒ 1 year, ☐ 2 years, ☐ Urgent Clean off sand.		

Element Group:	Embankments and Streams					Length:	(m)	
Element Name:	Streams and Waterways					Width:	(m)	
Location:	Upstream /Downstream					Height:	(m)	
Element Description:						Count:	2	
Material:						Total Quantity:	2.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	1.0	1.0	0.00	BCI TEV:		BCI CEV:
Comments:	Logs obstructing flow at northwest quadrant.							
Recommended work:						Maintenance Needs: 17		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Clear debris.		

Element Group:	Piers	Length:	2.0 (m)
Element Name:	Shafts/columns/Pile Bents	Width:	0.3 (m)
Location:	4 Bents	Height:	2.0 (m)
Element Description:		Count:	24
Material:	Wood	Total Quantity:	45.2 (sq.m)
Element Type:	Timber Piles with Capping Beam	Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Creosote	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	0.00
		Fair	Poor*
		45.2	0.00
		BCI TEV: 40680.0	BCI CEV: 16272.0
Comments:	Light splits not effecting performance, in good condition.		
Recommended work:		Maintenance Needs: -	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Sidewalks/curbs	Length:	18.7 (m)
Element Name:	Curbs	Width:	0.3 (m)
Location:	North and south	Height:	0.3 (m)
Element Description:		Count:	2
Material:	Wood	Total Quantity:	22.4 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:	Creosote	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	6.1
		Fair	Poor*
		10.0	6.3
		BCI TEV: 896.0	BCI CEV: 343.0
Comments:	Sand and sediment accumulation. Severe splits and damage from abrasion. South side has rot. Sand has accumulated on gutters.		
Recommended work:		Maintenance Needs: -02	
Comments Replace timber curbs Type Timing ☐ Rehab, ☐ Repair, ☒ Replace		☐ 1 year, ☐ 2 years, ☒ Urgent Bridge cleaning	

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Slope protection	Add slope protection to northwest quadrant.					✓	\$2,000.00
Decks, Wearing Surface	Replace wearing surface.			✓			\$40,000.00
Curbs	Replace curbs.			✓			\$5,000.00
Girders	Replace girders at next major rehabilitation.			✓			\$60,000.00
Approaches, Barriers	Add guiderail to approaches c/w end treatments.			✓			\$10,000.00
Approaches, Wearing surface	Replace wearing surface.			✓			\$20,000.00
Total							\$137,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General elevation, north.



Description: General elevation, south.



Description: General arrangement, looking west.



Description: West ballast wall.

Abutments / Ballast Walls (East and West)



Description: North steel beam guiderail.

Barriers / Railing Systems (E /W)



Description: South steel beam guide rail.

Barriers / Railing Systems (E /W)



Description: Impact damage on north side.

Barriers / Railing Systems (E /W)



Description: Abrasion damage at north side.

Sidewalks/curbs / Curbs (North and south)



Description: Rot with abrasion damage at south side.

Sidewalks/curbs / Curbs (North and south)



Description: Some signs of erosion at northwest quadrant.

Streams & Embankments / Slope Protection (All quadrants.)



Description: Norhtwest erosion (detail).

Streams & Embankments / Slope Protection (All quadrants.)



Description: Southwest quadrant.

Streams & Embankments / Slope Protection (All quadrants.)



Description: Downstream.

Embankments and Streams / Streams and Waterways (Upstream /Downstream)



Description: Upstream side, some submerged debris.

Embankments and Streams / Streams and Waterways (Upstream /Downstream)

Inventory Data:

Structure Name Redstone Brook Bridge			
Main Hwy/Road #	118 ☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☒ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name Green Lake Road			
Structure Location 1.0 km East of Stanhope Airport Road			
Latitude	45.111441	Longitude	-78.633132
Northing		Easting	
Owner(s)	Municipality of Dysart et al		
	Heritage designation: ☐ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List		
MTO Region			
	Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes		
MTO District		Posted Speed	50 No. of Lanes 2
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type	Bridge		
Total Deck Length	16.3 (m)	Interchange Structure Number	
Overall Str. Width	8.5 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	139.0 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	7.4 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	E to W
No. of Spans	3	Fill on Structure	 (m)
Span Lengths	5.4 (m)		

Historical Data:

Year Built	1960	Year of Last Major Rehab.	
Last OSIM Inspection	2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description) (Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:		Comments
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Field Inspection Information:			
Date of Inspection:	Aug. 8, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Hip waders, tape measure, hammer, tape measure, flashlight		
Weather:	Cloudy		
Temperature:	20.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring			
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:			
Investigation Notes:			

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	
Date of Next Inspection:	

Overall Bridge Condition:	41.86
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:	7.0 (m)	
Element Name:	Ballast walls					Width:	(m)	
Location:	East and west					Height:	1.5 (m)	
Element Description:						Count:	2	
Material:	Wood Timber					Total Quantity:	21.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:	Creosote / Pressure Treat					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	19.0	2.0	0.00	BCI TEV: 7350.0		BCI CEV: 5267.5
Comments:	East wingwalls are inaccessible. Evidence of material loss and some lagging board separation at west wall. Lagging appears new.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Abutments					Length:	2.0 (m)	
Element Name:	Wingwalls					Width:	(m)	
Location:	All quadrants.					Height:	1.5 (m)	
Element Description:						Count:	2	
Material:	Wood Timber					Total Quantity:	6.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote / pressure treat					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	Continuing settlement, movement is causing the embankment to become unstable.		
	sq.m	0.00	1.5	1.0	3.5	BCI TEV: 2100.0		BCI CEV: 533.75
Comments:	Southwest wingwall has severe erosion with continuing settlement and movement.							
Recommended work:						Maintenance Needs:		
Comments Replace southwest wingwall. Type Timing ☐ Rehab, ☐ Repair, ☒ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
						☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent		

Element Group:	Accessories					Length:	
Element Name:	Signs					Width:	
Location:	All quadrants.					Height:	
Element Description:						Count:	4
Material:						Total Quantity:	4.0 (each)
Element Type:						Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐
Protection System:	Galvanize					Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard	
	each	0.00	3.0	0.00	1.0	BCI TEV: 400.0	BCI CEV: 225.0
Comments:	Southwest hazard is bent and obscured by overgrown vegetation. Rest are in good condition.						
Recommended work:						Maintenance Needs: 17. Other	
Comments						☐ 1 year, ☐ 2 years, ☒ Urgent	
Type Timing						Install hazard sign at SW corner. Cut back vegetation for sight-line.	

Element Group:	Approaches					Length:	6.0 (m)	
Element Name:	Wearing surface					Width:	6.7 (m)	
Location:	East and west					Height:		
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	80.4 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	0.00	80.4	0.00	BCI TEV: 482.4	BCI CEV: 192.96	
Comments:	Previous patching, currently in fair condition.							
Recommended work:						Maintenance Needs:		
Comments Repave Type Timing ☐ Rehab, ☐ Repair, ☒ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Barriers					Length:	16.0 (m)							
Element Name:	Railing Systems					Width:	(m)							
Location:						Height:	(m)							
Element Description:						Count:	2							
Material:	Steel					Total Quantity:	32.0 (m)							
Element Type:	Steel Flex Beam over Other Railing					Not Inspected:	☐							
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐							
Protection System:						Perform. Deficiencies								
Condition Data:	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard								
	m	0.00	0.00	22.0	10.0	BCI TEV: 6400.0	BCI CEV: 1760.0							
Comments:	Guiderail in fair condition with slight corrosion. Post spacing is insufficient. Post anchors loose in places. No guiderail on approaches. Overall barriers are in fair to poor condition.													
Recommended work:						Maintenance Needs:								
Comments Install new posts for barrier to code Provide new guardrail system at time of rehabilitation <table style="width: 100%;"> <tr> <td style="width: 50%;">Type</td> <td style="width: 50%;">Timing</td> </tr> <tr> <td> ☐ Rehab, ☐ Repair, ☒ Replace </td> <td> ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent </td> </tr> <tr> <td> ☐ Rehab, ☐ Repair, ☒ Replace </td> <td> ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent </td> </tr> </table>						Type	Timing	☐ Rehab, ☐ Repair, ☒ Replace	☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent	☐ Rehab, ☐ Repair, ☒ Replace	☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent	☐ 1 year, ☐ 2 years, ☐ Urgent		
Type	Timing													
☐ Rehab, ☐ Repair, ☒ Replace	☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent													
☐ Rehab, ☐ Repair, ☒ Replace	☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent													

Element Group:	Decks					Length:	16.3 (m)					
Element Name:	Deck Top					Width:	8.5 (m)					
Location:						Height:	(m)					
Element Description:						Count:	1					
Material:	Wood					Total Quantity:	139.0 (sq.m)					
Element Type:	Laminated Wood Decking - Longitudinal					Not Inspected:	☐					
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☒					
Protection System:	Latex modified concrete overlay					Perform. Deficiencies						
Condition Data:	Units	Exc.	Good	Fair	Poor*							
	sq.m	0.00	0.00	139.0	0.00	BCI TEV: 16680.0	BCI CEV: 6672.0					
Comments:	Some deflection noted with evidence of water leakage through deck. Pooling at north side, midspan. Overall in fair condition.											
Recommended work:						Maintenance Needs:						
Comments <table style="width: 100%;"> <tr> <td style="width: 50%;">Type</td> <td style="width: 50%;">Timing</td> </tr> <tr> <td></td> <td></td> </tr> </table>						Type	Timing			☐ 1 year, ☐ 2 years, ☐ Urgent Waterproof		
Type	Timing											

Element Group:	Decks					Length:	(m)	
Element Name:	Drainage System					Width:	(m)	
Location:	North and south					Height:	(m)	
Element Description:						Count:	8	
Material:	Steel					Total Quantity:	8.0 (each)	
Element Type:	Metal Drain Pipes					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	2.0	0.00	6.0	BCI TEV:	BCI CEV:	
Comments:	All North deck drains are clogged with sediment. Both west deck drains on south side are clogged. Steel still in good condition.							
Recommended work:						Maintenance Needs: 02. Bridge Cleaning		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Clean vegetation and sediment from bridge and drains.		

Element Group:	Decks					Length:	16.3 (m)	
Element Name:	Wearing Surface					Width:	7.4 (m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:	Asphalt					Total Quantity:	121.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Asphalt					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	0.00	60.0	61.0	BCI TEV: 3025.0	BCI CEV: 600.0	
Comments:	Wearing surface in poor condition; potholes and cracking. Missing asphalt on edges with poor bonding and raveling of concrete at southwest quadrant. Patches of asphalt missing from north edge.							
Recommended work:						Maintenance Needs: 12. Bridge Surface Repair		
Comments Repave deck. Type Timing ☐ Rehab, ☐ Repair, ☒ Replace ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent ☐ Urgent						☒ 1 year, ☐ 2 years, ☐ Urgent Repave		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Railing System, Posts	Replace posts at deck.		✓				\$2,000.00
Railing System	Replace railing system across deck.		✓				\$10,000.00
Approach, Wearing surface	Repave wearing surface.			✓			\$40,000.00
Wingwall	Replace southwest wingwall.			✓			\$20,000.00
Total							\$72,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General arrangement looking east.



Description: SW hazard is bent obstructed by vegetation.

Accessories / Signs (All quadrants.)



Description: Lagging separation at west side.

Abutments / Ballast walls (East and west)



Description: Northwest, typical condition.

Abutments / Ballast walls (East and west)



Description: Erosion and channel meander change at southeast wingwall.

Abutments / Ballast walls (East and west)



Description: Failed southwest wingwall.

Abutments / Wingwalls (All quadrants.)



Description: North barrier, typical condition for both sides.

Barriers / Railing Systems



Description: Pooling on north side of deck.

Decks / Deck Top



Description: North asphalt edge looking east.

Decks / Wearing Surface



Description: Wearing surface looking west.

Decks / Wearing Surface

Inventory Data:

Structure Name				Guilford Pine Lake Bridge	
Main Hwy/Road #		 ☒ On ☐ Under		Crossing Type: ☒ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name				Pine Lake Road	
Structure Location				0.45 km North of Eagle Lake Road	
Latitude		45.117300		Longitude	
Northing				Easting	
Owner(s)		Municipality of Dysart et al		Heritage designation: ☒ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List	
MTO Region				Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes	
MTO District				Posted Speed	50
Old County				AADT	
Geographic Twp.				Inspection Route Sequence	
Structure Type		Concrete Deck on Steel Girder		Interchange Number	
Total Deck Length		20.0 (m)		Interchange Structure Number	
Overall Str. Width		9.0 (m)		Min. Vertical Clearance	
Total Deck Area		180.0 (sq.m)		Special Routes: ☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter	
Roadway Width		7.0 (m)		Detour Length Around Bridge	
Skew Angle		0 (Degrees)		Direction of Structure	
No. of Spans		1		Fill on Structure	
Span Lengths		18.0			

Historical Data:

Year Built	2008	Year of Last Major Rehab.	
Last OSIM Inspection	2016	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description)			
(Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	Aug. 2, 2018	Inspection Type	OSIM
Inspector:	Ben Belfry		
Others in Party:	Frank Palmay, Sean Wetmore		
Access Equipment Used:	Tape, hammer, flashlight		
Weather:	Sunny		
Temperature:	24.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring			
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:			

Investigation Notes:

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	
Date of Next Inspection:	

Overall Bridge Condition:	78.52
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:	(m)	
Element Name:	Ballast walls					Width:	5.8 (m)	
Location:						Height:	1.0 (m)	
Element Description:						Count:	2	
Material:	Corrugated Steel					Total Quantity:	11.6 (sq.m)	
Element Type:	Steel Sheet Pile					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	11.6	0.00	0.00	BCI TEV: 4060.0	BCI CEV: 3045.0	
Comments:	Overall good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Abutments					Length:	6.0 (m)	
Element Name:	Wingwalls					Width:	(m)	
Location:						Height:	1.5 (m)	
Element Description:						Count:	4	
Material:	Corrugated steel sheet and cast-inplace concrete abutment					Total Quantity:	36.0 (sq.m)	
Element Type:	Steel Sheet Piles					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	36.0	0.00	0.00	BCI TEV: 12600.0	BCI CEV: 9450.0	
Comments:	Moderate corrosion and surface staining, moderate weathering. Rust on the lower portion. In good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Accessories					Length:	(m)	
Element Name:	Signs					Width:	(m)	
Location:	NE/NW/SE/SW					Height:	(m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	2.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	2.0	0.00	0.00	BCI TEV: 200.0	BCI CEV: 150.0	
Comments:	Missing hazard signs at end of guardrails on NE/NW quadrants (2 missing). Signs at south end in good condition.							
Recommended work:						Maintenance Needs:		
Comments Replace hazard signs at north end. Type Timing ☐ Rehab, ☐ Repair, ☒ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent ☒ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Approaches					Length:	87.0 (m)	
Element Name:	Barriers					Width:	(m)	
Location:						Height:	(m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	174.0 (m)	
Element Type:	Steel Flex Beam on Steel Post					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanize					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m	0.00	173.0	1.0	0.00	BCI TEV: 34800.0	BCI CEV: 26030.0	
Comments:	Collision damage to guiderail on NW corner. Rest in good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Replace damaged SBGR		

Element Group:	Approaches					Length:	6.0 (m)	
Element Name:	Wearing surface					Width:	7.0 (m)	
Location:						Height:	(m)	
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	84.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	83.0	1.0	0.00	BCI TEV: 504.0		BCI CEV: 375.9
Comments:	New pave at approaches.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Barriers					Length:	18.0 (m)	
Element Name:	Barrier/Parapet Walls					Width:	0.3 (m)	
Location:						Height:	1.2 (m)	
Element Description:						Count:	2	
Material:	Cast-in-place Concrete					Total Quantity:	263.3 (sq.m)	
Element Type:	Parapet Wall with Two Rails					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	262.3	0.00	1.0	BCI TEV: 26330.0	BCI CEV: 19672.5	
Comments:	Minor shrinkage cracking causing staining. isolated spalls at parapet ends due to impact. Overall in good condition.							
Recommended work:						Maintenance Needs:		
Comments Type ☐ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Barriers	Length:	18.0 (m)
Element Name:	Hand Railings	Width:	
Location:	E/W	Height:	
Element Description:		Count:	2
Material:	Steel	Total Quantity:	36.0 (m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:	Galvanize	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	m	0.00	36.0
	Fair	Poor*	
	0.00	0.00	
	BCI TEV: 3600.0		BCI CEV: 2700.0
Comments:	Light impact scrapes and corrosion damage. Overall in good condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Beams/Main Longitudinal Elements	Length:	19.0 (m)
Element Name:	Girders	Width:	0.2 (m)
Location:	N / S	Height:	0.5 (m)
Element Description:		Count:	4
Material:	Steel	Total Quantity:	91.2 (sq.m)
Element Type:	I-type	Not Inspected:	☐
Environment:	☒ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☒
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	91.2	0.00
	Fair	Poor*	
	0.00	0.00	
	BCI TEV: 18240.0		BCI CEV: 18240.0
Comments:	Girders in good condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Beams/Main Longitudinal Elements					Length:	(m)	
Element Name:	Stringers					Width:	(m)	
Location:	E/W					Height:	(m)	
Element Description:						Count:	4	
Material:	Steel					Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	4.0	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	Overall good condition							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	20.0 (m)	
Element Name:	Deck Top					Width:	9.0 (m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:	Cast-in-place Concrete					Total Quantity:	180.0 (sq.m)	
Element Type:	Cast-in-place Concrete on Supports					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	180.0	0.00	0.00	BCI TEV: 21600.0	BCI CEV: 16200.0	
Comments:	No defects in deck. In good condition.							
Recommended work:						Maintenance Needs: 02		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Clean sediment.		

Element Group:	Decks					Length:	19.0 (m)	
Element Name:	Soffit - Thin Slab					Width:	5.8 (m)	
Location:						Height:		
Element Description:						Count:	0	
Material:						Total Quantity:	110.2 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	110.2	0.00	0.00	BCI TEV: 13224.0	BCI CEV: 9918.0	
Comments:	Overall in good condition. Some signs of hairline cracks.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Slope protection					Width:	(m)	
Location:						Height:	(m)	
Element Description:						Count:	4	
Material:	Other					Total Quantity:	4.0 (each)	
Element Type:	Rip Rap					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	None		
	each	4.0	0.00	0.00	0.00	BCI TEV: 1600.0	BCI CEV: 1600.0	
Comments:	Rip rap protection in good condition.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Signs	Install two (2) hazard signs at north end					✓	\$5,000.00
Barriers / Parapet	Patch Spalls and cracks		✓				\$500.00
Total							\$5,500.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: Facing east

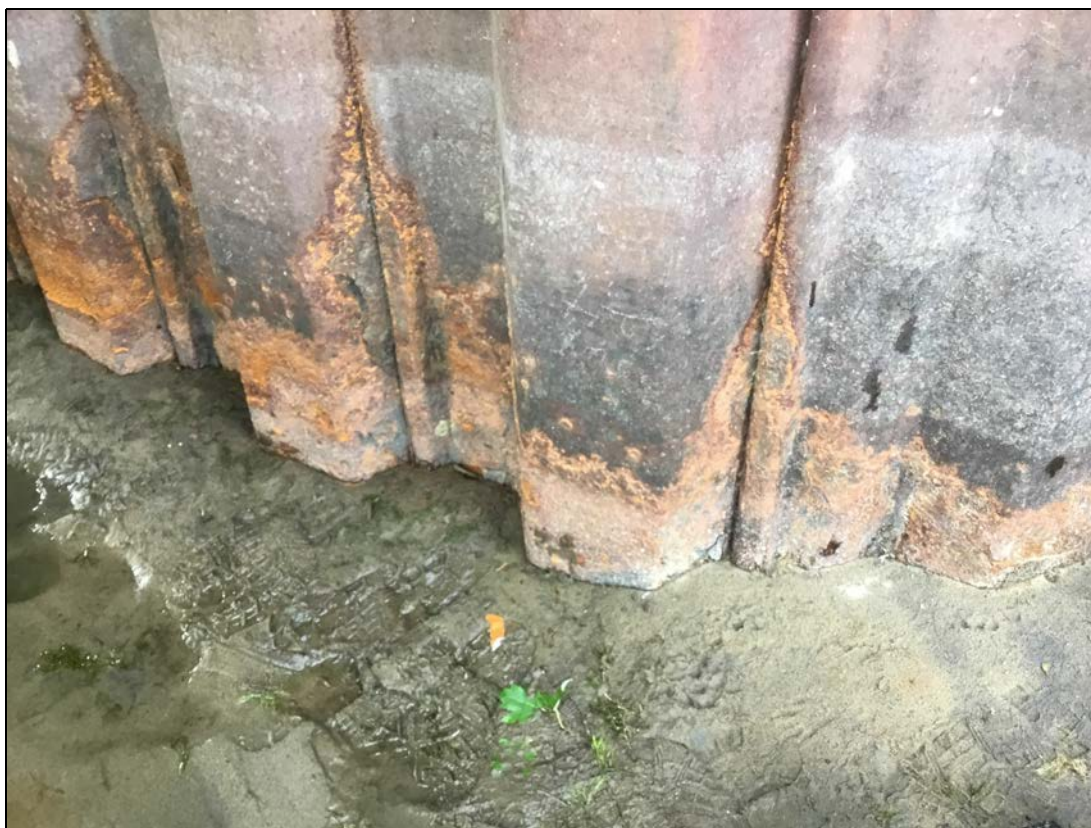


Description: East handrail, Impact scraps of handrails causing light corrosion
Barriers / Hand Railings (E/W)



Description: Facing south

Abutments / Ballast walls



Description: South sheet piles

Abutments / Wingwalls



Description: North wingwall

Abutments / Wingwalls



Description: North approach

Approaches / Wearing surface



Description: South approach.

Approaches / Wearing surface



Description: Impact damage at NW barrier

Approaches / Barriers



Description: West parapet wall, map cracking with stains throughout both walls.

Barriers / Barrier/Parapet Walls



Description: Spall at NE parapet due to impact.

Barriers / Barrier/Parapet Walls



Description: Spall at NW parapet due to impact.

Barriers / Barrier/Parapet Walls



Description: Spall at SE parapet wall due to impact

Barriers / Barrier/Parapet Walls



Description: Spall at SW parapet wall due to impact..

Barriers / Barrier/Parapet Walls



Description: Facing north

Beams/Main Longitudinal Elements / Girders (N / S)



Description: Facing north

Beams/Main Longitudinal Elements / Stringers (E/W)



Description: Deck surface looking north

Decks / Deck Top



Decks / Soffit - Thin Slab



Decks / Soffit - Thin Slab

Inventory Data:

Structure Name Guilford Cranberry Lake Bridge			
Main Hwy/Road #	 ☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name Cranberry Lake Road			
Structure Location 0.08 km North of Eagle Lake Road			
Latitude	45.119800	Longitude	-78.568700
Northing		Easting	
Owner(s)	Municipality of Dysart et al		
	Heritage designation: ☒ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List		
MTO Region			
	Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes		
MTO District		Posted Speed	50 No. of Lanes 1
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type	Bridge		
Total Deck Length	26.0 (m)	Interchange Structure Number	
Overall Str. Width	5.3 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	138.0 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	5.2 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	N to S
No. of Spans	1	Fill on Structure	 (m)
Span Lengths	26.0 (m)		

Historical Data:

Year Built	2013	Year of Last Major Rehab.	
Last OSIM Inspection	2016	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description) (Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:		Comments
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Field Inspection Information:			
Date of Inspection:	Aug. 2, 2018	Inspection Type	OSIM
Inspector:	Ben Belfry		
Others in Party:	Frank Palmay, Sean Wetmore		
Access Equipment Used:	Tape, hammer, flashlight		
Weather:	Sunny		
Temperature:	25.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey	✓		
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:	✓		
Fatigue Investigation:	✓		
Seismic Investigation:	✓		
Structure Evaluation:	✓		
Monitoring			
Monitoring of Deformations, Settlements and Movements:		✓	
Monitoring Crack Widths:			

Investigation Notes:

Monitor downstream erosion of embankments

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	Overall substructure in excellent to good condition. Superstar in excellent condition.
Date of Next Inspection:	2020

Overall Bridge Condition:	83.97
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments	Length:	(m)
Element Name:	Abutment walls	Width:	9.0 (m)
Location:	N/S	Height:	2.0 (m)
Element Description:		Count:	2
Material:	Corrugated steel sheet pile for soil system, cast in place concrete abutment.	Total Quantity:	36.0 (sq.m)
Element Type:	Retained Soil Systems	Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Galvanized	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	36.0
	Fair	Poor*	
	0.00	0.00	
Comments:	Abutment in good condition. Bugholes throughout south abutment and localized at north abutment.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Abutments	Length:	(m)
Element Name:	Bearings	Width:	(m)
Location:	N/S	Height:	(m)
Element Description:		Count:	8
Material:	Elastomeric Rubber	Total Quantity:	8.0 (each)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	each	8.0	0.00
	Fair	Poor*	
	0.00	0.00	
Comments:	Bearings in excellent condition.		
Recommended work:		Maintenance Needs: -	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Accessories					Length:	(m)	
Element Name:	Signs					Width:	(m)	
Location:	NE/NW/SE/SW					Height:	(m)	
Element Description:						Count:	4	
Material:	Steel					Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	2.0	0.00	1.0	BCI TEV: 400.0	BCI CEV: 150.0	
Comments:	Raise hazard signs. Install one lane only when used by narrow trucks signage.							
Recommended work:						Maintenance Needs:		
Comments Install SW narrow bridge sign Change NE sign for the correct direction Type ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent								
☒ Rehab, ☐ Repair, ☐ Replace ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent		

Element Group:	Approaches					Length:	6.0 (m)	
Element Name:	Wearing surface					Width:	7.0 (m)	
Location:	N/S					Height:	(m)	
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	84.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	80.0	4.0	0.00	BCI TEV: 504.0	BCI CEV: 369.6	
Comments:	SW quadrant has minor surface erosion.							
Recommended work:						Maintenance Needs: 17		
Comments						☒ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing						Provide drainage at SW quadrant near embankment with slope protection.		

Element Group:	Barriers					Length:	58.0 (m)	
Element Name:	Railing Systems					Width:	(m)	
Location:	E/W					Height:	(m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	116.0 (m)	
Element Type:	Steel Flex Beam on Steel Post					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanized					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m	112.0	4.0	0.00	0.00	BCI TEV: 23200.0	BCI CEV: 23000.0	
Comments:	Appears to have longitudinal scrape damage from passing vehicle.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Beams/Main Longitudinal Elements					Length:	0.975 (m)	
Element Name:	Diaphragms					Width:	0.165 (m)	
Location:	E/W					Height:	0.425 (m)	
Element Description:						Count:	18	
Material:	Steel					Total Quantity:	18.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	18.0	0.00	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	Light corrosion of weathered steel, overall in good condition.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Beams/Main Longitudinal Elements					Length:	26.0 (m)	
Element Name:	Girders					Width:	0.3 (m)	
Location:	N/S					Height:	1.0 (m)	
Element Description:						Count:	4	
Material:	Steel					Total Quantity:	166.4 (sq.m)	
Element Type:	I-type					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	166.4	0.00	0.00	BCI TEV: 33280.0	BCI CEV: 24960.0	
Comments:	New in 2013. Light to modereate corrosion and flaking at bottom of flanges and edges. no section loss. Overall in good condition.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Decks					Length:	26.0 (m)	
Element Name:	Deck Top					Width:	5.3 (m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:	Corrugated Steel					Total Quantity:	138.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	131.1	0.00	6.9	0.00	BCI TEV: 16560.0	BCI CEV: 16063.2	
Comments:	Overall good condition. Horizontal cracking at joints. Condition of deck top is based on wearing surface.							
Recommended work:						Maintenance Needs:		
Comments Seal cracks at joints Type ☒ Rehab, ☐ Repair, ☐ Replace Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	26.0 (m)	
Element Name:	Soffit - Thin Slab					Width:	5.3 (m)	
Location:						Height:		
Element Description:						Count:	1	
Material:						Total Quantity:	138.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	138.0	0.00	0.00	BCI TEV: 16560.0	BCI CEV: 12420.0	
Comments:	Light salt staining at joints, overall in good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	26.0 (m)	
Element Name:	Wearing Surface					Width:	5.3 (m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:	Asphalt					Total Quantity:	138.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	131.1	0.00	6.9	0.00	BCI TEV: 3450.0	BCI CEV: 3346.5	
Comments:	Minor rutting, transverse cracks throughout width of roadway at North and South abutments.							
Recommended work:						Maintenance Needs: 15		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Rout and seal transverse cracks.		

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Embankments					Width:	(m)	
Location:	NE/NW/SE/SW					Height:	(m)	
Element Description:						Count:	4	
Material:	Rock/Boulder					Total Quantity:	4.0 (each)	
Element Type:	Rip Rap					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	4.0	0.00	0.00	0.00	BCI TEV: 4000.0	BCI CEV: 4000.0	
Comments:	Embankments are well vegetated and stable, in good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Embankments & Streams					Length:		
Element Name:	Streams and Waterways					Width:		
Location:	E/W					Height:		
Element Description:						Count:	1	
Material:						Total Quantity:	1.0 (all)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	all	0.00	0.00	1.0	0.00	BCI TEV: 1000.0	BCI CEV: 400.0	
Comments:	Piles still existing in river from old structure, hazard for collection debris. Sediment aggradation below stream flow causing flow to turn and run parallel to west embankments, monitor erosion.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Signs	Raise hazard signs. Install SW narrow bridge sign Swap NE sign with correct direction					✓	\$500.00
Deck- wearing surface	Route and seal transverse crack			✓			\$2,000.00
Deck- deck top	Seal crack at joints.			✓			\$5,000.00
Approach- wearing surface	Provide drainage on SW quadrant Provide slope protection at approach drainages				✓		\$2,000.00
Total							\$9,500.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: Facing south



Description: East elevation



Description: Existing piles of old structures

Embankments & Streams / Streams and Waterways (E/W)



Description: Sediment deposition west downstream, forcing flow along roadway

Embankments & Streams / Streams and Waterways (E/W)



Description: Staining at joints from salt exposure.

Decks / Soffit - Thin Slab



Description: South abutment, bugholes throughout

Abutments / Abutment walls (N/S)



Description: Small section of bug holes between centre girders

Abutments / Abutment walls (N/S)



Description: North east sign is incorrect

Accessories / Signs (NE/NW/SE/SW)



Description: Missing SW sign. Raise SE sign

Accessories / Signs (NE/NW/SE/SW)



Description: North side

Approaches / Wearing surface (N/S)



Description: SW erosion / cracking
Approaches / Wearing surface (N/S)



Description: SW rails have impact damage
Barriers / Railing Systems (E/W)



Description: Centre west girder

Beams/Main Longitudinal Elements / Girders (N/S)



Description: Deck top

Decks / Deck Top



Description: Wearing surface looking north

Decks / Wearing Surface



Description: Slopes looking south

Embankments & Streams / Embankments (NE/NW/SE/SW)

Inventory Data:

Structure Name	South Bay Bridge		
Main Hwy/Road #	County Rd 19	☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☐ Non-Navi. Water, ☐ Rail,
			☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road
Hwy/Road Name	Hodgson Drive		
Structure Location	0.35 km East of Dunn Road		
Latitude	45.170177	Longitude	-78.408000
Northing	5005123.7600	Easting	703683.2900
Owner(s)	Municipality of Dysart Et. Al.	Heritage designation: ☐ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List	
MTO Region	Haliburton	Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes	
MTO District	Dysart Et. Al.	Posted Speed	60 No. of Lanes 2
Old County		AADT	
Geographic Twp.		Inspection Route Sequence	
Structure Type	Bridge	Interchange Number	
Total Deck Length	20.7 (m)	Interchange Structure Number	
Overall Str. Width	7.8 (m)	Min. Vertical Clearance	
Total Deck Area	186.0 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	7.5 (m)	Detour Length Around Bridge	
Skew Angle	0 (Degrees)	Direction of Structure	E to W
No. of Spans	3	Fill on Structure	
Span Lengths	20.1 (m)		

Historical Data:

Year Built	1960	Year of Last Major Rehab.	
Last OSIM Inspection	2016	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description)			
(Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

*Nature of Program Work:***Appraisal Indices:**

Comments

Fatigue**Seismic****Scour****Flood****Geometrics****Barrier****Curb****Load Capacity**

Field Inspection Information:			
Date of Inspection:	July 10, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Tape, hammer, flashlight		
Weather:	Sunny		
Temperature:	22.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey		✓	
Detailed Deck Condition Survey:	✓		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓		
Concrete Substructure Condition Survey:	✓		
Detailed Coating Condition Survey:	✓		
Detailed Timber Investigation	✓		
Post-Tensioned Strand Investigation	✓		
Underwater Investigation:	✓		
Fatigue Investigation:	✓		
Seismic Investigation:	✓		
Structure Evaluation:	✓		
Monitoring		✓	
Monitoring of Deformations, Settlements and Movements:	✓		
Monitoring Crack Widths:		✓	

Investigation Notes:

Ballast and abutment walls are accessible. Water at mid-span is deep enough to allow small boat passage and is too deep to cross in hip waders. Traffic volume light.

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	Bridge in overall fair condition. Some erosion control needed at one quadrant. Asphalt wearing surface repaving needed. Some cracking and separation of steel box over concrete post at railing system.
Date of Next Inspection:	

Overall Bridge Condition:	53.82
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments	Length:	(m)
Element Name:	Abutment Walls	Width:	9.0 (m)
Location:	East & West	Height:	1.0 (m)
Element Description:	East and west 2x8 creosote wood lagging	Count:	2
Material:	Wood	Total Quantity:	18.0 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☒
Protection System:	Creosote	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	15.0
	Fair	Poor*	
	3.0	0.00	
	BCI TEV: 16200.0 BCI CEV: 11205.0		
Comments:	Abutments in good condition. Minor weathering. Evidence of ballast material washing out from behind abutment at north side.		
Recommended work:		Maintenance Needs:	
Comments Monitor northwest side for ballast material loss in future inspections until slope protection in place.		☐ 1 year, ☐ 2 years, ☐ Urgent	
Type Timing ☐ Rehab, ☐ Repair, ☐ Replace ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent			

Element Group:	Approaches	Length:	6.0 (m)
Element Name:	Wearing Surface	Width:	7.5 (m)
Location:	East and West	Height:	(m)
Element Description:	Asphalt surface	Count:	2
Material:		Total Quantity:	90.0 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	45.0
	Fair	Poor*	
	43.5	1.5	
	BCI TEV: 540.0 BCI CEV: 306.9		
Comments:	Medium pitting. Deterioration and alligator cracked asphalt at north side of west approach.		
Recommended work:		Maintenance Needs:	
Comments Repave approaches.		☐ 1 year, ☐ 2 years, ☐ Urgent	
Type Timing ☐ Rehab, ☐ Repair, ☒ Replace ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent			

Element Group:	Barriers					Length:	1.2 (m)	
Element Name:	Barrier/Parapet Walls					Width:	0.25 (m)	
Location:	Interior, all quadrants					Height:	1.1 (m)	
Element Description:	Concrete barrier wall with attached steel railing system.					Count:	4	
Material:	Concrete					Total Quantity:	6.5 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	0.00	5.6	0.9	BCI TEV: 650.0	BCI CEV: 224.0	
Comments:	Impact abrasion and minor spalling at top of barrier walls.							
Recommended work:						Maintenance Needs:		
Comments Repair concrete. Type ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent								

Element Group:	Barriers					Length:	18.0 (m)	
Element Name:	Hand Railings					Width:	(m)	
Location:	North and South					Height:	1.1 (m)	
Element Description:	Steel sheathed CIP concrete post.					Count:	2	
Material:	Steel					Total Quantity:	36.0 (m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanized (Paint)					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m	0.00	31.0	5.0	0.00	BCI TEV: 3600.0	BCI CEV: 2525.0	
Comments:	Overall fair condition. Light corrosion and cracking on 3 of 8 posts: (2 centre posts on south side, 1 on north side second from the west).							
Recommended work:						Maintenance Needs:		
Comments Replace steel railing post components. Type ☐ Rehab, ☐ Repair, ☒ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent								

Element Group:	Decks					Length:	20.7 (m)	
Element Name:	Deck Top					Width:	7.8 (m)	
Location:	Top of deck under wearing surface.					Height:	(m)	
Element Description:	Cast-in-place concrete on top of laminated wood deck.					Count:	1	
Material:	Cast In Place Concrete					Total Quantity:	161.5 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☒	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	09. Rough riding surface		
	sq.m	0.00	0.00	159.6	1.9	BCI TEV: 19380.0		BCI CEV: 7660.8
Comments:	Limited inspection due to overlaying wearing surface. Condition based on visible portions of deck top. Localized abrasions where asphalt has deteriorated. Overall fair condition.							
Recommended work:						Maintenance Needs:		
Comments Repair concrete. Type Timing ☒ Rehab, ☐ Repair, ☐ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent ☒ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:		
Element Name:	Drainage System					Width:		
Location:	North and south on deck.					Height:		
Element Description:	150mm holes in deck lined with steel tube.					Count:	8	
Material:						Total Quantity:	8.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	8.0	0.00	0.00	BCI TEV:		BCI CEV:
Comments:	Drainage in fair condition, functional and clear of obstructions.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	20.7 (m)	
Element Name:	Soffit					Width:	7.8 (m)	
Location:	Underside of Deck - Interior					Height:	0.25 (m)	
Element Description:	Laminated wood planks 2" x 6"					Count:	1	
Material:	Wood					Total Quantity:	161.5 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:	Creosote (Concrete / Surface Treatment)					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	99.2	57.0	5.3	BCI TEV:	BCI CEV:	
Comments:	Minor weathering and abrasion at midspan from water vehicles. Minor vertical plank offsets at mid-span of bridge.							
Recommended work:						Maintenance Needs: -		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Decks					Length:	20.7 (m)	
Element Name:	Soffit - Thin Slab					Width:	0.55 (m)	
Location:	Exterior					Height:	(m)	
Element Description:	Concrete and exposed wooden deck plank.					Count:	2	
Material:	Cast-In-Place Concrete					Total Quantity:	22.8 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	18.3	2.5	2.0	BCI TEV: 2736.0	BCI CEV: 1767.0	
Comments:	Staining and some narrow cracks. Severe weathering and cracking of wood on south side with light splits.							
Recommended work:						Maintenance Needs: -		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Decks					Length:	20.7 (m)	
Element Name:	Wearing Surface					Width:	7.5 (m)	
Location:	Top					Height:	(m)	
Element Description:	20-25mm lift of asphalt over concrete deck.					Count:	1	
Material:	a					Total Quantity:	155.25 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	09. Rough riding surface		
	sq.m	0.00	0.00	138.85	16.4	BCI TEV: 3881.25	BCI CEV: 1388.5	
Comments:	Longitudinal spalls, and potholes into the deck. Heavy ravelling throughout.							
Recommended work:						Maintenance Needs:		
Comments Repave wearing surface Type ☐ Rehab, ☐ Repair, ☒ Replace Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Embankments					Width:	(m)	
Location:	All quadrants.					Height:	(m)	
Element Description:	Vegetated sandy soil with armour stone at base					Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	3.0	0.00	1.0	BCI TEV: 4000.0	BCI CEV: 2250.0	
Comments:	Runoff has deteriorated the embankment at northeast quadrant.							
Recommended work:						Maintenance Needs: -		
Comments Provide erosion control at NE quadrant. Type ☒ Rehab, ☐ Repair, ☐ Replace Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Embankments & Streams					Length:	(m)		
Element Name:	Slope Protection					Width:	(m)		
Location:	All quadrants.					Height:	(m)		
Element Description:						Count:	4		
Material:						Total Quantity:	4.0 (each)		
Element Type:						Not Inspected:	☐		
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐		
Protection System:						Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*				
	each	0.00	2.0	2.0	0.00	BCI TEV: 1600.0		BCI CEV: 920.0	
Comments:	No slope protection at NE and NW quadrants.								
Recommended work:						Maintenance Needs: -			
Comments Provide slope protection to NE and NW quadrants. Type ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent			
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent									

Element Group:	Pier					Length:	(m)	
Element Name:	Shaft / Columns / Pile Bents					Width:	0.3 (m)	
Location:	East and West under deck.					Height:	3.0 (m)	
Element Description:	Timber Piles with Capping Beam					Count:	24	
Material:	Wood					Total Quantity:	67.8 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	67.8	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	Capping beam nuts loose. General vertical skew to north piles in water (stable). Light ice-damage at waterline.							
Recommended work:						Maintenance Needs:		
Comments						☒ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing						Tighten capping beam nuts.		

Element Group:	Sidewalks/curbs					Length:	20.7 (m)	
Element Name:	Curbs					Width:	0.9 (m)	
Location:	North and South					Height:	0.3 (m)	
Element Description:	Concrete sidewalk integrated into deck.					Count:	2	
Material:	Cast-in-place Concrete					Total Quantity:	49.7 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	27.5	18.8	3.4	BCI TEV: 1988.0	BCI CEV: 1125.8	
Comments:	Minor map cracking, narrow cracks. Impact damage northeast corner (spall). Small delamination northeast corner. Wide crack north side center.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Slope Protection	Add slope protection.			✓			\$10,000.00
Deck top	Patch concrete.			✓			\$20,000.00
Approach wearing surface	Repave.			✓			\$20,000.00
Barriers	Replace.			✓			\$40,000.00
Total							\$90,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: Looking east



Description: Looking west



Description: West wall (typ.)

Abutments / Abutment Walls (East & West)



Description: Southeast parapet

Barriers / Barrier/Parapet Walls (Interior, all quadrants)



Description: Northeast parapet

Barriers / Barrier/Parapet Walls (Interior, all quadrants)



Description: North side of west approach
Approaches / Wearing Surface (East and West)



Description: North side, second post from the west
Barriers / Hand Railings (North and South)



Description: North side second post from the west
Barriers / Hand Railings (North and South)



Description: Cracking of both centre posts on south side
Barriers / Hand Railings (North and South)



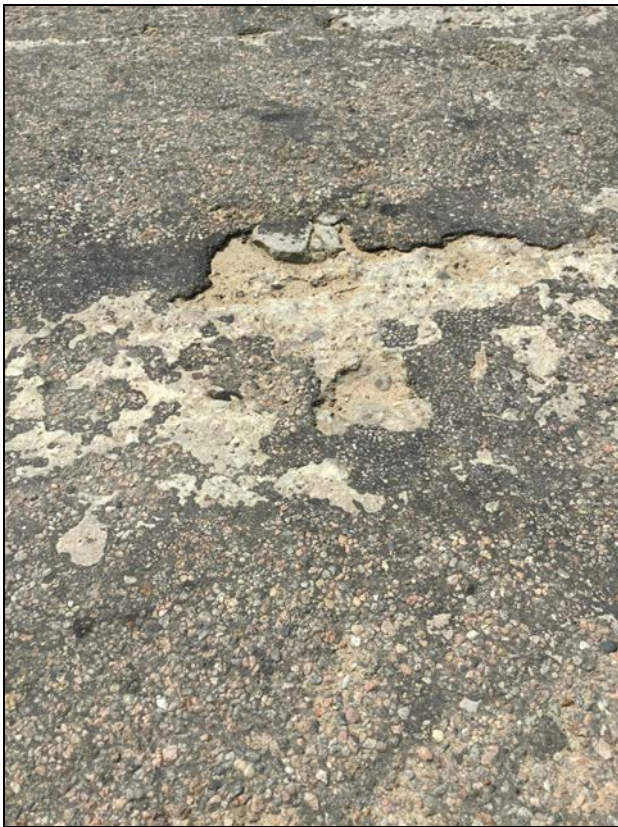
Description: Exposed concrete deck with spalls outlined

Decks / Deck Top (Top of deck under wearing surface.)



Description: East deck spall

Decks / Deck Top (Top of deck under wearing surface.)



Description: West deck spall

Decks / Deck Top (Top of deck under wearing surface.)



Description: Minor vertical offsets

Decks / Soffit (Underside of Deck - Interior)



Description: West side (typ.)

Decks / Soffit (Underside of Deck - Interior)



Description: Weathering and moderate cracks south side.

Decks / Soffit - Thin Slab (Exterior)



Decks / Soffit - Thin Slab (Exterior)



Description: Wearing surface looking east
Decks / Wearing Surface (Top)



Description: Northeast erosion

Embankments & Streams / Embankments (All quadrants.)



Description: Sw quadrant

Embankments & Streams / Embankments (All quadrants.)



Description: Southeast

Embankments & Streams / Embankments (All quadrants.)



Description: Northeast

Embankments & Streams / Embankments (All quadrants.)



Description: Nw quadrant

Embankments & Streams / Embankments (All quadrants.)



Description: Beams west end

Pier / Shaft / Columns / Pile Bents (East and West under deck.)



Description: East side

Pier / Shaft / Columns / Pile Bents (East and West under deck.)



Description: Narrow crack nw corner

Sidewalks/curbs / Curbs (North and South)



Description: Curb (typ.)

Sidewalks/curbs / Curbs (North and South)



Description: Scraping / impact damage northeast corner.

Sidewalks/curbs / Curbs (North and South)



Description: Typically deck drainage

Decks / Drainage System (North and south on deck.)

Inventory Data:

Structure Name Koshlong Lake Bridge			
Main Hwy/Road #	1 ☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name Koshlong Lake Road			
Structure Location 0.15 km North of Tippys Trail			
Latitude	44.982518	Longitude	-78.521466
Northing		Easting	
Owner(s)	Municipality of Dysart et al		
	Heritage designation: ☒ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List		
MTO Region			
	Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes		
MTO District		Posted Speed	60 No. of Lanes 2
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type	Bridge		
Total Deck Length	15.9 (m)	Interchange Structure Number	
Overall Str. Width	6.6 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	105.0 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	6.1 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	E to W
No. of Spans	3	Fill on Structure	 (m)
Span Lengths	5.2 (m)		

Historical Data:

Year Built	1960	Year of Last Major Rehab.	
Last OSIM Inspection	2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description) (Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	July 30, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Tape, hammer, flashlight, waders		
Weather:	Sunny		
Temperature:	26.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey	✓		
Detailed Deck Condition Survey:	✓		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓		
Concrete Substructure Condition Survey:	✓		
Detailed Coating Condition Survey:	✓		
Detailed Timber Investigation	✓		
Post-Tensioned Strand Investigation	✓		
Underwater Investigation:	✓		
Fatigue Investigation:	✓		
Seismic Investigation:	✓		
Structure Evaluation:	✓		
Monitoring	✓		
Monitoring of Deformations, Settlements and Movements:	✓		
Monitoring Crack Widths:	✓		

Investigation Notes:

None

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	
Date of Next Inspection:	

Overall Bridge Condition:	54.88
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments	Length:	(m)
Element Name:	Ballast walls	Width:	8.5 (m)
Location:	N/S	Height:	1.6 (m)
Element Description:		Count:	2
Material:	Wood	Total Quantity:	27.2 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Creosote	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	13.6
	Fair	Poor*	
	0.00	0.00	
		BCI TEV: 9520.0	BCI CEV: 3570.0
Comments:	Light scour and undermining below ends of ballast wall. Scour behind ballast walls due to continued erosion of embankments.		
Recommended work:		Maintenance Needs: 13. Erosion Control at Bridges	
Comments Replace top two south ballast wall boards		☒ 1 year, ☐ 2 years, ☐ Urgent Install erosions control at ballast.	
Type ☐ Rehab, ☐ Repair, ☒ Replace			
Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent			

Element Group:	Approaches	Length:	6.0 (m)
Element Name:	Wearing surface	Width:	7.5 (m)
Location:	N/S	Height:	(m)
Element Description:	Paved.	Count:	2
Material:	Asphalt	Total Quantity:	90.0 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	75.0
	Fair	Poor*	
	11.6	3.4	
		BCI TEV: 540.0	BCI CEV: 365.34
Comments:	Recently repave east side. Narrow centreline seam crack. Abrasion and centreline crack north side. Some settle at ballast wall causing bump at transition to deck top.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Barriers					Length:	16.0 (m)	
Element Name:	Railing Systems					Width:	(m)	
Location:	N / S					Height:	(m)	
Element Description:						Count:	2	
Material:	Steel & Wood					Total Quantity:	32.0 (m)	
Element Type:	Steel Flex Beam on Wood Post					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Creosote / Galvanized					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	Load carrying capacity of guiderail		
	m	0.00	0.00	32.0	0.00	BCI TEV:	BCI CEV:	
Comments:	SBGR high (1.4m to beam cl). Beam and post replaced at northeast corner. Some rehabilitation since last inspection, new bolts. Light corrosion on remaining beams.							
Recommended work:						Maintenance Needs:		
Comments Install at standard height Type ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent								

Element Group:	Beams/Main Longitudinal Elements					Length:		
Element Name:	Bracing					Width:		
Location:						Height:		
Element Description:						Count:	8	
Material:	Wood					Total Quantity:	8.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	0.00	8.0	0.00	BCI TEV:	BCI CEV:	
Comments:	Minor checks and splits throughout. Overall in fair condition.							
Recommended work:						Maintenance Needs:		
Comments Type ☐ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Beams/Main Longitudinal Elements	Length:	15.9 (m)
Element Name:	Girders	Width:	0.25 (m)
Location:		Height:	0.4 (m)
Element Description:		Count:	23
Material:	Wood	Total Quantity:	150.25 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☒ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Creosote	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	0.00
		Fair	Poor*
		150.25	0.00
		BCI TEV: 30050.0	BCI CEV: 12020.0
Comments:	Localized light checks on bottom edge. Overall in fair condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Deck	Length:	15.9 (m)
Element Name:	Wearing Surface (Decks)	Width:	6.1 (m)
Location:	Deck Top	Height:	(m)
Element Description:	Approximately 25mm lift.	Count:	1
Material:	Asphalt Surface Treatment	Total Quantity:	97.0 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	16.0
		Fair	Poor*
		4.7	3.9
		BCI TEV:	BCI CEV:
Comments:	East side has two sink holes and settling causing a bump at transition to deck. Light map cracking over northwest with some rippling. Areas of ponding evident.		
Recommended work:		Maintenance Needs:	
Comments Replace wearing surface. Type Timing ☐ Rehab, ☐ Repair, ☒ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Decks					Length:	15.9 (m)	
Element Name:	Deck Top					Width:	6.6 (m)	
Location:	Under wearing surface.					Height:	(m)	
Element Description:	Laminated wood					Count:	1	
Material:	Wood					Total Quantity:	105.0 (sq.m)	
Element Type:	Laminated Wood Decking - Transverse					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:	Creosote / Surface Treatment					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	95.0	10.0	0.00	BCI TEV: 12600.0	BCI CEV: 9030.0	
Comments:	Minor splits and displacement. Seen from under deck (soffit).							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Embankments					Width:	(m)	
Location:	NE/NW/SE/SW					Height:	(m)	
Element Description:						Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	Unstable embankments		
	each	0.00	1.0	3.0	0.00	BCI TEV:	BCI CEV:	
Comments:	Erosion at NE and SW, with general washing of material at ballast wall locations. Slope is stable where vegetated.							
Recommended work:						Maintenance Needs:		
Comments Repair eroded sections of embankments & provide slope protection at time of rehabilitation. Type ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Piers	Length:	8.0 (m)
Element Name:	Caps	Width:	0.25 (m)
Location:	Abutments and piers	Height:	0.4 (m)
Element Description:		Count:	4
Material:	Wood	Total Quantity:	33.6 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Creosote	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	33.6
	Fair	Poor*	
	0.00	0.00	
	BCI TEV: 30240.0		BCI CEV: 22680.0
Comments:	Light splits throughout, overall in good condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Piers	Length:	
Element Name:	Shafts/columns/Pile Bents	Width:	0.3
Location:	East and west and mid span x 2	Height:	0.8
Element Description:	300 mm dia	Count:	24
Material:	Wood	Total Quantity:	18.1
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☒
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	11.1
	Fair	Poor*	
	1.4	5.6	
	BCI TEV: 16290.0		BCI CEV: 7996.5
Comments:	Limited due to water level. Some rot around waterline on abutment piles 0.25m from ground.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Piers	Length:	
Element Name:	Shafts/columns/Pile Bents	Width:	0.5 (m)
Location:	N/S	Height:	2.5
Element Description:		Count:	24
Material:	Wood	Total Quantity:	84.8
Element Type:		Not Inspected:	☐
Environment:	☒ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Creosote	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	Fair	Poor*	
	0.00	0.00	80.1
		4.7	
BCI TEV:	BCI CEV:		
Comments:	Rot at bottom 0.25 m above water level at all piles at abutments. (Water too high to further evaluate pier piles).		
Recommended work:		Maintenance Needs:	
Comments Type Timing ☐ Rehab, ☐ Repair, ☐ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Sidewalks/Curb	Length:	15.6 (m)
Element Name:	Curb	Width:	0.25 (m)
Location:	N /S	Height:	0.3 (m)
Element Description:		Count:	2
Material:	Wood	Total Quantity:	17.2 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:	Creosote	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	Fair	Poor*	
	sq.m	0.00	17.2
		0.00	0.00
BCI TEV:	BCI CEV:		
Comments:	Medium weathering, light splits and checks throughout. Sediment accumulated in front of north gutter slots. New curb bridge bolts are not countersunk and may snag on snow plough blade.		
Recommended work:		Maintenance Needs: 02	
Comments Type Timing ☐ Rehab, ☐ Repair, ☐ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent		☒ 1 year, ☐ 2 years, ☐ Urgent Remove debris from drainage spaces.	

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Slope Protection	Add slope protection as needed.			✓			\$5,000.00
Deck, Wearing Surface	Replace wearing surface.		✓				\$20,000.00
Railing Systems (Deck)	Adjust guiderail to OPSD height (0.6m).					✓	\$2,000.00
Ballast Wall	Replace top two boards, south side.					✓	\$1,000.00
Total							\$28,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General arrangement, looking north.



Description: General elevation, west.



Description: General arrangement, looking south.



Description: Typical area of minor rot, south side.

Piers / Shafts/columns/Pile Bents (East and west and mid span x 2)



Description: General conditions.

Piers / Shafts/columns/Pile Bents (East and west and mid span x 2)



Description: Typical condition, minor displacement. No sign of rot or seepage.

Decks / Deck Top (Under wearing surface.)



Description: General condition of deck top inferred by soffit.

Decks / Deck Top (Under wearing surface.)



Description: East railing, general condition.

Barriers / Railing Systems (N / S)



Description: West railing, general condition.

Barriers / Railing Systems (N / S)



Description: Northwest railing post split.

Barriers / Railing Systems (N / S)



Description: Post checked and bolt exposed.

Barriers / Railing Systems (N / S)



Description: Centerline crack, north side.

Approaches / Wearing surface (N/S)



Description: Centerline crack, south side.

Approaches / Wearing surface (N/S)



Description: Settling and bump at transition north side.

Approaches / Wearing surface (N/S)



Description: South approach.

Approaches / Wearing surface (N/S)



Description: Northwest, map cracks and rippling.

Deck / Wearing Surface (Decks) (Deck Top)



Description: Sink hole on east side.

Deck / Wearing Surface (Decks) (Deck Top)



Description: Northeast transition bump from deck to approach.

Deck / Wearing Surface (Decks) (Deck Top)



Description: Northeast quadrant erosion.

Embankments & Streams / Embankments (NE/NW/SE/SW)



Description: Obstructed flow in north section, similar obstruction of south section. Middle is clear.

Embankments & Streams / Embankments (NE/NW/SE/SW)



Description: Southwest quadrant erosion.

Embankments & Streams / Embankments (NE/NW/SE/SW)



Description: North capping beam, typical condition.

Piers / Caps (Abutments and piers)



Description: New curb at northeast corner. Bolts are not countersunk.
Sidewalks/Curb / Curb (N /S)



Description: Original curb, typical condition.
Sidewalks/Curb / Curb (N /S)



Description: Occurrence of minor rot at all abutment piles lower segment of abutment pile.

Piers / Shafts/columns/Pile Bents (N/S)



Description: North braces, typical condition.

Beams/Main Longitudinal Elements / Bracing

Inventory Data:

Structure Name Kelly Lake Bridge			
Main Hwy/Road #	County Road 7	☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road
Hwy/Road Name	Kennisis Lake Road		
Structure Location	North of North Kennisis Lake Road		
Latitude	45.241500	Longitude	-78.616500
Northing		Easting	
Owner(s)	Municipality of Dysart et al	Heritage designation: ☐ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List	
MTO Region		Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes	
MTO District		Posted Speed	50 No. of Lanes 2
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type	Bridge	Interchange Number	
Total Deck Length	7.7 (m)	Interchange Structure Number	
Overall Str. Width	6.7 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	79.0 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	6.1 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	N to S
No. of Spans	1	Fill on Structure	 (m)
Span Lengths	5.4 (m)		

Historical Data:

Year Built	1970	Year of Last Major Rehab.	
Last OSIM Inspection	2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description)			
(Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	Aug. 8, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Hip waders, tape measure, flashlight, hammer		
Weather:	Rain		
Temperature:	19.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring			
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:			
Investigation Notes:			

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	East
Date of Next Inspection:	

Overall Bridge Condition:	74.49
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:	(m)	
Element Name:	Abutment Walls					Width:	7.0 (m)	
Location:						Height:	2.0 (m)	
Element Description:						Count:	2	
Material:	Wood Timber					Total Quantity:	28.0 (sq.m)	
Element Type:	Crib					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	28.0	0.00	0.00	BCI TEV: 25200.0	BCI CEV: 18900.0	
Comments:	Crib in good condition, minor splits and checks. Shaked, split and loose section on west abutment outlined in image. Split on north end of east abutment.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Approaches					Length:	6.0 (m)	
Element Name:	Wearing Surface					Width:	6.1 (m)	
Location:	East and west					Height:	(m)	
Element Description:	Pavement.					Count:	2	
Material:	Asphalt					Total Quantity:	73.2 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	73.2	0.00	0.00	BCI TEV: 439.2	BCI CEV: 329.4	
Comments:	Light wheel ruts.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Barriers					Length:	8.0 (m)	
Element Name:	Railing Systems					Width:	(m)	
Location:	E/W					Height:	(m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	16.0 (m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanized Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m	0.00	16.0	0.00	0.00	BCI TEV: 3200.0		BCI CEV: 2400.0
Comments:	Guiderail in good condition with minor corrosion and minor deflection. Posts have minor cracking, splits and checks. N/E quadrant end connection bolt requires refastening.							
Recommended work:						Maintenance Needs: 17. Other		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent		
						Fasten fishtail terminal end to SBGR at northeast quadrant.		

Element Group:	Beams/Main Longitudinal Elements					Length:		
Element Name:	Diaphragms					Width:		
Location:						Height:		
Element Description:						Count:	9	
Material:	Wood					Total Quantity:	9.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	9.0	0.00	0.00	BCI TEV:		BCI CEV:
Comments:	Diaphragms in good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Beams/Main Longitudinal Elements					Length:	11.7 (m)	
Element Name:	Girders					Width:	0.2 (m)	
Location:						Height:	0.55 (m)	
Element Description:						Count:	10	
Material:	Wood					Total Quantity:	152.1 (sq.m)	
Element Type:	Rectangular-solid					Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	152.1	0.00	0.00	BCI TEV: 30420.0	BCI CEV: 22815.0	
Comments:	Moderate beam deflection observed while loading of tandem axle dump truck was observed.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Deck					Length:	7.7 (m)	
Element Name:	Deck Top					Width:	6.7 (m)	
Location:	Under wearing surface.					Height:	(m)	
Element Description:						Count:	1	
Material:	Wood					Total Quantity:	51.6 (sq.m)	
Element Type:	Laminated Wood Decking - Transverse					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote / Surface Treatment					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	37.4	14.2	0.00	BCI TEV:	BCI CEV:	
Comments:	Limited scope due cover, condition based on soffit condition.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	7.7 (m)	
Element Name:	Soffit - Thin Slab					Width:	6.7 (m)	
Location:						Height:		
Element Description:						Count:	0	
Material:						Total Quantity:	51.6 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	51.6	0.00	0.00	BCI TEV: 6192.0	BCI CEV: 4644.0	
Comments:	Overall good condition							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Decks					Length:	7.7 (m)	
Element Name:	Wearing Surface					Width:	6.7 (m)	
Location:	Top of deck.					Height:	(m)	
Element Description:	Asphalt with gutters.					Count:	1	
Material:	Surface Treatment					Total Quantity:	51.6 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	37.0	13.0	1.6	BCI TEV: 1290.0	BCI CEV: 823.75	
Comments:	Ripples, ponding and minor transverse cracking.							
Recommended work:						Maintenance Needs:		
Comments Repave deck. Type ☐ Rehab, ☐ Repair, ☒ Replace Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Embankments and Streams					Length:	(m)	
Element Name:	Embankments					Width:	(m)	
Location:	All quadrants.					Height:	(m)	
Element Description:						Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	3.0	1.0	0.00	BCI TEV:	BCI CEV:	
Comments:	Build up of wood debris along embankments, used as adequate slope protection. Eroding of SE road embankment.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Embankments & Streams					Length:		
Element Name:	Streams and Waterways					Width:		
Location:						Height:		
Element Description:						Count:	1	
Material:						Total Quantity:	1.0 (all)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	all	0.00	1.0	0.00	0.00	BCI TEV: 1000.0	BCI CEV: 750.0	
Comments:	In good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Foundations					Length:	7.0 (m)	
Element Name:	Foundation (Below Ground Level)					Width:	2.5 (m)	
Location:	E/W					Height:	0.5 (m)	
Element Description:						Count:	2	
Material:	Cast-in-place Concrete					Total Quantity:	7.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	3.5	3.5	0.00	BCI TEV:	BCI CEV:	
Comments:	Scour on exposed east concrete foundation; requires erosion protection. Significant deterioration of E abutment foundation bearing surface. West foundation below water level in good condition.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing ☐ Rehab, ☐ Repair, ☐ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Sidewalks/Curbs					Length:	24.0 (m)	
Element Name:	Curbs					Width:	0.27 (m)	
Location:	N/S					Height:	0.35 (m)	
Element Description:						Count:	2	
Material:	Wood					Total Quantity:	29.76 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	14.9	14.9	0.00	BCI TEV: 1190.4	BCI CEV: 685.4	
Comments:	Longitudinal cracks and splits. Bolts not countersunk. Gutter system has sediment accumulated.							
Recommended work:						Maintenance Needs: 02. Bridge Cleaning		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Clean out gutter and curb slot system.		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Deck, Wearing Surface	Repave deck wearing surface.			✓			\$10,000.00
Total							\$10,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General elevation, south.



Description: General elevation, north.



Description: General arrangement, looking east.



Description: West abutment midspan, shaken, split and loose
Abutments / Abutment Walls



Description: Split on north side of east abutment

Abutments / Abutment Walls



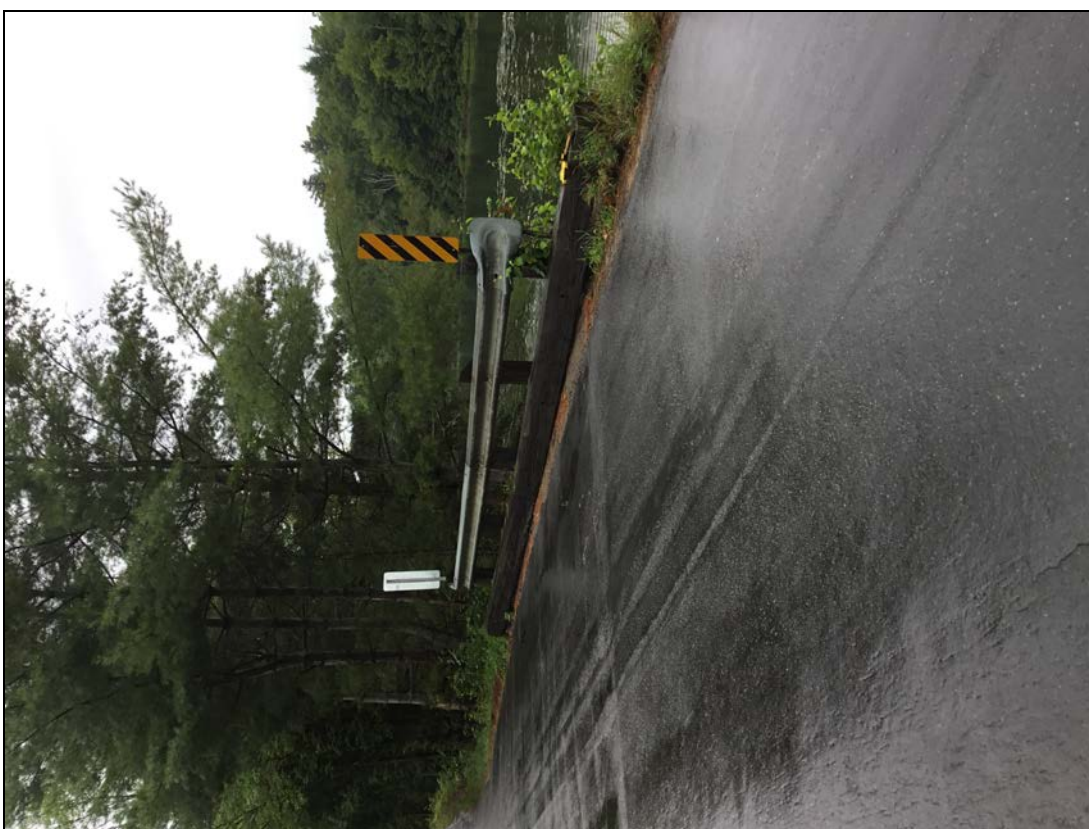
Description: East approach.

Approaches / Wearing Surface (East and west)



Description: West approach.

Approaches / Wearing Surface (East and west)



Description: North railing.

Barriers / Railing Systems (E/W)



Description: South railing.

Barriers / Railing Systems (E/W)



Description: NE fishtail needs to be fastened.

Barriers / Railing Systems (E/W)



Description: Light corrosion/staining (typical condition).

Barriers / Railing Systems (E/W)



Description: Narrow cracks and rippling.

Decks / Wearing Surface (Top of deck.)



Description: Scoured east foundation

Foundations / Foundation (Below Ground Level) (E/W)



Description: Minor rot segment located at the southeast quadrant.

Sidewalks/Curbs / Curbs (N/S)



Description: North curb bolts detail.

Sidewalks/Curbs / Curbs (N/S)



Description: Northwest quadrant, typical conditions.

Embankments and Streams / Embankments (All quadrants.)



Description: Erosion at the southeast embankment.

Embankments and Streams / Embankments (All quadrants.)



Description: Southwest quadrant, typical conditions.

Embankments and Streams / Embankments (All quadrants.)

Inventory Data:

Structure Name Burnt River Bridge			
Main Hwy/Road #	 ☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name Unicorn Road			
Structure Location 1.7 km South of Hutchings Road			
Latitude	45.004201	Longitude	-78.470861
Northing		Easting	
Owner(s)	Municipality of Dysart Et. Al.		
MTO Region		Heritage designation: ☐ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List	
		Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes	
MTO District		Posted Speed	50 No. of Lanes 2
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type	Bridge	Interchange Number	
Total Deck Length	23.2 (m)	Interchange Structure Number	
Overall Str. Width	6.0 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	139.0 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	6.0 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	N to S
No. of Spans	1	Fill on Structure	 (m)
Span Lengths	15.4 (m)		

Historical Data:

Year Built	2008	Year of Last Major Rehab.	
Last OSIM Inspection	2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description) (Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	July 31, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Tape, hammer, flashlight, waders		
Weather:	Partly Cloudy		
Temperature:	24.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring			
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:			
Investigation Notes:			

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	Overall good condition. Urgent repair to missing nuts on guiderail posts and steel flex beam, as well as joint seals required.
Date of Next Inspection:	2020

Overall Bridge Condition:	73.57
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None

- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:	1.0 (m)	
Element Name:	Abutment walls					Width:	7.5 (m)	
Location:	Bearing Surface					Height:	0.5 (m)	
Element Description:	Ballast wall					Count:	2	
Material:	Cast-In-Place Concrete					Total Quantity:	3.75 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	3.75	0.00	0.00	BCI TEV: 3375.0	BCI CEV: 2531.25	
Comments:	Good condition. South seal is broken and is allowing sediment to accumulate around bearing seats.							
Recommended work:						Maintenance Needs: 02. Bridge Cleaning		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Remove sediment from around south bearing seats.		

Element Group:	Abutments					Length:	7.0 (m)	
Element Name:	Abutment Walls					Width:	(m)	
Location:	North and south					Height:	1.5 (m)	
Element Description:						Count:	2	
Material:	Corrugated Galvanized					Total Quantity:	21.0 (sq.m)	
Element Type:	Sheet Pile					Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	21.0	0.00	0.00	BCI TEV: 18900.0	BCI CEV: 14175.0	
Comments:	In good condition. Some hairline pattern surface cracks.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Abutments					Length:	7.0 (m)	
Element Name:	Ballast walls					Width:	0.5 (m)	
Location:	N /S					Height:	1.0 (m)	
Element Description:						Count:	2	
Material:	Cast in Place Concrete / Sheet Pile					Total Quantity:	14.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	14.0	0.00	0.00	BCI TEV: 4900.0	BCI CEV: 3675.0	
Comments:	Good condition.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Abutments					Length:	(m)	
Element Name:	Bearings					Width:	(m)	
Location:	North and south					Height:	(m)	
Element Description:						Count:	8	
Material:	Elastomeric Rubber					Total Quantity:	8.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	7.0	1.0	0.00	BCI TEV: 8000.0	BCI CEV: 5650.0	
Comments:	Some extrusion and displacement at northeast. Over compression. All other bearings good condition.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Approaches					Length:	6.0 (m)	
Element Name:	Wearing surface					Width:	5.25 (m)	
Location:						Height:	(m)	
Element Description:						Count:	2	
Material:	Asphalt approach slab, gravel approach					Total Quantity:	63.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	09. Rough riding surface		
	sq.m	0.00	51.0	0.00	12.0	BCI TEV: 378.0		BCI CEV: 229.5
Comments:	Settling at both end at asphalt interface. Potholes in east wheel track at both ends. Overall in good condition, with 12.0 sq.m in poor.							
Recommended work:						Maintenance Needs: 17. Other		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Regrade gravel approaches to remove settling and potholes.		

Element Group:	Barriers					Length:	27.75 (m)	
Element Name:	Railing Systems					Width:	(m)	
Location:	E / W					Height:	(m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	55.5 (m)	
Element Type:	Steel Flex Beam on Steel Post					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanized					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard		
	m	0.00	55.5	0.00	0.00	BCI TEV: 11100.0		BCI CEV: 8325.0
Comments:	Missing 4 bolts on approach base plates at south end. One loose and one not attached bolt to steel flex beam from post on northeast end of bridge deck.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☒ Urgent Re-install missing bolts on baseplates. Fasten and tighten bolts to steel flex beam on northeast end of deck.		

Element Group:	Beams/Main Longitudinal Elements					Length:	23.0 (m)	
Element Name:	Girders					Width:	0.25 (m)	
Location:	North and south					Height:	0.745 (m)	
Element Description:	Coating 3m out from abutment, bare steel midspan.					Count:	4	
Material:	Steel					Total Quantity:	161.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Paint					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	161.0	0.00	0.00	BCI TEV: 32200.0	BCI CEV: 24150.0	
Comments:	Minor corrosion at mid sections, protective coating applied at ends.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Deck					Length:	15.75 (m)	
Element Name:	Wearing Surface					Width:	5.0 (m)	
Location:	Deck Top					Height:	(m)	
Element Description:						Count:	1	
Material:	Asphalt					Total Quantity:	78.75 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	78.75	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	Deck wearing surface in good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Embankments and Streams					Length:	(m)	
Element Name:	Embankments					Width:	(m)	
Location:	All quadrants.					Height:	(m)	
Element Description:	Geravel and vegetated rip rap.					Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	4.0	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	Slight washout on northeast quadrant. Beaver dams located downstream.							
Recommended work:						Maintenance Needs:		
Comments Add slope protection to northeast slope. Remove beaver dams downstream. Type ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Joints					Length:	5.0 (m)	
Element Name:	Seals/sealants					Width:	(m)	
Location:	North and south					Height:	(m)	
Element Description:						Count:	2	
Material:	Pre Fabricated Rubber					Total Quantity:	2.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	1.0	0.00	1.0	BCI TEV: 2000.0	BCI CEV: 750.0	
Comments:	South seal has fallen out, and armouring is damaged. North seal is full of sediment making inspection limited.							
Recommended work:						Maintenance Needs:		
Comments Replace broken expansion joint seal (South expansion joint). Replace north expansion joint. Type ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Joint Seal	Replace joint seal.				✓		\$5,000.00
Slope Protection	Add slope protection as needed.			✓			\$5,000.00
Total							\$10,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General arrangement, looking south.



Description: General arrangement, looking south.



Description: General elevation, east.



Description: South wall, sediment is washing down from above and accumulating around the bearing on the bearing seat from a defective joint fill above.

Abutments / Abutment walls (Bearing Surface)



Description: Bearing seat, typical condition.

Abutments / Abutment walls (Bearing Surface)



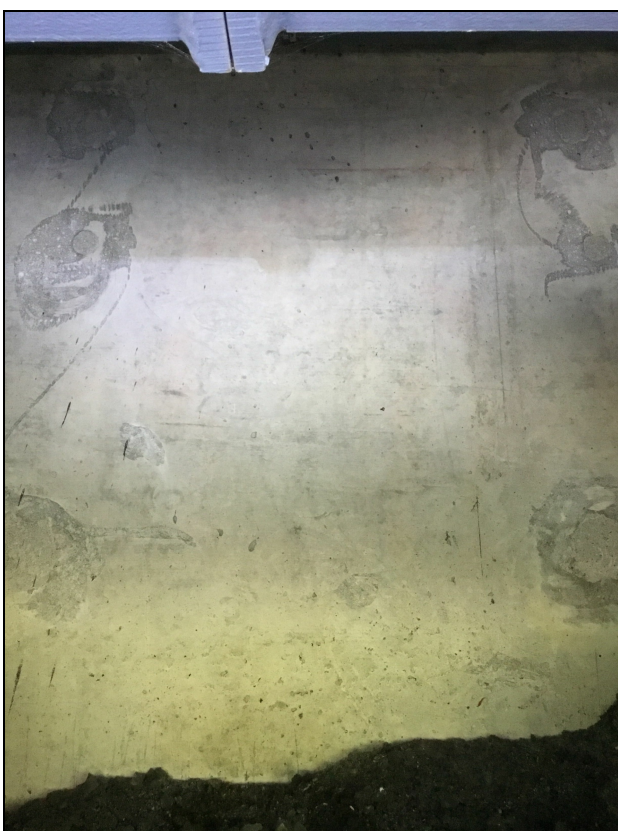
Description: North wall, general condition.

Abutments / Abutment Walls (North and south)



Description: South wall, general condition.

Abutments / Abutment Walls (North and south)



Description: North wall, typical condition.

Abutments / Ballast walls (N /S)



Description: Minor compression and displacement, northeast bearing #2.

Abutments / Bearings (North and south)



Description: South bearing, typical condition.

Abutments / Bearings (North and south)



Description: North approach looking south, settling before asphalt, and potholes seen in northeast wheel track

Approaches / Wearing surface



Description: South approach looking north, settling prior to asphalt, and pothole in southeast wheel track.

Approaches / Wearing surface



Description: One (1) missing nut from steel post of southwest quadrant prior to bridge deck

Barriers / Railing Systems (E / W)



Description: Loose (right), and not attached(left) bolts at farthest northeast post on bridge deck.

Barriers / Railing Systems (E / W)



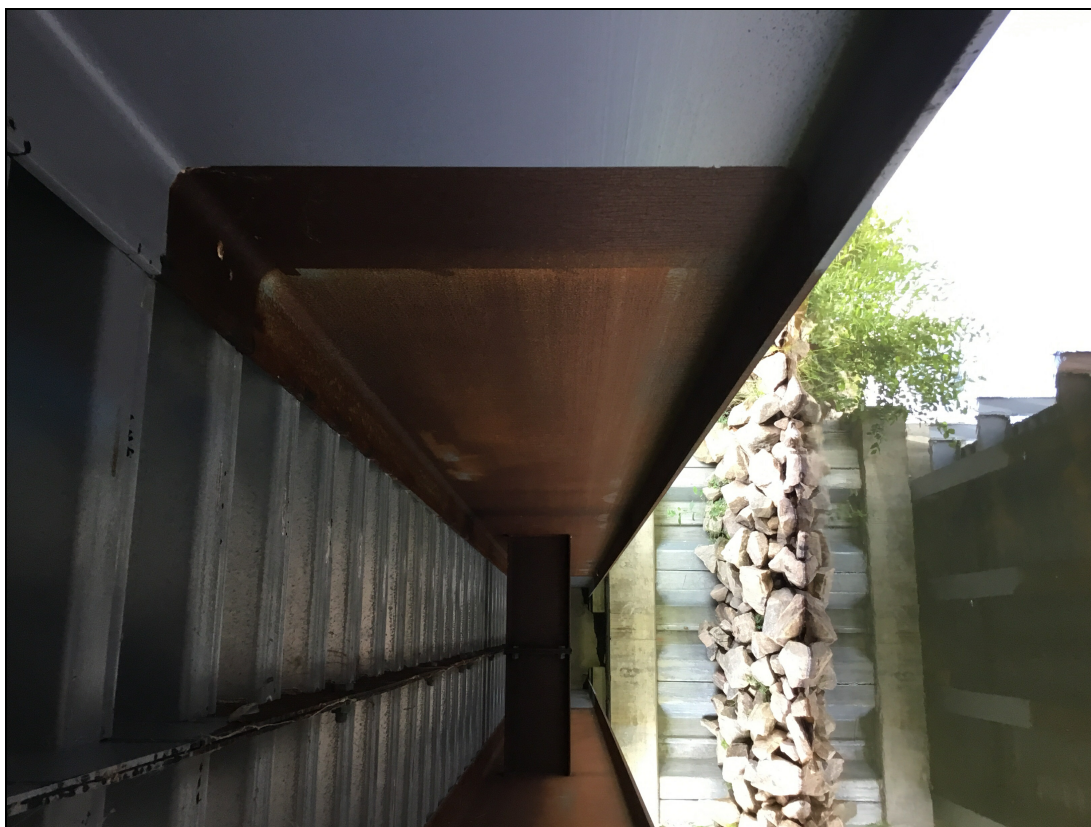
Description: Three (3) nuts missing from southeast post prior to bridge deck.

Barriers / Railing Systems (E / W)



Description: Coating, typical condition.

Beams/Main Longitudinal Elements / Girders (North and south)



Description: Typical level of corrosion where coating is absent.
Beams/Main Longitudinal Elements / Girders (North and south)



Description: Southwest quadrant, general conditions.
Embankments and Streams / Embankments (All quadrants.)



Description: Southeast quadrant, general conditions.

Embankments and Streams / Embankments (All quadrants.)



Description: Start of washout at northeast quadrant, add slope protection.

Embankments and Streams / Embankments (All quadrants.)



Description: Two beaver dams downstream.

Embankments and Streams / Embankments (All quadrants.)



Description: Northwest embankment, stable.

Embankments and Streams / Embankments (All quadrants.)



Description: North joint full of sediment, no sign of seepage on bearing seat.

Joints / Seals/sealants (North and south)



Description: South joint freely draining to bearing seat, sediment accumulating.

Joints / Seals/sealants (North and south)



Description: South expansion joint seal has fallen out of joint gap.
Joints / Seals/sealants (North and south)

Inventory Data:

Structure Name Coleman Lake Bridge			
Main Hwy/Road #	 ☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☒ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name Coleman Lake Road			
Structure Location 0.5 km East of Kennisis Lake Road (County Road 7)			
Latitude	45.151700	Longitude	-78.556200
Northing		Easting	
Owner(s)	Municipality of Dysart et al		
MTO Region		Heritage designation: ☐ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List	
		Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes	
MTO District		Posted Speed	50 No. of Lanes 2
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type	I-Beam or Girder	Interchange Number	
Total Deck Length	7.7 (m)	Interchange Structure Number	
Overall Str. Width	7.0 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	54.0 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	7.0 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	N to S
No. of Spans	1	Fill on Structure	 (m)
Span Lengths	7.0 (m)		

Historical Data:

Year Built	2006	Year of Last Major Rehab.	
Last OSIM Inspection	2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description) (Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	Aug. 8, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Hip waders, flashlight, hammer, tape		
Weather:	Cloudy		
Temperature:	20.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring			
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:			

Investigation Notes:

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	Substructure in good to fair condition.
Date of Next Inspection:	2020

Overall Bridge Condition:	65.97
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:	7.0 (m)	
Element Name:	Abutment walls					Width:	(m)	
Location:	North and south					Height:	1.5 (m)	
Element Description:						Count:	2	
Material:	Cast-in-place Concrete					Total Quantity:	21.0 (sq.m)	
Element Type:	Integral					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	14. Undermining of foundation		
	sq.m	0.00	14.0	0.00	7.0	BCI TEV: 18900.0		BCI CEV: 9450.0
Comments:	Severe scouring, scaling and undermining of North and South abutment faces at all water levels.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Abutments					Length:	(m)	
Element Name:	Bearings					Width:	(m)	
Location:	Under Steel Girders					Height:	(m)	
Element Description:						Count:	12	
Material:	Elastomeric Pads					Total Quantity:	12.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	12.0	0.00	0.00	0.00	BCI TEV: 12000.0		BCI CEV: 12000.0
Comments:	Bearings in excellent condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Abutments					Length:	1.8 (m)	
Element Name:	Wingwalls					Width:	(m)	
Location:	All quadrants.					Height:	1.8 (m)	
Element Description:						Count:	4	
Material:	Cast-In-Place Concrete					Total Quantity:	10.8 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	15. Unstable embankments		
	sq.m	0.00	5.4	2.7	2.7	BCI TEV: 3780.0	BCI CEV: 1795.5	
Comments:	Severe undermining of wing wall foundation at NE quadrant causing unstable embankment. Rest in good condition.							
Recommended work:						Maintenance Needs:		
Comments Repair undermined section of wing wall at NE quadrant. Provide erosion control measures. Type ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent								

Element Group:	Accessories					Length:	(m)	
Element Name:	Signs					Width:	(m)	
Location:	End of Approach Guidrails					Height:	(m)	
Element Description:						Count:	4	
Material:	Steel					Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	4.0	0.00	0.00	BCI TEV: 400.0	BCI CEV: 300.0	
Comments:	Signs cannot be seen due to overgrowth.							
Recommended work:						Maintenance Needs: 02		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Clean vegetation around signs		

Element Group:	Approaches					Length:	6.0 (m)	
Element Name:	Wearing surface					Width:	7.0 (m)	
Location:						Height:	(m)	
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	84.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	1.8	37.0	34.2	BCI TEV: 504.0	BCI CEV: 96.9	
Comments:	Moderate to severe alligator cracks on the southeast side. Counting settlement and patching behind abutment wall. Ponding at north approach.							
Recommended work:						Maintenance Needs: -02		
Comments Recompact subbase and repave at next major rehabilitation.						☒ 1 year, ☐ 2 years, ☐ Urgent Repair potholes. Clean vegetation and sediment along shoulders to reduce surface ponding.		
Type ☐ Rehab, ☐ Repair, ☒ Replace						Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent		

Element Group:	Barriers					Length:	70.0 (m)	
Element Name:	Railing Systems					Width:	(m)	
Location:	East and west					Height:	(m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	140.0 (m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanized					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard		
	m	0.00	123.0	10.0	7.0	BCI TEV: 28000.0	BCI CEV: 19250.0	
Comments:	Collision damage to railing and posts at Northeast quadrant. Replace leaning post at nw quadrant at deck.							
Recommended work:						Maintenance Needs:		
Comments 						☐ 1 year, ☐ 2 years, ☒ Urgent Remove vegetation overgrowth.		
Type Timing								

Element Group:	Beams/Main Longitudinal Elements	Length:	7.7 (m)
Element Name:	Girders	Width:	0.2 (m)
Location:	North and south direction.	Height:	0.5 (m)
Element Description:		Count:	6
Material:	Steel	Total Quantity:	55.4 (sq.m)
Element Type:	I - Type	Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	55.4
	Fair	Poor*	
	0.00	0.00	
	BCI TEV: 11080.0		BCI CEV: 8310.0
Comments:	No defects noted, in good condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Decks	Length:	7.7 (m)
Element Name:	Deck Top	Width:	7.0 (m)
Location:		Height:	(m)
Element Description:		Count:	1
Material:	Wood	Total Quantity:	54.0 (sq.m)
Element Type:	Laminated Wood Decking - Transverse	Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☒
Protection System:	Asphalt	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	48.6	5.4
	Fair	Poor*	
	0.00	0.00	
	BCI TEV: 6480.0		BCI CEV: 6318.0
Comments:	Last investigation reported excellent condition, deck top new. Side view shows some twisting of laminated boards. Investigation limited due to visibility. Condition based on areas where wearing surface has worn way. Deck top appears to be in excellent to good overall condition but should be protected by wearing surface. Continue to monitor laminated deck for continued twisting and deflection.		
Recommended work:		Maintenance Needs: -	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Decks					Length:	7.7	
Element Name:	Soffit - Thin Slab					Width:	7.0	
Location:						Height:		
Element Description:						Count:	1	
Material:	Wood					Total Quantity:	54.0	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Pressure treated					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	02. Excessive deformations (deflections & rotations)		
	sq.m	0.00	0.00	54.0	0.00	BCI TEV: 6480.0	BCI CEV: 2592.0	
Comments:	Shifting of decking boards causes previous movement and leaning shown in images. Boards in good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	7.7 (m)	
Element Name:	Wearing Surface					Width:	7.0 (m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:	Asphalt					Total Quantity:	54.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	09. Rough riding surface		
	sq.m	0.00	38.7	11.0	4.3	BCI TEV: 1350.0	BCI CEV: 835.63	
Comments:	Surface peeled up with deck timber exposed. Multiple ravelled areas with patching, rippling, mounding of cold patch. Rough riding surface.							
Recommended work:						Maintenance Needs: 02. Bridge Cleaning		
Comments Repave deck. Type Timing ☐ Rehab, ☐ Repair, ☒ Replace ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent						☒ 1 year, ☐ 2 years, ☐ Urgent Sweep deck.		

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Embankments					Width:	(m)	
Location:	All quadrants.					Height:	(m)	
Element Description:						Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	0.00	2.0	2.0	BCI TEV: 4000.0	BCI CEV: 800.0	
Comments:	Northeast embankment is unstable do to undermined wing wall. Rest and well vegetated and stable in good condition.							
Recommended work:						Maintenance Needs: -		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Slope Protection					Width:	(m)	
Location:	NE/NW/SE/SW					Height:	(m)	
Element Description:	Large stones					Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	0.00	4.0	0.00	BCI TEV: 1600.0	BCI CEV: 640.0	
Comments:	Slope protection stable. Continue to monitor northeast side as there is evidence of previous washout and material loss behind wingwall.							
Recommended work:						Maintenance Needs: -		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Streams and Waterways					Width:	(m)	
Location:	Center					Height:	(m)	
Element Description:						Count:	1	
Material:						Total Quantity:	1.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	1.0	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	No obstructions, in good condition.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Decks, Approaches, Wearing Surface	Repave deck.			✓			\$20,000.00
Wingwalls	Repair undermined section of wingwall at northeast quadrant. Provide erosion control measures.					✓	\$10,000.00
Total							\$30,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General elevation, west.



Description: General elevation, east.



Description: General arrangement, looking north.



Description: West exterior soffit, slight deflection and movement of deck boards visible.

Decks / Soffit - Thin Slab



Description: East exterior soffit

Decks / Soffit - Thin Slab



Description: Severe undermining of northeast wingwall.

Abutments / Wingwalls (All quadrants.)



Description: South abutment showing cold joint at footing and mild to severe scaling to 0.4m from water level.

Abutments / Abutment walls (North and south)



Description: North abutment showing cold joint \ severe honeycombing, and general scaling 0.4m up abutment wall from water level.

Abutments / Abutment walls (North and south)



Description: Warning sign obscured by overgrown vegetation at time of inspection.

Accessories / Signs (End of Approach Guidrails)



Description: Southeast quadrant, alligator cracking.

Approaches / Wearing surface



Description: South approach, settling \ pot holes starting at bridge joint.

Approaches / Wearing surface



Description: Patching and settling detail.

Approaches / Wearing surface



Description: North approach showing large area of ponding.

Approaches / Wearing surface



Description: Impact damage northeast edge of deck.

Barriers / Railing Systems (East and west)



Description: West railing system, obstructed by overgrown vegetation.

Barriers / Railing Systems (East and west)



Description: Wearing surface worn away to exposed deck top. Limited inspection based on worn away areas.

Decks / Deck Top



Description: Wear to visible deck top, requires padding.

Decks / Wearing Surface



Description: General condition of deck wearing surface poor.

Decks / Wearing Surface



Description: Patch mounding and overall rough riding surface.

Decks / Wearing Surface



Description: Northeast quadrant, general conditions. Continue to monitor for washout behind wingwall.

Embankments & Streams / Slope Protection (NE/NW/SE/SW)



Description: Southwest quadrant, general conditions.

Embankments & Streams / Slope Protection (NE/NW/SE/SW)



Description: Northwest quadrant, general conditions.

Embankments & Streams / Slope Protection (NE/NW/SE/SW)



Description: Southeast quadrant, general conditions.

Embankments & Streams / Slope Protection (NE/NW/SE/SW)

Inventory Data:

Structure Name				Eagle Lake Road Bridge			
Main Hwy/Road #		14 ☒ On ☐ Under		Crossing Type: ☒ Navi. Water, ☒ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road			
Hwy/Road Name				Eagle Lake Road			
Structure Location				1.0 km East of Haliburton Lake Road (County Road 14)			
Latitude		45.128930		Longitude		-78.508092	
Northing				Easting			
Owner(s)		Municipality of Dysart et al		Heritage designation: ☐ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List			
MTO Region				Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes			
MTO District				Posted Speed		50	No. of Lanes 1
Old County				AADT			% Trucks
Geographic Twp.				Inspection Route Sequence			
Structure Type		Rigid Frame		Interchange Number			
Total Deck Length		6.9 (m)		Interchange Structure Number			
Overall Str. Width		5.1 (m)		Min. Vertical Clearance		 (m)	
Total Deck Area		35.2 (sq.m)		Special Routes:		☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter	
Roadway Width		4.5 (m)		Detour Length Around Bridge		 (km)	
Skew Angle		0 (Degrees)		Direction of Structure		E to W	
No. of Spans		1		Fill on Structure		 (m)	
Span Lengths		6.1 (m)					

Historical Data:

Year Built	N/A	Year of Last Major Rehab.	
Last OSIM Inspection	2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description)			
(Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	Aug. 2, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Tape, hammer, flashlight		
Weather:	Sunny		
Temperature:	25.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring		✓	
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:		✓	

Investigation Notes:

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	Substructure in fair to poor condition, superstructure in fair to poor condition.
Date of Next Inspection:	2020

Overall Bridge Condition:	44.42
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:	(m)	
Element Name:	Abutment Walls					Width:	6.0 (m)	
Location:	East and west					Height:	2.0 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Place Concrete					Total Quantity:	24.0 (sq.m)	
Element Type:	Integral					Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	12.0	10.0	2.0	BCI TEV: 21600.0	BCI CEV: 11700.0	
Comments:	Moderate transverse crack at high water line, scaling at water line. Overall in fair condition.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Abutments					Length:	3.0 (m)	
Element Name:	Wingwalls					Width:	(m)	
Location:	SE/SW only					Height:	1.5 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Place Concrete					Total Quantity:	9.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	5.0	3.0	1.0	BCI TEV: 3150.0	BCI CEV: 1732.5	
Comments:	Moderate to severe scour at inlet edge; moderate spalling and transverse cracking. Scaling throughout water line.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Approaches					Length:	7.0 (m)	
Element Name:	Wearing Surface					Width:	4.5 (m)	
Location:						Height:	(m)	
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	63.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	25.0	25.0	13.0	BCI TEV:	BCI CEV:	
Comments:	Potholes previously patched. Light to medium longitudinal and transverse cracking throughout. Light wheel rutting.							
Recommended work:						Maintenance Needs: -		
Comments Replace at time of next major rehabilitation. Type ☐ Rehab, ☐ Repair, ☒ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Barriers					Length:	7.0 (m)	
Element Name:	Barrier/Parapet Walls					Width:	(m)	
Location:						Height:	1.0 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Place Concrete					Total Quantity:	14.0 (sq.m)	
Element Type:	Concrete Balustrade					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	0.00	14.0	0.00	BCI TEV: 1400.0	BCI CEV: 560.0	
Comments:	Concrete posts in fair condition with moderate to severe spalling in localized areas.							
Recommended work:						Maintenance Needs:		
Comments Patch spall at south east corner Type ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Barriers					Length:	55.0 (m)	
Element Name:	Railing Systems					Width:	(m)	
Location:	Double guiderail across structure and approach					Height:	(m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	110.0 (m)	
Element Type:	Steel Flex Beam					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanized					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m	0.00	40.0	60.0	10.0	BCI TEV: 22000.0		BCI CEV: 10800.0
Comments:	Guiderail over structure has minor corrosion with collision damage at SW quadrant. Guiderails are loose and not adequately connected to posts. SE guidrail has significant tilting on approach. Moderate to severe splits and checks in wood posts with decay along approaches.							
Recommended work:						Maintenance Needs: 02		
Comments Repair damaged sections of guiderail and replace rotten posts on approaches. Type ☒ Rehab, ☐ Repair, ☐ Replace Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent						☒ 1 year, ☐ 2 years, ☐ Urgent Remove vegetation and winter sand.		

Element Group:	Beams/Main Longitudinal Elements					Length:	6.9 (m)	
Element Name:	Girders					Width:	0.5 (m)	
Location:	E/W Direction					Height:	0.5 (m)	
Element Description:						Count:	5	
Material:	Cast-In-Place Concrete					Total Quantity:	52.0 (sq.m)	
Element Type:	Rectangular-Solid					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	Load carrying capacity		
	sq.m	0.00	0.00	22.0	30.0	BCI TEV: 10400.0		BCI CEV: 1760.0
Comments:	Severe cracking, spalling, delaminations with exposed rebar and general disintegration of girder on North face. Severe spalling with exposed rebar, 2nd girder from north face, also observed. Previous parged areas are delaminating. Light to medium transverse cracking at bearing locations. overall in poor condition.							
Recommended work:						Maintenance Needs:		
Comments Major rehabilitation or complete replacement required. Type Timing ☐ Rehab, ☐ Repair, ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent ☒ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	7.0 (m)	
Element Name:	Deck Top					Width:	4.5 (m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:	Cast-in-place Concrete					Total Quantity:	63.0 (sq.m)	
Element Type:	Cast-in-place Concrete on Supports					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:	Asphalt					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	0.00	50.0	13.0	BCI TEV: 7560.0		BCI CEV: 2400.0
Comments:	Condition based on wearing surface.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	6.1 (m)	
Element Name:	Soffit - Thick slab					Width:	5.1 (m)	
Location:	Interior and Exterior					Height:	0.3 (m)	
Element Description:						Count:	2	
Material:	Cast-In_Place Concrete					Total Quantity:	30.5 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	Load carrying capacity		
	sq.m	0.00	7.6	15.25	7.6	BCI TEV: 10675.0		BCI CEV: 4130.0
Comments:	Exposed rebar with insufficient clear cover and delaminated sections throughout. Localized areas have exposed rebar which has seperated from the soffit structure and are currently hanging loosely. Limited due to access.							
Recommended work:						Maintenance Needs: -		
Comments Replace at time of next major rehabilitation Type ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Decks					Length:	7.0 (m)	
Element Name:	Wearing Surface					Width:	4.5 (m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:	Asphalt					Total Quantity:	63.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	0.00	50.0	13.0	BCI TEV: 1575.0		BCI CEV: 500.0
Comments:	Potholes previously patched. Light to medium longitudinal and transverse cracking throughout. Light wheel rutting.							
Recommended work:						Maintenance Needs: -		
Comments Replace at time of next major rehabilitation. Type ☐ Rehab, ☐ Repair, ☒ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Embankments and Streams					Length:	(m)	
Element Name:	Streams and Waterways					Width:	(m)	
Location:	Center					Height:	(m)	
Element Description:						Count:	1	
Material:						Total Quantity:	1.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	1.0	0.00	0.00	BCI TEV:		BCI CEV:
Comments:	In good condition.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Embankments					Width:	(m)	
Location:	NE/NW/SE/SW					Height:	(m)	
Element Description:						Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	4.0	0.00	0.00	BCI TEV: 4000.0		BCI CEV: 3000.0
Comments:	In good condition							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Replace Structure				✓			\$500,000.00
Total							\$500,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General elevation, north.



Description: East abutment, medium transverse crack at high waterline midway up abutment wall.

Abutments / Abutment Walls (East and west)



Description: West abutment, general conditions. Scaling on both abutment walls to high waterline.

Abutments / Abutment Walls (East and west)



Description: NW wingwall with utility conduit attached, general conditions.

Abutments / Wingwalls (SE/SW only)



Description: NE wingwall, scaling throughout waterline.

Abutments / Wingwalls (SE/SW only)



Description: Rotting posts.

Barriers / Railing Systems (Double guiderail across structure and approach)



Description: Build up of winter sand.

Barriers / Railing Systems (Double guiderail across structure and approach)



Description: East approach, typical conditions. Transverse cracks, pothole patching and narrow to medium cracking.

Approaches / Wearing Surface



Description: Localized spalling exposing reinforcement bar.

Barriers / Barrier/Parapet Walls



Description: Girders looking SE.

Beams/Main Longitudinal Elements / Girders (E/W Direction)



Description: Girders looking SW.

Beams/Main Longitudinal Elements / Girders (E/W Direction)



Description: Portions of the deck top can be seen under the worn away asphalt wearing surface.

Decks / Deck Top



Description: General conditions, facing west.

Decks / Wearing Surface

Inventory Data:

Structure Name Pelaw River Bridge			
Main Hwy/Road #	7 ☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name Redkenn Road			
Structure Location Redden and Pelaw Road			
Latitude	45.215492°	Longitude	-78.555611°
Northing		Easting	
Owner(s)	Halliburton District		
	Heritage designation: ☐ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List		
MTO Region			
	Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes		
MTO District		Posted Speed	50 No. of Lanes 2
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type	Concrete deck on timber		
Total Deck Length	18.4 (m)	Interchange Structure Number	
Overall Str. Width	9.0 (m)	Min. Vertical Clearance	4.3 (m)
Total Deck Area	156.4 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	8.2 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	N to S
No. of Spans	1	Fill on Structure	3.0 (m)
Span Lengths	 (m)		

Historical Data:

Year Built	N/A	Year of Last Major Rehab.	
Last OSIM Inspection	2016	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			

Rehab History: (Date/description)

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	Oct. 9, 2018	Inspection Type	
Inspector:	Sean Wetmore		
Others in Party:			
Access Equipment Used:	Waders, flashlight, hammer		
Weather:	Partly Cloudy		
Temperature:	24.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey	✓		
Detailed Deck Condition Survey:	✓		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓		
Concrete Substructure Condition Survey:	✓		
Detailed Coating Condition Survey:	✓		
Detailed Timber Investigation	✓		
Post-Tensioned Strand Investigation	✓		
Underwater Investigation:	✓		
Fatigue Investigation:	✓		
Seismic Investigation:	✓		
Structure Evaluation:	✓		
Monitoring	✓		
Monitoring of Deformations, Settlements and Movements:	✓		
Monitoring Crack Widths:	✓		

Investigation Notes:

None

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	
Date of Next Inspection:	

Overall Bridge Condition:	63.86
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:		
Element Name:	Ballast walls					Width:	9.0 (m)	
Location:						Height:	1.0 (m)	
Element Description:						Count:	2	
Material:	Wood					Total Quantity:	18.0 (m)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	6.0	3.0	9.0	BCI TEV: 6300.0		BCI CEV: 1995.0
Comments:	Inward rotation at north wall. Reinforcement is stable. Some rotation of lagging without evidence of material loss. Ballast walls are reinforced by rock protection and sand.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Abutments					Length:		
Element Name:	Wingwalls					Width:	3.0 (m)	
Location:						Height:	2.0 (m)	
Element Description:						Count:	4	
Material:	Wood					Total Quantity:	24.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	12.0	8.0	4.0	BCI TEV: 8400.0		BCI CEV: 4270.0
Comments:	South wingwalls in good condition. North wingwalls rotated inward.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Accessories					Length:		
Element Name:	Signs					Width:		
Location:	All quadrants.					Height:		
Element Description:	4 hazard signs, two load limit signs.					Count:	0	
Material:	Steel					Total Quantity:	0.0	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	2.0	1.0	3.0	BCI TEV:	BCI CEV: 190.0	
Comments:	North hazard signs obstructed by vegetation. Southeast hazard sign bent. South rating sign obstructed by vegetation.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Trim back vegetation, straighten southeast sign.		

Element Group:	Approaches					Length:	6.0 (m)	
Element Name:	Wearing surface					Width:	5.4 (m)	
Location:						Height:		
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	64.8 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	46.8	12.0	6.0	BCI TEV: 388.8	BCI CEV: 239.4	
Comments:	Edge ravelling and light wheel ruts at north approach. Some patching and ravelling south side. Vegetation encroaching into roadway.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Trim back vegetation at both approaches.		

Element Group:	Barriers					Length:	100.0 (m)	
Element Name:	Railing Systems					Width:		
Location:	Approach and deck.					Height:		
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	200.0 (m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m	0.00	150.0	49.0	1.0	BCI TEV: 40000.0	BCI CEV: 26420.0	
Comments:	Railing is too low at approaches. Minor impact damage at northwest quadrant of deck. Blocks and posts across deck have extensive checks and splits.							
Recommended work:						Maintenance Needs:		
Comments Replace end treatments and damaged posts. Type Timing ☐ Rehab, ☐ Repair, ☒ Replace ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	18.4 (m)	
Element Name:	Deck Top					Width:	8.4 (m)	
Location:						Height:		
Element Description:						Count:	1	
Material:	Concrete					Total Quantity:	154.6 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	154.6	0.00	0.00	BCI TEV: 18552.0	BCI CEV: 13914.0	
Comments:	Narrow longitudinal cracks between girders, and narrow transverse crack at mid span.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	18.4 (m)	
Element Name:	Soffit - Thin Slab					Width:	8.4 (m)	
Location:	Underside of deck.					Height:		
Element Description:						Count:	1	
Material:	Laminated Wood					Total Quantity:	154.6 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	131.4	23.2	0.00	BCI TEV: 18552.0	BCI CEV: 12939.6	
Comments:	Boards are weathered, moderate displacement with uneven lamination. Longitudinal offset at some board ends due to warping.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Decks					Length:	5.0	
Element Name:	Wearing Surface					Width:	2.3	
Location:						Height:		
Element Description:						Count:	1	
Material:	Asphalt					Total Quantity:	1.0	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	11.5	0.00	0.00	BCI TEV: 25.0	BCI CEV: 215.62	
Comments:	Asphalt wearing surface over portion of deck top. Good condition, some pitting and settling. Some plough abrasion, minor material loss.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Embankments & Streams					Length:		
Element Name:	Embankments					Width:		
Location:						Height:		
Element Description:						Count:	4	
Material:	Rock fill, gravel, vegetation.					Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	4.0	0.00	0.00	BCI TEV: 4000.0	BCI CEV: 3000.0	
Comments:	Some undermining of vegetation root may at northeast side. Bank is steep but stable.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☒ 2 years, ☐ Urgent		
						Add armour stone protection at waterline.		

Element Group:	Embankments & Streams					Length:		
Element Name:	Streams and Waterways					Width:		
Location:	East and west					Height:		
Element Description:						Count:	1	
Material:						Total Quantity:	1.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	1.0	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	Unobstructed and flowing. Bottom is stone.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Piers					Length:		
Element Name:	Shafts/columns/Pile Bents					Width:	0.3 (m)	
Location:						Height:	5.0 (m)	
Element Description:						Count:	32	
Material:	Wood					Total Quantity:	150.7 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	118.7	13.2	18.8	BCI TEV: 135630.0		BCI CEV: 84874.5
Comments:	Some rot at armouring piers (secondary element). Moderate checks at abutment piers with separation from cap of approx 2cm. Midspan piers in good overall condition with abrasion at lower 1m.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Approaches	Repave.		✓				\$20,000.00
Guiderail / Railing	Replace end treatments and damaged posts.					✓	\$25,000.00
Total							\$45,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General elevation, looking east.



Description: General arrangement, looking south.



Description: General condition, north side. Note longitudinal offset due to warping at center.

Decks / Soffit - Thin Slab (Underside of deck.)



Description: Typical condition, south.

Decks / Soffit - Thin Slab (Underside of deck.)



Description: Load limit.

Accessories / Signs (All quadrants.)



Description: Inward rotation, northwest.

Abutments / Ballast walls



Description: North, general condition.

Abutments / Ballast walls



Description: Typical condition detail from south wall.

Abutments / Ballast walls



Description: Inward rotation, northeast.

Abutments / Ballast walls



Description: General condition, looking south.

Decks / Deck Top



Description: Typical narrow cracks.

Decks / Deck Top



Description: Longitudinal narrow crack at center between girders.

Decks / Deck Top



Description: Asphalt wearing surface southeast corner.

Decks / Wearing Surface



Description: Minor impact damage northeast.

Barriers / Railing Systems (Approach and deck.)



Description: Typical damaged block.

Barriers / Railing Systems (Approach and deck.)



Description: Southeast, typical embankment protection.

Embankments & Streams / Embankments



**Description: Undermining at northeast
Embankments & Streams / Embankments**



**Description: Undermining at high water mark with overlaying root mat at northwest
quadrant.**

Embankments & Streams / Embankments



Description: Minor undermined root mat at southwest quadrant.

Embankments & Streams / Embankments



Description: South approach, general condition.

Approaches / Wearing surface



Description: North approach, general condition.

Approaches / Wearing surface



Description: West.

Embankments & Streams / Streams and Waterways (East and west)



Description: Area of rot at northeast armour pile.

Piers / Shafts/columns/Pile Bents

Inventory Data:

Structure Name Drag River Bridge			
Main Hwy/Road #	118 ☒ On ☐ Under	Crossing Type: ☒ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name Maple Avenue			
Structure Location 0.08 km South of Victoria Street			
Latitude	45.215492	Longitude	-78.555611
Northing		Easting	
Owner(s)	Municipality of Dysart et al		
MTO Region		Heritage designation: ☐ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List	
		Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes	
MTO District		Posted Speed	50 No. of Lanes 2
Old County		AADT	 % Trucks
Geographic Twp.	Haliburton	Inspection Route Sequence	
Structure Type	Rigid Frame	Interchange Number	
Total Deck Length	17.0 (m)	Interchange Structure Number	
Overall Str. Width	12.0 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	204.0 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	9.4 (m)	Detour Length Around Bridge	N/A (km)
Skew Angle	0 (Degrees)	Direction of Structure	N to S
No. of Spans	1	Fill on Structure	 (m)
Span Lengths	15.4 (m)		

Historical Data:

Year Built	1969	Year of Last Major Rehab.	
Last OSIM Inspection	2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	20.0 / / 32.0 (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description)			
(Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	July 31, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Tape, hammer, flashlight		
Weather:	Sunny		
Temperature:	25.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring			
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:			
Investigation Notes:			

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	Substructure in good condition. Superstructure in fair to poor condition.
Date of Next Inspection:	

Overall Bridge Condition:	69.73
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:	(m)	
Element Name:	Abutment walls					Width:	11.5 (m)	
Location:	North and south					Height:	1.5 (m)	
Element Description:						Count:	2	
Material:	Cast-in-place concrete					Total Quantity:	34.5 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	34.5	0.00	0.00	BCI TEV: 31050.0		BCI CEV: 23287.5
Comments:	Light vertical cracks throughout south abutment. Scaling from high water mark down throughout both abutments. Overall abutments are in good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Abutments					Length:	(m)	
Element Name:	Wingwalls					Width:	3.0 (m)	
Location:	All quadrants.					Height:	2.0 (m)	
Element Description:						Count:	4	
Material:	Cast-in-place concrete					Total Quantity:	24.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	24.0	0.00	0.00	BCI TEV: 8400.0		BCI CEV: 6300.0
Comments:	Limited inspection due to slope covering wingwalls. No defects noted.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Approaches					Length:	6.0 (m)	
Element Name:	Wearing surface					Width:	8.0 (m)	
Location:	North and south					Height:	(m)	
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	96.0 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Coal Tar Epoxy					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	46.8	12.0	6.0	BCI TEV: 576.0		BCI CEV: 239.4
Comments:	Settling of south approach at joint causing potholes and ravelling. Light wheel rutting and light cracking in north approach.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Barriers					Length:	0.5 (m)	
Element Name:	Barrier/Parapet Walls					Width:		
Location:	Interior.					Height:	1.2 (m)	
Element Description:						Count:	4	
Material:	Cast-in-place concrete					Total Quantity:	2.4 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	0.6	0.6	1.2	BCI TEV: 240.0		BCI CEV: 69.0
Comments:	Spalls, abrasions, and exposed rebar with narrow cracks.							
Recommended work:						Maintenance Needs:		
Comments Patch repair damaged concrete. Type Timing ☒ Rehab, ☐ Repair, ☐ Replace ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Barriers					Length:	0.5 (m)		
Element Name:	Barrier/Parapet Walls					Width:			
Location:	Exterior					Height:	1.0 (m)		
Element Description:						Count:	4		
Material:						Total Quantity:	2.0 (sq.m)		
Element Type:						Not Inspected:	☐		
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐		
Protection System:						Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*				
	sq.m	0.00	1.8	0.00	0.2	BCI TEV:	BCI CEV:		
Comments:	Narrow do medium cracks at bases.								
Recommended work:						Maintenance Needs:			
Comments Patched damaged concrete. Type Timing ☒ Rehab, ☐ Repair, ☐ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent			

Element Group:	Barriers					Length:	22.2 (m)	
Element Name:	Railing Systems					Width:	(m)	
Location:	East and west					Height:	(m)	
Element Description:	Steel vertical bar and post					Count:	2	
Material:	Wood					Total Quantity:	44.4 (m)	
Element Type:	Steel Flex Beam on Wood Post					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanized / Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m	0.00	33.3	10.8	0.3	BCI TEV: 8880.0	BCI CEV: 5859.0	
Comments:	Railing system altered since last inspection. Some minor defects and minor corrosion west side. Outside post edges beginning to crack. Grout wear and mild corrosion at bases.							
Recommended work:						Maintenance Needs:		
Comments Grind corrosion, seal edge defects at outside corners of steel posts, and re-paint steel railing / posts. Type ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent								

Element Group:	Decks					Length:	17.5 (m)	
Element Name:	Deck Top					Width:	8.5 (m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:	Other					Total Quantity:	148.75 (sq.m)	
Element Type:	Cast-In-Place Concrete on Laminated Wood					Not Inspected:	☐	
Environment:	☐ Benign, ☒ Moderate, ☐ Severe					Limited Inspection:	☒	
Protection System:	Asphalt					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	148.75	0.00	0.00	BCI TEV: 17850.0	BCI CEV: 13387.5	
Comments:								
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	17.5 (m)	
Element Name:	Soffit - Thin Slab					Width:	11.5 (m)	
Location:	Soffit					Height:	(m)	
Element Description:	THICK SLAB					Count:	1	
Material:	Cast-in-place concrete					Total Quantity:	201.25 (sq.m)	
Element Type:	N/A					Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	156.4	0.00	1.0	BCI TEV: 24150.0	BCI CEV: 14076.0	
Comments:	Severe delamination and spall at mid span along centre soffit joint on west soffit. Very light bug holes throughout. Overall in good condition.							
Recommended work:						Maintenance Needs:		
Comments Repair large spall and delamination at centre soffit joint. Type Timing ☒ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
						☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent		

Element Group:	Decks					Length:	17.5 (m)	
Element Name:	Wearing Surface					Width:	8.5 (m)	
Location:						Height:	(m)	
Element Description:						Count:	1	
Material:	Concrete					Total Quantity:	148.75 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Asphalt					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	148.75	0.00	0.00	BCI TEV: 3718.75	BCI CEV: 2789.06	
Comments:	Light transverse crack in east lane. Light centreline crack south of midspan. General wearing of surface. Asphalt patch remains in the Southeast quadrant with light to medium raveling. Overall in good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Embankments					Width:	(m)	
Location:	All quadrants.					Height:	(m)	
Element Description:						Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	4.0	0.00	0.00	BCI TEV: 4000.0	BCI CEV: 3000.0	
Comments:	No defects noted. All embankments in good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Streams and Waterways					Width:	(m)	
Location:	East and west					Height:	(m)	
Element Description:						Count:	1	
Material:						Total Quantity:	1.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	1.0	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	No defects noted, stream in good condition.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Sidewalks/curbs					Length:	30.4 (m)	
Element Name:	Curbs					Width:		
Location:	East and west					Height:	0.3 (m)	
Element Description:						Count:	2	
Material:						Total Quantity:	18.2 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
		0.00	10.3	3.7	4.2	BCI TEV: 728.0	BCI CEV: 368.2	
Comments:	Abrasions throughout, spalling and exposed rebar. Medium to wide cracks.							
Recommended work:						Maintenance Needs:		
Comments Replace curb at next rehab. Type ☐ Rehab, ☐ Repair, ☒ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Sidewalks/curbs					Length:	18.4 (m)	
Element Name:	Sidewalks and medians					Width:	2.0 (m)	
Location:	E/W					Height:		
Element Description:	East curb 0.45m, west 1.5m.					Count:	2	
Material:	Cast-in-place concrete					Total Quantity:	73.6 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	64.2	9.2	0.2	BCI TEV: 11040.0	BCI CEV: 7774.5	
Comments:	General abrasion and wearing throughout. Overall good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Soffit	Repair large spall and delamination at center soffit joint at next major rehabilitation.		✓				\$10,000.00
Curb	Replace curb at next major rehabilitation.			✓			\$20,000.00
Parapet Walls (Exterior)	Repair damaged concrete.			✓			\$5,000.00
Barriers	Grind and repaint.			✓			\$20,000.00
Total							\$55,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General arrangement, looking north.



Description: General elevation, east.



Description: General elevation, west.



Description: Light map cracking at northwest parapet.

Barriers / Barrier/Parapet Walls (Interior.)



Description: Narrow to wide cracks at southwest parapet.

Barriers / Barrier/Parapet Walls (Interior.)



Description: Southeast parapet, road view of spall.

Barriers / Barrier/Parapet Walls (Interior.)



Description: Large spall at top of southeast parapet.

Barriers / Barrier/Parapet Walls (Interior.)



Description: Northeast parapet showing severe spall and exposed reinforcement bar.

Barriers / Barrier/Parapet Walls (Interior.)



Description: Northeast exterior parapet, map cracking.

Barriers / Barrier/Parapet Walls (Exterior)



Description: Exterior of northwest parapet.

Barriers / Barrier/Parapet Walls (Exterior)



Description: Exterior of southwest parapet, narrow crack at base.

Barriers / Barrier/Parapet Walls (Exterior)



Description: Large spall at the northeast side.

Sidewalks/curbs / Curbs (East and west)



Description: Typical abrasion, east side.

Sidewalks/curbs / Curbs (East and west)



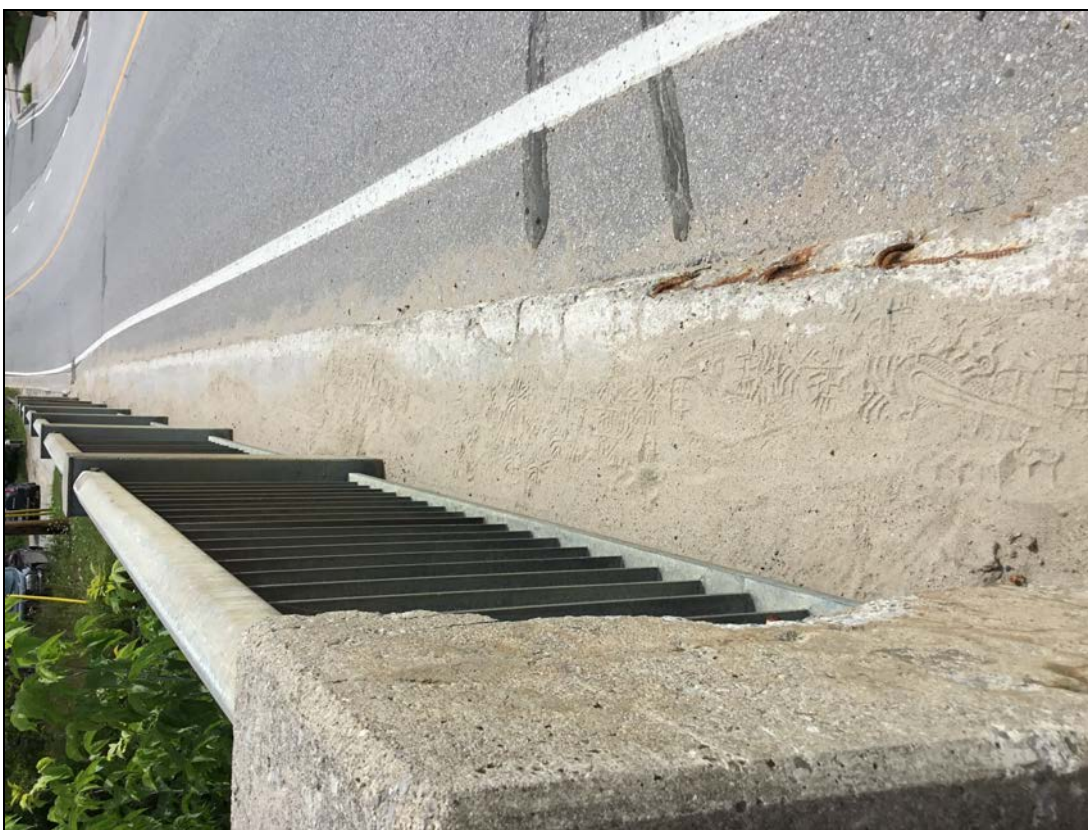
Description: West curb, typical condition.

Sidewalks/curbs / Curbs (East and west)



Description: NE wingwall, protected by slope.

Abutments / Wingwalls (All quadrants.)



Description: East curb, typical condition. Note abrasion and spalling at edge.

Sidewalks/curbs / Sidewalks and medians (E/W)



Description: West curb, typical condition.

Sidewalks/curbs / Sidewalks and medians (E/W)



Description: South abutment, typical vertical crack.

Abutments / Abutment walls (North and south)



Description: South abutment, typical scaling.

Abutments / Abutment walls (North and south)



Description: South approach at joint.

Approaches / Wearing surface (North and south)



Description: Edge defects in steel, west side.

Barriers / Railing Systems (East and west)



Description: West side, general condition.

Barriers / Railing Systems (East and west)



Description: Light corrosion/staining.

Barriers / Railing Systems (East and west)



Description: Edge defect in steel, interior side (detail).

Barriers / Railing Systems (East and west)



Description: Grout wear and corrosion at joint to deck.

Barriers / Railing Systems (East and west)



Description: Light transverse crack in east lane. Light centreline crack seen at top of image.

Decks / Wearing Surface



Description: Severe delamination and spall at centre joint.

Decks / Soffit - Thin Slab (Soffit)

Inventory Data:

Structure Name	Highland Street Culvert		
Main Hwy/Road #	 ☐ On ☒ Under	Crossing Type: ☒ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name	Highland Street		
Structure Location	0.05 km West of Pine Avenue		
Latitude	45.047030	Longitude	-78.506374
Northing		Easting	
Owner(s)	Municipality of Dysart et al	Heritage designation: ☐ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List	
MTO Region		Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes	
MTO District		Posted Speed	50 No. of Lanes 2
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type		Interchange Number	
Total Deck Length	5.5 (m)	Interchange Structure Number	
Overall Str. Width	25.8 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	9.0 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	E to W
No. of Spans	1	Fill on Structure	1.5 (m)
Span Lengths	5.5 (m)		

Historical Data:

Year Built	N/A	Year of Last Major Rehab.	
Last OSIM Inspection	2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

*Nature of Program Work:***Appraisal Indices:**

Comments

Fatigue**Seismic****Scour****Flood****Geometrics****Barrier****Curb****Load Capacity**

Field Inspection Information:			
Date of Inspection:	July 31, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Hammer, flashlight, tape.		
Weather:	Sunny		
Temperature:	25.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey	✓		
Detailed Deck Condition Survey:	✓		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓		
Concrete Substructure Condition Survey:	✓		
Detailed Coating Condition Survey:	✓		
Detailed Timber Investigation	✓		
Post-Tensioned Strand Investigation	✓		
Underwater Investigation:	✓		
Fatigue Investigation:	✓		
Seismic Investigation:	✓		
Structure Evaluation:	✓		
Monitoring	✓		
Monitoring of Deformations, Settlements and Movements:	✓		
Monitoring Crack Widths:	✓		

Investigation Notes:*None*

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	
Date of Next Inspection:	2020

Overall Bridge Condition:	44.43
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Approaches	Length:	6.0 (m)
Element Name:	Wearing surface	Width:	8.0 (m)
Location:	East / West	Height:	(m)
Element Description:		Count:	2
Material:	Asphalt	Total Quantity:	96.0 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:	Asphalt	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	0.00
	Fair	Poor*	
	24.0	72.0	
	BCI TEV: 576.0		BCI CEV: 57.6
Comments:	Severe transverse cracks with severe ravelling along edge of asphalt. Severe longitudinal crack on West approach with small potholes. Overall approaches are in poor condition.		
Recommended work:		Maintenance Needs:	
Comments Repave approaches at next major rehabilitation. Type ☐ Rehab, ☐ Repair, ☒ Replace		Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent	

Element Group:	Barriers	Length:	23.1 (m)
Element Name:	Hand Railings	Width:	(m)
Location:	South	Height:	1.2 (m)
Element Description:	South side only.	Count:	1
Material:	Steel	Total Quantity:	27.7 (m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	m	0.00	23.8
	Fair	Poor*	
	3.1	0.8	
	BCI TEV: 2770.0		BCI CEV: 1909.0
Comments:	Caps missing on seven posts. Impact damage on southeast side.		
Recommended work:		Maintenance Needs: 03. Bridge Handrail Maintenance	
Comments Replace Type ☐ Rehab, ☐ Repair, ☒ Replace		Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent	

Element Group:	Barriers					Length:	(m)	
Element Name:	Posts					Width:	(m)	
Location:	North side only.					Height:	(m)	
Element Description:						Count:	30	
Material:	Wood					Total Quantity:	30.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	14.0	8.0	8.0	BCI TEV: 6000.0	BCI CEV: 2740.0	
Comments:	Several posts rotten, checking, and split. Light to medium splits throughout.							
Recommended work:						Maintenance Needs:		
Comments Replace rotten wood posts Type ☐ Rehab, ☐ Repair, ☒ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent		
Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent								

Element Group:	Barriers					Length:	80.0 (m)	
Element Name:	Railing Systems					Width:	(m)	
Location:	North					Height:	1.1 (m)	
Element Description:						Count:	1	
Material:	Steel					Total Quantity:	80.0 (m)	
Element Type:	Steel Flex Beam on Wood Post					Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐	
Protection System:	Galvanized					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m	0.00	75.0	5.0	0.00	BCI TEV: 16000.0	BCI CEV: 11650.0	
Comments:	Minor corrosion. Impact damage to northeast quadrant.							
Recommended work:						Maintenance Needs: -		
Comments Replace damaged SBGR when replacing posts. Type ☐ Rehab, ☐ Repair, ☒ Replace Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Culverts	Length:	25.8 (m)
Element Name:	Barrels	Width:	5.5 (m)
Location:	N/S	Height:	5.5 (m)
Element Description:		Count:	1
Material:	Corrugated Steel	Total Quantity:	225.0 (sq.m)
Element Type:	Pipe Arch	Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	0.00
	Fair	Poor*	
	212.1	12.9	
	BCI TEV: 78750.0		BCI CEV: 29694.0
Comments:	Culvert barrel in fair condition; Inlet edges are corroded through material at waterline. Outlet moderately corroded at and below water line. Moderate corrosion of the barrel at high water level to stream bottom.		
Recommended work:		Maintenance Needs:	
Comments		☐ 1 year, ☒ 2 years,	
Type Timing		☐ Urgent	

Element Group:	Decks	Length:	22.4 (m)
Element Name:	Wearing Surface	Width:	8.0 (m)
Location:	Top	Height:	(m)
Element Description:		Count:	1
Material:	Asphalt	Total Quantity:	179.2 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:	Asphalt	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	0.00
	Fair	Poor*	
	163.2	16.0	
	BCI TEV: 4480.0		BCI CEV: 1632.0
Comments:	Severe cracking in ravelling in south lane. Transverse and longitudinal cracking throughout.		
Recommended work:			Maintenance Needs:
Comments			☐ 1 year, ☐ 2 years,
Type Timing			☐ Urgent
Repave deck wearing surface at next major rehabilitation. ☐ Rehab, ☐ Repair, ☒ Replace			☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Embankments					Width:	(m)	
Location:	All quadrants.					Height:	(m)	
Element Description:						Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	4.0	0.00	0.00	BCI TEV: 4000.0	BCI CEV: 3000.0	
Comments:	Stable and in good condition. Steep but well established.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Remove vegetation growth as part of regular maintenance		

Element Group:	Embankments & Streams					Length:	(m)	
Element Name:	Streams & Waterways					Width:	(m)	
Location:	Upstream / Downstream					Height:	(m)	
Element Description:						Count:	2	
Material:						Total Quantity:	2.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	2.0	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	Unobstructed and flowing well.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Sidewalks/curbs	Length:	100.0 (m)
Element Name:	Curbs	Width:	0.15 (m)
Location:	North and south	Height:	0.15 (m)
Element Description:	1.9m concrete curb/sw on south side, 1m asphalt curb/saw north side	Count:	2
Material:	Cast-in-place Concrete	Total Quantity:	60.0 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	Fair	Poor*	
	sq.m	0.00	0.00
		25.2	34.8
		BCI TEV: 2400.0	BCI CEV: 403.2
Comments:	Severe abrasion and general determination of north and south curb. Sand covers north asphalt sidewalk. Heavy wear throughout.		
Recommended work:		Maintenance Needs: -	
Comments Replace curbs and south sidewalk. Type ☐ Rehab, ☐ Repair, ☒ Replace Timing ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent		☐ 1 year, ☐ 2 years, ☒ Urgent Sweep sand from sidewalk.	

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Deck Wearing Surface	Repave deck wearing surface at next major rehabilitation.		✓				\$10,000.00
Approach Wearing Surface	Repave approaches at next major rehabilitation.		✓				\$10,000.00
Curb / Sidewalk (south)	Replace curb and sidewalk.			✓			\$20,000.00
Barrier Steel Beam Guide Rail	Replace.			✓			\$20,000.00
Handrail	Replace.			✓			\$20,000.00
Total							\$80,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General arrangement, east.



Description: General elevation, north.



Description: General elevation, south.



Description: West approach looking east, general conditions.

Approaches / Wearing surface (East / West)



Description: East approach looking west, potholes and ravelling throughout.

Approaches / Wearing surface (East / West)



Description: Impact damage, southeast.

Barriers / Hand Railings (South)



Description: Missing caps on railing system.

Barriers / Hand Railings (South)



Description: Railing system, typical condition.

Barriers / Hand Railings (South)



Description: Light rot, post top.

Barriers / Posts (North side only.)



Description: Checked block.

Barriers / Posts (North side only.)



Description: Rotten post.

Barriers / Posts (North side only.)



Description: Impact damage, northeast.

Barriers / Railing Systems (North)



Description: Outlet, general conditions.

Culverts / Barrels (N/S)



Description: East inlet edge, typical condition regarding corrosion.

Culverts / Barrels (N/S)



Description: Severe transverse and longitudinal cracks in north lane.

Decks / Wearing Surface (Top)



Description: Patched potholes and surrounding in south lane are cracking and and ravelling severely.

Decks / Wearing Surface (Top)



Description: Southeast slope well vegetated with rock slope protection under debris cover.

Embankments & Streams / Embankments (All quadrants.)



Description: Southwest, general slope condition good.

Embankments & Streams / Embankments (All quadrants.)



Description: Northwest slope, typical condition for north embankment.

Embankments & Streams / Embankments (All quadrants.)



Description: Inlet, general condition, flowing well and unobstructed.

Embankments & Streams / Streams & Waterways (Upstream / Downstream)



Description: Outlet, general condition - flowing well and unobstructed.

Embankments & Streams / Streams & Waterways (Upstream / Downstream)



Description: South curb, general conditions.

Sidewalks/curbs / Curbs (North and south)



Description: South sidewalk pot hole and general wear.

Sidewalks/curbs / Curbs (North and south)



Description: Abrasion damage to north side curb.

Sidewalks/curbs / Curbs (North and south)

Inventory Data:

Structure Name	West Shore Kennisis Lake Culvert		
Main Hwy/Road #	 ☒ On ☐ Under	Crossing Type: ☐ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road	
Hwy/Road Name	West Shore Road		
Structure Location	0.2 km West of Lipsy Lake Drive		
Latitude	45.180740	Longitude	-78.636870
Northing		Easting	
Owner(s)	Municipality of Dysart et al	Heritage designation: ☐ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List	
MTO Region		Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☐ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes	
MTO District		Posted Speed	 No. of Lanes
Old County		AADT	 % Trucks
Geographic Twp.		Inspection Route Sequence	
Structure Type	Box Culvert	Interchange Number	
Total Deck Length	4.87 (m)	Interchange Structure Number	
Overall Str. Width	29.8 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	6.8 (m)	Detour Length Around Bridge	 (km)
Skew Angle	0 (Degrees)	Direction of Structure	E to W
No. of Spans	1	Fill on Structure	4.0 (m)
Span Lengths	4.27 (m)		

Historical Data:

Year Built	N/A	Year of Last Major Rehab.	
Last OSIM Inspection		Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description)			
(Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	Aug. 8, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Waders, tape measure, hammer, flashligh.		
Weather:	Rain		
Temperature:	20.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring			
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:			
Investigation Notes:			

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	Substructure in good condition.
Date of Next Inspection:	2020-08-09

Overall Bridge Condition:	74.83
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Approach	Length:	6.0 (m)
Element Name:	Wearing Surface	Width:	6.8 (m)
Location:	N/S	Height:	(m)
Element Description:		Count:	2
Material:	Asphalt	Total Quantity:	81.6 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	81.6
	Fair	Poor*	
	0.00	0.00	
Comments:	Repaved recently. Good to excellent condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Culverts	Length:	29.84 (m)
Element Name:	Barrels	Width:	4.87 (m)
Location:		Height:	1.8 (m)
Element Description:		Count:	0
Material:	Pre-Cast Concrete	Total Quantity:	220.0 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☒ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	219.5
	Fair	Poor*	
	0.00	0.5	
Comments:	Seepage at furthest two section joints to the north, and spalling at third section joint to the south. Overall in good condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Culverts	Length:	0.3
Element Name:	Inlet Components	Width:	4.9
Location:	South	Height:	2.0
Element Description:		Count:	1
Material:	Precast concrete	Total Quantity:	2.1
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	2.1
	Fair	Poor*	
	0.00	0.00	
	BCI TEV: 735.0		BCI CEV: 551.25
Comments:	Small at SE quadrant. Rest in good condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Culverts	Length:	0.3 (m)
Element Name:	Outlet Components	Width:	4.9 (m)
Location:	North	Height:	2.0 (m)
Element Description:		Count:	1
Material:	Precast concrete	Total Quantity:	2.1 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	2.1
	Fair	Poor*	
	0.00	0.00	
	BCI TEV: 735.0		BCI CEV: 551.25
Comments:	No defects noted. Overall in good condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Decks					Length:	4.87 (m)		
Element Name:	Wearing Surface					Width:	6.8 (m)		
Location:	Top					Height:	(m)		
Element Description:						Count:	1		
Material:	Asphalt					Total Quantity:	33.1 (sq.m)		
Element Type:						Not Inspected:	☐		
Environment:	☐ Benign, ☐ Moderate, ☒ Severe					Limited Inspection:	☐		
Protection System:						Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard			
	sq.m	0.00	33.1	0.00	0.00	BCI TEV: 827.5	BCI CEV: 620.63		
Comments:	Some rippling and ponding, ravelling at edges, overall good condition.								
Recommended work:						Maintenance Needs:			
Comments Type ☐ Rehab, ☐ Repair, ☐ Replace						☐ 1 year, ☐ 2 years, ☐ Urgent			Timing
						☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☐ Urgent			

Element Group:	Emankments & Streams					Length:	(m)
Element Name:	Embankments					Width:	(m)
Location:	NE/NW/SE/SW					Height:	(m)
Element Description:						Count:	4
Material:						Total Quantity:	4.0 (each)
Element Type:						Not Inspected:	☐
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐
Protection System:						Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor*		
	each	0.00	4.0	0.00	0.00	BCI TEV:	BCI CEV:
Comments:	Well vegetated and stable, in good condition.						
Recommended work:						Maintenance Needs: -	
Comments						☐ 1 year, ☐ 2 years,	
Type Timing						☐ Urgent	

Element Group:	Emankments & Streams					Length:	(m)	
Element Name:	Streams & Waterways					Width:	(m)	
Location:	Upstream / Downstream					Height:	(m)	
Element Description:						Count:	2	
Material:						Total Quantity:	2.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	2.0	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	Debris collecting in stream at culvert inlet, overall in good condition.							
Recommended work:						Maintenance Needs: 02. Bridge Cleaning		
Comments Type Timing						☒ 1 year, ☐ 2 years, ☐ Urgent Remove debris from stream channel at inlet.		

Element Group:	Embankments					Length:	(m)	
Element Name:	Slope Protection					Width:	(m)	
Location:	All quadrants.					Height:	(m)	
Element Description:						Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	3.0	0.00	1.0	BCI TEV:	BCI CEV:	
Comments:	Very deep erosion at southwest quadrant. Other quadrants stable. North side armoured.							
Recommended work:						Maintenance Needs: -		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☒ Urgent Repair washout at southwest quadrant and add slope protection.		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Railing System	Add a railing system to the culvert.			✓			\$20,000.00
Total							\$20,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General elevation, south.



Description: General arrangement, looking south.



Description: General elevation, north.



Description: West approach wearing surface, general condition.

Approach / Wearing Surface (N/S)



Description: East approach wearing surface, general condition.

Approach / Wearing Surface (N/S)



Description: Spall at third to the south section joint.

Culverts / Barrels



Description: Seepage, through furthest 2 section joints to the north
Culverts / Barrels



Description: General condition, some minor rippling.
Decks / Wearing Surface (Top)



Description: Debris accumulating at inlet.

Embankments & Streams / Streams & Waterways (Upstream / Downstream)



Description: Northwest erosion detail #3, tape measure pictured is extended to 1m.

Embankments / Slope Protection (All quadrants.)



Description: Extreme erosion at the northwest embankment, recent rain event at time of inspection.

Embankments / Slope Protection (All quadrants.)



Description: Southeast embankment heavy stone armouring, typical conditions.

Embankments / Slope Protection (All quadrants.)



Description: Northeast embankment.

Embankments / Slope Protection (All quadrants.)



Description: Northwest erosion \ washout detail.

Embankments / Slope Protection (All quadrants.)

Inventory Data:

Structure Name	Footbridge Steel		
Main Hwy/Road #	Pedestrian Bridge	☒ On ☐ Under	Crossing Type: ☐ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road
Hwy/Road Name	York Street		
Structure Location	Haliburton Rotary Park		
Latitude	45.046993	Longitude	-78.512377
Northing		Easting	
Owner(s)	Dysart	Heritage designation: ☒ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List	
MTO Region	Haliburton	Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☐ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes	
MTO District		Posted Speed	 No. of Lanes
Old County		AADT	 % Trucks
Geographic Twp.	Haliburton	Inspection Route Sequence	
Structure Type	Bridge	Interchange Number	
Total Deck Length	17.6 (m)	Interchange Structure Number	
Overall Str. Width	2.5 (m)	Min. Vertical Clearance	 (m)
Total Deck Area	17.6 (sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter
Roadway Width	1.5 (m)	Detour Length Around Bridge	0.5 (km)
Skew Angle	0 (Degrees)	Direction of Structure	N-S
No. of Spans	1	Fill on Structure	 (m)
Span Lengths	17.6 (m)		

Historical Data:

Year Built	N/A	Year of Last Major Rehab.	
Last OSIM Inspection		Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			

Rehab History: (Date/description)

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	Aug. 9, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Hip waders, measuring tape, flashlight		
Weather:	Partly Cloudy		
Temperature:	26.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring			
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:			
Investigation Notes:			

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	Substructure in fair condition, superstructure in good condition.
Date of Next Inspection:	2020-08-09

Overall Bridge Condition:	65.13
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments	Length:	0.85 (m)
Element Name:	Abutment walls	Width:	1.8 (m)
Location:	N/S	Height:	0.3 (m)
Element Description:		Count:	2
Material:	Cast-in-place concrete	Total Quantity:	4.14 (sq.m)
Element Type:	Cast in place concrete on timber crib filled with granular	Not Inspected:	☐
Environment:	☒ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Norm conc overlay	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	Fair	Poor*	
	sq.m	0.00	4.14
		0.00	0.00
		0.00	
BCI TEV:	3726.0		
BCI CEV:	2794.5		
Comments:	Honeycombing on N abutment. Overall in good condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Approaches	Length:	1.7
Element Name:	Sidewalk/Curbs	Width:	1.8
Location:	N/S	Height:	
Element Description:	Concrete concrete slab.	Count:	2
Material:	Cast-in-place concrete	Total Quantity:	6.1
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☒ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	Fair	Poor*	
		0.00	6.0
		0.00	0.1
		0.1	
BCI TEV:			
BCI CEV:			
Comments:	Small spall on south slab. Good condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Barriers					Length:	17.6 (m)	
Element Name:	Hand Railings					Width:		
Location:	N/S					Height:		
Element Description:	Steel with wood banisters					Count:	2	
Material:	Steel					Total Quantity:	35.2 (m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Paint					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m	0.00	35.2	0.00	0.00	BCI TEV: 3520.0	BCI CEV: 2640.0	
Comments:	Good condition. Some paint chips. Some debris build up in rail channel.							
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Element Group:	Beams/Main Longitudinal Elements					Length:	0.075 (m)	
Element Name:	Floor beams					Width:	1.5 (m)	
Location:						Height:	0.15 (m)	
Element Description:	Steel floor beams.					Count:	11	
Material:	Steel					Total Quantity:	6.2 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Sealing paint					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	0.00	6.2	0.00	BCI TEV: 1240.0		BCI CEV: 496.0
Comments:	Severe flaking and corrosion, in fair condition.							
Recommended work:						Maintenance Needs:		
Comments Grind and repaint. Type ☒ Rehab, ☐ Repair, ☐ Replace Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Beams/Main Longitudinal Elements					Length:	17.6 (m)	
Element Name:	Stringers					Width:	0.05 (m)	
Location:						Height:	0.05 (m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	2.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Sealing paint					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	0.00	2.0	0.00	BCI TEV:	BCI CEV:	
Comments:	Severe flaking and corrosion throughout, in fair condition.							
Recommended work:						Maintenance Needs:		
Comments Grind and repaint. Type Timing ☒ Rehab, ☐ Repair, ☐ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent ☒ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Bracing					Length:	1.9 (m)	
Element Name:	Bracing					Width:	0.05 (m)	
Location:	Below deck, between floorbeams					Height:	0.05 (m)	
Element Description:						Count:	12	
Material:	Steel					Total Quantity:	12.0 (each)	
Element Type:	Box					Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Sealing paint					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	0.00	12.0	0.00	BCI TEV:	BCI CEV:	
Comments:	Severe flaking and corrosion, in fair condition.							
Recommended work:						Maintenance Needs:		
Comments Grind and repaint. Type Timing ☒ Rehab, ☐ Repair, ☐ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent ☒ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks	Length:	17.6 (m)
Element Name:	Deck Top	Width:	1.1 (m)
Location:	Top of deck	Height:	
Element Description:	2x6 pt	Count:	0
Material:	Wood	Total Quantity:	19.36
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Penetrant applied	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	0.00	19.36	0.00
		Fair	Poor*
		0.00	0.00
Comments:	Some wear and splits. Rust stains. Good condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Embankments & Streams	Length:	
Element Name:	Embankments	Width:	
Location:	All quadrants.	Height:	
Element Description:	Natural grass with armour stone.	Count:	4
Material:		Total Quantity:	4.0 (each)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	each	0.00	4.0
		Fair	Poor*
		0.00	0.00
Comments:	Vegetated and stable. Stream unobstructed.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Trusses/Arches					Length:	17.6 (m)
Element Name:	Bottom chords					Width:	0.15 (m)
Location:	E/W					Height:	0.075 (m)
Element Description:						Count:	2
Material:	Weathering Steel					Total Quantity:	10.6 (sq.m)
Element Type:	Box					Not Inspected:	☐
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐
Protection System:	Sealing paint					Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor*		
	sq.m	0.00	0.00	10.6	0.00	BCI TEV: 3180.0	BCI CEV: 1272.0
Comments:	Severe flaking and corrosion throughout. In fair condition.						
Recommended work:						Maintenance Needs:	
Comments Grind and repaint. Type Timing ☒ Rehab, ☐ Repair, ☐ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent ☒ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent	

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Bottom chords, stringers, bracing, beams	Grind and repaint.					✓	\$80,000.00
Total							\$80,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General arrangement, looking north.



Description: General elevation, east.



Description: East stringer looking north.

Beams/Main Longitudinal Elements / Stringers



Description: East bottom chord looking north.

Trusses/Arches / Bottom chords (E/W)



Description: Third floor beam to the south end looking west, severe flaking and corrosion.

Beams/Main Longitudinal Elements / Floor beams



Description: South abutment wall showing honeycombing.

Abutments / Abutment walls (N/S)



Description: South abutment, mass concrete utility conduit pictured.

Abutments / Abutment walls (N/S)



Description: West side exterior, typical condition.

Barriers / Hand Railings (N/S)



Description: West side interior, typical condition.

Barriers / Hand Railings (N/S)



Description: North end, typical conditions.

Decks / Deck Top (Top of deck)



Description: South end, typical conditions.

Decks / Deck Top (Top of deck)



Description: North approach slab.

Approaches / Sidewalk/Curbs (N/S)



Description: South approach slab.

Approaches / Sidewalk/Curbs (N/S)



Description: Inlet side of stream.

Embankments & Streams / Embankments (All quadrants.)



Description: Southwest quadrant, general conditions.

Embankments & Streams / Embankments (All quadrants.)



Description: Outlet side of stream.

Embankments & Streams / Embankments (All quadrants.)



Description: Northwest quadrant, general conditions.

Embankments & Streams / Embankments (All quadrants.)



Description: Southwest quadrant, general conditions.

Embankments & Streams / Embankments (All quadrants.)



Description: Southeast quadrant, general conditions.

Embankments & Streams / Embankments (All quadrants.)

Inventory Data:

Structure Name				Footbridge Timber	
Main Hwy/Road #		118	☒ On ☐ Under		
Crossing Type: ☐ Navi. Water, ☐ Non-Navi. Water, ☐ Rail, ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Under railway, ☐ Unknown, ☐ Over railway, ☐ Under Road					
Hwy/Road Name				Maple Avenue	
Structure Location				Halibuton Skateboard Park	
Latitude		45.047676	Longitude		-78.510385
Northing			Easting		
Owner(s)		Dysart	Heritage designation: ☒ Not Cons., ☐ Cons./not App., ☐ List/not Desig., ☐ Desig./not List, ☐ Desig. & List		
MTO Region		Haliburton	Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☒ Local, ☐ Local Residential, ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 or more lanes		
MTO District		Haliburton	Posted Speed	NA	No. of Lanes 1
Old County			AADT		% Trucks
Geographic Twp.		Haliburton	Inspection Route Sequence		
Structure Type		Pedestrian Bridge	Interchange Number		
Total Deck Length		18.3 (m)	Interchange Structure Number		
Overall Str. Width		3.4 (m)	Min. Vertical Clearance		 (m)
Total Deck Area		36.6 (sq.m)	Special Routes: ☐ Transit, ☐ Truck, ☐ School, ☐ Bicycle, ☐ Emergency, ☐ Commuter		
Roadway Width		3.3 (m)	Detour Length Around Bridge		0.5 (km)
Skew Angle		0 (Degrees)	Direction of Structure		N/S
No. of Spans		1	Fill on Structure		 (m)
Span Lengths		18.3 (m)			

Historical Data:

Year Built	N/A	Year of Last Major Rehab.	
Last OSIM Inspection		Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment		Load Limit By-Law #	/ /
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			
Rehab History: (Date/description)			

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:

Comments

Fatigue

Seismic

Scour

Flood

Geometrics

Barrier

Curb

Load Capacity

Field Inspection Information:			
Date of Inspection:	Aug. 9, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Tape measure, hip waders, flashlight.		
Weather:	Partly Cloudy		
Temperature:	24.0 °C		

Upcoming Inspections and Investigations:		
Due date	Priority	Comments

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			✓
Detailed Deck Condition Survey:	✓		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓		
Concrete Substructure Condition Survey:	✓		
Detailed Coating Condition Survey:	✓		
Detailed Timber Investigation			✓
Post-Tensioned Strand Investigation	✓		
Underwater Investigation:	✓		
Fatigue Investigation:	✓		
Seismic Investigation:	✓		
Structure Evaluation:	✓		
Monitoring	✓		
Monitoring of Deformations, Settlements and Movements:	✓		
Monitoring Crack Widths:	✓		

Investigation Notes:

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1 - 5 years, ☐ 6 - 10 years, ☐ > 10 years
Overall Comments:	Substructure in poor condition.
Date of Next Inspection:	

Overall Bridge Condition:	33.2
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Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- 01** Load carrying capacity
- 02** Excessive deformations (deflections & rotations)
- 03** Continuing settlement
- 04** Continuing movements
- 05** Seized bearings

Maintenance Needs

- 01** Lift and Swing Bridge Maintenance
- 02** Bridge Cleaning
- 03** Bridge Handrail Maintenance
- 04** Painting Steel Bridge Structures
- 05** Bridge Deck Joint Repair
- 06** Bridge Bearing Maintenance

- 06** Bearing not uniformly loaded/unstable
- 07** Jammed expansion joint
- 08** Pedestrian/vehicular hazard
- 09** Rough riding surface
- 10** Surface ponding
- 11** Deck drainage

- 07** Repair to Structural Steel
- 08** Repair of Bridge Concrete
- 09** Repair of Bridge Timber
- 10** Bailey bridges - Maintenance
- 11** Animal/Pest Control
- 12** Bridge Surface Repair

- 12** Slippery surfaces
- 13** Flooding/channel blockage
- 14** Undermining of foundation
- 15** Unstable embankments
- 16** Other
- 17** None
- 13** Erosion Control at Bridges
- 14** Concrete Sealing
- 15** Rout and Seal
- 16** Bridge Deck Drainage
- 17** Scaling (Loose Concrete or ACR Steel)
- 18** Other

Element Data

Element Group:	Abutments					Length:		
Element Name:	Ballast walls					Width:	3.8 (m)	
Location:	N/S					Height:	1.4 (m)	
Element Description:	Original creosote rail material.					Count:	2	
Material:	Wood					Total Quantity:	10.6 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	14. Undermining of foundation		
	sq.m	0.00	0.00	0.00	10.6	BCI TEV: 3710.0		BCI CEV:
Comments:	Extensive rot and erosion, material washing out from behind wall. Holes and displacement. Concrete retaining wall possibly behind visible ballast wall. No sign of sink holes at approaches.							
Recommended work:						Maintenance Needs:		
Comments Replace ballast at next major rehab. Type Timing ☐ Rehab, ☐ Repair, ☒ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Replace ☐ Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Accessories					Length:		
Element Name:	Signs					Width:		
Location:	N/S					Height:		
Element Description:	'No atv': north, 'no jumping': south					Count:	0	
Material:	Steel					Total Quantity:	2.0 (each)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	each	0.00	2.0	0.00	0.00	BCI TEV: 200.0		BCI CEV: 150.0
Comments:	Good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Approaches	Length:	6.0 (m)
Element Name:	Sidewalk/Curbs	Width:	2.0 (m)
Location:	South only.	Height:	
Element Description:	Asphalt sidewalk	Count:	0
Material:		Total Quantity:	12.0 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☒ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	11.8
		Fair	Poor*
		0.2	0.00
		BCI TEV: 720.0	BCI CEV: 535.8
Comments:	Crack in asphalt ramp to deck.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Approaches	Length:	6.0 (m)
Element Name:	Wearing surface	Width:	1.2 (m)
Location:	North	Height:	
Element Description:		Count:	0
Material:		Total Quantity:	7.2 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☒ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:		Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	2.0
		Fair	Poor*
		5.2	0.00
		BCI TEV: 43.2	BCI CEV: 21.48
Comments:	General wear, steep slope for disabled access.		
Recommended work:		Maintenance Needs:	
Comments Extend asphalt a next rehab. Type Timing ☒ Rehab, ☐ Repair, ☐ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Barriers					Length:	18.3 (m)	
Element Name:	Hand Railings					Width:		
Location:	E/W					Height:		
Element Description:	Wooden railing system 2x6 pt.					Count:	2	
Material:	Wood					Total Quantity:	36.6 (m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m	0.00	35.4	1.2	0.00	BCI TEV: 3660.0	BCI CEV: 2703.0	
Comments:	Good condition. Some splits and end of boards and minor twists.							
Recommended work:						Maintenance Needs: 09. Repair of Bridge Timber		
Comments Replace top handrail. Type ☐ Rehab, ☐ Repair, ☒ Replace						☐ 1 year, ☒ 2 years, ☐ Urgent Sand and paint, replace twisted or overly weathered boards.		
Timing ☐ 1 - 5 years, ☐ Now < 1 year, ☒ 6 - 10 years, ☐ Urgent								

Element Group:	Beams/Main Longitudinal Elements					Length:	0.2 (m)	
Element Name:	Floor beams					Width:	3.6 (m)	
Location:						Height:	0.2 (m)	
Element Description:						Count:	59	
Material:	Wood					Total Quantity:	132.2	
Element Type:						Not Inspected:	☐	
Environment:	☒ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	13.2	119.0	0.00	BCI TEV: 26440.0	BCI CEV: 11500.0	
Comments:	Localized rotting floor beams. Splits throughout floor beams, overall in fair condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Beams/Main Longitudinal Elements					Length:	3.6 (m)	
Element Name:	Girders					Width:	0.2 (m)	
Location:						Height:	0.4 (m)	
Element Description:						Count:	40	
Material:						Total Quantity:	201.6 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	181.0	20.6	0.00	BCI TEV: 40320.0	BCI CEV: 28798.0	
Comments:	Girders in good to fair condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Decks					Length:	18.3 (m)	
Element Name:	Deck Top					Width:	2.0 (m)	
Location:	Top of deck.					Height:	(m)	
Element Description:	Longitudinal 2x6 pt					Count:	0	
Material:	Wood					Total Quantity:	36.6 (sq.m)	
Element Type:						Not Inspected:	☐	
Environment:	☐ Benign, ☐ Moderate, ☐ Severe					Limited Inspection:	☐	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	30.0	6.6	0.00	BCI TEV: 4392.0	BCI CEV: 3016.8	
Comments:	Some splits and cracks throughout. Minor weathering localized to centre of span. Overall good condition.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		

Element Group:	Piers	Length:	4.35 (m)
Element Name:	Caps	Width:	0.3 (m)
Location:		Height:	0.35 (m)
Element Description:		Count:	6
Material:		Total Quantity:	35.9 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☐ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Creosote	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	0.00
		Fair	Poor*
		35.9	0.00
		BCI TEV: 32310.0	BCI CEV: 12924.0
Comments:	Check on S side of second to S cap. Caps are in fair condition.		
Recommended work:		Maintenance Needs:	
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent	

Element Group:	Piers	Length:	
Element Name:	Shafts/columns/Pile Bents	Width:	0.5 (m)
Location:		Height:	1.6 (m)
Element Description:		Count:	30
Material:	Wood	Total Quantity:	75.4 (sq.m)
Element Type:		Not Inspected:	☐
Environment:	☒ Benign, ☐ Moderate, ☐ Severe	Limited Inspection:	☐
Protection System:	Creosote	Perform. Deficiencies	
Condition Data:	Units	Exc.	Good
	sq.m	0.00	0.00
		Fair	Poor*
		0.00	75.4
		BCI TEV: 67860.0	BCI CEV:
Comments:	All piers severely rotten, split, and checked. In poor condition.		
Recommended work:		Maintenance Needs:	
Comments Replace Type Timing ☐ Rehab, ☐ Repair, ☒ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☐ 6 - 10 years, ☒ Urgent		☐ 1 year, ☐ 2 years, ☐ Urgent	

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Repair and Rehabilitation Required		Priority					Estimated Cost
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	
Approach Wearing Surface (north)	Extend asphalt walkway.		✓				\$5,000.00
Hand Railing	Replace top handrail boards		✓				\$2,000.00
Piles	Replace all damaged piles.					✓	\$200,000.00
Ballast Walls	Replace ballast boards.			✓			\$5,000.00
Total							\$212,000.00

Associated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
Total		



Description: General arrangement, looking south.

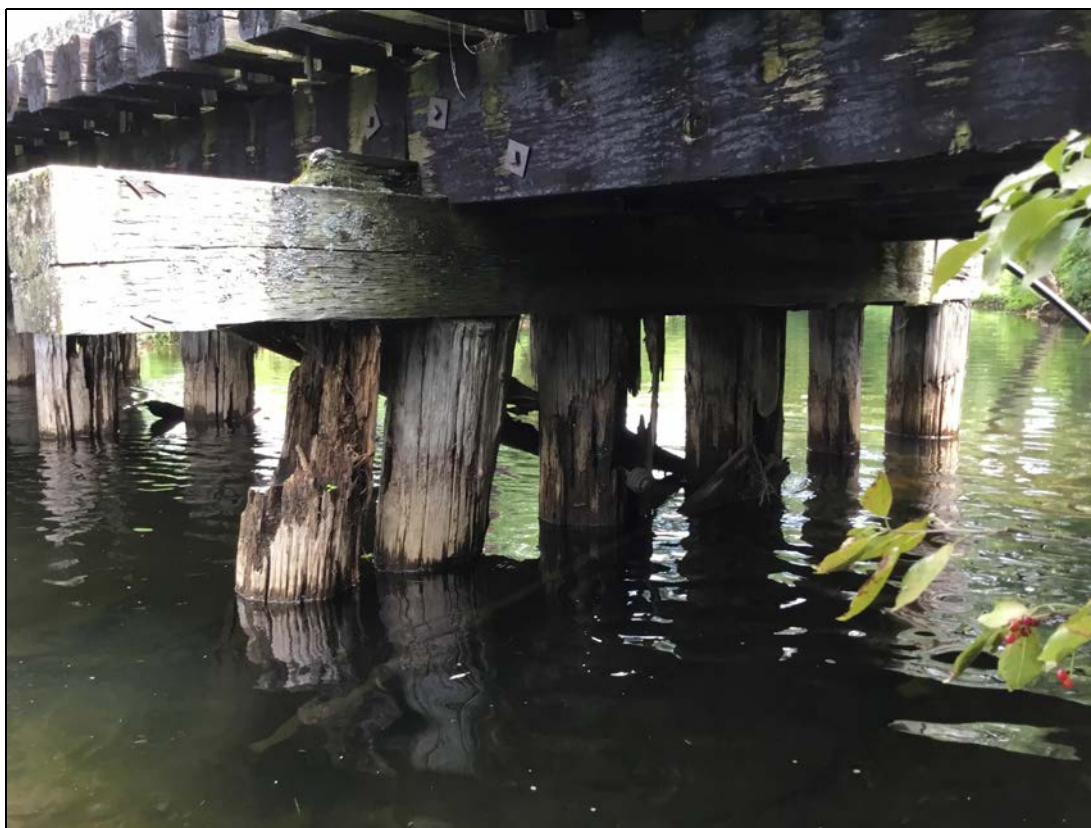


Description: General elevation, west.



Description: Middle north piers looking southeast, general condition.

Piers / Shafts/columns/Pile Bents



Description: Second to south piers looking northeast, at least two piers no longer providing structural support.

Piers / Shafts/columns/Pile Bents



Description: Second to north piers looking northeast, note cracked pier second from left.

Piers / Shafts/columns/Pile Bents



Description: Middle north piers, looking northwest, general condition.

Piers / Shafts/columns/Pile Bents



Description: Middle south piers looking southwest, general condition.

Piers / Shafts/columns/Pile Bents



Description: Second to south piers, looking southwest, general condition. Note rot at top of foreground pier.

Piers / Shafts/columns/Pile Bents



Description: North abutment piers, note severely disintegrated piers at waterline and broken in foreground.

Piers / Shafts/columns/Pile Bents



Description: Middle south piers, looking northwest.

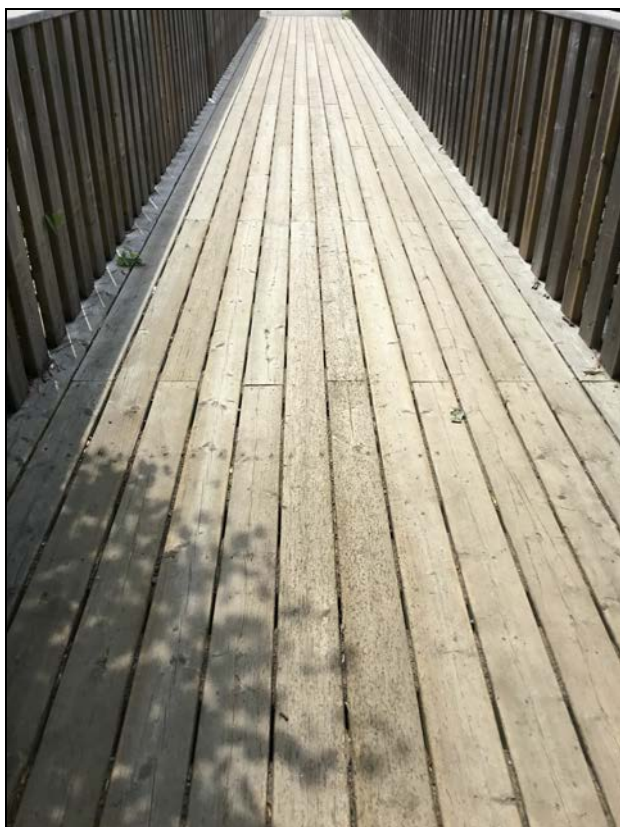
Piers / Shafts/columns/Pile Bents



Description: Second to north piers looking, looking southeast. Severe disintegration.
Piers / Shafts/columns/Pile Bents



Description: Second to southerly cap, looking northwest.
Piers / Caps



Description: General condition.

Decks / Deck Top (Top of deck.)



Description: South approach, typical condition.

Approaches / Sidewalk/Curbs (South only.)



Description: Crack in asphalt access ramp.
Approaches / Sidewalk/Curbs (South only.)



Description: Warning sign, south side.
Accessories / Signs (N/S)



Description: No ATV sign, north side.

Accessories / Signs (N/S)



Description: Asphalt segment to dirt trail, north only.

Approaches / Wearing surface (North)



Description: Handrail, typical conditions.

Barriers / Hand Railings (E/W)



Description: East railing, general condition.

Barriers / Hand Railings (E/W)



Description: Undermining of ballast wall.

Abutments / Ballast walls (N/S)



Description: North ballast wall, typical conditions.

Abutments / Ballast walls (N/S)