



BIENNIAL BRIDGE INSPECTIONS

FINAL INSPECTION REPORT Municipality of Dysart et al

December 2018

File No. 18-4011



TABLE OF CONTENTS

1. 2. 3.	INTRODUCTION INSPECTION PROCEDURES INSPECTION SUMMARIES	2 2 2
3.	1 Paddy's Pond (Bay) Bridge	3
3.2	2 Kennisis Lake Narrows Bridge	4
3.3	3 Barry's Bridge	5
3.4	4 Redstone Brook Bridge	6
3.8	5 Guilford Pine Lake Bridge	7
3.6	6 Guilford Cranberry Lake Bridge	8
3.7	7 South Bay Bridge	9
3.8	8 Koshlong Lake Bridge	10
3.9	9 Kelly Lake Bridge	11
3.	10 Burnt River Bridge	12
3.	11 Coleman Lake Bridge	14
3.	12 Eagle Lake Bridge	15
3.	13 Pelaw River Bridge	16
3.	14 Drag River Bridge	17
3.	15 Highland Street Culvert	18
3.	16 West Shore Kennisis Lake Culvert	19
3.	17 Footbridge Steel	20
3.	18 Footbridge Timber	21
4. 5.	SUMMARY OF CAPITAL IMPROVEMENTS CONCLUSIONS AND RECOMMENDATIONS	22 24



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 in 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 in 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 have 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 highwater 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 advice 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.

Frank Palmay, P. Eng. Structural Design Engineer

my m

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 airentrained 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 waterborne 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

Bridge ID:	DY-1

Inventory Data:										
Structure Name	Paddy's Bay (Pond) Bridg	ge								
Main Hwy/Road #	☑ On ☐ Under		Crossing Type: ☑ Navi. Water, ☐ Non-Navi. Water, ☐ Rail ☐ Road, ☐ Ped., ☐ Other, ☐ Over water, ☐ Over Road, ☐ Urailway, ☐ Unknown, ☐ Over railway, ☐ Under Road							
Hwy/Road Name	North Kennisis Lake Roa	d								
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/n Desig., □ Desig./not List, □ Desig. & List							
MTO Region			Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☑ Local, ☐ Local Residen ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 of 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	7.0	(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 Inspec	tion	2014	Last Evaluation							
Last Enhanced O	SIM Inspection		Current Load Limit / / (tonnes)							
Enhanced Access	Equipment		Load Limit By-Law #							
Last Underwater	Inspection		By-Law Expiry Date							
Last Condition Su	ırvey									
Rehab History: (Date/description) Northwest pile reinforcement (armor sheathing), various superstructure reinforcement. Beam replacement on west side.										

Ontario Structure Inspection Manual — Inspection Fo	Bridge ID:	DY-1		
Scheduled Improvements:				
Regional Priority Number	nmed W	ork Year		
Nature of Program Work:				
Appraisal Indices:			Comments	
Fatigue				
Seismic				
Scour				
Flood				
Geometrics				
Barrier				
Curb				
Load Capacity				

Ontario Structure Inspection Manual — Inspection Form			Bridg	ge ID:		DY-1			
Field Inspection Information:									
Date of Inspection:	Aug. 8, 2018	Inspection Ty	Inspection Type 05						
Inspector:		Sean Wetmore							
Others in Party:		Ben Belfry	Ben Belfry						
Access Equipment Used:		Hip waders, tape measure, flashlight.							
Weather:		Rain	Rain						
Temperature:		19.0 ℃							
Upcoming Inspections and Investigation	ons:								
Due date	Priority		Comments						
Additional Investigations Required:					Priority	I			
				None	Normal	Urgent			
Material Condition Survey				✓					
Detailed Deck Condition Survey:				✓					
Non-destructive Delamination Surve	y of Aspha	lt-Covered Deck:		✓					
Concrete Substructure Condition Su	rvey:			✓					
Detailed Coating Condition Survey:				✓					
Detailed Timber Investigation				✓					
Post-Tensioned Strand Investigation	1			✓					
Underwater Investigation:				1					
Fatigue Investigation:				✓					
Seismic Investigation:				✓					
Structure Evaluation:				✓					
Monitoring				✓					
Monitoring of Deformations, Settlements and Movements:									
Monitoring Crack Widths:									
Investigation Notes:									
None									

Ontario Structure Inspection	n Manual — Inspection	Form	n		Rri	dge ID:		DY-1
Overall Structure Notes:		1 0111	1		ווט	age ID.		D1-1
Recommended Work on Structure:								
Timing of Recommended Work:	☐ Urgent, ☐ Now < 3	\square Urgent, \square Now < 1 year, \square 1 - 5 years, \square 6 - 10 years, \square > 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							78.3	3
Overall Bridge Condition							70.5.	
Recommended inspectio	ns and Investigation	ns		Due d	ate	Priorit	у	Comments
Boat Inspection								
Bridge master								
Coating survey								
Detailed condition surve	у							
Evaluation								
Fatigue								
Monitor Settlements/Mov	vements							
Seismic								
Substructure condition s	urvey							
Underwater								
Suspected Performance Def	ficiencies							
		06	Bearing not uniformly loaded	d/unstable	12 S	Slippery surfa	ices	
01 Load carrying capacity		07	Jammed expansion joint		13 F	looding/char	nnel b	lockage
02 Excessive deformations (de	eflections & rotations)	08	Pedestrian/vehicular hazard		14 (Indermining	of fou	undation
03 Continuing settlement	uing settlement 09 Rough riding surface			15 Unstable embankments				nents
04 Continuing movements	1 Continuing movements 10 Surface ponding			16 Other				
05 Seized bearings 11 Deck drainage					17 N	lone		
Maintenance Needs								
01 Lift and Swing Bridge Main	tenance	07	Repair to Structural Steel		13 E	rosion Contr	ol at	Bridges

08 Repair of Bridge Concrete

10 Bailey bridges - Maintenance

09 Repair of Bridge Timber

11 Animal/Pest Control

12 Bridge Surface Repair

14 Concrete Sealing

16 Bridge Deck Drainage

17 Scaling (Loose Concrete or ACR Steel)

15 Rout and Seal

18 Other

02 Bridge Cleaning

03 Bridge Handrail Maintenance

06 Bridge Bearing Maintenance

05 Bridge Deck Joint Repair

04 Painting Steel Bridge Structures

Bridge ID:	DY-1

Element Data

Element Group:	Abutments						Le	ngth:	(m)	
Element Name:	Ballast Wa	lls					Wi	dth:	7.2 (m)	
Location:	East and W	/est					Не	eight:	2.83 (m)	
Element Description:							Со	unt:	2	
Material:	Wood						То	tal Quantity:	40.3 (sq.m)	
Element Type:							No	ot Inspected:		
Environment:	☐ Benign,	☑ Modera	te, □ Seve	re			Lir	mited Inspection:		
Protection System:	Creosote						Pe	rform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair						
Condition Data:	sq.m	n 0.00 25.3 15.0 0.00 BC						CI TEV: 14105.0	BCI CEV: 8741.25	
Comments:	Good cond	ition. Som	ne end split	S.						
Recommended work:							Ma	aintenance Needs:		
Comments					□ 1 year, □ 2 years, □ Urgent					
Type Timing										
									F	
Element Group:	Abutme							Length:	3.0 (m)	
Element Name:	Wingwa	alls						Width:	(m)	
Location:	All quad	drants.						Height:	2.8 (m)	
Element Description:	Gabion	baskets i	n front of v	vood lagg	ging v	valls.		Count:	4	
Material:	Wood							Total Quantity:	33.6 (sq.m)	
Element Type:	Wood P	iles and L	agging					Not Inspected:		
Environment:	☐ Beni	gn, 🗵 Mod	derate, 🗆 S	evere				Limited Inspection:	Ø	
Protection System:	Creosot	te						Perform. Deficiencies	5	
Condition Data:	Units	s Exc	. Goo	d Fa	ir	Poor	*			
Condition Buttu	sq.m	0.00	0 10.2	2 15	.0	8.4		BCI TEV: 11760.0	BCI CEV: 4777.5	
Comments:	Wingwa visible.	Wingwalls are now reinforced by gabion baskets visible.						alled in autumn 2017. W	ingwalls are no longer	
Recommended work:								Maintenance Needs:		
Comments								\square 1 year, \square 2 years,		
Туре	Timing						□ Urgent			
□ Rehab, □ Repair, □ Replace	□ 1 - 5 ye □ Urgent		ow < 1 yea	r, 🗆 6 - 1	.0 yea	ars,				

Ontario Structure In	spection Ma	anual —	Inspection	Form					Bridge ID:		DY-1
Element Group:	Accessorie	es				Le	eng	ıth:			
Element Name:	Signs					w	/idt	h:			
Location:						Н	eig	ht:			
Element Description:						C	oun	nt:		4	
Material:	Steel					Т	ota	l Quantity:	!	4.0 (each)
Element Type:						N	ot I	Inspected:			
Environment:	□ Benign,	□ Mod	erate, 🗵 Se	evere		Li	imit	ted Inspec	tion:		
Protection System:						Pe	erfo	orm. Defic	iencies		
Condition Data:	Units	Exc.	Good	l Fai	r Pooi	r* 08	8. P	edestrian/v	ehicular hazard		
Condition Data:	each	0.00	1.0	0.0	0 3.0	В	CI 1	ΓΕV: 400.0		BCI (CEV: 75.0
Comments:	Both west	hazard	s are bent,	SE hazar	d is damag	ed, NE	haz	zard is too lo	ow for snowbank a	nd ne	eds to be raised.
Recommended wo	ork:					М	lain	tenance N	eeds: 17. Other		
Comments								year, □ 2 ye gent	ears,		
Type Timing							nsta Iaza		rds at west end ar	nd SE,	raise NE
Element Group:			Approache						Length:		6.0 (m)
Element Name:			Wearing s	urface					Width:		6.2 (m)
Location:			East and \	West					Height:		0.04 (m)
Element Descripti	ion:								Count:		2
Material:			Gravel						Total Quantity:	:	74.4 (sq.m)
Element Type:									Not Inspected:		
Environment:			□ Benign,	□ Moder	ate, ☑ Seve	ere			Limited Inspec	tion:	
Protection Systen	n:								Perform. Defici	iencie	es
Condition Data:			Units	Exc.	Good	Faiı	r	Poor*			
			sq.m	0.00	62.0	12.4	4	0.00	BCI TEV: 446.4		BCI CEV: 308.76
Comments:			Very light	wheel rut	ting. Slight	settling	g in	front of de	ck, continue to mo	nitor.	
Recommended wo	ork:								Maintenance N	eeds	1
Comments									□ 1 year, □ 2 ye	ears,	
Туре		Timir	ng						□ Urgent		
□ Rehab, □ Repair	, □ Replace	□ 1 - □ Urg		Now < 1	year, \square 6 -	10 yea	ars,				

Ontario Structure Inspection Mai	nual — Insp	ection F	orm						Bridge ID:		DY-1
Element Group:	Barı	iers							Length:		6.8 (m)
Element Name:	Rail	ing Syst	ems						Width:		(m)
Location:	Nor	h and S	outh						Height:		(m)
Element Description:									Count:		2
Material:	Stee	el							Total Quant	13.6 (m)	
Element Type:	Flex	Beam o	on Wood	l Post					Not Inspect	ed:	
Environment:	□В	enign, 🗆] Modera	ate, ☑	Sever	е			Limited Insp		
Protection System:	Galv	/anized							Perform. De	ficiencie	es
Condition Date:	U	nits	Exc.	Go	od	Fair	Po	or*	Pedestrian / v	ehicle ha	azard
Condition Data:		m	13.6	0.	00	0.00	0.0	00	BCI TEV: 272	20.0	BCI CEV: 2720.0
Comments:	Barı	ier repla	aced in 2	2017,	install	barriers	at app	roach	es.		
Recommended work:									Maintenanc	e Needs	•
Comments											
Install guiderail system at both	approache	s c/w en	d treatn	nents					□ 1 year, □ :	2 years,	
Time	Timin a								□ Urgent		
Туре	Timing										
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 ye☐ Urgent	ars, □ N	low < 1	year,	□ 6 - 1	0 years					
Element Group:	Deck							Len	gth:		7.0 (m)
Element Name:	Soffit - Th	in Slab						Wid	th:		6.7 (m)
Location:								Heig	ght:		(m)
Element Description:								Cou	nt:		1
Material:	Laminate	d Wood	Deck					Tota	al Quantity:		48.0 (sq.m)
Element Type:								Not	Inspected:		
Environment:	☐ Benign	, ☑ Mod	erate, □	Seve	re			Limi	ited Inspectio	on:	
Protection System:	Penetrant	applied	I					Perf	form. Deficie	ncies	
Candition Date:	Units	Exc.	Go	ood	Fair	Po	or*	Load	d carrying capa	city	
Condition Data:	sq.m	48.0	0.	.00	0.00) 0	.00	ВСІ	TEV:		BCI CEV:
Comments:	New soffi	in exce	ellent co	nditior	٦.	•					
Recommended work:								Maiı	ntenance Nee	eds:	
Comments									year, □ 2 year rgent	rs,	
Type Timing											

Ontario Structure Inspection I	Manual — In	spection	Form			Bridge ID:	DY-1
Element Group:	Decks					Length:	6.7 (m)
Element Name:	Wearing S	urface				Width:	6.6 (m)
Location:						Height:	
Element Description:						Count:	1
Material:	Wood					Total Quantity:	44.2 (sq.m)
Element Type:						Not Inspected:	
Environment:	☐ Benign,	□ Moder	ate, □ Seve	re		Limited Inspection:	
Protection System:	Pressure t	reatment				Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	44.2	0.00	0.00	0.00	BCI TEV: 1105.0	BCI CEV: 1105.0
Comments:	Overall in	excellent	condition. L	ight che	cks througho	out.	
Recommended work:						Maintenance Needs:	
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent	
Element Group:	Embankm	ents & St	reams			Length:	(m)
Element Name:	Embankm	ents				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,	☑ Moder	ate, □ Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor*		
Condition Data.	each	4.0	0.00	0.00	0.00	BCI TEV: 4000.0	BCI CEV: 4000.0
Comments:	Embankm	ents stab	le in excelle	nt condit	ion		
Recommended work:						Maintenance Needs: -	
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent	

Ontario Structure Inspection N	Manual — In	spection I	orm -				Bridge ID:		DY-1
Element Group:	Embankme	ents & Str	reams				Length:	(m)	
Element Name:	Slope Prote	ection					Width:	(m)	
Location:	NE/NW/SE/	'SW					Height:	(m)	
Element Description:							Count:	4	
Material:	Gabion bas	skets, ripı	ap, and arı	mour sto	ne		Total Quantity:	4.0 (each)
Element Type:							Not Inspected:		
Environment:	☐ Benign,	☑ Modera	ate, □ Seve	ere			Limited Inspection:		
Protection System:							Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Po	oor*			
Condition Data.	each	4.0	0.00	0.00	0	.00	BCI TEV: 1600.0	BCI	CEV: 1600.0
Comments:	Newly inst	alled and	in excellen	nt conditi	on.				
Recommended work:							Maintenance Needs:		
Comments							□ 1 year, □ 2 years, □ Urgent		
Type Timing									
									1
Element Group:	Embani	kments &	Streams				Length:		(m)
Element Name:	Stream	s & Wate	rways				Width:		(m)
Location:							Height:		(m)
Element Description:							Count:		1
Material:							Total Quantity:		1.0 (each)
Element Type:							Not Inspected:		
Environment:	☑ Beni	gn, 🗆 Mod	derate, 🗆 S	evere			Limited Inspection:		
Protection System:							Perform. Deficiencie	s	
Condition Data:	Units	Exc	. Goo	d Fa	ir	Poor*	k		
Condition Data.	each	0.0	0 1.0	0.0	00	0.00	BCI TEV:		BCI CEV:
Comments:	In good	condition	า						
Recommended work:							Maintenance Needs:		
Comments							☐ 1 year, ☐ 2 years,☐ Urgent		
Type Timing									

Ontario Structure Inspecti	on Manua	l — Inspe	ction Forr	m					Bridge ID:		DY-1
Element Group:	Jo	ints							Length:		6.6 (m)
Element Name:	S	eals/seala	ants						Width:		
Location:									Height:		
Element Description:									Count:		2
Material:									Total Quantity:		13.2 (m)
Element Type:									Not Inspected:		
Environment:		Benign,	□ Modera	ate, 🛭	Severe	9			Limited Inspection	on:	
Protection System:									Perform. Deficie	ncies	
Condition Data:		Units	Exc.	G	ood	Fair	Po	or*			
Condition Data.		m	13.2	0.	.00	0.00	0	.00	BCI TEV:		BCI CEV:
Comments:	R	ecently i	nstalled. I	n exc	ellent c	ondition					
Recommended work:									Maintenance Ne	eds:	
Comments									□ 1 year, □ 2 yea □ Urgent	rs,	
Type Timing											
Element Group:	Pier							Leng			7.0 (m)
Element Name:	Caps							Widt	h:		0.3 (m)
Location:	North ar	nd South						Heig	ht:	О	0.3 (m)
Element Description:								Coun	nt:	3	i
Material:	Wood							Tota	l Quantity:	1	.8.9 (sq.m)
Element Type:								Not I	nspected:		
Environment:	☐ Benig	n, 🛭 Mod	lerate, □	Sever	e			Limit	ted Inspection:	-]
Protection System:	Creosote	e						Perf	orm. Deficiencies		
Condition Data:	Units	Exc	. God	od	Fair	Po	or*				
Condicion Data.	sq.m	0.00	18	.9	0.00	0.0	00	всі т	ΓEV:	E	BCI CEV:
Comments:	Pile caps	s in good	condition	n; light	t to me	dium sp	litting	and cl	hecking at ends. No	indication	of rot.
Recommended work:								Main	tenance Needs: -		
Comments								□ 1 <u>\</u>	year, □ 2 years, gent		
Type Timing											

Ontario Structure Inspection I	Manual — In	spection I	orm			Bridge ID:		DY-1	
Element Group:	Pier					Length:		(m)	
Element Name:	Pile Bents	5				Width:		0.3 (m)	
Location:	East and	West				Height:		2.0 (m)	
Element Description:						Count:	Count:		
Material:	Wood					Total Quantity:		22.6 (sq.m)	
Element Type:	Timber Pi	les with C	Capping Bea	am		Not Inspected:			
Environment:	□ Benign	, ☑ Mode	rate, □ Sev	ere		Limited Inspection	1:		
Protection System:	Creosote					Perform. Deficienc	ies:		
Condition Data:	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	13.6	9.0	0.00	BCI TEV:		BCI CEV:	
Comments:	Some che	ecking and	d ice abrasi	on at wat	terline. North	nwest pile rehabilitated.			
Recommended work:						Maintenance Need	ls:		
Comments						☐ 1 year, ☐ 2 years	,		
Type Timing									
Element Group:	Retaining v	walls				Length:	8.0 (
Element Name:	Walls					Width:	2.0 ((m)	
Location:	All quadrar	nts.				Height:	0.5 ((m)	
Element Description:	Replaced 2	2017				Count:	4		
Material:	Gabion Bas	sket				Total Quantity:	64.0	(sq.m)	
Element Type:						Not Inspected:			
Environment:	□ Benign,	☑ Modera	te, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencie	es		
Condition Data:	Units	Exc.	Good	Fair	Poor*				
Condition Data.	sq.m	64.0	0.00	0.00	0.00	BCI TEV: 22400.0	ВСІ	CEV: 22400.0	
Comments:	New Gabio	n basket i	retaining w	alls in ex	cellent condi	tion.			
Recommended work:						Maintenance Needs	:-		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent			
Type Timing									

Ontario Structure Inspection M	lanual — Ins	spection F	orm			Bridge ID:	DY-1
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,	□ Moder	ate, ☑ Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor*		
Condition Data.	sq.m	14.2	0.00	0.00	0.00	BCI TEV: 568.0	BCI CEV: 568.0
Comments:	Minor split	s, recentl	y replaced	overall in	excellent co	ondition.	
Recommended work:						Maintenance Needs:	
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent	
Type Timing							

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

Ontario Structure Inspection Manual — Inspection Form	Bridae ID:
Ontano Structure inspection Manual — inspection Form	bridge ib.

Ontario Structure Inspection I	Manual — Inspection Form			Brio	lge ID:		DY-1
Repair and Rehabilitation	Required			Priority			Estimated
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost
Railing System	Install guiderail at approaches.			1			\$10,000.00
						Total	\$10,000.00

Assosciated 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



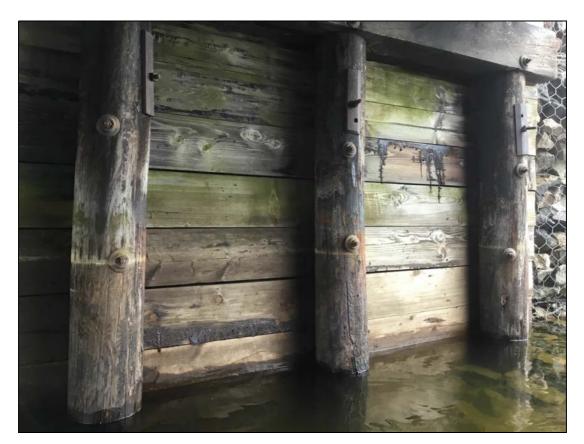
Description: East wall #1, northeast quadrant. High water level visible.

Abutments / Ballast Walls (East and West)



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





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)

Bridge ID:	DY-2

Inventory Data:					
Structure Name	Kennisis Lake Narrows B	ridge]
Main Hwy/Road #		☑ On □ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove	☐ Over water, ☐ Over Road	
Hwy/Road Name	Kennisis Lake Road]
Structure Location	0.4 km West of Watts Ro	pad]
Latitude	45.241800		Longitude	-78.598200]
Northing			Easting]
Owner(s)	Municipality of Dysart et	: al	Heritage designation: ☑ Desig., □ Desig./not List, □		p., □ List/not
MTO Region			Road Class: Freeway, Residential, Collector Co	mmercial, 🛭 Local, 🗆 Loca	l Residential,
MTO District			Posted Speed	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, ☐ Sch ☐ Bicycle, ☐ Emergency,	-
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 Y	ear of Last Major Rehab.		
Last OSIM Inspec	tion	2014 L	ast Evaluation		
Last Enhanced O	SIM Inspection		Current Load Limit	/ /	(tonnes)
Enhanced Access	Equipment	L	.oad Limit By-Law #	/ /	
Last Underwater	Inspection	E	By-Law Expiry Date		
Last Condition Su	ırvey				
Rehab History: (Date/description)				
(Date/description)					

Ontario Structure Inspection Manual — Inspection Form	n		Bridge ID:	DY-2
Scheduled Improvements:				
Regional Priority Number	Progran	nmed Wo	ork 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 Ty	ре		OSIM				
Inspector:		Sean Wetmore								
Others in Party:		Ben Belfry								
Access Equipment Used:		Tape, hammer, flashlight								
Weather:		Rain								
Temperature:		19.0 ℃								
Upcoming Inspections and Investigation	ons:									
Due date	Priority		Comments							
					Dui a vita					
Additional Investigations Required:				None	Priority Normal	Urgent				
Material Condition Survey				None	Normai	orgent				
Detailed Deck Condition Survey:										
Non-destructive Delamination Surve	v of Asphal	t-Covered Deck:								
Concrete Substructure Condition Sur		t-covered beck.								
Detailed Coating Condition Survey:	vey.									
Detailed Timber Investigation										
Post-Tensioned Strand Investigation										
Underwater Investigation:										
Fatigue Investigation:										
Seismic Investigation:										
Structure Evaluation:										
Monitoring										
Monitoring of Deformations, Settlem	ents and M	lovements:								
Monitoring Crack Widths:										
Investigation Notes:										

Bridge ID:

DY-2

Ontario Structure Inspection Manual — Inspection Form

Ontario Structure Inspection Manual — Inspection	on Form	Bri	idge ID:	DY-2
Overall Structure Notes:				
Recommended Work on Structure:				
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1	- 5 years, □ 6 - 1	0 years, $\square > 1$	LO years
Overall Comments:				
Date of Next Inspection:				
_				
Overall Bridge Condition:			69	9.63
			1	
Recommended inspections and Investigation	ions	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	06 Bearing not uniformly load	ed/unstable 12	Slippery surface	25
01 Load carrying capacity	07 Jammed expansion joint		Flooding/channe	
02 Excessive deformations (deflections & rotations)			Undermining of	=
03 Continuing settlement	09 Rough riding surface		Unstable embar	
04 Continuing movements	10 Surface ponding	16	Other	
05 Seized bearings	11 Deck drainage	17	None	
Maintenance Needs				
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel		Erosion Control	=
02 Bridge Cleaning	08 Repair of Bridge Concrete	14	Concrete Sealin	g
03 Bridge Handrail Maintenance	09 Repair of Bridge Timber		Rout and Seal	
04 Painting Steel Bridge Structures	10 Bailey bridges - Maintenan	ce 16	Bridge Deck Dra	ainage

11 Animal/Pest Control

12 Bridge Surface Repair

05 Bridge Deck Joint Repair

06 Bridge Bearing Maintenance

17 Scaling (Loose Concrete or ACR Steel)

18 Other

Bridge ID:	DY-2

Element Data

Element Group:	Abutments	5				Length:	(m)					
Element Name:	Abutment	Walls				Width:	9.8 (m)					
Location:	East / Wes	t				Height:	2.5 (m)					
Element Description:						Count:	2					
Material:	Wood					Total Quantity:	49.0 (sq.m)					
Element Type:						Not Inspected:						
Environment:	☐ Benign,	☑ Modera	ate, □ Seve	re		Limited Inspection:						
Protection System:	Creosote					Perform. Deficiencies						
Condition Data:	Units	Exc.	Good	Fair	Poor*							
Condition Data:	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						□ 1 year, □ 2 years, □ Urgent						
Type Timing												
Element Group:	Abutment	:S				Length: (m)						
Element Name:	Wingwalls	i				Width: 2.5 (m)						
Location:	All quadra	nts.				Height:	2.5 (m)					
Element Description:						Count:	4					
Material:	Wood					Total Quantity:	25.0 (sq.m)					
Element Type:	Wood Crib)				Not Inspected:						
Environment:	□ Benign,	. ☑ Moder	ate, □ Seve	ere		Limited Inspection:						
Protection System:	Creosote					Perform. Deficiencies						
Condition Data:	Units	Exc.	Good	Fair	Poor*							
Condition Data.	sq.m	0.00	19.0	4.0	2.0	BCI TEV: 8750.0	BCI CEV: 5547.5					
Comments:	No defect	s noted ir	good cond	ition.								
Recommended work:						Maintenance Needs:						
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent						
Type Timing												

Ontario Structure Inspe	ection Mar	nual — Insp	pection Fo	orm			Bridge ID:	DY-2					
Element Group:		Approache	es				Length:	6.0 (m)					
Element Name:		Wearing S	urface				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,	□ Moder	ate, ☑ Seve	ere		Limited Inspection	:					
Protection System:							Perform. Deficienc	ies					
Condition Data:		Units	Exc.	Good	Fair	Poor*							
Condition Data:		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. Sout side is draining well.											
Recommended work	:					Maintenance Need	ls: 02. Bridge Cleaning						
Comments													
Provide drainage swal quadrants.	e c/w slop	e protectio	on for pro	per drainag	e, all		☑ 1 year, □ 2 years □ Urgent	,					
Туре	т	iming					Bridge cleaning, pat	ch pot					
☑ Rehab, □ Repair, □ Replace] 1 - 5 yea] Urgent	rs, □ Now	ı < 1 year, [□ 6 - 10 y	ears,	holes.						
Flores et Consum	D							16.0 (***)					
Element Group:	Barriers					Leng		16.0 (m)					
Element Name:	Railing S					Widtl		(m)					
Location:	Across s	tructure o	nly			Heigl	nt:	(m)					
Element Description:						Coun	t:	2					
Material:	Steel					Total	Quantity:	32.0 (m)					
Element Type:	Steel Fle	x Beam or	n Wood Po	ost		Not I	nspected:						
Environment:	☐ Benigi	n, 🗆 Mode	rate, 🗹 S	evere		Limit	ed Inspection:						
Protection System:	Galvaniz	ed / Creos	ote (or Pr	essure Trea	at)	Perfo	orm. Deficiencies						
Condition Data:	Units	Exc.	Good	d Fair	Poor	**							
Condition Butai	m	0.00	0.00	32.0	0.00	ВСІТ	EV: 6400.0	BCI CEV: 2560.0					
Comments:							st side not attached to p ppropriate end treatmer						
Recommended work	:					Main	tenance Needs:						
Comments													
Replace with extended rehab.	d guiderai	l system w	rith end tr	eatments a	t next ma	. 🗆 T)	□ 1 year, □ 2 years, □ Urgent						
Туре	Timi	ing											
□ Rehab, □ Repair, ☑ Replace		- 5 years, l gent	□ Now <	1 year, □ 6	- 10 yea	rs,							

Ontario Structure Ir	spection Ma	nual — Ins	spection Fo	rm			Bridge ID:		DY-2	
Element Group:	Beam / ML	E					Length:		8.8 (r	n)
Element Name:	Girders						Width:		0.25	(m)
Location:	E/W						Height:		0.6 (r	n)
Element Description:							Count:		9	
Material:	Wood						Total Quan	tity:	114.8	3 (sq.m)
Element Type:	Rectangula	ar-solid					Not Inspected:			
Environment:	☐ Benign,	☑ Modera	te, □ Seve	re			Limited Ins	pection:		
Protection System:	Creosote						Perform. D	eficiencies		
Condition Data:	Units	Exc.	Good	Fair	Po	or*				
Condition Data:	sq.m	0.00	92.8	20.0	2	2.0	BCI TEV:		BCI (CEV:
Comments:	Checks thr effect of ru			air condit	ion. Se	eepage	running thro	ugh and out of deck alo	ng gird	ders. Monitor
Recommended we	ork:						Maintenan	ce Needs:		
Comments							□ 1 year, □	2 years,		
Type Timing										
Fl		D. d.								12.0 ()
Element Group:		Deck	Cf	(Daalsa)				Length: Width:		13.8 (m)
Location:		wearin	g Surface	(Decks)				Height:	6.2 (m) (m)	
Element Descript	ioni							Count:		0
Material:		Surface	e Treatmer	·+				Total Quantity:		85.6 (sq.m)
Element Type:		Surface	rreatinei	11.				Not Inspected:		□
Environment:		□ Reni	gn, □ Mod	erate 🗇	Sovere			Limited Inspection:		
Protection System	n:	- Bein	gii, 🗆 Moa	crute, 🖭	Jevere			Perform. Deficiencie		
Trotection bysten	···	Unit	s Exc.	God	od	Fair	Poor*	Surface ponding		
Condition Data:		sq.m				37.6	44.3	BCI TEV:		BCI CEV:
Comments:					and for	rming _l		some spalls. Significant	pondi	ng.
Recommended we	ork:							Maintenance Needs:	02,12	•
Comments										
Repave deck.								☑ 1 year, □ 2 years, □ Urgent		
Туре		Timing						Bridge Cleaning & surf	face re	pair in NE
□ Rehab, □ Repair		□ 1 E vo	ears, 🗆 Nov	u - 1 vo:	or □ 6	5 - 10 v	oars	Bridge Cleaning & surface repair in NE quadrant.		
☑ Replace	,	☐ Urgent		w < I yea	ai, ⊔ 0) - 10 y	ears,			

Ontario Structure Inspection M	lanual — Ins	spection F	orm				Bridge ID:		DY-2
Element Group:	Decks					L	ength:	13.8	(m)
Element Name:	Deck Top					W	/idth:	6.8	(m)
Location:						н	eight:	(m)
Element Description:						C	ount:	1	
Material:	Deck Top Width: Height: Count: Total Quantity: Laminated Wood Decking - transverse Benign, ☑ Moderate, ☐ Severe Creosote / Surface Treatment Perform. Deficiencies Units Exc. Good Fair Poor* sq.m 0.00 94.0 0.00 0.00 BCI TEV: 11280.0						94.0	(sq.m)	
Element Type:	Laminated	Wood De	cking - trai	nsverse		N	ot Inspected:		
Environment:	□ Benign,	☑ Modera	ite, □ Seve	ere		Li	imited Inspection:	7	
Protection System:	Creosote /	Surface T	reatment			P	erform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	94.0	0.00	0.00	В	CI TEV: 11280.0	ВСІ	CEV: 8460.0
Comments:	Limited ins	pection b	ased on so	ffit. Over	all good co	nditi	on.		
Element Name: Deck Top Location: Element Description: Wood Element Type: Laminated Wood Decking - transverse Environment: □ Benign, □ Moderate, □ Severe Protection System: Creosote / Surface Treatment Units Exc. Good Fair Protection Data: □ Decks Recommended work: Comments: Limited inspection based on soffit. Overall good Decking - transverse Units Exc. Good Fair Protection Data: □ Decks Element Group: Decks Element Group: Decks Element Name: Soffit - Thin Slab Location: Element Description: Material: □ Decks Element Type: □ Decks						М	laintenance Needs:		
Type Timing									
Element Group:	Decks	Height: Count: Total Quantity Moderate, □ Severe Limited Inspect posote / Surface Treatment Inits Exc. Good Fair Poor* q.m 0.00 94.0 0.00 0.00 BCI TEV: 11280 Maintenance I □ 1 year, □ 2 y □ Urgent Pecks Count: Total Quantity Midth: Height: Count: Total Quantity Not Inspected Limited Inspect Maintenance I □ 1 year, □ 2 y □ Urgent Perform. Defice Length: Count: Total Quantity Not Inspect Limited Inspect Region One Not Inspect Perform. Defice I year, □ 2 y □ Urgent Perform. Defice Region One Not Inspect Region One Not Inspect Region One Reg						13.8 (m)	
Element Name:	Soffit -	Thin Slab					Width:	6.2 (m)	
Location:							Height:		
Element Description:							Count:		0
Material:	Soffit - Thin Slab Width: Height: Count:								85.6 (sq.m)
Element Type:							Not Inspected:		
Environment:	☐ Benig	n, 🗆 Mod	erate, 🗆 Se	evere			Limited Inspection:		
Protection System:	Creosot	e					Perform. Deficiencie	s	
	Units	Exc.	Good	d Fai	ir Poo	r*			
Condition Data:	sq.m	0.00	85.6	0.0	0.0	0	BCI TEV:		BCI CEV:
Comments:	In good	fair condi	tion. Seepa	age of wa	ter from de	eck ir	Perform. Deficiencies BCI TEV: BCI CEV:		
Element Type: Laminated Wood Decking - transverse						Maintenance Needs:			

Ontario Structu	ire Inspe	ction Manu	al — Inspe	ection Form			Bridge ID:	DY-2				
Element Grou	p:	Retaining	Walls				Length:	3.0 (m)				
Element Name	e:	Walls					Width:	2.0 (m)				
Location:		NW Quadr	ant				Height:	0.5 (m)				
Element Description:							Count:	2				
Material:		Other					Total Quantity:	3.0 (sq.m)				
Element Type	:	Gabions a	nd wood a	at southwes	t quadra	nt	Not Inspected:					
Environment:		☐ Benign,	□ Modera	ate, ☑ Seve	re		Limited Inspection:	: 🗆				
Protection Sy	stem:	Galvanize	d				Perform. Deficiencies					
Condition Dat		Units	Exc.	Good	Fair	Poor*						
Condition Dat	di	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.										
Recommende	d work:						Maintenance Needs:					
Comments							☐ 1 year, ☐ 2 years, ☐ Urgent					
Type Timing												
Element Group:	Sidewa	lks/curbs				Leng	th:	13.0 (m)				
Element Name:	Curbs					Widt	h:	0.3 (m)				
Location:	North a	nd South				Heig	nt:	0.3 (m)				
Element Description:						Coun	t:	2				
Material:	Wood					Total	Quantity:	15.6 (sq.m)				
Element Type:						Not I	nspected:					
Environment:	□ Beni	gn, 🗆 Mode	rate, 🗹 S	evere		Limit	ed Inspection:					
Protection System:	Creoso	te				Perfo	orm. Deficiencies					
Condition	Units	Exc.	Good	d Fair	Poo	r*						
Data:	sq.m	0.00	1.6	10.0	5.0	ВСІТ	EV: 624.0	BCI CEV: 208.0				
Comments:							s with minor checking. Some s ediment removal.	ediment accumulation.				
Recommende	d work:					Main	tenance Needs: 02. Bridge C	`leaning				
Comments							□ 1 year, □ 2 years, ☑ Urgent					
Type Timing	l 					_	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 R	equired			Estimated			
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost
Railing System	Provide guiderail at approches c/w end treatments.			✓			\$10,000.00
Approach Drainage System	Provide drainage swales c/w slope protection.			1			\$5,000.00
						Total	\$15,000.00

Assosciated 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)



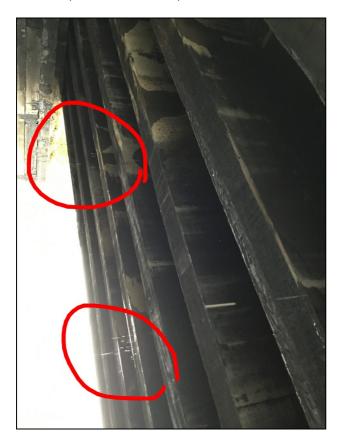
Description: North barrier, typical condition.





Description: Minor impact damage, north side.

Barriers / Railing Systems (Across structure only)



Description: Seepage through deck running along girders.





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)

Bridge ID:	DY-3

Inventory Data:						
Structure Name	Barry's Bridge					
Main Hwy/Road #		☑ On □ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove			
Hwy/Road Name	Barry Line Road					
Structure Location	0.05 km East of Binscrat	h Trail				
Latitude	45.126200		Longitude	-78.630000		
Northing			Easting			
Owner(s)	Municipality of Dysart et	al	Heritage designation: □ Desig., □ Desig./not List, □		Cons./not App	o., 🗆 List/not
MTO Region			Road Class: ☐ Freeway, ☐ Residential, ☐ Collector Col ☐ Local Commercial, ☐ Rur more lanes	mmercial, 🛭 L	ocal, 🗆 Local	Residential,
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	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, ☐ ☐ ☐ Bicycle, ☐	•	•
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 Y	ear of Last Major Rehab.			
Last OSIM Inspec	tion	2014 L	ast Evaluation			
Last Enhanced O	SIM Inspection		Current Load Limit		/ /	(tonnes)
Enhanced Access	Equipment		oad Limit By-Law #		/ /	
Last Underwater	Inspection	E	By-Law Expiry Date			
Last Condition Su	ırvey					
Rehab History: ([Date/description)					

Ontario Structure Inspection Manual — Inspection Form		Bridge ID:	DY-3	
Scheduled Improvements:				
Regional Priority Number	Progran	nmed W	ork 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	on Type		
Inspector:		Ben Belfry					
Others in Party:		Sean Wetmore					
Access Equipment Used:							
Weather:							
Temperature:							
Upcoming Inspections and Investigation	ons:						
Due date	Priority		Comm	ents			
						Dulaultu	
Additional Investigations Required:						Priority Normal	Urgent
Material Condition Survey					None	Norman	Orgent
Detailed Deck Condition Survey:							
Non-destructive Delamination Surve	v of Asphalt-Co	overed Deck:					
Concrete Substructure Condition Sui							
Detailed Coating Condition Survey:							
Detailed Timber Investigation							
Post-Tensioned Strand Investigation	ı						
Underwater Investigation:							
Fatigue Investigation:							
Seismic Investigation:							
Structure Evaluation:							
Monitoring							
Monitoring of Deformations, Settlem	ents and Move	ements:					
Monitoring Crack Widths:							
Investigation Notes:							

Bridge ID:

DY-3

Ontario Structure Inspection Manual — Inspection Form

Ontario Structure Inspection Manual — Inspecti	E	Bridge ID:	DY-3		
Overall Structure Notes:					
Recommended Work on Structure:					
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐ 1	5 years, 🗆 6 -	10 years, □	> 10 y	/ears
Overall Comments:					
Date of Next Inspection:					
Overall Bridge Condition:				52.89	9
B	*	B t.t.	D. J.		
Recommended inspections and Investigat	Due date	Prior	ity	Comments	
Boat Inspection					
Bridge master					
Coating survey					
Detailed condition survey					
Evaluation					
Fatigue					
Monitor Settlements/Movements					
Seismic					
Substructure condition survey					
Underwater					
			•		
Suspected Performance Deficiencies	06 Bearing not uniformly load	ed/unstable 12	Slippery sur	faces	
01 Load carrying capacity	07 Jammed expansion joint		Flooding/ch		lockage
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazar	d 14	Underminin	g of fou	ındation
03 Continuing settlement	09 Rough riding surface		Unstable en	nbankm	nents
04 Continuing movements	10 Surface ponding		Other		
05 Seized bearings	11 Deck drainage	17	None		
Maintenance Needs	O7 Demain to Characterist Street		Funcion Com	Auglat 5	Duidea
01 Lift and Swing Bridge Maintenance02 Bridge Cleaning	07 Repair to Structural Steel		Erosion Con Concrete Se		Briages
03 Bridge Cleaning 03 Bridge Handrail Maintenance	08 Repair of Bridge Concrete09 Repair of Bridge Timber		Rout and Se	_	
04 Painting Steel Bridge Structures	10 Bailey bridges - Maintenan		Bridge Deck		age

11 Animal/Pest Control

12 Bridge Surface Repair

05 Bridge Deck Joint Repair

06 Bridge Bearing Maintenance

17 Scaling (Loose Concrete or ACR Steel)

18 Other

Bridge ID:	DY-3

Element Data

Group:	Abutment	S				Length	:		(m)	
Element Name:	Ballast Wa	alls				Width:			7.0 (m)	
Location:	East and V	Vest				Height	•	2.0 (m)		
Element Description:						Count:			2	
Material:	Timber					Total Q	uantity:		28.0 (sq.ı	m)
Element Type:						spected:				
Environment:	☐ Benign,	☑ Modera	ate, 🗆 Seve	re		Limited	l Inspection	1:		
Protection System:	Creosote					Perforr	n. Deficien	cies		
Condition	Units	Exc.	Good	Fair	Poor*	03. Con	tinuing settl	ement		
Data:	sq.m	0.00	0.00	26.0	2.0	BCI TEV	/: 9800.0		BCI CEV	: 3640.0
Comments:			d to fair con er on west v		h localized s	small defo	ormations. M	aterial washout	, between	n piles. Broken
Recommende	d work:					Mainte	nance Nee	ds: 13. Erosion	Control at	Bridges
Comments			✓ 1 year, □ 2 years,□ Urgent							
Type Timing	l		Install lower timber section of ballast mitigate erosion of ballast at west wa							existing to
								1		
Element Grou	p:		Approach	es				Length:	6.0 (m)	
Element Name	e:		Wearing 9	Surface				Width:		7.5 (m)
Location:			East and	west				Height:		(m)
_							Count: 2			
Element Desc	ription:						Total Quantity: 90.0 (sq.m)			
Element Desc Material:	ription:		Asphalt						ty:	90.0 (sq.m)
			Asphalt							
Material:	:			, □ Modei	rate, ☑ Seve	ere		Total Quanti	ed:	90.0 (sq.m)
Material: Element Type	:			, □ Model	rate, ☑ Seve	ere		Total Quanti	ed: ection:	90.0 (sq.m)
Material: Element Type Environment:	: stem:			, □ Modei	rate, ☑ Seve	ere Fair	Poor*	Total Quanti Not Inspecte Limited Insp	ed: ection:	90.0 (sq.m)
Material: Element Type Environment: Protection Sy	: stem:		□ Benign	1	1	T	Poor* 74.3	Total Quanti Not Inspecte Limited Insp	ed: ection: ficiencies	90.0 (sq.m)
Material: Element Type Environment: Protection Sy	: stem:		□ Benign	Exc. 0.00	Good 0.00	Fair 15.7	74.3	Total Quanti Not Inspecte Limited Insp Perform. Def	ed: ection: ficiencies	90.0 (sq.m) BCI CEV: 37.68
Material: Element Type Environment: Protection Sy Condition Date	: stem: :a:		☐ Benign	Exc. 0.00	Good 0.00	Fair 15.7	74.3	Total Quanti Not Inspecte Limited Insp Perform. Def	ed: ection: ficiencies .0	90.0 (sq.m) BCI CEV: 37.68
Material: Element Type Environment: Protection Sy Condition Dat	: stem: :a:		☐ Benign	Exc. 0.00	Good 0.00	Fair 15.7	74.3	Total Quanti Not Inspecte Limited Insp Perform. Def BCI TEV: 540 I as potholes an	ed: ection: ficiencies .0	90.0 (sq.m) BCI CEV: 37.68
Material: Element Type Environment: Protection Sy Condition Dat Comments: Recommende	: stem: :a: d work:	surface.	☐ Benign	Exc. 0.00	Good 0.00	Fair 15.7	74.3	Total Quanti Not Inspecte Limited Insp Perform. Def BCI TEV: 540 I as potholes an	ed: ection: ficiencies .0 ad cracking e Needs:	90.0 (sq.m) BCI CEV: 37.68
Material: Element Type Environment: Protection Sy Condition Dat Comments: Recommende Comments	: stem: :a: d work:		☐ Benign	Exc. 0.00	Good 0.00	Fair 15.7	74.3	Total Quanti Not Inspecte Limited Insp Perform. Def BCI TEV: 540 I as potholes an Maintenance	ed: ection: ficiencies .0 ad cracking e Needs:	90.0 (sq.m) BCI CEV: 37.68

Pridge ID: DV 3		
bridge iD. D1-3	Bridge ID:	DY-3

Element Group:	Barriers					Length:	20.1 (m)	
Element Name:	Railing Sy	stems				Width:	(m)	
Location:	E/W					Height:	(m)	
Element Description:	SBGR on v	wood post	īs.			Count:	2	
Material:	Steel Flex	Beam on	Wood Post			Total Quantity:	40.2 (m)	
Element Type:						Not Inspected:		
Environment:	☐ Benign,	. 🗆 Moder	ate, ☑ Seve	ere		Limited Inspection:		
Protection System:	Galvanize	d / Creoso	ote (Pressur	e Treat)		Perform. Deficiencies		
Candition Bate	Units	Exc.	Good	Fair	Poor*			
Condition Data:	m	0.00	15.0	18.0	5.0	BCI TEV: 8040.0	BCI CEV: 3690.0	
Comments:	Damage t		il and end p	ost in N/I	corner; mir	nor collision damage mid-s	span. No guiderail on	
Recommended work:						Maintenance Needs:		
Comments Add SBGR to approaches at next Type □ Rehab, □ Repair, □ Replace	□ 1 year, □ 2 years, □ Urgent							
Element Group:		in Longitu	udinal Eleme	ents		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,	□ Moder	ate, □ Seve	re		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 con	dition.					
Recommended work:						Maintenance Needs:		
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

Ontario Structure Inspec	tion Manual	— Inspec	tion Form					Bridge ID:		DY-3
Element Group:		Beams	/Main Longi	tudinal E	lem	nents		Length:		18.7 (m)
Element Name:		Girders	;					Width:		0.25 (m)
Location:		North a	and south					Height:		0.6 (m)
Element Description:								Count:		9
Material:		Wood						Total Quantity	328.0 (sq.m)	
Element Type:		Rectan	gular-solid					Not Inspected:		
Environment:		□ Beni	gn, ☑ Mode	erate, 🗆 S	Seve	ere		Limited Inspec	tion:	
Protection System:		Creoso	te					Perform. Defic	ienci	es
		Unit	s Exc.	Good	t	Fair	Poor*			
Condition Data:	sq.m	0.00	200.0)	127.0	1.0	BCI TEV: 65600.0 BCI C		BCI CEV: 40160.0	
Comments:		Beams	in general	good con	diti	ion with m	inor checkin	g and splits.		
Recommended work:		•						Maintenance I	Needs	::
Comments										
Replace damaged girder at northwest quadrant as part of bridge rehabilitation.								☐ 1 year, ☐ 2 years, ☐ Urgent		
Туре	Tin	ning								
□ Rehab, □ Repair, ☑ R	ebiace	5 years Jrgent	s, □ Now <	1 year, [□ 6	- 10 years	, ,			
									ı	
Element Group:	Decks						Length:		18.7 (m)	
Element Name:	Deck Top						Width:	7.3		m)
Location:	Under Asp	halt					Height:		(m)	
Element Description:							Count:		1	
Material:	Wood						Total Quar	ntity:	137.	0 (sq.m)
Element Type:	Laminated	l Wood De	ecking - tra	nsverse			Not Inspec	ted:		
Environment:	□ Benign,	☑ Moder	ate, □ Seve	ere			Limited In	spection:	7	
Protection System:	Creosote						Perform. D	eficiencies		
Condition Data:	Units	Exc.	Good	Fair		Poor*	None			
Condition Data.	sq.m	0.00	137.0	0.00		0.00	BCI TEV: 1	6440.0	всі	CEV: 12330.0
Comments:	Deck appe	ars to be	in good co	ndition w	ith	light to m	oderate sign	s of water penetr	ation o	on underside.
Recommended work:							Maintenan	ce Needs:		
Comments							☐ 1 year, ☐ 2 years, ☐ Urgent			
Type Timing										

Ontario Structure Insp	oection Man	ual — Ins	pection Forr	m			Bridge ID:		DY-3
Element Group:	Decks					Length:		18.7 (m)
Element Name:	Wearing S	urface				Width:		6.8 (m)	
Location:	Deck Top					Height:		(m)	
Element Description:						Count:		1	
Material:	Asphalt					Total Qu	antity:	127.2 (s	sq.m)
Element Type:						Not Insp	ected:		
Environment:	☐ Benign,	□ Moder	ate, ☑ Seve	ere		Limited I	nspection:		
Protection System:						Perform.	Deficiencies	•	
Condition Boto	Units	Exc.	Good	Fair	Poor*	Rough riding surface			
Condition Data:	sq.m	0.00	0.00	31.3	95.9	BCI TEV: 3180.0 BC			V: 313.0
Comments:		poor condition. Extensive patching and alligator map cracking. Ravelling along edges with severe se crack throughout. Deck has no drains; therefore, water is penetrating into the wood deck below.							
Recommended wor	nded work: Maintenance Needs: 02. Bridge Cleaning				ng				
Comments									
Replace asphalt wear	ring surface	<u>:</u>				☑ 1 year, □ 2 years,□ Urgent			
Туре	Timi	ng				Clean off sand.			
□ Rehab, □ Repair, ☑ Replace		5 years, l s, □ Urger	□ Now < 1 nt	year, □ 6	5 - 10	Clean on	Saliu.		
									T
Element Group:		Embank	ments and s	Streams			Length:		(m)
Element Name:		Streams	and Water	ways			Width:		(m)
Location:		Upstrear	m /Downstre	eam			Height:		(m)
Element Description	n:						Count:		2
Material:							Total Quantity:		2.0 (each)
Element Type:							Not Inspected:		
Environment: ☑ Benign, ☐ Moderate, ☐ Severe							Limited Inspection		

Protection System:

Recommended work:

Condition Data:

Comments:

Comments

Type Timing

Units

each

Exc.

0.00

Good

1.0

Logs obstructing flow at northwest quadrant.

Fair

1.0

Poor*

0.00

BCI CEV:

Perform. Deficiencies

Maintenance Needs: 17

 $\ensuremath{\square}$ 1 year, $\ensuremath{\square}$ 2 years,

BCI TEV:

☐ Urgent

Clear debris.

Ontario Structure Inspection	Manual — In	spection F	orm			Bridge ID:	DY-3	
Element Group:	Piers					Length:	2.0 (m)	
Element Name:	Shafts/colu	mns/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 Pile	s with Ca	pping Bean	า		Not Inspected:		
Environment:	☐ Benign,	☑ Modera	te, □ Sever	re e		Limited Inspection:		
Protection System:	Creosote					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	0.00	45.2	0.00	BCI TEV: 40680.0	BCI CEV: 16272.0	
Comments:	Light splits	not effec	ting perforr	nance, ir	n good condi	tion.		
Recommended work:						Maintenance Needs: -		
Comments □ 1 year, □ 2 years, □ Urgent								
Type Timing								
Element Group:	Sidewall	ks/curbs				Length:	18.7 (m)	
Element Name:	Curbs					Width:	0.3 (m)	
Location:	North ar	nd south				Height:	0.3 (m)	
Element Description:						Count:	2	
Material:	Wood				Total Quantity:	22.4 (sq.m)		
Element Type:						Not Inspected:		
Environment:	☐ Benig	n, 🗆 Mode	erate, 🗹 Se	vere		Limited Inspection:		
Protection System:	Creosote	9				Perform. Deficiencie	s	
	Units	Exc.	Good	Fai	r Poor*	:		
Condition Data:	sq.m	0.00	6.1	10.0	6.3	BCI TEV: 896.0	BCI CEV: 343.0	
Comments:			nt accumula on gutters.	ation. Se	vere splits a	nd damage from abrasion.	South side has rot. Sand	
Recommended work:	•					Maintenance Needs:	-02	
Comments								
Replace timber curbs						☐ 1 year, ☐ 2 years, ☑ Urgent		
Туре	Timing					Bridge cleaning		
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 ye		w < 1 year	, □ 6 - 1	0 years,			

Ontario Structure Inspection Ma	Bridge ID:	DY-3								
Element Group:		Streams &	، Embankı	ments			Length:	(m)		
Element Name:		Slope Prot	ection			Width:	(m)			
Location:		All quadra	nts.		Height:	(m)				
Element Description:							Count:	4		
Material:							Total Quantity:	4.0 (each)		
Element Type:							Not Inspected:			
Environment:		☑ Benign,	□ Moder	ate, □ Seve		Limited Inspection:				
Protection System:							Perform. Deficiencies			
Condition Data:		Units	Exc.	Good	Fair	Poor*				
Condition Data:		each	0.00	0.00	4.0	0.00	BCI TEV:	BCI CEV:		
Comments:		Slopes are	vegetate	ed and stabl	e. Signs	of washout a	at nw quadrant. No slope protection.			
Recommended work:							Maintenance Needs:			
Comments										
Add slope protection at next ma	☐ 1 year, ☐ 2 years, ☐ Urgent									
Туре	Timing									
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 y □ Urgen		w < 1 yea	ar, 🗆 6 - 10	years,					

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

				Priority	<u> </u>		
Repair and Rehabilitation Re	equired			Estimated			
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost
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.			1			\$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

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



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.)



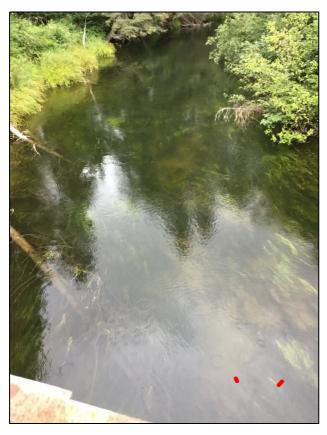
 $\label{eq:Description:Southwest quadrant.} \textbf{Description: Southwest quadrant.}$

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)

Bridge ID:	DY-4

Main Hwy/Road #	
# On Under Road, Ped., Other, Over water, Over Road, railway, Unknown, Over railway, Under Road # Green Lake Road	
a	
Structure Location 1.0 km East of Stanhope Airport Road	
Latitude 45.111441 Longitude -78.633132	
Northing Easting	
Owner(s) Heritage designation: □ Not Cons., □ Cons./not App., □ Desig., □ Desig./not List, □ Desig. & List	□ List/not
Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☐ Local, ☐ Local Residential, ☐ Rural Expressways, ☐ Alleyways, more lanes	esidential,
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	
Overall Str. Width [8.5] (m) Min. Vertical Clearance (m)	n)
Total Deck Area 139.0 (sq.m) Special Routes: □ Transit, □ Truck, □ School □ Bicycle, □ Emergency, □ Company □ Bicycle, □ Emergency, □ Company	-
Roadway Width 7.4 (m) Detour Length Around Bridge (ki	m)
Skew Angle 0 Direction of Structure E to W	
No. of Spans 3 Fill on Structure (m	n)
Span Lengths 5.4 (m	n)
Historical Data:	
Year Built 1960 Year of Last Major Rehab.	
Last OSIM Inspection 2014 Last Evaluation (to)	nnos)
Last Enhanced OSIM Inspection Current Load Limit // (torent Load Limit By-Law # //	nnes)
Last Underwater Inspection By-Law Expiry Date	
Last Condition Survey	
Rehab History: (Date/description) (Date/description)	

Ontario Structure Inspection Manual — Inspection Fo		Bridge ID:	DY-4	
Scheduled Improvements:				
Regional Priority Number	Prograi	nmed W	ork 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	С	SIM								
Inspector:	Sean Wetmore										
Others in Party:	Ben Belfry										
Access Equipment Used:	Hip waders, tape measure, ham	Hip waders, tape measure, hammer, tape measure, flashlight									
Weather:	Cloudy	Cloudy									
Temperature:	20.0 ℃										
Upcoming Inspections and Investigat	ions:										
Due date	Priority		Comments								
Additional Investigations Required:			-	Nama	Priority	T					
Material Condition Commen				None	Normal	Urgent					
Material Condition Survey											
Detailed Deck Condition Survey:	usu of Asubalt Coursed Basks										
Non-destructive Delamination Surv											
Concrete Substructure Condition S											
Detailed Coating Condition Survey	.										
Detailed Timber Investigation											
Post-Tensioned Strand Investigation	on										
Underwater Investigation:											
Fatigue Investigation:											
Seismic Investigation:											
Structure Evaluation:											
Monitoring											
Monitoring of Deformations, Settle	ments and Movements:										
Monitoring Crack Widths:											
Investigation Notes:											

Bridge ID:

DY-4

Ontario Structure Inspection Manual — Inspection Form

Ontario Structure Inspection Manual — Inspecti	on Form		Bridge	e ID:	DY-4
Overall Structure Notes:					
Recommended Work on Structure:					
Timing of Recommended Work:] 1 - 5 years, □	6 - 10 ye	ears, □ > 10	years	
Overall Comments:					
Date of Next Inspection:					
Overall Bridge Condition:				41.8	26
Overall Bridge Colldition.				41.0	
Recommended inspections and Investigat	ions	Due da	ate	Priority	Comments
Boat Inspection					
Bridge master					
Coating survey					
Detailed condition survey					
Evaluation					
Fatigue					
Monitor Settlements/Movements					
Seismic					
Substructure condition survey					
Underwater					
Suspected Performance Deficiencies		-			
Suspected Ferrormance Beneficies	06 Bearing not uniformly loa	aded/unstable	12 Slip	pery surfaces	
01 Load carrying capacity	07 Jammed expansion joint			ding/channel l	-
02 Excessive deformations (deflections & rotations)		ard		lermining of fo	
03 Continuing settlement	09 Rough riding surface			table embankı	ments
04 Continuing movements	10 Surface ponding		16 Oth		
05 Seized bearings	11 Deck drainage		17 Non	e	
Maintenance Needs	07 Donainta Charatanal Chin	J	13 5	sion Control -	Dridges
01 Lift and Swing Bridge Maintenance02 Bridge Cleaning	07 Repair to Structural Stee08 Repair of Bridge Concret			sion Control at	bridges
03 Bridge Handrail Maintenance	09 Repair of Bridge Concret	.0		crete Sealing t and Seal	

10 Bailey bridges - Maintenance

11 Animal/Pest Control

12 Bridge Surface Repair

16 Bridge Deck Drainage

18 Other

17 Scaling (Loose Concrete or ACR Steel)

04 Painting Steel Bridge Structures

05 Bridge Deck Joint Repair

06 Bridge Bearing Maintenance

Bridge ID:	DY-4

Element Data

Element Group:	Abutments					ngth: 7.0 (m)					
Element Name:	Ballast walls Wid							dth:	(m)		
Location:	East and west							ight:	1.5 (m)		
Element Description:							Cou	unt:	2		
Material:	Wood Timbe	r					Tot	al Quantity:	21.0 (sq.m)		
Element Type:							Not	t Inspected:			
Environment:	☐ Benign, ☑	Moderate	e, □ Sever	re			Lim	nited Inspection:	7		
Protection System:	Creosote / Pr	ressure Tr	eat				Per	rform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	ı	Poor*					
Condition Data.	sq.m	0.00	19.0	2.0		0.00	BCI	I TEV: 7350.0	BCI CEV: 5267.5		
Comments:	East wingwa Lagging app		ccessible	. Evidei	nce of	materia	l loss	s and some lagging board sep	aration at west wall.		
Recommended wo	ork:						Ма	intenance Needs:			
Comments Type Timing								☐ 1 year, ☐ 2 years, ☐ Urgent			
Element Group:	Abutmer	nts						Length:	2.0 (m)		
Element Name:	Wingwal	lls						Width:	(m)		
Location:	All quad	rants.						Height:	1.5 (m)		
Element Descripti	on:							Count:	2		
Material:	Wood Ti	mber						Total Quantity:	6.0 (sq.m)		
Element Type:								Not Inspected:			
Environment:	☐ Benig	n, 🛭 Mode	erate, 🗆 S	evere				Limited Inspection:			
Protection Systen	n: Creosote	e / pressur	re treat					Perform. Deficiencies			
Condition Data:	Units	Exc.	Goo	d I	Fair	Poor	r *	Continuing settlement, move embankment to become uns			
	sq.m	0.00	1.5		1.0	3.5		BCI TEV: 2100.0	BCI CEV: 533.75		
Comments:	Southwe	est wingwa	all has sev	vere er	osion	with con	tinui	ng settlement and movement			
Recommended work:								Maintenance Needs:			
Comments											
Replace southwest wingwall.							☐ 1 year, ☐ 2 years, ☐ Urgent				
Туре	Timi	ng						-			
□ Rehab, □ Repair, ☑ Replace	,	· 5 years, [gent	□ Now <	1 year,	□ 6 -						

Ontario Structure In:	nspection Manual — Inspection Form									Bridge ID:		DY-4	
Element Group:	Accessorie	es						Len	gth:				
Element Name:	Signs							Wid	lth:				
Location:	All quadra	ints.					Hei	ght:					
Element Description:								Cou	ınt:		4		
Material:							al Quantity	:	4.0 (e	each)			
Element Type:	Not Insp									1			
Environment:	☐ Benign, ☐ Moderate, ☐ Severe Lir								ited Inspec	tion:			
Protection System:	Galvanize							Per	form. Defic	iencies			
Condition Data:	Units	Exc	. Goo	d Fa	air	Poor	*	08.	Pedestrian/v	ehicular hazard			
Condition Data:	each	0.00	3.0	0.	00	1.0		всі	TEV: 400.0		всі с	EV: 225.0	
Comments:	Southwest	t hazar	d is bent a	nd obscu	ıred b	y overg	grown	veg	getation. Res	st are in good cor	ndition.		
Recommended wo	rk:							Mai	ntenance N	leeds: 17. Other	-		
Comments									L year, □ 2 y Jrgent	ears,			
Type Timing									tall hazard si ht-line.	ign at SW corner. Cut back vegetation for			
										1		1	
Element Group:			Approach	es						Length:		6.0 (m)	
Element Name:			Wearing s	urface						Width:		6.7 (m)	
Location:			East and v	west						Height:			
Element Description	on:									Count:		2	
Material:			Asphalt							Total Quantity	y:	80.4 (sq.m)	
Element Type:										Not Inspected	l:		
Environment:			□ Benign,	□ Mode	rate,	□ Seve	re			Limited Inspe	ction:		
Protection System) :									Perform. Defi	ciencie	es	
Condition Data:			Units	Exc.	(Good	Fa	ir	Poor*				
Condition Data:			sq.m	0.00		0.00	80).4	0.00	BCI TEV: 482.4	ļ	BCI CEV: 192.96	
Comments:			Previous p	atching,	curre	ently in	fair c	ond	ition.				
Recommended work:								Maintenance	Needs	:			
Comments													
Repave								☐ 1 year, ☐ 2 y	years,				
Type Timing								3					
☐ Rehab, ☐ Repair, ☑ Replace ☐ 1 - 5 years, ☐ Now < 1 year, ☑ 6 - 10 years, ☐ Urgent													

Ontario Structure Insp	ection Manu	ıal — Ins	pection Fo	rm				Bridge ID:	DY-4		
Element Group:	Barriers							Length:	16.0 (m)		
Element Name:	Railing	Systems						Width:	(m)		
Location:								Height:	(m)		
Element Description	1:							Count:	2		
Material:	Steel							Total Quantity:	32.0 (m)		
Element Type:	Steel Fl	ex Beam	over Oth	er Rail	ling			Not Inspected:			
Environment:	☐ Benig	ın, □ Mo	derate, 🗹	Sever	·e			Limited Inspection:			
Protection System:								Perform. Deficiencies			
Condition Data:	Units	Exc	c. Go	od	Fair	Poor	*	08. Pedestrian/vehicular haz	zard		
Condition Data.	m	0.0	0.0	00	22.0	10.0		BCI TEV: 6400.0	BCI CEV: 1760.0		
Comments:								spacing is insufficient. Post and poor condition.	nchors loose in places. No		
Recommended worl	k:							Maintenance Needs:			
Comments											
Install new posts for b	parrier to co	de									
Provide new guardrai rehabilitation	l system at t	ime of						☐ 1 year, ☐ 2 years, ☐ Urgent			
Туре	Timi	ng									
□ Rehab, □ Repair, ☑ Replace	☑ 1 - □ Ur		, □ Now <	1 yea	ar, □ 6	- 10 years,	,				
□ Rehab, □ Repair, ☑ Replace	☑ 1 - □ Ur		, □ Now <	: 1 yea	ar, □ 6	- 10 years,	,				
Element Group:	Decks							an male .	16.2 (m)		
Element Group:								ength: idth:	16.3 (m)		
Location:	Deck Top								8.5 (m)		
							п	eight:	(m)		
Element Description:							Co	ount:	1		
Material:	Wood						То	otal Quantity:	139.0 (sq.m)		
Element Type:	Laminated	Wood D	ecking - Lo	ongitu	dinal		No	ot Inspected:			
Environment:	□ Benign, l	□ Moder	ate, ☑ Sev	vere			Li	mited Inspection:	Ø		
Protection System:	Latex modi	fied con	crete over	lay			Pe	erform. Deficiencies			
Canditian Bata	Units	Exc.	Good	Fa	air	Poor*					
Condition Data:	sq.m	0.00	0.00	139	9.0	0.00	ВС	CI TEV: 16680.0	BCI CEV: 6672.0		
Comments:	Some defle		ted with e	vidend	ce of w	vater leakag	ge t	hrough deck. Pooling at north	n side, midspan. Overall ir		
Recommended work	k:						Ma	aintenance Needs:			
Comments								l 1 year, □ 2 years, I Urgent			
Type Timing								Waterproof			

Ontario Structure	lnspection Manual — Inspection Form							Bridge ID:			
Element Group:	Decks L						Le	ngth:	(m)		
Element Name:	Drainage S	System					Wi	dth:	(m)		
Location:	North and	south					He	ight:	(m)		
Element Description:		c					Co	unt:	8		
Material:	Steel						То	tal Quantity:	8.0 (eac	:h)	
Element Type:	Metal Drai	in Pipes					No	t Inspected:			
Environment:	☐ Benign,	□ Moder	ate, ☑ Seve	ere			Lir	nited Inspection:			
Protection System:							Pe	rform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair		Poor*					
Condition Data:	each	0.00	2.0	0.00		6.0	ВС	I TEV:	BCI CEV	/ :	
Comments:	All North o		ns are clogg	ed with	sedir	ment. Botl	h w	est deck drains on south side are	clogged. Ste	el still in	
Recommended v	vork:						Ma	intenance Needs: 02. Bridge C	leaning		
Comments						Cle	☑ 1 year, □ 2 years,□ UrgentClean vegetation and sediment from bridge and				
							dr	ains.			
Element Group:	Decks							Length:	16.3 (m)		
Element Name:	Weari	ng Surfac	e					Width:	7.4 (m)		
Location:								Height:	(m)		
Element Description:								Count:	1		
Material:	Aspha	lt						Total Quantity:	121.0 (sq.m	1)	
Element Type:								Not Inspected:			
Environment:	□ Ben	ign, 🗆 Mo	oderate, 🗹 S	Severe				Limited Inspection:			
Protection Syste	em: Aspha	lt						Perform. Deficiencies			
Condition Data:	Unit	ts Ex	c. Goo	d F	air	Poor	*				
Condition Data.	sq.r	n 0.0	0.0	0 6	0.0	61.0		BCI TEV: 3025.0	BCI CEV: 6	00.0	
Comments: Wearing surface in poor condition; potholes and cra raveling of concrete at southwest quadrant. Patches						cking. Missing ashpalt on edges with poor bonding and sof asphalt missing from north edge.					
Recommended work:						Maintenance Needs: 12. Bridg	e Surface Re	epair			
Comments											
Repave deck.	eck.						✓ 1 year, □ 2 years,□ Urgent				
Туре	Т	iming						Repave			
□ Rehab, □ Repa ☑ Replace] 1 - 5 yea] Urgent	ars, 🗆 Now	< 1 year	r, □ 6	5 - 10 yeaı	rs,	Периче			

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

Ontario	Structure	Inspection	Manual —	Inspection	Form

Bridge ID:	DY-4

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

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



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

Bridge ID:	DY-5

Inventory Data:					
Structure Name	Guilford Pine Lake Bridge	e]
Main Hwy/Road #		☑ On □ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove	🗆 Over water, 🗆 Over Road	
Hwy/Road Name	Pine Lake Road]
Structure Location	0.45 km North of Eagle I	_ake Road]
Latitude	45.117300		Longitude	-78.582000]
Northing			Easting]
Owner(s)	Municipality of Dysart et	: al	Heritage designation: ☑ Desig., ☐ Desig./not List, ☐		pp., □ List/not
MTO Region			Road Class: Freeway, Residential, Collector Co Local Commercial, Rui more lanes	mmercial, 🛭 Local, 🗆 Loca	l Residential,
MTO District			Posted Speed	No. of Lanes	2
Old County			AADT	% Trucks	
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		(m)
Total Deck Area	180.0	(sq.m)	Special Routes:	☐ Transit, ☐ Truck, ☐ Scl ☐ Bicycle, ☐ Emergency,	-
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	18.0				(m)
Historical Data:					
Year Built		2008 Y	ear of Last Major Rehab.		
Last OSIM Inspec	tion	2016 L	ast Evaluation		
Last Enhanced OS	SIM Inspection		Current Load Limit	1 1	(tonnes)
Enhanced Access	Equipment	<u> </u>	.oad Limit By-Law #	/ /	
Last Underwater	Inspection	E	By-Law Expiry Date		
Last Condition Su	ırvey				
Rehab History: (Date/description)	Oate/description)				

Ontario Structure Inspection Manual — Inspection Form	า		Bridge ID:	DY-5
Scheduled Improvements:				
Regional Priority Number	Progran	nmed Wo	ork 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 Ty	Inspection Type OSIM				
Inspector:		Ben Belfry						
Others in Party:		Frank Palmay, Sean Wet	more					
Access Equipment Used:		Tape, hammer, flashlight	:					
Weather:		Sunny						
Temperature:		24.0 °C						
Upcoming Inspections and Investigatio	ns:							
Due date	Priority		Comments					
Additional Investigations Required:					Priority			
Material Condition C				None	Normal	Urgent		
Material Condition Survey								
Detailed Deck Condition Survey:								
Non-destructive Delamination Surve		t-Covered Deck:						
Concrete Substructure Condition Sur	vey:							
Detailed Coating Condition Survey:								
Detailed Timber Investigation								
Post-Tensioned Strand Investigation								
Underwater Investigation:								
Fatigue Investigation:								
Seismic Investigation:								
Structure Evaluation:								
Monitoring								
Monitoring of Deformations, Settlem	ents and M	lovements:						
Monitoring Crack Widths:								
Investigation Notes:								

Bridge ID:

DY-5

Ontario Structure Inspection Manual — Inspection Form

Ontario Structure Inspection Manual — Inspecti		Bridge II	D:	DY-5	
Overall Structure Notes:					
Recommended Work on Structure:					
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐	□ 1 - 5 years, □	6 - 10 year	rs, □ > 10	years
Overall Comments:					
Date of Next Inspection:					
Owner II Patrick Constitutions				70.5	2
Overall Bridge Condition:			78.5		
Recommended inspections and Investigat	Due da	ite F	Priority	Comments	
Boat Inspection					
Bridge master					
Coating survey					
Detailed condition survey					
Evaluation					
Fatigue					
Monitor Settlements/Movements					
Seismic					
Substructure condition survey					
Underwater					
Suspected Performance Deficiencies			•	•	
	06 Bearing not uniformly lo		12 Slipper	y surfaces	
01 Load carrying capacity	07 Jammed expansion join			ng/channel b	-
02 Excessive deformations (deflections & rotations)		zard		mining of fou	
03 Continuing settlement	09 Rough riding surface			ole embankn	nents
04 Continuing movements	10 Surface ponding		16 Other		
05 Seized bearings	11 Deck drainage		17 None		
Maintenance Needs	07 Popoir to Structural Sta	al	12 Erocias	Control of	Pridace
01 Lift and Swing Bridge Maintenance02 Bridge Cleaning	07 Repair to Structural Ste08 Repair of Bridge Concre		14 Concre	n Control at	bridges
03 Bridge Handrail Maintenance	09 Repair of Bridge Concre		15 Rout a	_	

10 Bailey bridges - Maintenance

11 Animal/Pest Control

12 Bridge Surface Repair

16 Bridge Deck Drainage

18 Other

17 Scaling (Loose Concrete or ACR Steel)

04 Painting Steel Bridge Structures

05 Bridge Deck Joint Repair

06 Bridge Bearing Maintenance

Bridge ID:	DY-5

Element Data

Element Group:	Abutmer	nts				Length:	(m)			
Element Name:	Ballast w	alls				Width:	5.8 (m)			
Location:						Height:	1.0 (m)			
Element Description:						Count:	2			
Material:	Corrugat	ed Steel				Total Quantity:	11.6 (sq.m)			
Element Type:	Steel She	eet Pile				Not Inspected:				
Environment:	□ Benigr	n, 🗵 Mode	rate, □ Sev	ere		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Poor*					
Condition Data:	sq.m	0.00	11.6	0.00	0.00	BCI TEV: 4060.0	BCI CEV: 3045.0			
Comments:	Overall g	jood cond	ition.							
Recommended work:						Maintenance Needs:				
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent				
Type Timing	pe Timing									
							_			
Element Group:	Abutments	5				Length:	6.0 (m)			
Element Name:	Wingwalls					Width:	(m)			
Location:						Height:	1.5 (m)			
Element Description:						Count:	4			
Material:	Corrugate abutment	d steel sh	eet and cas	t-inplace	concrete	Total Quantity:	36.0 (sq.m)			
Element Type:	Steel Shee	et Piles				Not Inspected:				
Environment:	□ Benign,	☑ Modera	ite, □ Seve	re		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Poor*					
Condition Data:		0.00	36.0	0.00	0.00	BCI TEV: 12600.0	BCI CEV: 9450.0			
	sq.m	0.00				Comments: Moderate corrosion and surface staining, moderate weathering. Rust on the lower condition.				
Comments!	Moderate				, moderate v	weathering. Rust on the low	er portion. In good			
Comments!	Moderate				, moderate v	weathering. Rust on the low	er portion. In good			
Comments:	Moderate				, moderate v	- T	er portion. In good			

Ontario Structure Inspection	Manual — I	nspectio	on Form						Bridge ID:	DY-5	
Element Group:	Acce	essories							Length:	(m)	
Element Name:	Sign	s							Width:	(m)	
Location:	NE/N	IW/SE/S	SW						Height:	(m)	
Element Description:									Count:	2	
Material:	Stee	I							Total Quantity:	2.0 (each)	
Element Type:									Not Inspected:		
Environment:	□Ве	enign, 🗆	□ Modera	ate, ☑	Severe	!			Limited Inspection:		
Protection System:									Perform. Deficienci	es	
	Uı	nits	Exc.	Go	od	Fair	Po	or*			
Condition Data:	ea	ach	0.00	2.	.0	0.00	0.	00	BCI TEV: 200.0	BCI CEV: 150.0	
Comments:		ing haz d condit		s at er	nd of gu	ıardrail	s on Ni	E/NW (quadrants (2 missing).	Signs at south end in	
Recommended work:									Maintenance Needs	5:	
Comments											
Replace hazard signs at nort	th end.								☐ 1 year, ☐ 2 years, ☐ Urgent		
Туре	Timing	Timing									
□ Rehab, □ Repair, ☑ Replace	□ 1 - 5 ☑ Urger	L - 5 years, \square Now $<$ 1 year, \square 6 - 10 years, Jrgent									
	1										
Element Group:	Approache	es						Len	gth:	87.0 (m)	
Element Name:	Barriers							Wid	th:	(m)	
Location:								Heig	ght:	(m)	
Element Description:								Cou	nt:	2	
Material:	Steel							Tota	al Quantity:	174.0 (m)	
Element Type:	Steel Flex	Beam (on Steel	Post				Not	Inspected:		
Environment:	☐ Benign,	□ Mod	erate, 🗵	Seve	re			Limi	ited Inspection:		
Protection System:	Galvanize							Perf	orm. Deficiencies		
Condition Data:	Units	Exc.	. Go	ood	Fair	P	oor*				
Condition Data:	m	0.00	17	3.0	1.0	C	0.00	всі	TEV: 34800.0	BCI CEV: 26030.0	
Comments:	Collision of	lamage	to guide	erail or	n NW co	orner. F	Rest in	good	condition.		
Recommended work:								Maii	ntenance Needs:		
Comments						☑ 1 year, □ 2 years, □ Urgent					
Type Timing							Replace damaged SBGR				

Ontario Structure Inspection M	lanual — In	spection F	orm					Bridge ID:	DY-5
Element Group:	Approache	es					Le	ngth:	6.0 (m)
Element Name:	Wearing s	urface					Wi	idth:	7.0 (m)
Location:							He	eight:	(m)
Element Description:							Co	unt:	2
Material:	Aspahalt						То	tal Quantity:	84.0 (sq.m)
Element Type:							No	ot Inspected:	
Environment:	☐ Benign,	□ Moder	ate, ☑ Seve	ere		Lir	mited Inspection:		
Protection System:							Pe	rform. Deficiencies	
Condition Potes	Units	Exc.	Good	Fai	ir	Poor*			
Condition Data:	sq.m	0.00	83.0	1.0	0	0.00	вс	CI TEV: 504.0	BCI CEV: 375.9
Comments:	New pave	at approa	aches.						
Recommended work:							Ma	aintenance Needs:	
Comments			□ 1 year, □ 2 years, □ Urgent						
Type Timing									
Element Group:	Barrier	S					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 Co	ncrete					Total Quantity:	263.3 (sq.m)
Element Type:	Parape	t Wall wit	h Two Rails	i				Not Inspected:	
Environment:	□ Beni	gn, 🗆 Mo	derate, 🗵 S	evere				Limited Inspection:	
Protection System:								Perform. Deficiencies	1
Condition Data:	Unit	s Ex	c. Goo	d	Fair	Poor	*		
Condition Data.	sq.m	n 0.0	0 262.	3	0.00	1.0		BCI TEV: 26330.0	BCI CEV: 19672.5
Comments:		shrinkage ondition.	cracking ca	ausing	staini	ng. isolate	ed s	palls at parapet ends due	e to impact. Overall in
Recommended work:								Maintenance Needs:	
Comments	Comments							☐ 1 year, ☐ 2 years,	
Туре	Timing							□ Urgent	
☐ Rehab, ☐ Repair, ☐ Replace	□ 1 - 5 ye □ Urgent		ow < 1 year	r, □ 6	- 10 ye	ears,			

Ontario Structure Inspection	Manual — Ir	spection	Form			Bridge ID:	DY-5	
Element Group:	Barriers					Length:	18.0 (m)	
Element Name:	Hand Rail	ings				Width:		
Location:	E/W					Height:		
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	36.0 (m)	
Element Type:						Not Inspected:		
Environment:	☐ Benign,	□ Moder	ate, ☑ Seve	ere		Limited Inspection:		
Protection System:	Galvanize					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	m	0.00	36.0	0.00	0.00	BCI TEV: 3600.0	BCI CEV: 2700.0	
Comments:	Light impa	act scrape	es and corro	sion dam	nage. Overal	l in good condition.		
Recommended work:						Maintenance Needs:		
Comments		□ 1 year, □ 2 years, □ Urgent						
Type Timing								
	l					Г		
Element Group:	Beams/Ma	in Longitu	ıdinal Eleme	ents		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,	□ Modera	ate, □ Seve	re		Limited Inspection:	Ø	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	91.2	0.00	0.00	0.00	BCI TEV: 18240.0	BCI CEV: 18240.0	
Comments:	Girders in	good con	dition.					
Recommended work:						Maintenance Needs:		
Comments					☐ 1 year, ☐ 2 years, ☐ Urgent			
Type Timing								

Ontario Structure Inspection I	1anual — Ir	nspection	Form					Bridge ID:		DY-5			
Element Group:	Beams	s/Main Lo	ngitudinal	Elemen	its			Length:		(m)			
Element Name:	Stringe	ers						Width:	(m)				
Location:	E/W							Height:	(m)				
Element Description:								Count:		4			
Material:	Steel							Total Quantity:		4.0 (each)			
Element Type:								Not Inspected:					
Environment:	□ Ben	ign, ☑ Mo	oderate, 🗆	Severe	1			Limited Inspection:					
Protection System:								Perform. Deficienci	es	•			
Canalities Dates	Unit	ts Ex	c. Go	od	Fair	Poor	*						
Condition Data:	eac	h 0.0	00 4	.0	0.00	0.00)	BCI TEV:		BCI CEV:			
Comments:	Overal	ll good co	ndition										
Recommended work:	Recommended work:									Maintenance Needs: -			
Comments Type Timing								☐ 1 year, ☐ 2 years, ☐ Urgent					
Element Group:	Decks						Le	ength:	20.0 (m)			
Element Name:	Deck Top							idth:	9.0 (n				
Location:	·						He	eight:	(m)				
Element Description:								ount:	1				
Material:	Cast-in-pla	ce Concr	ete				То			(sq.m)			
Element Type:	Cast-in-pla	ice Concr	ete on Sur	ports			No	ot Inspected:					
Environment:	□ Benign,	□ Moder	ate, ☑ Sev	rere			Li	mited Inspection:					
Protection System:							Pe	erform. Deficiencies	Į.				
	Units	Exc.	Good	Fai	r	Poor*							
Condition Data:	sq.m	0.00	180.0	0.00	0	0.00	ВС	CI TEV: 21600.0	всі с	EV: 16200.0			
Comments:	No defects	in deck.	In good co	ondition									
Recommended work:							М	aintenance Needs: 02	?				
Comments							☑ 1 year, □ 2 years, □ Urgent						
Type Timing	Fiming .								Clean sediment.				

Ontario Structure Inspection M	Manual — In	spection	Form		Bridge ID:	DY-5		
Element Group:	Decks					Length:	19.0 (m)	
Element Name:	Soffit - Thi	n Slab				Width:	5.8 (m)	
Location:						Height:		
Element Description:						Count:	0	
Material:						Total Quantity:	110.2 (sq.m)	
Element Type:						Not Inspected:		
Environment:	☑ Benign,	□ Moder	ate, □ Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencie	s	
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	110.2	0.00	0.00	BCI TEV: 13224.0	BCI CEV: 9918.0	
Comments:	Overall in	good con	dition. Som	e signs of	hairline cra	cks.		
Recommended work:		Maintenance Needs:						
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent		
Element Group:	Embankm	ents & St	reams			Length:	(m)	
Element Name:	Slope prot	ection				Width: (m)		
Location:						Height:	(m)	
Element Description:						Count:	4	
Material:	Other					Total Quantity:	4.0 (each)	
Element Type:	Rip Rap					Not Inspected:		
Environment:	☐ Benign,	☑ Moder	ate, □ Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencie	s	
Condition Data:	Units	Exc.	Good	Fair	Poor*	None		
Condition Data:	each	4.0	0.00	0.00	0.00	BCI TEV: 1600.0	BCI CEV: 1600.0	
Comments:	Rip rap pro	otection i	n good cond	dition.				
Recommended work:						Maintenance Needs:	-	
Comments						□ 1 year, □ 2 years, □ Urgent		

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

Ontario Structure	Inchaction	Manual	Inchaction	Earm

Bridge ID: DY-5

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

Assosciated 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

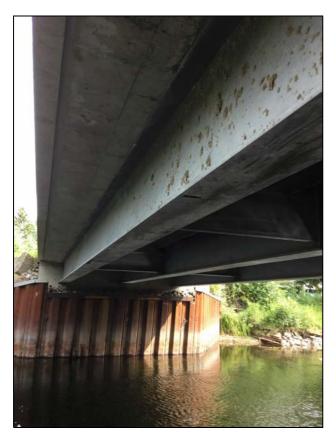


Description: Spall at SE parapet wall due to impact
Barriers / Barrier/Parapet Walls



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

Bridge ID:	DY-6

Inventory Data:						
Structure Name	Guilford Cranberry Lake	Bridge				
Main Hwy/Road #		☑ On □ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove	Over water,	□ Over Road	
Hwy/Road Name	Cranberry Lake Road					
Structure Location	0.08 km North of Eagle I	_ake Road				
Latitude	45.119800		Longitude	-78.568700		
Northing			Easting			
Owner(s)	Municipality of Dysart et	: al	Heritage designation: ☑ Desig., □ Desig./not List, □		Cons./not App	o., 🗆 List/not
MTO Region			Road Class: ☐ Freeway, ☐ Residential, ☐ Collector Co ☐ Local Commercial, ☐ Rui more lanes	mmercial, 🛭 L	ocal, 🗆 Local	Residential,
MTO District			Posted Speed	50	No. of Lanes	1
Old County			AADT		% Trucks	
Geographic Twp.			Inspection Route Sequence			
Structure Type	Bridge		Interchange Number			
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, ☐ ☐ ☐ Bicycle, ☐		-
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 Inspec	tion	2016	Last Evaluation			
Last Enhanced O	SIM Inspection		Current Load Limit		/ /	(tonnes)
Enhanced Access	Equipment		Load Limit By-Law #		/ /	
Last Underwater	Inspection		By-Law Expiry Date			
Last Condition Su	ırvey					
Rehab History: (I (Date/description)	Date/description)					
r7						

Ontario Structure Inspection Manual — Inspection For	m		Bridge ID:	DY-6
Scheduled Improvements:				
Regional Priority Number	Prograi	nmed W	ork Year	
Nature of Program Work:				
Annual and Indiana			Camananta	
Appraisal Indices:			Comments	
Fatigue				
Seismic				
Scour				
Flood				
Geometrics				
Barrier				
Curb				
Load Capacity				

Ontario Structure Inspection Manual — In	Bridge ID: DY-6									
Field Inspection Information:										
Date of Inspection:		Aug. 2, 2018	Inspection Ty	ре		OSIM				
Inspector:		Ben Belfry								
Others in Party:		Frank Palmay, Sean Wet	more							
Access Equipment Used:		Tape, hammer, flashligh	t							
Weather:		Sunny								
Temperature:		25.0 ℃								
Upcoming Inspections and Investiga	ions:		T							
Due date	Priority		Comments							
		pote tr								
Additional Investigations Required:					Priority					
				None	Normal	Urgent				
Material Condition Survey	•									
Detailed Deck Condition Survey:										
Non-destructive Delamination Sur		It-Covered Deck:								
Concrete Substructure Condition S	urvey:									
Detailed Coating Condition Survey	!									
Detailed Timber Investigation										
Post-Tensioned Strand Investigation	on									
Underwater Investigation:				✓						
Fatigue Investigation:				✓						
Seismic Investigation:				✓						
Structure Evaluation:				✓						
Monitoring										
Monitoring of Deformations, Settle	ments and M	Movements:			✓					
Monitoring Crack Widths:										
Investigation Notes:										
Monitor downstream erosion of embankn	nents									
				· <u> </u>	_	_				

Ontario Structure Inspection Manual — Inspec	tion Forr	n		Bri	dge ID:		DY-6
Overall Structure Notes:							
Recommended Work on Structure:							
Timing of Recommended Work:	Urgent, I	□ Now < 1 year, □ 1 - 5 ye	ears, 🗆 6 - 1	0 yeaı	rs, □ > 10	years	
Overall Comments:	erall sub	ostructure in excellent to go	ood conditio	n. Sup	perstar in e	excelle	ent condition.
Date of Next Inspection: 20	20						
Overall Bridge Condition:						83.9	7
Recommended inspections and Investiga	ations		Due d	ate	Priori	ity	Comments
Boat Inspection							
Bridge master							
Coating survey							
Detailed condition survey							
Evaluation							
Fatigue							
Monitor Settlements/Movements							
Seismic							
Substructure condition survey							
Underwater							
Suspected Performance Deficiencies	-					<u>'</u>	
01 Load carrying capacity		Bearing not uniformly loadeJammed expansion joint	u/unstable		Slippery surf Flooding/cha		olockage
02 Excessive deformations (deflections & rotation		Pedestrian/vehicular hazard			Jndermining		
03 Continuing settlement		Rough riding surface			Jnstable em		
04 Continuing movements	10	Surface ponding		16 (Other		
05 Seized bearings Maintenance Needs	11	. Deck drainage		17 N	lone		

07 Repair to Structural Steel

08 Repair of Bridge Concrete

10 Bailey bridges - Maintenance

09 Repair of Bridge Timber

11 Animal/Pest Control

12 Bridge Surface Repair

01 Lift and Swing Bridge Maintenance

03 Bridge Handrail Maintenance

06 Bridge Bearing Maintenance

05 Bridge Deck Joint Repair

04 Painting Steel Bridge Structures

02 Bridge Cleaning

13 Erosion Control at Bridges14 Concrete Sealing

17 Scaling (Loose Concrete or ACR Steel)

16 Bridge Deck Drainage

15 Rout and Seal

18 Other

Bridge ID:	DY-6

Element Data

Element Group:	Abutments	5				Length:	(m)		
Element Name:	Abutment	walls			Width:	9.0 (m)			
Location:	N/S					Height:	2.0 (m)		
Element Description:						Count:	2		
Material:	Corrugated place cond		eet pile for ment.	soil syste	m, cast in	Total Quantity:	36.0 (sq.m)		
Element Type:	Retained S	Soil Syste	ms			Not Inspected:			
Environment:	☐ Benign,	☑ Moder	ate, □ Seve	re		Limited Inspection:			
Protection System:	Galvanized	t				Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	36.0	0.00	0.00	BCI TEV: 32400.0	BCI CEV: 24300.0		
Comments:	Abutment	in good c	ondition. Bu	igholes th	nroughout so	outh abutment and localized	at north abutment.		
Recommended work:						Maintenance Needs:			
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent			
Type Timing									
Element Group:	Abutment	S				Length:	(m)		
Element Name:	Bearings					Width:	(m)		
Location:	N/S					Height:	(m)		
Element Description:						Count:	8		
Material:	Elastomer	ic Rubbe	r			Total Quantity:	8.0 (each)		
Element Type:						Not Inspected:			
Environment:	□ Benign,	☑ Moder	ate, □ Seve	ere		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*				
Condition Data:	each	8.0	0.00	0.00	0.00	BCI TEV: 8000.0	BCI CEV: 8000.0		
Comments:	Bearings i	n excelle	nt condition	l.					
Recommended work:						Maintenance Needs: -			
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent			
Type Timina									

Ontario Structure	Inspection N	Ianual —	Inspection	Form				Bridge ID:		DY-6		
Element Group:			Accessorie	es				Length:		(m)		
Element Name:			Signs					Width:		(m)		
Location:			NE/NW/SE	/SW				Height:		(m)		
Element Descrip	tion:							Count:		4		
Material:			Steel					Total Quantit	ty:	4.0 (each)		
Element Type:								Not Inspecte	d:			
Environment:			☐ Benign,	□ Modera	ate, 🛭 Seve	re		Limited Inspe	ection:			
Protection Syste	m:							Perform. Def	es			
Condition Data:			Units	Exc.	Good	Fair	Poor*					
Condition Data:			each	0.00	2.0	0.00	1.0	BCI TEV: 400.0 BCI CEV: 150				
Comments:			Raise haza	ard signs.	Install one I	ane only	when used	by narrow truck	s signag	e.		
Recommended w	ork:							Maintenance	Needs:	1		
Comments												
Install SW narrow	bridge sign											
Change NE sign fo	or the corre	ct										
direction				□ 1 year, □ 2 □ Urgent	years,							
Туре												
☑ Rehab, ☐ Repai	ir, 🗆 Replac	e □ 1 - ☑ Urg		Now < 1 y	year, 🗆 6 - 1	.0 years,						
☑ Rehab, □ Repai	r, 🗆 Replac	e □ 1 -		Now < 1 y	year, 🗆 6 - 1	.0 years,						
Element Group:	Approach	es				Lengt	th:		6.0 (m)			
Element Name:	Wearing s	urface				Widtl	1:		7.0 (m)			
Location:	N/S					Heigh	nt:		(m)			
Element Description:						Coun	t:		2			
Material:	Asphalt					Total	Quantity:		84.0 (sc	(m.μ.		
Element Type:						Not I	nspected:					
Environment:	☐ Benign,	□ Mode	rate, ☑ Sev	ere		Limit	ed Inspecti	on:				
Protection System:						Perfo	rm. Deficie	ncies				
	Units	Exc.	Good	Fair	Poor*							
Condition Data:	sq.m	0.00	80.0	4.0	0.00	всі т	EV: 504.0		BCI CE	V: 369.6		
Comments:	SW quadr	ant has r	ninor surfac	1			<u> </u>					
Recommended w	ork:					Maint	tenance Ne	eds: 17				
						☑ 1 v	ear, □ 2 yea	ırs,				
Comments						□ Urgent						
Type Timing							de drainage protection.	at SW quadrant	near em	bankment with		

Ontario Structure Inspection	Manual — Ins	pection Fo	orm				Bridge ID:		DY-6			
Element Group:	Barriers					L	ength:	58.0	(m)			
Element Name:	Railing Syste	ems				V	Vidth:	(m)				
Location:	E/W					н	leight:	(m)				
Element Description:						С	ount:	2				
Material:	Steel					Т	otal Quantity:	116.0) (m)			
Element Type:	Steel Flex B	eam on St	eel Post			N	lot Inspected:					
Environment:	□ Benign, □	Moderate	e, 🛭 Sever	·e		L	imited Inspection:					
Protection System:	Galvanized					Р	erform. Deficiencies					
Condition Data:	Units	Exc.	Good	Fair	Poor*	:						
Condition Data.	m	112.0	4.0	0.00	0.00	В	CI TEV: 23200.0	BCI (CEV: 23000.0			
Comments:	Appears to h	ave longi	tudinal sci	rape dam	age from	pass	ssing vehicle.					
Recommended work:						M	laintenance Needs:					
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent										
Element Group:	Beams/N	lain Longi	tudinal Ele	ements			Length:		0.975 (m)			
Element Name:	Diaphrag	ıms					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:	☐ Benigi	n, 🛭 Mode	erate, 🗆 Se	evere			Limited Inspection:					
Protection System:							Perform. Deficiencie	:S				
Condition Data:	Units	Exc.	Good	l Fai	r Po	or*						
Condition Data:	each	18.0	0.00	0.0	0 0.	00	BCI TEV:		BCI CEV:			
Comments:	Light cor	rosion of	weathered	verall in g	ood c	condition.						
Recommended work:		Maintenance Needs: -										
Comments Type Timing							□ 1 year, □ 2 years, □ Urgent					

Ontario Structure Ir	spection M	anual — Ir	nspecti	on Form						Bridge ID:		DY-6
Element Group:	Beams/Ma	in Longitu	udinal I	Elements		ngth:		26.0 (m)				
Element Name:	Girders					dth:		0.3 (m	1)			
Location:	N/S							Не	ight:		1.0 (m	1)
Element Description:								Co	unt:		4	
Material:	Steel							Tot	tal Quantit	:y:	166.4	(sq.m)
Element Type:	I-type							No	t Inspecte	d:		
Environment:	☐ Benign,	☑ Moder	ate, □	Severe				nited Inspe	ection:			
Protection System:								Pe	rform. Def	iciencies		
Condition Data:	Units	Exc.	God	od F	air	Poo	or*					
Condition Data.	sq.m	0.00	166	5.4	.00	0.0	00	вс	I TEV: 3328	30.0	всі с	EV: 24960.0
Comments:	New in 20 in good co		to mod	ereate c	orrosio	on and	flakin	ig at	t bottom of	flanges and edge	s. no se	ection loss. Overall
Recommended w	ork:							Ма	intenance	Needs:		
Comments Type Timing								1 year, □ 2 Urgent	years,			
Element Group:		Dec	ks							Length:		26.0 (m)
Element Name:		Dec	к Тор							Width:		5.3 (m)
Location:										Height:		(m)
Element Descript	ion:									Count:		1
Material:		Cori	rugated	d Steel						Total Quantity	':	138.0 (sq.m)
Element Type:										Not Inspected	:	
Environment:		□В	enign,	☑ Modei	ate, □	Sever	e			Limited Inspec	tion:	Ø
Protection Syster	n:									Perform. Defic	iencie	s
Condition Data:		U	nits	Exc.	G	Good	Fa	ir	Poor*			
Condition Data:		S	q.m	131.1	(0.00	6.	9	0.00	BCI TEV: 16560	0.0	BCI CEV: 16063.2
Comments:			rall go	od condi	tion. H	lorizoni	tal cra	ng at joints.	Condition of decl	k top is	based on wearing	
Recommended w	ork:									Maintenance N	Needs:	
Comments												
Seal cracks at joint	:S	☐ 1 year, ☐ 2 years, ☐ Urgent										
Туре		Timing]		
☑ Rehab, □ Repair □ Replace	.,	☑ 1 - 5 □ Urgei		□ Now <	: 1 yea	ar, □ 6	- 10 y	/ear	rs,			

Ontario Structure Inspect	ion Manual	— Inspecti	on Form					Bridge ID:	DY-6
Element Group:	Decks						L	ength:	26.0 (m)
Element Name:	Soffit -	- Thin Slab					v	Vidth:	5.3 (m)
Location:							Н	leight:	
Element Description:							c	Count:	1
Material:							Т	otal Quantity:	138.0 (sq.m)
Element Type:							N	lot Inspected:	
Environment:	□ Ben	nign, 🛭 Mod	lerate, 🗆 S	evere			L	imited Inspection:	
Protection System:							P	Perform. Deficiencies	
Condition Data:	Uni	ts Exc	. Good	d Fa	ir	Poor	*		
Condition Data.	sq.r	m 0.0	138.0	0.0	00	0.00	В	BCI TEV: 16560.0	BCI CEV: 12420.0
Comments:	Light	salt stainin	g at joints,	overall ir	n good	condit	ion.		
Recommended work:							N	laintenance Needs:	
Comments Type Timing								□ 1 year, □ 2 years, □ Urgent	
Element Group:	Decks						Leng	gth:	26.0 (m)
Element Name:	Wearing S	Surface					Widt	th:	5.3 (m)
Location:							Heig	jht:	(m)
Element Description:							Cou	nt:	1
Material:	Asphalt						Tota	ıl Quantity:	138.0 (sq.m)
Type Timing Element Group: Decks Element Name: Wearing Surface Location: Element Description:				Not	Inspected:				
Environment:	☐ Benign,	. 🗆 Modera	te, 🛭 Sever	re .			Limi	ted Inspection:	
Protection System:							Perf	orm. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Po	oor*			
Condition Data.	sq.m	131.1	0.00	6.9	0	.00	BCI	TEV: 3450.0	BCI CEV: 3346.5
Comments:	Minor rutt	ing, transv	erse cracks	through	out w	idth of	roadw	vay at North and South al	butments.
Recommended work:							Mair	ntenance Needs: 15	
Comments								year, □ 2 years, rgent	
Type Timing							Rout	t and seal transverse ks.	

Ontario Structu	re Inspection	Manual —	Inspectic	n Form				Bridge ID:		DY-6	
Element Grou	p:	Embankı	ments &	Streams				Length:	(m)		
Element Name	e:	Embankı	ments					Width:		(m)	
Location:		NE/NW/S	E/SW					Height:		(m)	
Element Desc	ription:							Count:		4	
Material:		Rock/Bo	ulder					Total Quantity:		4.0 (each)	
Element Type	:	Rip Rap						Not Inspected:			
Environment:		□ Benigi	n, ☑ Mod	lerate, □	Severe	e		Limited Inspection:			
Protection Sys	stem:							Perform. Deficienci	es		
Condition Dat	31	Units	Exc	. Go	ood	Fair	Poor*				
Condition Dat	a.	each	4.0	0.	00	0.00	0.00	BCI TEV: 4000.0		BCI CEV: 4000.0	
Comments:		Embankı	ments ar	e well ve	egetate	ed and s	stable, in goo	d condition.			
Recommende	d work:							Maintenance Needs	s:		
Comments								☐ 1 year, ☐ 2 years,☐ Urgent			
Type Timing											
									-		
Element Group:	Embankmen	ts & Strea	ms				Length:				
Element Name:	Streams and	Waterway	/S				Width:				
Location:	E/W						Height:				
Element Description:							Count:		1		
Material:							Total Quant	ity:	1.0 ((all)	
Element Type:							Not Inspect	ed:			
Environment:	□ Benign, □	Moderate	, □ Seve	re			Limited Insp	pection:			
Protection System:							Perform. De	eficiencies			
Condition	Units	Exc.	Good	Fair	Po	or*					
Data:	all	0.00	0.00	1.0	0.0	00	BCI TEV: 100	00.0	BCI	CEV: 400.0	
Comments:							or collection d ments, monito	lebris. Sediment aggrad or erosion.	dation	n below stream flow	
Recommende	d work:						Maintenanc	e Needs:			
Comments							☐ 1 year, ☐ 2 years, ☐ Urgent				
Type Timing											

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

Repair and Rehabilitation F	Required						
Element	Repair and Rehabilitation Required	> 10 years	Urgent	Estimated Cost			
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

Assosciated 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)

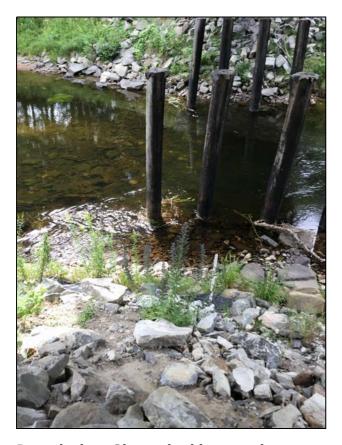


Description: Deck top Decks / Deck Top



Description: Wearing surface looking north

Decks / Wearing Surface



Description: Slopes looking south

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

Bridge ID:	DY-8

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 Ro	pad									
Latitude	45.170177		Longitude	-78.408000							
Northing	5005123.7600		Easting 703683.2900								
Owner(s)	Municipality of Dysart Et	· Al	ן Heritage designation: □		p., □ List/not						
Owner(3)	Municipality of Dysair Le	Ali	☐ Desig., ☐ Desig./not List, ☐	Desig. & List							
MTO Region	Haliburton		Road Class: ☐ Freeway, ☐ Residential, ☐ Collector Col☐ Local Commercial, ☐ Rur more lanes	mmercial, 🛭 Local, 🗆 Loca	l Residential,						
MTO District	Dysart Et. Al.		Posted Speed	No. of Lanes	2						
Old County			AADT	% Trucks							
-			Inspection Route								
Geographic Twp.			Sequence		ı						
Structure Type	Bridge		Interchange Number								
Total Deck Length	20.7	(m)	Interchange Structure Number								
Overall Str. Width	7.8	(m)	Min. Vertical Clearance		(m)						
Total Deck Area	186.0	(sq.m)	Special Routes:	□ Transit, □ Truck, □ Sch □ Bicycle, □ Emergency,							
Roadway Width	7.5	(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	20.1				(m)						
Historical Data:											
Year Built		1960	fear of Last Major Rehab.								
Last OSIM Inspec	tion	2016	ast Evaluation								
Last Enhanced O	SIM Inspection		Current Load Limit	/ /	(tonnes)						
Enhanced Access	Equipment		oad Limit By-Law #	/ /							
Last Underwater	Inspection		By-Law Expiry Date								
Last Condition Su	ırvey										
Rehab History: (E (Date/description)	Oate/description)										

Ontario Structure Inspection Manual — Inspection Form		Bridge ID: DY-8					
Scheduled Improvements:							
Regional Priority Number	Progran	nmed W	ork Year				
Nature of Program Work:							
Appraisal Indices:			Comments				
Fatigue							
Seismic							
Scour							
Flood							
Geometrics							
Barrier							
Curb							
Load Capacity							

Ontario Structure Inspection Manual — Ins	Bridge II	D:		DY-8							
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	Sunny								
Temperature:		22.0 ℃									
		•									
Upcoming Inspections and Investigati	ions:										
Due date	Priority			Comments							
Additional Investigations Required:				_		Priority	ı				
				N	lone	Normal	Urgent				
Material Condition Survey						<u> </u>					
Detailed Deck Condition Survey:					✓						
Non-destructive Delamination Surv	ey of Aspha	It-Covered Deck:			✓						
Concrete Substructure Condition Su	ırvey:				✓						
Detailed Coating Condition Survey:					✓						
Detailed Timber Investigation					✓						
Post-Tensioned Strand Investigatio	n				✓						
Underwater Investigation:					✓						
Fatigue Investigation:					✓						
Seismic Investigation:					✓						
Structure Evaluation:					1						
Monitoring						✓					
Monitoring of Deformations, Settler	ments and I	Movements:			✓						
Monitoring Crack Widths:						1					

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 N	lotes:											
Recommended Work on Structure:												
Timing of Recommended Work:	\square Urgent, \square Now < 1 year,	□1-	- 5 years, □ 6 - 10 years, □] > 10 year	'S							
Overall Comments:	3	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 Con	dition:						53.8	32				
Recommended insp	pections and Investigation	าร		Due d	ate	Priori	ty	Comments				
Boat Inspection												
Bridge master												
Coating survey												
Detailed condition	survey											
Evaluation												
Fatigue												
Monitor Settlemen	ts/Movements											
Seismic												
Substructure cond	ition survey											
Underwater												
Suspected Performan	nce Deficiencies					GI.						
01 Load comilia = =====	city		Bearing not uniformly loaded	ı/unstable		Slippery surf		blockago				
01 Load carrying capac	city ions (deflections & rotations)		Jammed expansion joint Pedestrian/vehicular hazard			Flooding/cha Undermining		•				
03 Continuing settleme			Rough riding surface			Unstable em						
04 Continuing moveme			Surface ponding			Other	Dunki	nenes				
05 Seized bearings			Deck drainage			None						
Maintenance Needs			<u> </u>									
01 Lift and Swing Bridg	ge Maintenance	07	Repair to Structural Steel		13	Erosion Cont	rol at	Bridges				
02 Bridge Cleaning		08	Repair of Bridge Concrete									
03 Bridge Handrail Mai	intenance	09	Repair of Bridge Timber	15 Rout and Seal								
04 Painting Steel Bridg	e Structures	10	Bailey bridges - Maintenance	!	16	Bridge Deck	Drain	age				
05 Bridge Deck Joint R	epair	11	Animal/Pest Control	17 Scaling (Loose Concrete or ACR Steel)								

12 Bridge Surface Repair

18 Other

Ontario Structure Inspection Manual — Inspection Form

Bridge ID:

DY-8

06 Bridge Bearing Maintenance

Bridge ID:	DY-8

Element Data

Element Group:	Abutment	S						Len	gth:	(m)			
Element Name:	Abutment	Walls						Wid	th:	9.0 (m)			
Location:	East & We	st						Heig	ght:	1.0 (m)			
Element Description:	East and v	vest 2x8	creoso	ote woo	d lagg	jing		Cou	nt:	2			
Material:	Wood							Tota	al Quantity:	18.0 (sq.m)			
Element Type:								Not	Inspected:				
Environment:	☐ Benign,	☑ Mode	rate, 🗆	Sever	e			Limi	ited Inspection:	7			
Protection System:	Creosote							Perf	Perform. Deficiencies				
Condition Data:	Units	Exc.	Go	ood	Fair	Po	oor*						
Condition Data.	sq.m	0.00	15	5.0	3.0	0	.00	ВСІ	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:	ded work: Maintenance Needs:												
Comments													
Monitor northwest side for ballast material loss in future inspections until slope protection in place. ☐ 1 year, ☐ 2 years, ☐ Urgent													
Туре Т	ming												
Element Group:	Appr	oaches							Length:	6.0 (m)			
Element Name:	Wear	ring Surf	ace						Width:	7.5 (m)			
Location:	East	and We	st						Height:	(m)			
Element Description:	Asph	alt surfa	ice						Count:	2			
Material:									Total Quantity:	90.0 (sq.m)			
Element Type:									Not Inspected:				
Environment:	□ Ве	enign, 🗆	Modera	ate, ☑ S	Severe)			Limited Inspectio	n: 🗆			
Protection System:				1					Perform. Deficien	icies			
Condition Data:	Un	its	Exc.	Goo	od	Fair	Pod	or*					
	sq	.m	0.00	45.	0	43.5	1.	5	BCI TEV: 540.0	BCI CEV: 306.9			
Comments:	Medi	um pitti	ng. Det	teriorati	ion an	d alliga	tor crad	cked a	asphalt at north side	of west approach.			
Recommended work:									Maintenance Nee	ds:			
Comments													
Repave approaches.					□ 1 year, □ 2 year □ Urgent	S,							
Туре	Timing												
□ Rehab, □ Repair, ☑ Replace □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, □ Urgent													

Element Group:	Barriers					Length:	1.2 (m)
Element Name:	Barrier/Pa	arapet Wa	alls			Width:	0.25 (m)
Location:	Interior, a	all quadra	nts			Height:	1.1 (m)
Element Description:	Concrete system.	barrier w	all with att	ached st	eel railing	Count:	4
Material:	Concrete					Total Quantity:	6.5 (sq.m)
Element Type:						Not Inspected:	
Environment:	□ Benign	, □ Mode	rate, ☑ Se	vere		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	0.00	0.00	5.6	0.9	BCI TEV: 650.0	BCI CEV: 224.0
Comments:	Impact al	orasion a	nd minor s	palling at	top of barrie	r walls.	•
Recommended work:						Maintenance Needs:	
Comments Repair concrete.						☐ 1 year, ☐ 2 years,	
Repair correcte.						☐ Urgent	
Туре	Timing						
☑ Rehab, □ Repair, □ Replace	□ 1 - 5 yea □ Urgent						
Element Group:	Barriers					Length:	18.0 (m)
Element Name:	Hand Railir					Width:	(m)
Location:	North and	South				Height:	1.1 (m)
Element Description:	Steel sheat	thed CIP of	concrete po	ost.		Count:	2
Material:	Steel					Total Quantity:	36.0 (m)
Element Type:						Not Inspected:	
Environment:	☐ Benign,	□ Modera	ate, ☑ Seve	ere		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 north side				nd cracking o	n 3 of 8 posts: (2 centre pos	its on south side, 1 on
Recommended work:						Maintenance Needs:	
Comments							
Replace steel railing post cor	nponents.	☐ 1 year, ☐ 2 years,					
Tymo						3	
Туре	Timing						
Replace steel railing post cor		☐ 1 year, ☐ 2 years, ☐ Urgent					

Bridge ID:

DY-8

Ontario Structure Inspection Manual — Inspection Form

Element Group:	Decks					Length:					
Element Name:	Deck Top					Width:		7.8 (m)			
Location:	Top of ded	ck under w	earing su	rface.		Height:		(m)			
Element Description:	Cast-in-pla deck.	ace concre	ete on top	of laminate	ed wood	Count:		1			
Material:	Cast In Pla	ace Concre	ete			Total Qu	antity:	161.5 (se	q.m)		
Element Type:						Not Insp	ected:				
Environment:	☐ Benign,	□ Modera	ate, 🗹 Sev	ere	Limited	Inspection:	7				
Protection System:						Perform	. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Poor*	09. Roug	h riding surface				
Condition Data:	sq.m	0.00	0.00	159.6	1.9	BCI TEV	: 19380.0	BCI CEV	7: 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 wor	k:		ance Needs:								
Comments											
Repair concrete.			□ 1 year	r, □ 2 years, t							
Туре	Timi	ng									
☑ Rehab, □ Repair, □ Replace	□ 1 - ☑ Ur		□ Now < 1	. year, 🗆 6	- 10 years						
									1		
Element Group:		Decks					Length:				
Element Name:		Drainage	System				Width:				
Location:		North an	d south or	n deck.			Height:				
Element Description	n:	150mm h	noles in de	eck lined wi	th steel tu	oe.	Count:		8		
Material:							Total Quantity:		8.0 (each)		
Element Type:							Not Inspected:				
Environment:		☐ Benigr	n, 🗆 Mode	rate, ☑ Sev	ere		Limited Inspection	n:			
Protection System:							Perform. Deficienc	ies			
Condition Data:		Units	Exc.	Good	Fair	Poor*					
Condition Data.		each	0.00	8.0	0.00	0.00	BCI TEV:		BCI CEV:		
Comments:		Drainage	in fair co	ndition, fun	ctional and	d clear of ob	estructions.				
Recommended wor	k:						Maintenance Need	ls:			
Comments							☐ 1 year, ☐ 2 years	,			
Type Timing											

Ontario Structure Inspection Manual — Inspection Form

DY-8

Bridge ID:

Ontario Structure Inspec	tion Manual	— Inspec	tion Form			Bridge ID:	DY-8				
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 pla	nks 2" x 6"			Count:	1				
Material:	Wood					Total Quantity:	161.5 (sq.m)				
Element Type:						Not Inspected:					
Environment:	☑ Benign,	□ Modera	ite, □ Seve	re		Limited Inspection:	\square				
Protection System:	Creosote (Concrete ,	/ Surface Tr	eatment)		Perform. Deficiencies					
Can dittan Batan	Units	Exc.	Good	Fair	Poor*						
Condition Data:	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 or bridge.											
Recommended work:				Maintenance Needs: -							
Comments Type Timing				□ 1 year, □ 2 years, □ Urgent							
Element Group:	Decks					Length:	20.7 (m)				
Element Name:	Soffit - Th	in Slah				Width:	0.55 (m)				
Location:	Exterior	III Slab				Height:	(m)				
	<u> </u>	and ovno	and wooder	dock pla	unk	Count:	2				
Element Description: Material:	Cast-In-Pl		sed wooder	і ческ ріа	IIIK.		22.8 (sq.m)				
	Cast-III-PI	ace Conci	ete			Total Quantity:					
Element Type:	D D i	□ Mada				Not Inspected:					
Environment:	□ Benign	, ☑ Moder	ate, □ Seve	ere		Limited Inspection: Perform. Deficiencies					
Protection System:	lluit.	F	Coord	Fair	Doort	Perform. Deficiencies					
Condition Data:	Units	Exc.	Good	Fair	Poor*	DOI 1/2 0736 0					
	sq.m	0.00	18.3	2.5	2.0	BCI TEV: 2736.0	BCI CEV: 1767.0				
Comments:	Staining a	and some	narrow crac	cks. Seve	re weatherir	ng and cracking of wood on sou	th side with light splits.				
Recommended work:						Maintenance Needs: -					
Comments				□ 1 year, □ 2 years, □ Urgent							
Type Timing											

Element Kanes	Ontario Structure Inspection Ma	nual — Inspe	ction Forr	n			Bridge ID:	DY-8						
Top	Element Group:	Decks					Length:	20.7 (m)						
Element Description: 20-25mm	Element Name:	Wearing	Surface				Width:	7.5 (m)						
Material:	Location:	Тор					Height:	(m)						
Element Type:	Element Description:	20-25mn	n lift of as	phalt over	concrete	deck.	Count:	1						
Benigh	Material:	a					Total Quantity:	155.25 (sq.m)						
Perform. Deficiencies	Element Type:						Not Inspected:							
Dilts	Environment:	□ Benigr	ı, 🗆 Mode	erate, 🗹 Se	vere		Limited Inspecti	on:						
Sq.m 0.00 0.00 138.5 16.4 BCI TEV: 3881.5 BCI CEV: 1388.5	Protection System:						Perform. Deficie	ncies						
Sq.m 0.00 0.00 138.85 16.4 BCI TEV: 3881.25 BCI CEV: 1388.5	Condition Data	Units	Exc.	Good	Fair	Poor*	09. Rough riding s	surface						
Maintenance Needs:	Condition Data:	sq.m	0.00	0.00	138.85	16.4	BCI TEV: 3881.25	BCI CEV: 1388.5						
	Comments:	Longitud	Longitudinal spalls, and potholes into the deck. Heavy ravelling throughout.											
Repave wearing surface 1 year, 2 years, Urgent	Recommended work:						Maintenance Ne	eds:						
Type	Comments													
Timing G Rehab, G Repair, G Peplace 21 - 5 years, G Now < 1 year, G - 10 years, G Peplace 6 - 1	Repave wearing surface							ars,						
Replace	The state of the s													
Element Name: Embankmerts Width: (m)														
Element Name: Embankmerts Width: (m)							T							
All quandris Height: (m)	Element Group:	Embankm	ents & St	reams			Length:	(m)						
Element Description:	Element Name:	Embankm	ents				Width:	(m)						
Material: Total Quantity: 4.0 (each) Element Type: Image: I	Location:	All quandr	ants.				Height:	(m)						
Not Inspected:	Element Description:	Vegetated	sandy so	oil with arm	our stone	at base	Count:	4						
Environment: □ Benign, □ Moderate, □ Severet Limited Inspection: □ Protection System: Perform. Deficiencies Condition Data: Units Exc. Good Fair Poor* Perform. Deficiencies each 0.00 3.0 0.00 1.0 BCI TEV: 4000.0 BCI CEV: 2250.0 Recommended work: Maintenance Needs: - Comments Provide erosion control at NE quadrant. Image: Provide erosion control at NE quadrant. □ 1 year, □ 2 years, □ Urgent Type Timing □ Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, □ 1 year, □ 2 years, □ Urgent	Material:						Total Quantity:	4.0 (each)						
Protection System: Perform. Deficiencies Condition Data: Units Exc. Good Fair Poor* Perform. Deficiencies each 0.00 3.0 0.00 1.0 BCI TEV: 4000.0 BCI CEV: 2250.0 Comments: Recommended work: Maintenance Needs: - Comments Provide erosion control at NE quadrant. □ 1 year, □ 2 years, □ Urgent Type Timing ☑ Rehab, □ Repair, ☑ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years,	Element Type:						Not Inspected:							
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: Recommended work: Maintenance Needs: - Comments Provide erosion control at NE quadrant. 1 year, □ 2 years, □ Urgent Type Timing ☑ Rehab, □ Repair, ☑ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years,	Environment:	☐ Benign,	☑ Moder	ate, 🗆 Sev	ere		Limited Inspection	on: 🗆						
Condition Data: each 0.00 3.0 0.00 1.0 BCI TEV: 4000.0 BCI CEV: 2250.0 Comments: Maintenance Needs: - Comments ———————————————————————————————————	Protection System:			1			Perform. Deficier	ncies						
Comments: Runoff has deterior at least the embankment at northeast quadrant. Maintenance Needs:	Condition Data:	Units	Exc.	Good	Fair	Poor*								
Recommended work: Comments Provide erosion control at NE quadrant. Type Timing □ 1 year, □ 2 years, □ Urgent Urgent □ Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years,		each	0.00	3.0	0.00	1.0	BCI TEV: 4000.0	BCI CEV: 2250.0						
Comments Provide erosion control at NE quadrant. □ 1 year, □ 2 years, □ Urgent Type Timing □ Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years,	Comments:	Runoff has	deterior	ated the er	mbankmer	nt at northea	st quadrant.							
Provide erosion control at NE quadrant. □ 1 year, □ 2 years, □ Urgent Type ▼ Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years,	Recommended work:						Maintenance Nee	eds: -						
Type Timing □ Urgent ☑ Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years,	Comments													
Type Timing ☑ Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years,	Provide erosion control at NE qu			rs,										
	Туре	Timing					u orgeni							

Ontario Structure Inspe	ction Manua	al — Inspe	ection Form						Bridge ID:	DY-8		
Element Group:		Emb	ankments &	x Strean	ns				Length:	(m)		
Element Name:		Slop	e Protectior	า					Width:	(m)		
Location:		All q	uadrants.						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. Deficienc	ies		
Condition Data:		Ur	nits Ex	с. (Good	Fai	r	Poor*				
Condition Data:		ea	ach 0.0	00	2.0	2.0)	0.00	BCI TEV: 1600.0	BCI CEV: 920.0		
Comments:		No s	lope protec	tion at N	NE and	NW qu	adra	ants.				
Recommended work:									Maintenance Need	s: -		
Comments Provide slope protection to NE and NW quadrants. □ 1 year, □ 2 years, □ Urgent												
Type Timing												
☑ Rehab, ☐ Repair, ☐	Replace	1 - 5 yea Urgent	rs, □ Now <	< 1 year	, □ 6 -	10 yea	rs,					
Element Group:	Pier						1,	anath:	1	(m)		
Element Name:	Shaft / Co	lumns / Di	ilo Ponts				Length:			0.3 (m)		
Location:	East and V									3.0 (m)		
Element Description:							Height: Count:			24		
Material:	Wood	es with C	арріпу веаі					otal Quanti	+	67.8 (sq.m)		
	Wood							ot Inspecte		□		
Element Type: Environment:	□ Ponian	□ Modor	ate, □ Seve	ro.				mited Insp				
Protection System:	Creosote	M Model	ate, 🗆 Seve					erform. De				
Trotection System.	Units	Exc.	Good	Fair	В	oor*	-		inciencies			
Condition Data:	sq.m	0.00	67.8	0.00		0.00	B.C	CI TEV:	-	BCI CEV:		
									ater (stable). Light ice-			
Comments:	waterline.		iloose. Gen	erar ver	ticai sk	ew to i	101 (iii piies iii we	iter (stable). Light ice-	damage at		
Recommended work:								aintenance	e Needs:			
Comments								☑ 1 year, □ 2 years, □ Urgent				
Type Timing							Tighten capping beam nuts.					

Ontario Structure Inspection Manual — Inspection Form					Bridge ID: DY-8			
Element Group:	Sidewalks	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,	☐ Benign, ☐ Moderate, ☑ Severe				Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	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 corner. Wide crack north side center.					northeast corner (spall). Small de	lamination northeast	
Recommended work:				Maintenance Needs: -				
Comments				□ 1 year, □ 2 years, □ Urgent				
Type Timing								

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

Ontorio Ctrustura	Incocction	Manual	Incooction	F 0 5 500
Ontario Structure	inspection	Manual —	inspection	Form

Bridge ID:	DY-8

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

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

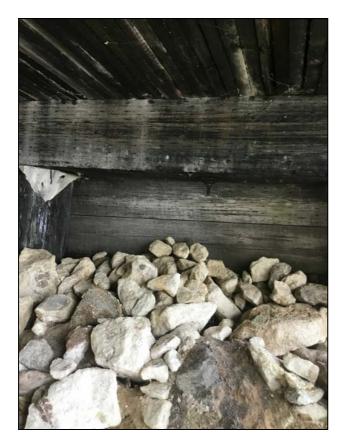




Description: Looking east



Description: Looking west



Description: West wall (typ.)

Abutments / Abutment Walls (East & West)

Bridge ID:



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)

Bridge ID:



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)



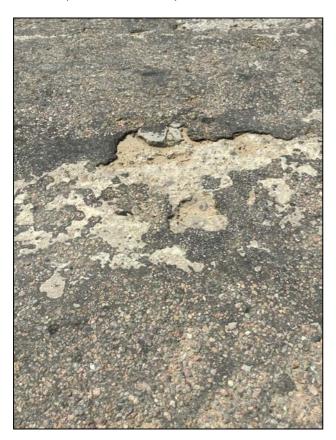
Description: Exposed concrete deck with spalls outlined

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)



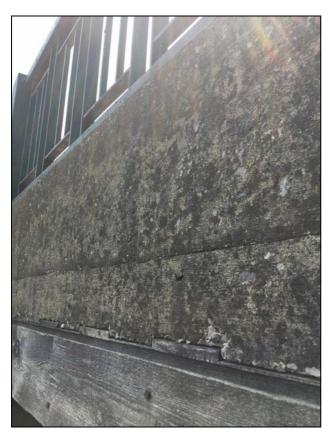
Description: West side (typ.)

Decks / Soffit (Underside of Deck - Interior)



Description: Weathering and moderate cracks south side.

Decks / Soffit - Thin Slab (Exterior)



Decks / Soffit - Thin Slab (Exterior)



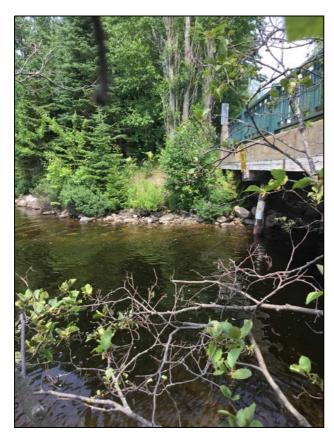
Description: Wearing surface looking east

Decks / Wearing Surface (Top)



Description: Northeast erosion

Embankments & Streams / Embankments (All quandrants.)



Description: Sw quadrant

Embankments & Streams / Embankments (All quandrants.)

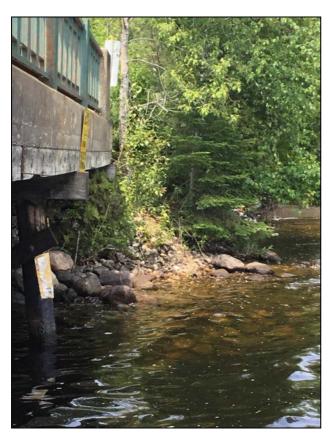


Description: Southeast
Embankments & Streams / Embankments (All quandrants.)



Description: Northeast

Embankments & Streams / Embankments (All quandrants.)



Description: Nw quadrant

Embankments & Streams / Embankments (All quandrants.)



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.)

Bridge ID:	DY-9

Inventory Data:					
Structure Name	Koshlong Lake Bridge				
Main Hwy/Road #	1	☑ On □ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove	\square Over water, \square Over 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: ☑ Desig., ☐ Desig./not List, ☐		p., 🗆 List/not
MTO Region			Road Class: Freeway, Residential, Collector Co	mmercial, 🛭 Local, 🗆 Loca	l Residential,
MTO District			Posted Speed	No. of Lanes	2
Old County			AADT	% Trucks	
Geographic Twp.			Inspection Route Sequence		
Structure Type	Bridge		Interchange Number		
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, ☐ Sch ☐ Bicycle, ☐ Emergency,	
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 Y	ear of Last Major Rehab.		
Last OSIM Inspec	tion	2014 L	ast Evaluation		
Last Enhanced O	SIM Inspection		Current Load Limit	/ /	(tonnes)
Enhanced Access Equipment Load Limit By-Law # / /					
Last Underwater	Inspection	E	By-Law Expiry Date		
Last Condition Su	ırvey				
Rehab History: (Date/description)	Date/description)				

Ontario Structure Inspection Manual — Inspection For		Bridge ID:	DY-9	
Scheduled Improvements:				
Regional Priority Number	Progra	mmed W	ork Year	
Nature of Program Work:				
Appraisal Indices:			Comments	
Fatigue				
Seismic				
Scour				
Flood				
Geometrics				
Barrier				
Curb				
Load Capacity				

Ontario Structure Inspection Manual — Inspection Form			Bridge ID: DY-9			
Field Inspection Information:						
Date of Inspection:	July 30, 2018	Inspection Type 09				
Inspector:		Sean Wetmore				
Others in Party:		Ben Belfry				
Access Equipment Used:		Tape, hammer, flashligh	t, waders			
Weather:		Sunny				
Temperature:		26.0 ℃				
		•				
Upcoming Inspections and Investigation	ons:					
Due date	Priority		Comments			
Additional Investigations Required:					Priority	
				None	Normal	Urgent
Material Condition Survey				1		
Detailed Deck Condition Survey:						
Non-destructive Delamination Surve	y of Aspha	lt-Covered Deck:		✓		
Concrete Substructure Condition Su	rvey:			✓		
Detailed Coating Condition Survey:				✓		
Detailed Timber Investigation				✓		
Post-Tensioned Strand Investigation	1			✓		
Underwater Investigation:				1		
Fatigue Investigation:				✓		
Seismic Investigation:				✓		
Structure Evaluation:				✓		
Monitoring				1		
Monitoring of Deformations, Settlen		1				
Monitoring Crack Widths:				1		
Investigation Notes:						
None						

Ontario Structure Inspection Manual — Inspecti		Bridge ID:			
Overall Structure Notes:					
Recommended Work on Structure:					
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, ☐	1 - 5 years, □ 6	5 - 10 years,	□ > 10	years
Overall Comments:					
Date of Next Inspection:					
Overall Bridge Condition:				54.8	
-					
Recommended inspections and Investigat	ions	Due da	te Pri	iority	Comments
Boat Inspection					
Bridge master					
Coating survey					
Detailed condition survey					
Evaluation					
Fatigue					
Monitor Settlements/Movements					
Seismic					
Substructure condition survey					
Underwater					
Suspected Performance Deficiencies				•	
•	06 Bearing not uniformly loa		12 Slippery		
01 Load carrying capacity	07 Jammed expansion joint		13 Flooding		_
02 Excessive deformations (deflections & rotations)			14 Undermi		
03 Continuing settlement	09 Rough riding surface		15 Unstable	embankn	nents
04 Continuing movements	10 Surface ponding		16 Other		
05 Seized bearings Maintenance Needs	11 Deck drainage		17 None		
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Stee	I	13 Erosion (Control at	Bridges
02 Bridge Cleaning	08 Repair of Bridge Concrete		14 Concrete		bridges
03 Bridge Handrail Maintenance	09 Repair of Bridge Timber		15 Rout and	_	

10 Bailey bridges - Maintenance

11 Animal/Pest Control

12 Bridge Surface Repair

16 Bridge Deck Drainage

18 Other

17 Scaling (Loose Concrete or ACR Steel)

04 Painting Steel Bridge Structures

05 Bridge Deck Joint Repair

06 Bridge Bearing Maintenance

Bridge ID:	DY-9

Element Data

Element Group: Abutments				Length:		(m)				
Element Name: Ballast walls				Width:		8.5 (m)				
Location:		N/S					Height:		1.6 (m)	
Element Descr	iption:						Count:		2	
Material:		Wood					Total Quantity:		27.2 (sq.m)	
Element Type:							Not Inspected:			
Environment:		□ Benig	gn, ☑ Mode	erate, 🗆 S	evere		Limited Inspection:	ŀ		
Protection Sys	tem:	Creosot	e				Perform. Deficienci	ies		
Candition Date		Units	Exc.	Goo	d Fair	Poor*	15. Unstable embank	ments	5	
Condition Data	1:	sq.m	0.00	13.6	0.00	0.00	BCI TEV: 9520.0		BCI CEV: 3570.0	
Comments:			our and ur		g below end	ds of ballast v	vall. Scour behind balla	st wal	ls due to continued	
Recommended	l work:	•					Maintenance Needs Bridges	5: 13.	Erosion Control at	
Comments Replace top two south ballast wall										
Type Timing □ Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, □ Replace □ Urgent				0 years,	Install erosions control at ballast.					
Element Group:	Approache	es				Length:	6.0		m)	
Element Name:	Wearing s	urface				Width:		7.5 (7.5 (m)	
Location:	N/S					Height:	Height: (1)	
Element Description:	Paved.					Count:	Count: 2			
Material:	Asphalt					Total Qua	ntity:	90.0	(sq.m)	
Element Type:						Not Inspe	cted:			
Environment:	☐ Benign,	□ Modera	te, ☑ Seve	ere		Limited In	spection:			
Protection System:						Perform. I	Deficiencies			
Condition	Units	Exc.	Good	Fair	Poor*					
Data:	sq.m	0.00	75.0	11.6	3.4	BCI TEV: 5	40.0	всі	CEV: 365.34	
Comments:	_				eline seam o deck top.	crack. Abrasi	on and centreline crack	north	n side. Some settle at	
						T			-	

Maintenance Needs:

 \square 1 year, \square 2 years,

 $\;\square\; \text{Urgent}$

Recommended work:

Comments

Type Timing

Bridge ID: DY-9			
	Bridge ID:	DY-9	

Element Group:	Barriers Le								0 (m)			
Element Name:	Railing Sys	stems				Width:	(m)					
Location:	N/S				Height:			(m)				
Element Description:					Count:							
Material:	Steel & Wo	ood			Total Quai	ntity:	32.0	0 (m)				
Element Type:	Steel Flex	Beam on	Wood Post	ted:								
Environment:	☐ Benign,	□ Modera	ate, 🛭 Sev	ere			Limited In	spection:				
Protection System:	Creosote /	Galvaniz	ed	Deficiencies								
Condition Date:	Units	Exc.	Good	Fair	P	ng capacity of guidera	ail					
Condition Data:	m	0.00	0.00	32.0		0.00	BCI TEV:	ВСІ	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:							Maintenar	nce Needs:				
Comments Install at standard height		□ 1 year, □ 2 years, □ Urgent										
Туре	Timing	Timing										
☑ Rehab, □ Repair, □ Replace	□ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, ☑ Urgent											
	Beams/Main Longitudinal Elements Length:											
Element Group:				Length:								
Element Name:		Bracin	g		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. Defic								cies			
Condition Data:		Unit		_		Fair	Poor*	_				
	eac				8.0	0.00	BCI TEV:		BCI CEV:			
Comments: Minor checks and splits throughout. Overall in fair condition.												
Recommended work:								Maintenance Nee	ds:			
Type Timing							☐ 1 year, ☐ 2 year☐ Urgent	s,				
- , , , ,			Now - 1 -	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	10 -	10255						
☐ Rehab, ☐ Repair, ☐ Repla	ace 🗆 1 - 5		Now < 1 y	ear, ⊔ 6	- 10)	ears,						

Ontario Structure Inspec	tion Manual	— Inspec	ion Form				Bridge ID:		DY-9		
Element Group:	Beams	/Main Lo	ngitudinal E	lements		Length:	15	15.9 (m)			
Element Name:	: Girders					Width:	0.2	25 (m)			
Location:	ion:					Height:	0.4	0.4 (m)			
Element Description:							Count:	23	}		
Material:	Wood						Total Quantity:	15	i0.25 (sq.m)		
Element Type:							Not Inspected:				
Environment:	☑ Ben	ign, 🗆 Mo	derate, 🗆 S	Severe			Limited Inspection:				
Protection System:	Creoso	ote					Perform. Deficiencie	Perform. Deficiencies			
	Unit	s Exc	. Good	Fa	ir	Poor*	*				
Condition Data:	sq.m	0.00	0.00	150	.25	0.00	BCI TEV: 30050.0	ВС	CI CEV: 12020.0		
Comments:	Localiz	ed light o	hecks on b	ottom ed	lge.Ove	rall in f	air condition.	•			
Recommended work:	•						Maintenance Needs:	Maintenance Needs:			
Comments							☐ 1 year, ☐ 2 years, ☐ Urgent				
Type Timing											
Element Group:		Length:		15.9 (m)							
Element Name:	ment Name: Wearing Surface (Decks)								6.1 (m)		
Location: Deck Top							Height:	Height: (m)			
Element Description:	Approxima	itely 25m	m lift.			Count: 1					
Material:	Asphalt Su	rface Tre	atment				Total Quantity:	97.0 (sq.m)			
Element Type:							Not Inspected:				
Environment:	☐ Benign,	□ Modera	ate, ☑ Seve	ere			Limited Inspection:				
Protection System:							Perform. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Pod	or*	Rough riding surface and s	urface	ponding evident.		
Condition Data:	sq.m	0.00	16.0	4.7	3.	9	BCI TEV: BCI CEV:				
Comments:	nas two si with som	mp at transition to deck. Li nt.	ight ma	ap cracking over							
Recommended work:							Maintenance Needs:				
Comments											
Replace wearing surface.							□ 1 year, □ 2 years, □ Urgent				
Туре	Timing										
□ Rehab, □ Repair,☑ Replace	□ 1 - 5 [·]		Now < 1 ye	ar, ☑ 6 -	rs,						

Ontario Structure Inspection i	vianuai — i	nspection	Form					Briage ID:		DY-9		
Element Group:	Decks	Length: 15.9 (m)						m)				
Element Name:	Deck Top	ck Top Width:						6.6 (m)				
Location:	Under we	earing sur	face.		Heigh	t: (m)						
Element Description:	Laminate	Laminated wood C						::	1			
Material:	Wood						Total	Quantity:	105.0	(sq.m)		
Element Type:	Laminate	nated Wood Decking - Transverse Not Inspected:]		
Environment:	□ Benign	, ☑ Mode	rate, □ S	evere		Limite	ted Inspection:					
Protection System:	Creosote	/ Surface	Treatme	nt			Perfo	rm. Deficiencies				
Condition Date:	Units	Exc.	Good	d Fair	Pod	or*						
Condition Data:	sq.m	0.00	95.0	10.0	0.0	00	BCI TEV: 12600.0 BCI CEV			EV: 9030.0		
Comments:	Minor spl	its and di	splaceme	ent. Seen fr	om unde	r decl	k (soffit).				
Recommended work:							Maint	enance Needs:				
Comments							□ 1 y	ear, □ 2 years, jent				
Type Timing	Type Timing											
										T		
Element Group: Embankments & Streams								Length:		(m)		
Element Name:	Embankments							<u> </u>				
Location: NE/NW/SE/SW								Height:	+ 1 1			
Element Description:	nent Description: Count: 4						4					
Material:	Total Quantity: 4.0 (e							4.0 (each)				
Element Type:	Element Type: Not Inspected:											
Environment:	4	Benign,	□ Modera	ate, 🗆 Seve	ere			Limited Inspection:				
Protection System:			-		•	T		Perform. Deficien	cies			
Condition Data:		Units	Exc.	Good	Fair	Р	oor*	Unstable embankm				
		each	0.00	1.0	3.0	(0.00	BCI TEV:	BCI CEV:			
Comments:		rosion at here veg		W, with ge	neral was	shing	of mate	rial at ballast wall loo	cations.	Slope is stable		
Recommended work:								Maintenance Nee	ds:			
rehabilitation							☐ 1 year, ☐ 2 year	S,				
Туре	Timing	9										
☑ Rehab, □ Repair, □ Replac	hab, \square Repair, \square Replace $\begin{tabular}{c c c c c c c c c c c c c c c c c c c $											

Ontario Structure Inspect	ion Manual	— Inspect	tion Form					Bridge ID:	DY-9			
Element Group:	Piers					Length:	8.0 (m)					
Element Name:	Caps							Width:	0.25 (m)			
Location:	Abutm	ents and	piers					Height:	0.4 (m)			
Element Description:								Count:	4			
Material:	Wood							Total Quantity:	33.6 (sq.m)			
Element Type:								Not Inspected:				
Environment:	□ Ben	ign, ☑ Mo	derate, 🗆 🤄	Severe				Limited Inspection:				
Protection System:	Creoso	ote						Perform. Deficiencies				
Carallelian Bakas	Unit	:s Ex	c. God	od	Fair	Poor	*					
Condition Data:	sq.n	n 0.0	00 33.	6	0.00	0.00)	BCI TEV: 30240.0	BCI CEV: 22680.0			
Comments:	Comments: Light splits throughout, overall in good condition.											
Recommended work:								Maintenance Needs:	:			
Comments Type Timing								☐ 1 year, ☐ 2 years, ☐ Urgent				
								l				
Element Group:	Piers						Le	ngth:				
Element Name:	Shafts/col	umns/Pile	Bents				w	idth:	0.3			
Location:	East and v	vest and i	mid span x	2			Не	Height: 0.8				
Element Description:	300 mm d	ia					Co	ount:	24			
Material:	Wood						То	tal Quantity:	18.1			
Element Type:							No	ot Inspected:				
Environment:	☐ Benign,	☑ Moder	ate, □ Sev	ere			Limited Inspection:					
Protection System:							Perform. Deficiencies					
Condition Date:	Units	Exc.	Good	Fai	r	Poor*						
Condition Data:	sq.m	0.00	11.1	1.4		5.6	ВС	CI TEV: 16290.0	BCI CEV: 7996.5			
Comments: Limited due to water level. Some rot around waterlin								e on abutment piles 0.25m from ground.				
Recommended work:							Ма	Maintenance Needs:				
Comments								□ 1 year, □ 2 years, □ Urgent				
Type Timing												

Ontario Structure Inspec	tion Manual	l — Inspec	tion Form				Bridge ID:		DY-9)		
Element Group:		Piers					Length:					
Element Name:		Shafts/co	olumns/Pile	Bents			Width:		0.5 (m)			
Location:		N/S					Height:		2.5			
Element Description:							Count:		24			
Material:		Wood					Total Quantity	y:	84.8			
Element Type:							Not Inspected	l:				
Environment:		☑ Benig	n, 🗆 Moder	ate, □ Se	vere		Limited Inspe	ction:				
Protection System:		Creosote	2				Perform. Defi	ciencies				
		Units	Exc.	Good	Fair	Poor*						
Condition Data:			0.00	0.00	80.1	4.7	BCI TEV:		BCI CEV:			
Comments:			ottom 0.25 pier piles)		water level	at all piles a	all piles at abutments. (Water too high to further					
Recommended work:							Maintenance	Needs:				
Comments Type Timing Rehab, Repair, Replace Comments Timing Timing												
		12 1				I		1				
Element Group:	Sidewalks	Curb				Length:			6 (m)			
Element Name:	Curb								5 (m)			
Location:	N /S								(m)			
Element Description:						Count: 2						
Material:	Wood					Total Quantity: 1			2 (sq.m)			
Element Type:						Not Inspe						
Environment:	☐ Benign,	□ Modera	ite, ☑ Seve	ere		Limited I	nspection:					
Protection System:	Creosote	I I		I I		Perform.	Deficiencies					
Condition Data:	Units	Exc.	Good	Fair	Poor*							
	sq.m	0.00	17.2	0.00	0.00	BCI TEV:		ВС	I CEV:			
Comments:		_			_		nt accumulated i ow plough blade.		rth gutter slot	:S		
Recommended work:						Maintenance Needs: 02						
Comments						☑ 1 year, □ Urgent	□ 2 years,					
Type ☐ Rehab, ☐ Repair, ☐ Replace	Timing □ 1 - 5 □ Urge	years, □	Now < 1 y€	ear, □ 6 -	10 years,	Remove of spaces.	debris from draina	age				

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

	The field of the f						
Repair and Rehabilitation	n Required			Estimated			
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost
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	\$1,000.00
						Total	\$28,000.00

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



Description: General arrangement, looking north.



Description: General elevation, west.

Bridge ID:



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)

Bridge ID:



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

Bridge ID:	DY-10

Inventory Data:						
Structure Name	Kelly Lake Bridge					
Main Hwy/Road #	County Road 7	☑ On □ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove	Over water, I	□ Over Road	
Hwy/Road Name	Kennisis Lake Road					
Structure Location	North of North Kennisis I	Lake Road				
Latitude	45.241500		Longitude	-78.616500		
Northing			Easting			
Owner(s)	Municipality of Dysart et	al	Heritage designation: Desig., Desig./not List,	p., □ List/not		
MTO Region			Road Class: Freeway, Residential, Collector Col Local Commercial, Rur more lanes	ocal, 🗆 Local	Residential,	
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, ☐ ☐ ☐ Bicycle, ☐	•	•
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 Y	'ear of Last Major Rehab.			
Last OSIM Inspec	tion	2014 L	ast Evaluation			
Last Enhanced O	SIM Inspection		Current Load Limit		/ /	(tonnes)
Enhanced Access	Equipment	L	oad Limit By-Law #		/ /	
Last Underwater	Inspection	E	By-Law Expiry Date			
Last Condition Su	ırvey					
Rehab History: (Date/description)	Date/description)					

Ontario Structure Inspection Manual — Inspection For		Bridge ID: DY-10				
Scheduled Improvements:						
Regional Priority Number		Program	med W	ork 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, fla	shlight, hammer				
Weather:		Rain					
Temperature:		19.0 ℃					
Upcoming Inspections and Investigatio			ı				
Due date	Prior	ity	Comments				
					Delaulte		
Additional Investigations Required:				None	Priority Normal	Urgent	
Material Condition Survey			None Normal Org				
Detailed Deck Condition Survey:							
Non-destructive Delamination Survey	v of A	snhalt-Covered Deck					
Concrete Substructure Condition Sur		Spirate-covered Deck.					
Detailed Coating Condition Survey:	vey.						
Detailed Timber Investigation							
Post-Tensioned Strand Investigation							
Underwater Investigation:							
Fatigue Investigation:							
Seismic Investigation:							
Structure Evaluation:							
Monitoring							
Monitoring of Deformations, Settlem	ents	and Movements:					
Monitoring Crack Widths:							
Investigation Notes:							

Bridge ID:

DY-10

Ontario Structure Inspection Manual — Inspection Form

Ontario Structure Inspection Manual — Inspection	on Form	Br	idge ID:	DY-10			
Overall Structure Notes:							
Recommended Work on Structure:							
Timing of Recommended Work:	\square Urgent, \square Now < 1 year, \square 1	5 years, 🗆 6 - 1	0 years, $\square > 10$	years			
Overall Comments:	East						
Date of Next Inspection:							
Overall Bridge Condition:	Overall Bridge Condition:						
Becommended in our obtains and lowestimet	1	Bus data	Dui a vita :	Commonto			
Recommended inspections and Investigat	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	06 Bearing not uniformly load	ed/unstable 12	Slippery surfaces				
01 Load carrying capacity	07 Jammed expansion joint		Flooding/channel	blockage			
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazar	d 14	Undermining of fo	undation			
03 Continuing settlement	09 Rough riding surface	15	Unstable embank	ments			
04 Continuing movements	10 Surface ponding	16	Other				
05 Seized bearings	11 Deck drainage	17	None				
Maintenance Needs							
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel		Erosion Control at	Bridges			
02 Bridge Cleaning	08 Repair of Bridge Concrete		Concrete Sealing				
03 Bridge Handrail Maintenance	09 Repair of Bridge Timber		Rout and Seal				
04 Painting Steel Bridge Structures	10 Bailey bridges - Maintenan	ce 16	Bridge Deck Drair	nage			

11 Animal/Pest Control

12 Bridge Surface Repair

18 Other

17 Scaling (Loose Concrete or ACR Steel)

05 Bridge Deck Joint Repair

06 Bridge Bearing Maintenance

Bridge ID:	DY-10

Element Data

Element Group:	Abutments	3				L	ength:		(m)			
Element Name:	Abutment	Walls				v	Vidth:		7.0 (m	7.0 (m)		
Location:						н	Height:			n)		
Element Description:						c	Count:		2			
Material:	Wood Timb	per				Т	Total Quantity:			28.0 (sq.m)		
Element Type:	Crib					N	lot Inspec	ted:				
Environment:	☐ Benign,	☑ Moderat	e, 🗆 Sever	re .		L	imited In:	spection:				
Protection System:	Creosote					Р	Perform. D					
Condition	Units	Exc.	Good	Fair	Poor*							
Data:	sq.m	0.00	28.0	0.00	0.00	В	BCI TEV: 2	5200.0	всі с	EV: 18900.0		
Comments: Cribs 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	Recommended work: Maintenance Needs:											
I Comments							☐ 1 year, ☐ 2 years, ☐ Urgent					
Type Timing												
								T		1		
Element Group	•	Approac	hes				Length:			6.0 (m)		
Element Name:		Wearing	Surface					Width:		6.1 (m)		
Location:		East and	d west					Height:		(m)		
Element Descri	ption:	Paveme	nt.					Count:		2		
Material:		Asphalt						Total Quantity:		73.2 (sq.m)		
Element Type:								Not Inspected:				
Environment:		☐ Benig	n, 🗆 Mode	rate, 🛭 S	evere			Limited Inspection	n:			
Protection Syst	tem:							Perform. Deficien	cies			
Condition Data		Units	Exc.	Goo	d Fai	r	Poor*					
Condition Data	•	sq.m	0.00	73.2	0.00	0	0.00	BCI TEV: 439.2		BCI CEV: 329.4		
Comments:		Light wh	neel ruts.									
Recommended	work:							Maintenance Needs:				
Comments								☐ 1 year, ☐ 2 years, ☐ Urgent				
Type Timing												

Ontario Structu	ıre Inspectio	on Manua	l — Inspe	ction For	m				Bridge ID:		DY-10	
Element Group:	Barriers						Len	gth:		8.0 (m)		
Element Name:	Railing Sys	stems					Wid	th:		(m)		
Location:	E/W						Hei	ght:		(m)		
Element Description:							Cou	nt:		2		
Material:	Steel						Tota	al Quantity	':	16.0 (m)		
Element Type:							Not	Inspected	:			
Environment:	☐ Benign,	□ Modei	ate, ☑ Se	evere			Lim	ited Insped	ction:			
Protection System:	Galvanized	alvanized Creosote Perform. Defic						form. Defic	iencies			
Condition	Units	Exc.	Good	d Fai	r Poo	r*						
Data:	m	0.00	16.0	0.0	0.0	0	всі	TEV: 3200.	0	BCI CEV: 2	400.0	
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.										its and checks.	
Recommended work: Maintenance								ntenance l	Needs: 17. Other			
Type Timing Fas							☑ 1 year, □ 2 years, □ Urgent Fasten fishtail terminal end to SBGR at northeast quadrant.					
-1					" 151				I			
Element Grou					ıdinal Elen	nents	•		Length:			
Location:	e;		iaphragn	15					Width: Height:			
Element Desc	ription:								Count:		9	
Material:		W	/ood						Total Quantity:		9.0 (each)	
Element Type	:								Not Inspected:			
Environment:			Benign,	□ Moder	ate, 🗆 Sev	ere			Limited Inspect	ion:		
Protection Sy	stem:	С	reosote						Perform. Defici	encies	l	
Constitution Det			Units	Exc.	Good	F	air	Poor*				
Condition Dat	a:		each	0.00	9.0	0	0.00	0.00	BCI TEV:		BCI CEV:	
Comments:		D	iaphragn	ns in good	l condition							
Recommende	d work:								Maintenance Needs:			
Comments									□ 1 year, □ 2 ye	ears,		
Type Timing												

Ontario Structure Inspect	tion Manua	l — Inspe	ection Fo	rm					Bridge ID:		DY-10		
Element Group:	Beams/Ma	ain Longi	itudinal E	Elemen	nts			Leng	th:	11.7 (n	n)		
Element Name:	Girders							Widtl	h:	0.2 (m))		
Location:								Heigh	nt:	0.55 (n	n)		
Element Description:								Coun	t:	10			
Material:	Wood							Total	Quantity:	152.1 ((sq.m)		
Element Type:	Rectangu	lar-solid						Not I	nspected:				
Environment:	☑ Benign	, □ Mode	erate, 🗆	Severe	9			Limit	ed Inspection:				
Protection System:	Creosote							Perfo	rm. Deficiencies				
	Units	Exc.	God	od	Fair	Pod	r*						
Condition Data:	sq.m	0.00	152	2.1	0.00	0.0	00	всі т	EV: 30420.0	BCI CE	:V: 22815.0		
Comments:	Moderate	beam de	eflection	observ	ved wh	nile loadi	ling of tandem axle dump truck was observed.						
Recommended work:								Main	Maintenance Needs:				
Comments ☐ 1 year, ☐ 2 years, ☐ Urgent Type Timing													
									1		<u> </u>		
Element Group:	De	eck							Length:	7.7 (m)			
Element Name:	De	eck Top							Width:	6.7 (m)			
Location:	Ur	nder wea	ring surf	face.					Height:		(m)		
Element Description:									Count:		1		
Material:	W	ood							Total Quantity:		51.6 (sq.m)		
Element Type:	La	minated	Wood D	ecking	j - Tran	sverse			Not Inspected:				
Environment:		Benign,	☑ Moder	rate, 🗆	Sever	re			Limited Inspection	:			
Protection System:	Cr	eosote /	Surface	Treatm	nent				Perform. Deficienc	ies			
Condition Data:		Units	Exc.	Go	od	Fair	Р	oor*					
Condition Buta.		sq.m	0.00	37	7.4	14.2	(0.00	BCI TEV:		BCI CEV:		
Comments:	Liı	mited sco	ope due	cover,	condit	ion base	d on	soffit c	ondition.				
Recommended work:									Maintenance Need	s: -			
Comments									☐ 1 year, ☐ 2 years, ☐ Urgent	,			
Type Timing													

Ontario Structure Inspection I	Manual — I	Inspection	Form					Bridge ID:	DY-10		
Element Group:	Decks						Length	1:	7.7 (m)		
Element Name:	Soffit - Tl	hin Slab					Width	:	6.7 (m)		
Location:							Height	Height:			
Element Description:							Count	Count: 0			
Material:							Total (I Quantity: 51.6 (sq.m)			
Element Type:							Not In	nspected:			
Environment:	□ Benigr	n, 🗆 Mode	rate, 🗆 S	evere			Limited Inspection:				
Protection System:	Creosote	!					Perfor	rm. Deficiencies			
Condition Date:	Units	Exc.	Good	d Fair	Poo	r*					
Condition Data:	sq.m	0.00	51.6	0.00	0.0	0	BCI TE	V: 6192.0	BCI CEV: 4644.0		
Comments:	Overall g	jood condi	tion	•							
Recommended work:							Mainte	enance Needs:			
Comments 1 year, 2 Urgent Type Timing					ear, □ 2 years, ent						
Element Group:	ı	Decks						Length:	7.7 (m)		
Element Name:	,	Wearing S	urface					Width:	6.7 (m)		
Location:	-	Top of dec	:k.					Height: (m)			
Element Description:	,	Asphalt wi	th gutter	S.				Count: 1			
Material:	9	Surface Tr	eatment					Total Quantity: 51.6 (sq.m)			
Element Type:								Not Inspected:			
Environment:	[□ Benign,	□ Moder	ate, ☑ Seve	ere			Limited Inspectio	n: 🗆		
Protection System:								Perform. Deficien	cies		
Condition Date:		Units	Exc.	Good	Fair	ı	Poor*				
Condition Data:		sq.m	0.00	37.0	13.0		1.6	BCI TEV: 1290.0	BCI CEV: 823.75		
Comments:	ı	Ripples, p	onding ar	nd minor tra	nsverse (crack	cing.				
Recommended work:								Maintenance Nee	ds:		
Comments Repave deck.								□ 1 year, □ 2 year:	S.		
Туре	Timin	g						☐ Urgent			
☐ Rehab, ☐ Repair, ☑ Replace	ce 🗆 1 - 5		Now < 1	year, ☑ 6 -	10 years	i,					

Ontario Structure Inspection Manual — Inspection Form Bridge II							Bridge ID:	DY-10		
Element Group:	Embankments and Streams					Leng	Length: (m)			
Element Name:	Embanl	Embankments					Widt	h:	(m)	
Location:	All quad	drants.					Heig	ht:	(m)	
Element Description:							Coun	it:	4	
Material:							Tota	l Quantity:	4.0 (each)	
Element Type:							Not I	nspected:		
Environment:	□ Benig	gn, ☑ Mod	erate, 🗆 🤄	Severe			Limit	ted Inspection:		
Protection System:							Perf	orm. Deficiencies		
Condition Data:	Units	s Exc.	God	od Fai	ir P	oor*				
Condition Data:	each	0.00	3.0	1.0) (0.00	BCI 1	TEV:	BCI CEV:	
Comments:	Build up embanl		debris ald	ong emban	kments,	used a	s adeq	uate slope protection. Erod	ing of SE road	
Recommended work	:						Main	nintenance Needs:		
Comments ☐ 1 year, ☐ 2 years, ☐ Urgent										
Element Group:		Embankm	ents & Sti	reams				Length:		
Element Name:		Streams a	nd Water	ways				Width:		
Location:								Height:		
Element Description	:							Count:	1	
Material:								Total Quantity:	1.0 (all)	
Element Type:								Not Inspected:		
Environment:	1	☑ Benign,	□ Modera	ate, □ Sev	ere			Limited Inspection:		
Protection System:								Perform. Deficiencies	•	
Candition Data		Units	Exc.	Good	Fair	P	oor*			
Condition Data:		all	0.00	1.0	0.00	(0.00	BCI TEV: 1000.0	BCI CEV: 750.0	
Comments:		In good co	ndition.							
Recommended work	:							Maintenance Needs:		
Comments					☐ 1 year, ☐ 2 years, ☐ Urgent					
Type Timing										

Ontario Structure Inspec	tion Manual	l — Inspec	tion Form			Bridge ID:	DY-10	
Element Group:	Foundations					Length:	7.0 (m)	
Element Name:	Foundation	on (Below	Ground Lev	/el)		Width:	2.5 (m)	
Location:	E/W					Height:	0.5 (m)	
Element Description:						Count:	2	
Material:	Cast-in-p	lace Conc	rete			Total Quantity:	7.0 (sq.m)	
Element Type:						Not Inspected:		
Environment:	☑ Benign	ı, 🗆 Mode	rate, 🗆 Seve	ere		Limited Inspection:	Ø	
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	3.5	3.5	0.00	BCI TEV:	BCI CEV:	
Comments:						es erosion protection. Significant tion below water level in good c		
Recommended work:						Maintenance Needs: -		
Comments Type Timing Rehab, Repair, 1 - 5 years, Now < 1 year, 6 - 10 years, Urgent						□ 1 year, □ 2 years, □ Urgent		
Flowert Creve	Sidewalks/	Curbo				Langth	24.0 (m)	
Element Group:		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,	□ Modera	ite, ☑ Sever	e		Limited Inspection:		
Protection System:			Т			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:	Longitudna	al cracks a	and splits. B	olts not o	ountersunk.	Gutter system has sediment ac	ccumulated.	
Recommended work:						Maintenance Needs: 02. Brid	dge Cleaning	
Comments					☑ 1 year, □ 2 years,□ Urgent			
Type Timing						Clean out gutter and curb slot		

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

Ontario Structura Inspection Manual Inspection Form	Brid
Ontario Structure Inspection Manual — Inspection Form	Brid

Ontario Structure Inspection Mar		Bridge ID: DY-10					
Repair and Rehabilitation Re	quired	Priority			Estimated		
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost
Deck, Wearing Surface	Repave deck wearing surface.			✓			\$10,000.00

Total

\$10,000.00

Assosciated 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, shaked, 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.)

Bridge ID:	DY-11

Inventory Data:							
Structure Name	Burnt River Bridge						
Main Hwy/Road #		☑ On □ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove	🛘 Over water, 🗆 Over R	oad, 🗆 Under		
Hwy/Road Name	Unicorn Road						
Structure Location	1.7 km South of Hutching	gs Road			_		
Latitude	45.004201		Longitude	-78.470861			
Northing			Easting				
Owner(s)	Municipality of Dysart Et	. Al.	Heritage designation: □ Desig., □ Desig./not List, □		App., □ List/not		
MTO Region			Road Class: Residential, Collector Co Local Commercial, Rui more lanes	mmercial, 🗹 Local, 🗆 L	ocal Residential,		
MTO District			Posted Speed	50 No.	12		
Old County			AADT	% Truc	ks		
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, □ □ Bicycle, □ Emergen	·		
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:		2000	Variable A. Malan Bahah				
Year Built			Year of Last Major Rehab.		_		
Last Enhanced Of		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 Su	•		Ly Lan Expiry Date		_		
Rehab History: (D							
(Date/description)	-,						

Ontario Structure Inspection Manual — Inspection Form	n		Bridge ID:	DY-11
Scheduled Improvements:				
Regional Priority Number	Progran	nmed W	ork 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 Ty	ре		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 Investigatio	ns:	,						
Due date	Priority		Comments					
Additional Investigations Required:					Priority			
				None	Normal	Urgent		
Material Condition Survey								
Detailed Deck Condition Survey:								
Non-destructive Delamination Surve		lt-Covered Deck:						
Concrete Substructure Condition Sur	vey:							
Detailed Coating Condition Survey:								
Detailed Timber Investigation								
Post-Tensioned Strand Investigation								
Underwater Investigation:								
Fatigue Investigation:								
Seismic Investigation:								
Structure Evaluation:								
Monitoring								
Monitoring of Deformations, Settlem	ents and M	lovements:						
Monitoring Crack Widths:								
Investigation Notes:								

Bridge ID:

DY-11

Ontario Structure Inspection Manual — Inspection Form

Ontario Structure Inspection M	anual — Inspection Form	Bridge ID:	DY-11
Overall Structure Notes:			
Recommended Work on Structure:			
Timing of Recommended Work:	\square Urgent, \square Now < 1 year, \square 1 - 5 years, \square 6 - 1	10 years, □ > 10 years	
Overall Comments:	Overall good condition. Urgent repair to missing as joint seals required.	nuts on guiderail posts and s	teel flex beam, as well
Date of Next Inspection:	2020		
	•		

Overall Bridge Condition: 73.57

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

ridge ID:	DY-11

Element Data

Element Group:	Abutment	S				Lengt	th:	1.0 (m)		
Element Name:	Abutment	walls				Widtl	Width: 7.5 (m)			
Location:	Bearing S	Bearing Surface Height: 0.5								
Element Description:	Ballast wa	allast wall Count:						2		
Material:	Cast-In-Pla	ace Concr	ete			Total	Quantity:	3.75 (sq.m)		
Element Type:						Not I	nspected:			
Environment:	☐ Benign,	☑ Moder	ate, □ Seve	ere		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Poor*					
Condition Data:	sq.m	0.00	3.75	0.00	0.00	всі т	EV: 3375.0	BCI CEV: 2531.25		
Comments:	Good cond	dition. Sou	uth seal is b	roken an	d is allowing	sedime	ent to accumulate aroun	d bearing seats.		
Recommended work	C:					Maintenance Needs: 02. Bridge Cleaning				
Comments Type Timing						☑ 1 year, □ 2 years,□ UrgentRemove sediment from around south bearing seats.				
								1		
Flement Group:	٨hı	itments					l ength:	7.0 (m)		

Element Group:	Abutments	5				Length:	7.0 (m)			
Element Name:	Abutment	Walls				Width:	(m)			
Location:	North and	south				Height:	1.5 (m)			
Element Description:						Count: 2				
Material:	Corrugate	d Galvani	zed			Total Quantity:	21.0 (sq.m)			
Element Type:	Sheet Pile					Not Inspected:				
Environment:	☑ Benign,	□ Modera	ate, □ Seve	ere		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Poor*					
Condition Data:	sq.m	0.00	21.0	0.00	0.00	BCI TEV: 18900.0	BCI CEV: 14175.0			
Comments:	In good co	ndition. S	ome hairlin	e pattern	surface cra	cks.				
Recommended work:						Maintenance Needs: -				
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent				
Type Timing										

Ontario Structure Inspe	ction Ma	nual — In	spection	Form					Bridge ID:		DY-11		
Element Group:	А	butments	5						Length:		7.0 (m)		
Element Name:	В	allast wa	lls						Width:		0.5 (m)		
Location:	N	I /S	Height: 1.0 (m)							1.0 (m)			
Element Description:									Count:		2		
Material:	C	Cast in Place Concrete / Sheet Pile							Total Quantity:		14.0 (sq.m)		
Element Type:									Not Inspected:				
Environment:		∃ Benign,	☑ Moder	ate, □ S	evere				Limited Inspection:				
Protection System:									Perform. Deficiencie	s			
Condition Data:		Units	Exc.	Good	d I	Fair	Pod	or*					
Condition Data:		sq.m	0.00	14.0) (0.00	0.0	00	BCI TEV: 4900.0		BCI CEV: 3675.0		
Comments:	G	Good cond	lition.			_			•				
Recommended work:									Maintenance Needs:	-			
Comments Type Timing									☐ 1 year, ☐ 2 years, ☐ Urgent				
Element Group:	Abutm	ents						Leng	(m)				
Element Name:	Bearin	gs						Wid	th:	((m)		
Location:	North a	and south	ı					Heig	ght:	((m)		
Element Description:								Cou	nt:	8			
Material:	Elastor	meric Rub	ber					Tota	al Quantity:	8.	.0 (each)		
Element Type:								Not	Inspected:				
Environment:	□ Beni	gn, 🛭 Mo	derate, [Severe				Limi	ited Inspection:		1		
Protection System:								Perf	orm. Deficiencies				
Condition Data:	Unit	s Ex	c. G	ood	Fair	Po	or*						
Condition Data:	each	n 0.0	00	7.0	1.0	0	.00	BCI	TEV: 8000.0	В	CI CEV: 5650.0		
Comments:	Some 6	extrusion	and disp	lacemen	t at no	rtheas	t. Over	com	pression. All other bearir	ıgs (good condition.		
Recommended work:								Mair	ntenance Needs: -				
Comments									year, □ 2 years, rgent				
Type Timing													

Ontario Structu	ro Inchaction	a Manual	Inchactio	n Form			Bridge ID:	DY-11	
Element Grou	1		- inspectio	11 1 01111		Length:	Bridge ID.	6.0 (m)	
Element Name						Width:		5.25 (m)	
Location:						Height:		(m)	
Element Description:						Count:		2	
Material:	Asphalt a	approach	slab, grave	el approa	ch	Total Quan	tity:	63.0 (sq.m)	
Element Type	:					Not Inspec	ted:		
Environment:	ronment: ☐ Benign, ☐ Moderate, ☑ Severe						spection:		
Protection System:						Perform. D	eficiencies	•	
Condition Dat	Units	Exc.	Good	Fair	Poor*	09. Rough ri	ding surface		
Condition Dat	sq.m	0.00	51.0	0.00	12.0	BCI TEV: 37	' 8.0	BCI CEV: 229.5	
Comments:	_	at both er n in poor.		lt interfa	ce. Potholes	in east wheel tr	ack at both ends. Ov	verall in good condition, with	
Recommende	d work:					Maintenan	ce Needs: 17. Othe	r	
Comments						☑ 1 year, □ □ Urgent	2 years,		
Type Timing						Regrade grapotholes.	avel approaches to r	emove settling and	
Element Group:	Barriers					Length:		27.75 (m)	
Element Name:	Railing Syst	tems				Width:		(m)	
Location:	E/W					Height:		(m)	
Element Description:						Count:		2	
Material:	Steel					Total Quantit	y:	55.5 (m)	
Element Type:	Steel Flex E	Beam on S	Steel Post			Not Inspected	d:		
Environment:	□ Benign, [□ Modera	te, ☑ Sevei	re		Limited Inspe	ection:		
Protection System:	Galvanized					Perform. Defi	iciencies		
Condition	Units	Exc.	Good	Fair	Poor*	08. Pedestrian,	/vehicular hazard		
Data:	m	0.00	55.5	0.00	0.00	BCI TEV: 1110	0.00	BCI CEV: 8325.0	
Comments:	Missing 4 b post on nor				at south en	d. One loose and	l one not attached b	olt to steel flex beam from	
Recommende	d work:					Maintenance	Needs:		
Comments						□ 1 year, □ 2 ☑ Urgent	years,		
Type Timing							sing bolts on basepla lex beam on northea	tes. Fasten and tighten ast end of deck.	

Ontario Structure Inspection	Manual — In	spection	Form			Bridge ID:		DY-11		
Element Group:	Beams/Mai	in Longitu	udinal Elem	ents		Length:	23.0	0 (m)		
Element Name:	Girders					Width:	0.2	5 (m)		
Location:	North and	south				Height:	0.7	45 (m)		
Element Description:	Coating 3n	n out fron	n abutment	t, bare ste	eel midspan.	Count:	4			
Material:	Steel					Total Quantity:	161	0 (sq.m)		
Element Type:						Not Inspected:				
Environment:	☑ Benign,	□ Modera	ate, □ Seve	ere		Limited Inspection:	Limited Inspection:			
Protection System:	Paint					Perform. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Poor*					
Condition Data:	sq.m	0.00	161.0	0.00	0.00	BCI TEV: 32200.0	ВСІ	CEV: 24150.0		
Comments:	Minor corro	osion at n	nid sections	s, protect	ive coating a	pplied 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 To	р				Height:		(m)		
Element Description:						Count:		1		
Material:	Asphalt					Total Quantity:		78.75 (sq.m)		
Element Type:						Not Inspected:				
Environment:	☐ Benig	n, 🗆 Mod	lerate, ☑ Se	evere		Limited Inspection:				
Protection System:						Perform. Deficiencie	es			
Condition Data:	Units	Exc	. Good	d Fai	r Poor	k				
Condition Data.	sq.m	0.00	78.75	5 0.0	0.00	BCI TEV:		BCI CEV:		
Comments:	Deck we	earing sui	rface in goo	od conditi	on.					
Recommended work:						Maintenance Needs	:			
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent				
Type Timing										

Ontario Structure Inspection Manua	al — Inspect	ion Forr	n					ı	Bridge ID:		DY-11
Element Group:	Emb	oankme	nts and	Strear	ns				Length:		(m)
Element Name:	Emb	oankme	nts						Width:		(m)
Location:	All o	quadran	ts.						Height:		(m)
Element Description:	Ger	avel an	d vegeta	ated rip	p rap.				Count:		4
Material:									Total Quantity:		4.0 (each)
Element Type:									Not Inspected:		
Environment:	☑B	enign, [□ Moder	rate, □	Severe	:			Limited Inspection	on:	
Protection System:									Perform. Deficie	ncies	
Condition Data:	U	nits	Exc.	Go	ood	Fair	Pod	or*			
Condition Data:	е	ach	0.00	4	.0	0.00	0.0	00	BCI TEV:	BCI CEV:	
Comments:	Slig	ht wash	out on r	northe	ast qua	drant.	Beaver	dams	located downstrean	n.	
Recommended work:											
Comments											
Add slope protection to northeast downstream.	slope. Remo	ove bea	ver dam	าร					□ 1 year, □ 2 yea □ Urgent	rs,	
Type Ti	ming										
☑ Kenap. □ Kepair. □ Kepiace	1 - 5 years, Urgent	. □ Now	< 1 yea	ar, □ 6	- 10 ye	ears,					
Element Group:	Joints							Lenç	yth:	5.0 (m)
Element Group: Element Name:	Joints Seals/sea	lants						Leng		5.0 ((m)	
Element Name: Location:									th:	,	,
Element Name:	Seals/sea							Wid:	th: ht: nt:	(m)	,
Element Name: Location:	Seals/sea	d south	ubber					Wid:	th: Iht:	(m) (m) 2	,
Element Name: Location: Element Description:	Seals/sea	d south	ubber					Wide Heig Cour Tota	th: ht: nt:	(m) (m) 2	
Element Name: Location: Element Description: Material:	Seals/sea	d south		☑ Seve	ere			Widden Height Court Total	th: ht: nt: I Quantity:	(m) (m) 2 2.0 (
Element Name: Location: Element Description: Material: Element Type:	Seals/sea North and	d south		☑ Seve	re			Wide Heig Cour Tota Not	th: pht: nt: I Quantity: Inspected:	(m) (m) 2 2.0 (
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System:	Seals/sea North and	d south	lerate, [☑ Seve	ere Fair		Poor*	Wide Heig Cour Tota Not	th: oht: I Quantity: Inspected: ted Inspection:	(m) (m) 2 2.0 (
Element Name: Location: Element Description: Material: Element Type: Environment:	Seals/sea North and Pre Fabrid Benign	d south	lerate, .				Poor* 1.0	Wide Heig Cour Tota Not Limi	th: oht: I Quantity: Inspected: ted Inspection:	(m) (m) 2 2.0 (
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System:	Seals/sea North and Pre Fabrid Benign Units each	d south cated Ri , Mod Exc 0.00 al has fa	. G	ood	Fair 0.00		1.0	Wide Heig Coun Tota Not Limi Perf	th: Int: I Quantity: Inspected: ted Inspection: orm. Deficiencies	(m) (m) 2 2.0 (each) CEV: 750.0
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System: Condition Data:	Seals/sea North and Pre Fabric Benign Units each South sea	d south cated Ri , Mod Exc 0.00 al has fa	. G	ood	Fair 0.00		1.0	Wide Heig Coun Tota Not Limi Perf	th: pht: pht: I Quantity: Inspected: ted Inspection: orm. Deficiencies	(m) (m) 2 2.0 (each) CEV: 750.0
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System: Condition Data: Comments:	Seals/sea North and Pre Fabric Benign Units each South sea	d south cated Ri , Mod Exc 0.00 al has fa	. G	ood	Fair 0.00		1.0	Wide Heig Coun Tota Not Limi Perf	th: th: th: I Quantity: Inspected: ted Inspection: orm. Deficiencies TEV: 2000.0 th seal is full of sedi	(m) (m) 2 2.0 (each) CEV: 750.0
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System: Condition Data: Comments: Recommended work:	Seals/sea North and Pre Fabric Benign Units each South sea inspection	excellent from the state of the	derate, G G illen outd.	ood 1.0	Fair 0.00	ng is d	1.0	Widine Height Country Total Not Limit Perf	th: th: th: I Quantity: Inspected: ted Inspection: orm. Deficiencies TEV: 2000.0 th seal is full of sedi	(m) (m) 2 2.0 (each) CEV: 750.0
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System: Condition Data: Comments: Recommended work: Comments Replace broken expansion joint se joint.	Seals/sea North and Pre Fabric Benign Units each South sea inspection	excellent from the state of the	derate, G G illen outd.	ood 1.0	Fair 0.00	ng is d	1.0	Widine Height Country Total Not Limit Perf	th: Int: I Quantity: Inspected: ted Inspection: orm. Deficiencies TEV: 2000.0 th seal is full of sedintenance Needs: year, 2 years,	(m) (m) 2 2.0 (each) CEV: 750.0

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

Bridge ID:	DY-11

Repair and Rehabilitation Re		Estimated					
Element	Repair and Rehabilitation Required	> 10 years	Urgent		Urgent	Cost	
Joint Seal	Replace joint seal.				✓		\$5,000.00
Slope Protection	Add slope protection as needed.			✓			\$5,000.00
						Total	\$10,000.00

Assosciated 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.

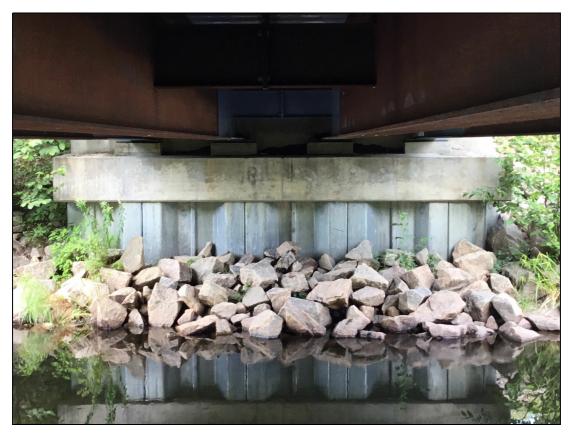


Description: South wall, sediment is washing down from above and accumulating around the bearing on the bearing seat from a defective joint fill above.

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)

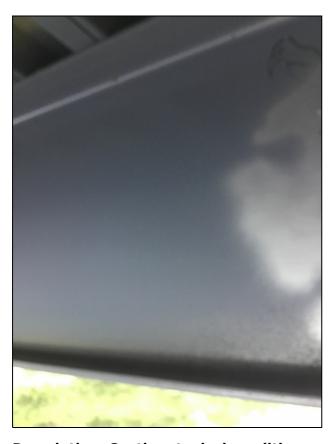


Description: Loose (right), and not attached(left) bolts at farthest northeast post on bridge deck.

Barriers / Railing Systems (E / W)

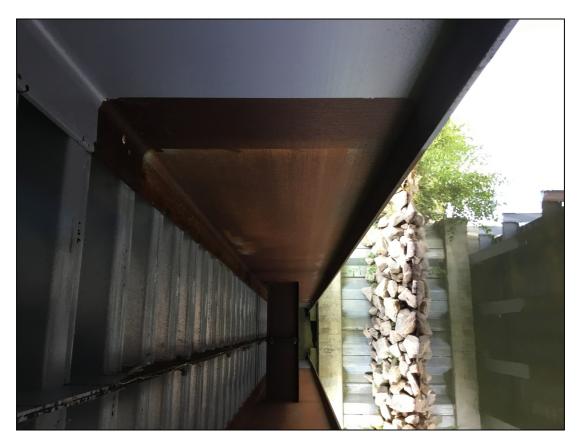


Description: Three (3) nuts missing from southeast post prior to bridge deck. Barriers / Railing Systems (E / W) $\,$



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)

Bridge ID:	DY-12
Briage ID.	D1 12

Inventory Data:											
Structure Name	Coleman Lake Bridge]						
Main Hwy/Road #		☑ On □ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove								
Hwy/Road Name	Coleman Lake Road]						
Structure Location	0.5 km East of Kennisis	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	Heritage designation: □ Desig., □ Desig./not List, □		p., □ List/not						
MTO Region			Road Class: Freeway, Residential, Collector Co Local Commercial, Rui more lanes	mmercial, 🛭 Local, 🗆 Loca	l Residential,						
MTO District			Posted Speed	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, ☐ Scl ☐ Bicycle, ☐ Emergency,							
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			ear of Last Major Rehab.								
Last OSIM Inspec			ast Evaluation								
Last Enhanced OS			Current Load Limit	/ /	(tonnes)						
Enhanced Access			oad Limit By-Law #								
Last Underwater		F	By-Law Expiry Date								
Last Condition Su											
Rehab History: (I (Date/description)	Jate/description)										

Ontario Structure Inspection Manual — Inspection Form		Bridge ID:	DY-12	
Scheduled Improvements:				
Regional Priority Number	Progran	nmed W	ork 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 Ty	Inspection Type OSIM			
Inspector:		Sean Wetmore					
Others in Party:		Ben Belfry					
Access Equipment Used:		Hip waders, flashlight, ha	mmer, tape				
Weather:		Cloudy					
Temperature:		20.0 ℃					
Upcoming Inspections and Investigation	ns:						
Due date	Priority		Comments				
Additional Investigations Required:					Priority		
Material Condition Comme				None	Normal	Urgent	
Material Condition Survey							
Detailed Deck Condition Survey:		A Covered Dealer					
Non-destructive Delamination Surve		t-Covered Deck:					
Concrete Substructure Condition Sur	rvey:						
Detailed Coating Condition Survey:							
Detailed Timber Investigation							
Post-Tensioned Strand Investigation	<u> </u>						
Underwater Investigation:							
Fatigue Investigation:							
Seismic Investigation:							
Structure Evaluation:							
Monitoring							
Monitoring of Deformations, Settlem	ents and M	lovements:					
Monitoring Crack Widths:							
Investigation Notes:							

Bridge ID:

DY-12

Ontario Structure Inspection Manual — Inspection Form

Ontario Structure Inspection Manual — Inspectio	on Form	Bri	dge ID:	DY-12
Overall Structure Notes:				
Recommended Work on Structure:				
Timing of Recommended Work:	\square Urgent, \square Now < 1 year, \square 1	- 5 years, □ 6 - 10	0 years, $\square > 10$	years
Overall Comments:	Substructure in good to fair con	dition.		
Date of Next Inspection:	2020			
Overall Bridge Condition:			65.9	97
Barraman de disconnections and Investigation	1	Due data	Dui a vitu a	Community
Recommended inspections and Investigat	ions	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	06 Bearing not uniformly loade	ed/unstable 12 9	Slippery surfaces	
01 Load carrying capacity	07 Jammed expansion joint		Flooding/channel	
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazard		Undermining of fo	=
03 Continuing settlement	09 Rough riding surface	15 (Unstable embank	ments
04 Continuing movements	10 Surface ponding	16	Other	
05 Seized bearings	11 Deck drainage	17	None	
Maintenance Needs				
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel	13 (Erosion Control a	t Bridges
02 Bridge Cleaning	08 Repair of Bridge Concrete	14 (Concrete Sealing	

09 Repair of Bridge Timber

11 Animal/Pest Control

12 Bridge Surface Repair

10 Bailey bridges - Maintenance

15 Rout and Seal

18 Other

16 Bridge Deck Drainage

17 Scaling (Loose Concrete or ACR Steel)

03 Bridge Handrail Maintenance

06 Bridge Bearing Maintenance

05 Bridge Deck Joint Repair

04 Painting Steel Bridge Structures

ridge ID:	DY-12

Element Data

Element Group:	Abutments	S					Lei	ngth:	7.0 (m)	
Element Name:	Abutment	walls					Wi	dth:	(m)	
Location:	North and	south					Не	ight:	1.5 (m)	
Element Description:							Co	unt:	2	
Material:	Cast-in-pla	ace Conc	rete				To	tal Quantity:	21.0 (sq.m)	
Element Type:	Integral						No	t Inspected:		
Environment:	☐ Benign,	☑ Modei	ate, □ Se	vere			Lin	nited Inspection:		
Protection System:							Pe	rform. Deficiencies		
Candition Date:	Units	Exc.	Good	F	air	Poor*	14.	. Undermining of foundation	n	
Condition Data:	sq.m	0.00	14.0	0.	.00	7.0	вс	I TEV: 18900.0	BCI CEV: 9450.0	
Comments:	Severe sco	ouring, so	caling and	under	mining o	of North a	and S	South abutment faces at all	water levels.	
Recommended work:							Ma	intenance Needs:		
Comments								1 year, □ 2 years,		
								Urgent		
Type Timing										
Element Group:	Abutn	nents						Length:	(m)	
Element Name:	Bearir	ngs						Width:	(m)	
Location:	Under	Under Steel Girders						Height:	(m)	
Element Description:								Count:	12	
Material:	Elasto	Elastomeric Pads						Total Quantity:	12.0 (each)	
Element Type:								Not Inspected:		
Environment:	☑ Ber	nign, 🗆 M	oderate, 🛭	Seve	re			Limited Inspection:		
Protection System:								Perform. Deficiencies		
Condition Data:	Uni	ts E	xc. G	ood	Fair	Poo	r*			
Condition Data:	eac	:h 1	2.0 0	.00	0.00	0.0	0	BCI TEV: 12000.0	BCI CEV: 12000.0	
Comments:	Bearin	ngs in ex	cellent cor	dition.						
Recommended work:								Maintenance Needs:		
Comments								☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing										

Ontario Structure Inspection N	lanual — Ins	spection	Form					Bridge ID:	DY-12	
Element Group:	Abutm	nents						Length:	1.8 (m)	
Element Name:	Wingv	Wingwalls						Width:	(m)	
Location:	All qua	adrants.						Height:	1.8 (m)	
Element Description:								Count:	4	
Material:	Cast-I	n-Place (Concrete					Total Quantity:	10.8 (sq.m)	
Element Type:								Not Inspected:		
Environment:	□ Ben	nign, ☑ M	oderate, □	Severe				Limited Inspection:		
Protection System:								Perform. Deficiencie	S	
	Uni	ts E	xc. Go	od	Fair	Poo	r*	15. Unstable embankm	ents	
Condition Data:	sq.ı	m 0	.00 5.	4	2.7	2.7	7	BCI TEV: 3780.0	BCI CEV: 1795.5	
Comments:		e undern od condit		ng wall f	ounda	ation at I	NE q	uadrant causing unstable	e embankment. Rest	
Recommended work:	•							Maintenance Needs:		
measures							□ 1 year, □ 2 years, □ Urgent			
Type Timing ☑ Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, □ Replace ☑ Urgent										
							1			
Element Group:	Accessorie	es					Le	ngth:	(m)	
Element Name:	Signs						Wi	dth:	(m)	
Location:	End of App	oroach G	uidrails				Не	ight:	(m)	
Element Description:							Count:		4	
Material:	Steel						To	tal Quantity:	4.0 (each)	
Element Type:							No	t Inspected:		
Environment:	□ Benign,	□ Mode	ate, ☑ Seve	ere			Lin	nited Inspection:		
Protection System:							Pe	rform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	ı	Poor*				
Condition Data.	each	0.00	4.0	0.00		0.00	вс	I TEV: 400.0	BCI CEV: 300.0	
Comments:	Signs canr	not be se	en due to o	vergrow	th.					
Recommended work:							Ма	intenance Needs: 02		
Comments							☑ 1 year, □ 2 years, □ Urgent			
Type Timing							Clean vegetation around			

Ontario Structure Insp	ection Manı	ual — Insp	ection Form	1		Bridge ID: D'			
Element Group:	Approache	es				Length:	6.0 (m)		
Element Name:	Wearing s	urface				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,	□ Modera	ate, ☑ Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies	•		
	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	1.8	37.0	34.2	BCI TEV: 504.0	BCI CEV: 96.9		
Comments:			alligator cra th approach		he southeast	side. Counting settlement and	patching behind abutment		
Recommended work	(:					Maintenance Needs: -02			
Comments Recompact subbase and repave at next major rehabilitation. □ 1 year, □ 2 years, □ Urgent									
Туре	Timir	ng				Repair potholes. Clean vegetation and sediment along			
□ Rehab, □ Repair, ☑ Replace	□ 1 - □ Urg		□ Now < 1 y	/ear, ☑ 6	- 10 years,	shoulders to reduce surface p	onding.		
Element Communication	D					I	70.0 (**)		
Element Group:	Barriers					Length:	70.0 (m)		
Element Name:	Railing Sy					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,	, □ Moder	ate, 🛭 Seve	ere		Limited Inspection:			
Protection System:	Galvanize	ed .				Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular haza	rd		
Condition Data.	m	0.00	123.0	10.0	7.0	BCI TEV: 28000.0	BCI CEV: 19250.0		
Comments:	Collision o	damage to	railing and	d posts at	Northeast q	uadrant. Replace leaning post a	at nw quadrant at deck.		
Recommended work	(:					Maintenance Needs:			
Comments Type Timing						☐ 1 year, ☐ 2 years, ☑ Urgent Remove vegetation			
Type Tilling						overgrowth.			

Ontario Structu	re Inspectio	n Manual	l — Inspect	ion Form				Bridge ID:		DY-12	
Element Group: Beams/Main Longitudinal Elements Element Name: Girders Location: North and south direction. Element Description: Steel Material: Steel Element Type: I - Type Environment: □ Benign, ☑ Moderate, □ Severe Protection System: Units Exc. Good Fair sq.m 0.00 55.4 0.00 Comments: No defects noted, in good condition. Recommended work:								Length:		7.7 (m)	
Element Name	e:	Girde	ers					Width:		0.2 (m)	
Location:		North	and south direction. Deletes and south direction. Deletes south direction. Deletes noted, in good condition. Deletes noted				Height:		0.5 (m)		
Element Desc	ription:							Count:		6	
Material:		Steel						Total Quantity:		55.4 (sq.m)	
Element Type	:	I - Type						Not Inspected:			
Environment:		□ Ве	nign, 🛭 Mo	oderate, 🗆] Severe			Limited Inspection:			
Protection Sys	stem:							Perform. Deficienc	ies		
Condition Dat		Un	its Ex	c. G	ood F	air	Poor*				
Condition Dat	a.	sq	.m 0.	00 5	5.4 0.	00	0.00	BCI TEV: 11080.0		BCI CEV: 8310.0	
Comments:		No de	efects note	d, in goo	d condition						
Recommende	d work:							Maintenance Need	ls:		
Comments Type Timing							☐ 1 year, ☐ 2 years ☐ Urgent	,			
								<u> </u>			
Element Group: Decks						Length:		7.7 (m)			
Element Name:	Deck Top					,	Width:		7.0 (r	m)	
Location:							Height:		(m)		
Element Description:				Count:					1		
Material:	Wood						Total Quant	ity:	54.0	(sq.m)	
Element Type:	Laminated	Wood De	ecking - Tr	ansverse			Not Inspected:				
Environment:	☐ Benign,	☑ Moder	ate, □ Sev	ere			Limited Insp	pection:	Ø		
Protection System:	Asphalt						Perform. De	eficiencies			
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	sq.m	48.6	5.4	0.00	0.00		BCI TEV: 648	30.0	всі с	CEV: 6318.0	
Comments:	Investigation appears to	on limite be in ex	d due to vi cellent to	sibility. C good over	ondition ba all conditio	sed n bi	l on areas who ut should be p	ere wearing surface h	as wor	n way. Deck top	
Recommende	d work:						Maintenanc	e Needs: -			
Comments	_						☐ 1 year, ☐ 2 years, ☐ Urgent				
Type Timing											

Ontario Structure Inspection Manual — Inspection Form					Bridge ID:						
Element Group: Decks Leng					Leng	th:	7.7				
Element Name:	Soffit -	Thin Slab				Widt	h:	7.0			
Location:						Heigl	nt:				
Element Description:		Со					t:	1			
Material:	Wood					Total	Quantity:	7.7 7.0 7.0 Intity: 54.0 cted: Inspection: Deficiencies ive deformations (deflections & rotations & rotation			
Element Type:						Not I	nspected:				
Environment:	vironment: ☐ Benign, ☑ Moderate, ☐ Severe Limite		ed Inspection:								
Protection System:	Pressure treated					Perfo	Perform. Deficiencies				
Condition Data	Units	Exc.	Good	l Fair	Poor	* 02. Ex	ccessive deformations (de	flecti	ions & rotations)		
Condition Data:	sq.m	0.00	0.00	54.0	0.00	ВСІТ	EV: 6480.0	ВСІ	I CEV: 2592.0		
Comments:	Shifting	of decking	boards c	auses previ	ous move	ment and	leaning shown in images.	Boar	ds in good condition.		
Recommended wo	rk:					Main	tenance Needs:	enance Needs:			
Comments Type Timing						-	rear, □ 2 years, gent				
Element Group:		Decks					Length:		7.7 (m)		
Element Name:		Wearing S	urface				Width:		7.0 (m)		
Location:							Height:	_	(m)		
Element Description:							Count:	\dashv	1		
Material:		Asphalt					Total Quantity:		54.0 (sq.m)		
Element Type:							Not Inspected:	_			
Environment:		☐ Benign,	☐ Moder	ate, ☑ Seve	ere		Limited Inspection:				
Protection System):						Perform. Deficiencie	s			
		Units	Exc.	Good	Fair	Poor*	09. Rough riding surface	rface			
Element Name: Soffit - Thin Slab Height: Height:	BCI TEV: 1350.0 BCI CEV:		BCI CEV: 835.63								
Comments:						osed. Multi	ple ravelled areas with pa	tchin	ng, rippling, mounding		
Recommended wo	rk:						Maintenance Needs:	02. E	Bridge Cleaning		
Comments											
Repave deck.							☑ 1 year, □ 2 years, □ Urgent				
Туре		Timing					Sweep deck.				
			ars, □ No	w < 1 year,	, 🗆 6 - 10	years,	oneep deek.				

Ontario Structure Ir	spection Ma	anual — In	spection Fo	rm			Bridge ID	: DY-12		
Element Group:	Embankı	Embankments & Streams					h:	(m)		
Element Name:	Embankı	ments		Fair Poor* 2.0 2.0		Width	1:	(m)		
Location:	All quadi	rants.				Heigh	t:	(m)		
Element Description:						Count	::	4		
Material:						Total	Quantity:	4.0 (each)		
Element Type:						Not In	spected:			
Environment:	☑ Benigi	n, 🗆 Mode	erate, 🗆 Sev	Severe			ed Inspection:			
Protection System:						Perfor	rm. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*					
Condition Data:	each	0.00	0.00	2.0	2.0	BCI TE	EV: 4000.0	BCI CEV: 800.0		
Comments:	Northeas condition		ment is un	stable do	to undermi	ned wing v	wall. Rest and well ve	getated and stable in good		
Recommended we	ork:					Maint	enance Needs: -			
Comments							☐ 1 year, ☐ 2 years, ☐ Urgent			
Type Timing										
								1		
Element Group:	Embankme		eams			Length:		(m)		
Element Name:	Slope Prote					Width:		(m)		
Location:	NE/NW/SE/	'SW				Height:		(m)		
Element Description:	Large ston	es				Count:		4		
Material:						Total Qu	uantity:	4.0 (each)		
Element Type:						Not Insp	pected:			
Environment:	☑ Benign,	□ Modera	te, □ Seve	re		Limited	Inspection:			
Protection System:						Perform	n. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*					
Condition Data.	each	0.00	0.00	4.0	0.00	BCI TEV	: 1600.0	BCI CEV: 640.0		
Comments:	Slope prote material lo			ue to moi	nitor northea	st side as	there is evidence of p	previous washout and		
Recommended we	ork:					Mainten	nance Needs: -			
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent				
Type Timing										

Ontario Structure Inspection Mar	nual — Inspe	ction For	m			Bridge ID:		DY-12
Element Group:	Embankm	ents & St	reams			Length:		(m)
Element Name:	Streams a	nd Water	ways			Width:		(m)
Location:	Center					Height: (m)		(m)
Element Description:						Count:		1
Material:						Total Quantity:		1.0 (each)
Element Type:						Not Inspected:		
Environment:	☑ Benign,	□ Moder	ate, □ Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies	s	
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	each	0.00	1.0	0.00	0.00	BCI TEV:		BCI CEV:
Comments:	No obstruc	ctions, in	good condit	ion.				
Recommended work:						Maintenance Needs:	-	
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing								

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

Repair and Rehabilitation R		Fatherstand					
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Estimated Cost
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

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

DY-12



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





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 \setminus 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



 $\label{lem:potholes} \textbf{Description: South approach, settling} \setminus \textbf{pot holes starting at bridge joint.} \\ \textbf{Approaches} \ / \ \textbf{Wearing surface}$



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



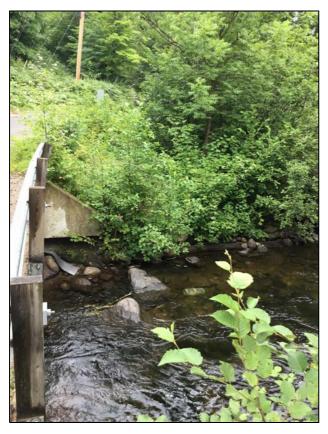
Description: General condition of deck wearing surface poor.

Decks / Wearing Surface



Description: Patch mounding and overall rough riding surface.

Decks / Wearing Surface



 $\label{lem:problem} \textbf{Description: Northeast quadrant, general conditions. Continue to monitor for washout behind wingwall.}$

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)

Bridge ID:	DY-13

Inventory Data:						
Structure Name	Eagle Lake Road Bridge					
Main Hwy/Road #	14	☑ On □ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove			
Hwy/Road Name	Eagle Lake Road					
Structure Location	1.0 km East of Haliburto	n Lake Road (County	y Road 14)			
Latitude	45.128930		Longitude	-78.508092		
Northing			Easting			
Owner(s)	Municipality of Dysart et	: al	Heritage designation: ☐ Desig., ☐ Desig./not List, ☐		Cons./not Ap	p., □ List/not
MTO Region			Road Class: Freeway, Residential, Collector Co. Local Commercial, Rur more lanes	mmercial, 🛭 Lo	ocal, 🗆 Local	Residential,
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	6.9	(m)	Interchange Structure			
Length	0.9	(111)	Number			
Overall Str. Width	5.1	(m)	Min. Vertical Clearance			(m)
Total Deck Area	35.2	(sq.m)	Special Routes:	☐ Transit, ☐ T☐ Bicycle, ☐ E	•	•
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	rear of Last Major Rehab.			
Last OSIM Inspec	tion	2014 L	ast Evaluation			
Last Enhanced O	SIM Inspection		Current Load Limit		/ /	(tonnes)
Enhanced Access	Equipment	ı	.oad Limit By-Law #		/ /	
Last Underwater	Inspection	E	By-Law Expiry Date			
Last Condition Su	ırvey					
Rehab History: ([Date/description)					
(Date/description)						

Ontario Structure Inspection Manual — Inspection For	m			Bridge ID:	DY-13
Scheduled Improvements:					
Regional Priority Number		Program	med W	ork 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 ℃								
Upcoming Inspections and Investigatio	ns: Priority									
Due date		Comments								
					Dula ulte					
Additional Investigations Required:				None	Priority Normal	Urgent				
Material Condition Survey				None	NOTITIAL	orgent				
Detailed Deck Condition Survey:										
Non-destructive Delamination Survey	v of Asnhal	t-Covered Deck:								
Concrete Substructure Condition Sur		- Coroled Beck.								
Detailed Coating Condition Survey:	,.									
Detailed Timber Investigation										
Post-Tensioned Strand Investigation										
Underwater Investigation:										
Fatigue Investigation:										
Seismic Investigation:										
Structure Evaluation:										
Monitoring					✓					
Monitoring of Deformations, Settlem	ents and M	lovements:								
Monitoring Crack Widths:					✓					
Investigation Notes:										

Ontario Structure Inspection Manual — Inspection Form

Ontario Structure Inspection Manual — Inspec	Br	idge ID:	DY-13	
Overall Structure Notes:				
Recommended Work on Structure:				
Timing of Recommended Work:	5 years, □ 6 - 10 y	rears, $\square > 10$ ye	ars	
Overall Comments:	Substructure in fair to poor conditi	ion, superstructur	e in fair to poor	condition.
Date of Next Inspection:	2020			
Overall Bridge Condition:			44.4	12
			T	<u> </u>
Recommended inspections and Investiga	ations ————————————————————————————————————	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	06 Bearing not uniformly load	od/unstable 13	Slippery surfaces	
01 Load carrying capacity	07 Jammed expansion joint		Flooding/channel	blockage
02 Excessive deformations (deflections & rotation			Undermining of fo	
03 Continuing settlement	09 Rough riding surface		Unstable embank	
04 Continuing movements	10 Surface ponding	16	Other	
05 Seized bearings	11 Deck drainage	17	None	
Maintenance Needs	-			
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel	13	Erosion Control at	Bridges
02 Bridge Cleaning	08 Repair of Bridge Concrete	14	Concrete Sealing	

09 Repair of Bridge Timber

11 Animal/Pest Control

12 Bridge Surface Repair

10 Bailey bridges - Maintenance

15 Rout and Seal

18 Other

16 Bridge Deck Drainage

17 Scaling (Loose Concrete or ACR Steel)

03 Bridge Handrail Maintenance

06 Bridge Bearing Maintenance

05 Bridge Deck Joint Repair

04 Painting Steel Bridge Structures

Bridge ID:	DY-13

Element Data

Element Group:	Abutm	ents						Length:	(m)	
Element Name:	Abutm	ent Walls						Width:	6.0 (m)	
Location:	East ar	nd west						Height:	2.0 (m)	
Element Description	n:							Count:	2	
Material:	Cast-Ir	n-Place Co	ncrete					Total Quantity:	24.0 (sq.m)	
Element Type:	Integra	al						Not Inspected:		
Environment:	☑ Beni	ign, □ Mo	derate, [□ Seve	ere			Limited Inspection:		
Protection System:								Perform. Deficiencies	•	
Condition Data:	Unit	:s Ex	c. G	Good	Fa	ir	Poor*			
Condition Data:	sq.n	n 0.0	00 1	12.0	10.	.0	2.0	BCI TEV: 21600.0	BCI CEV: 11700.0	
Comments:	Modera	ate trans	erse cra	ack at h	nigh w	ater line	e, scalir	ng at water line. Overall in f	air condition.	
Recommended wor	k:							Maintenance Needs:		
Comments	☐ 1 year, ☐ 2 years, ☐ Urgent									
Type Timing										
Element Group:	Abutment	5					L	ength:	3.0 (m)	
Element Name:	Wingwalls						V	Vidth:	(m)	
Location:	SE/SW onl	У					н	leight:	1.5 (m)	
Element Description:							c	ount:	2	
Material:	Cast-In-Pla	ace Concr	ete				Т	otal Quantity:	9.0 (sq.m)	
Element Type:							N	ot Inspected:		
Environment:	☐ Benign,	☑ Moder	ate, 🗆 S	evere			L	imited Inspection:		
Protection System:							P	erform. Deficiencies		
Condition Data:	Units	Exc.	Good	d F	air	Poo	r*			
Condition Data.	sq.m	0.00	5.0		3.0	1.0) B	CI TEV: 3150.0	BCI CEV: 1732.5	
Comments:	Moderate line.	to severe	scour at	t inlet e	edge; ı	modera	te spall	ing and transverse cracking	. Scaling throughout water	
Recommended wor	k:						M	laintenance Needs:		
Comments								☐ 1 year, ☐ 2 years, ☐ Urgent		
Type Timing										

Element Group:	Арр	oroache	S					Lei	ngth:	7.0 (m)
Element Name:	Wea	aring Su	urface					Wie	dth:	4.5 (m)
Location:								He	ight:	(m)
Element Description:								Co	unt:	2
Material:	Asp	halt						Tot	tal Quantity:	63.0 (sq.m)
Element Type:								No	t Inspected:	
Environment:	□В	Benign, I	□ Moder	ate, 🗹 Sev	ere			Lin	nited Inspection:	
Protection System:									rform. Deficiencies	
Condition Data:	U	Inits	Exc.	Good	F	air	Poor*			
Condition Data:	S	sq.m	0.00	25.0	2!	5.0	13.0	вс	I TEV:	BCI CEV:
Comments:			reviously I rutting.	patched. I	ight t	to medi	um longiti	udan	nal and transverse crack	king throughout.
Recommended work:	•							Ма	intenance Needs: -	
Comments										
Replace at time of next major r	ehabilita	ation.							1 year, □ 2 years, Urgent	
Туре	Timing	9								
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 □ Urge		□ Now <	1 year, □	6 - 10) years,				
Element Group:		Barriers							Length:	7.0 (m)
Element Group: Element Name:			Parapet '	Walls					Width:	7.0 (m) (m)
-				Walls						(m) 1.0 (m)
Element Name:				Walls					Width: Height: Count:	(m)
Element Name: Location:		Barrier/							Width: Height:	(m) 1.0 (m)
Element Name: Location: Element Description:		Barrier/	Parapet '	ncrete					Width: Height: Count:	(m) 1.0 (m) 2
Element Name: Location: Element Description: Material:		Barrier/ Cast-In-	Parapet Place Co	ncrete	Sever	e			Width: Height: Count: Total Quantity:	(m) 1.0 (m) 2 14.0 (sq.m)
Element Name: Location: Element Description: Material: Element Type:		Barrier/ Cast-In-	Parapet Place Co	ncrete	Sever	e			Width: Height: Count: Total Quantity: Not Inspected:	(m) 1.0 (m) 2 14.0 (sq.m)
Element Name: Location: Element Description: Material: Element Type: Environment:		Barrier/ Cast-In-	Parapet ' Place Co te Balusti gn, Mo	ncrete rade derate, 🛭 :		e Fair	Poor		Width: Height: Count: Total Quantity: Not Inspected: Limited Inspection:	(m) 1.0 (m) 2 14.0 (sq.m)
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System:		Barrier/ Cast-In- Concret	Place Co te Balusti gn, Mo	ncrete rade derate, 🗵 :	od		Poor 0.00	***	Width: Height: Count: Total Quantity: Not Inspected: Limited Inspection:	(m) 1.0 (m) 2 14.0 (sq.m)
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System:		Barrier/ Cast-In- Concret Benig Units sq.m	Parapet 'Parapet 'Par	ncrete rade derate, 🗹 :	o d	Fair 14.0	0.00	*	Width: Height: Count: Total Quantity: Not Inspected: Limited Inspection: Perform. Deficiencie	(m) 1.0 (m) 2 14.0 (sq.m) □ s BCI CEV: 560.0
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System: Condition Data:		Barrier/ Cast-In- Concret Benig Units sq.m	Parapet 'Parapet 'Par	ncrete rade derate, 🗹 :	o d	Fair 14.0	0.00	*	Width: Height: Count: Total Quantity: Not Inspected: Limited Inspection: Perform. Deficiencie	(m) 1.0 (m) 2 14.0 (sq.m) □ s BCI CEV: 560.0 areas.
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System: Condition Data: Comments:		Barrier/ Cast-In- Concret Benig Units sq.m	Parapet 'Parapet 'Par	ncrete rade derate, 🗹 :	od 0	Fair 14.0	0.00	*	Width: Height: Count: Total Quantity: Not Inspected: Limited Inspection: Perform. Deficiencie BCI TEV: 1400.0 ere spalling in localized	(m) 1.0 (m) 2 14.0 (sq.m) □ s BCI CEV: 560.0 areas.
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System: Condition Data: Comments: Recommended work:		Barrier/ Cast-In- Concret Benig Units sq.m	Parapet 'Parapet 'Par	ncrete rade derate, 🗹 :	od 0	Fair 14.0	0.00	*	Width: Height: Count: Total Quantity: Not Inspected: Limited Inspection: Perform. Deficiencie BCI TEV: 1400.0 ere spalling in localized	(m) 1.0 (m) 2 14.0 (sq.m) □ s BCI CEV: 560.0 areas.
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System: Condition Data: Comments: Recommended work: Comments Patch spall at south east		Cast-In-Concret Benig Units sq.m Concret	Parapet 'Parapet 'Par	ncrete rade derate, 🗹 :	od 0	Fair 14.0	0.00	*	Width: Height: Count: Total Quantity: Not Inspected: Limited Inspection: Perform. Deficiencie BCI TEV: 1400.0 ere spalling in localized Maintenance Needs:	(m) 1.0 (m) 2 14.0 (sq.m) □ s BCI CEV: 560.0 areas.
Element Name: Location: Element Description: Material: Element Type: Environment: Protection System: Condition Data: Comments: Recommended work: Comments Patch spall at south east corner	Timing	Cast-In-Concret Units sq.m Concret	Parapet Place Conte Balustingn, Modes Executed 0.00	ncrete rade derate, 🗹 :	0 lition	Fair 14.0 with mo	0.00	*	Width: Height: Count: Total Quantity: Not Inspected: Limited Inspection: Perform. Deficiencie BCI TEV: 1400.0 ere spalling in localized Maintenance Needs:	(m) 1.0 (m) 2 14.0 (sq.m) □ s BCI CEV: 560.0 areas.

Ontario Structure Inspection Manual — Inspection Form

Ontario Structu	re Inspectio	on Manual	— Inspectio	n Form		Bridge ID	: DY-13	
Element Group:	Barriers					Length:	55.0 (m)	
Element Name:	Railing Sy	ystems				Width:	(m)	
Location:	Double g	uiderail ac	ross structi	ire and a	pproach	Height:	(m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	110.0 (m)	
Element Type:	Steel Flex	k Beam				Not Inspected:		
Environment:	□ Benign	, 🗆 Moder	ate, ☑ Seve	ere		Limited Inspection:		
Protection System:	Galvanize	ed				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	m	0.00	40.0	60.0	10.0	BCI TEV: 22000.0	BCI CEV: 10800.0	
Comments:	adequate	ly connect		. SE guid	rail has signi	llision damage at SW quadrant. Gu ficant tilting on approach. Moderat		
Recommended	d work:					Maintenance Needs: 02		
Comments								
Repair damage approaches.	d sections	of guidera	il and repla	ce rotten	posts on	☑ 1 year, □ 2 years, □ Urgent		
Туре	٦	Γiming				Remove vegetation and winter sand.		
☑ Rehab, ☐ Re ☐ Replace		☑ 1 - 5 yea ⁄ears, □ U	ars, 🗆 Now rgent	< 1 year,	□ 6 - 10	333.		

Ontario Structur	e Inspection	Manual —	Inspection	n Form		Bridge ID: DY-13			
Element Group:	Beams/Mai	n Longitud	dinal Eleme	ents		Length:		6.9 (m)	
Element Name:	Girders					Width:		0.5 (m)	
Location:	E/W Directi	ion				Height:		0.5 (m)	
Element Description:						Count:		5	
Material:	Cast-In-Pla	ce Concre	te			Total Quar	ntity:	52.0 (sq.m)	
Element Type:	Rectangula	ar-Solid				Not Inspec	cted:		
Environment:	☐ Benign,	☑ Moderat	te, □ Seve	re		Limited In	spection:		
Protection System:						Perform. D	Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*	Load carryi	ng capacity		
Data:	sq.m	0.00	0.00	22.0	30.0	BCI TEV: 1	0400.0	BCI CEV: 1760.0	
Comments:	Severe spa	lling with	exposed re	ebar, 2nd	girder from	north face, a	general disintegration of also observed. Previous cations.overall in poor c		
Recommended	work:					Maintenan	ice Needs:		
Comments Major rehabilita required.	tion or comp	olete repla	cement			□ 1 year, [□ 2 years,		
Туре	Tir	ming				□ Urgent			
□ Rehab, □ Rep ☑ Replace		1 - 5 years ars, □ Urg	s, □ Now < ent	< 1 year, [□ 6 - 10				
Element Group):	Decks					Length:	7.0 (m)	
Element Name		Deck To	p				Width:	4.5 (m)	
Location:							Height:	(m)	
Element Descr	iption:	<u> </u>					Count:	1	
Material:		Cast-in-	place Cond	crete			Total Quantity:	63.0 (sq.m)	
Element Type:		Cast-in-	place Cond	rete on S	upports		Not Inspected:		
Environment:		☐ Benig	n, 🛭 Mode	erate, \square S	evere		Limited Inspection:	: 🗹	
Protection Sys	tem:	Asphalt					Perform. Deficienci	ies	
		Units	Exc.	Good	d Fair	Poor*			
Condition Data	1:	sq.m	0.00	0.00	50.0	13.0	BCI TEV: 7560.0	BCI CEV: 2400.0	
Comments:		Conditio	n based o	n wearing	surface.		1	L	
Recommended	work:	1					Maintenance Needs	s:	
Comments Type Timing							□ 1 year, □ 2 years, □ Urgent		
- ,,, ,9									

Element Group:	Decks					Length:		6.1 (1	m)	
Element Name:	Soffit - Thi	ck slab			Width:		5.1 (ı	m)		
Location:	Interior an	d Exterior				Height:		0.3 (ı	m)	
Element Description:						Count:		2		
Material:	Cast-In_Pla	ace Concret	te			Total Qua	ntity:	30.5	(sq.m)	
Element Type:						Not Inspe	cted:			
Environment:	☑ Benign,	☐ Moderat	e, 🗆 Seve	ere		Limited I	nspection:			
Protection System:					Deficiencies					
Condition Data:	Units	Exc.	Good	Fair	Poor*	Load carry	ing capacity			
Condition Data.	sq.m	0.00	7.6	15.25	7.6	BCI TEV:	10675.0	ВСІ	CEV: 4130.0	
Comments:							sections throughout. I are currently hangin			
Recommended wor	rk:					Maintena	nce Needs: -			
Comments Replace at time of no rehabilitation	ext major					□ 1 year,	□ 2 years,			
Туре	Timi	ng								
☑ Rehab, ☐ Repair, ☐ Replace		5 years, □ s, □ Urgent		year, □ 6	- 10					
		_								
Element Group:		Decks					Length:		7.0 (m)	
Element Name:		Wearing	Surface				Width:		4.5 (m)	
Location:							Height:		(m)	
Element Descriptio	n:						Count:		1	
Material:		Asphalt					Total Quantity:		63.0 (sq.m)	
Element Type:							Not Inspected:			
Environment:		□ Benign	n, □ Mode	erate, 🗹 Se	vere		Limited Inspectio	n:		
Protection System:	!			_			Perform. Deficien	cies		
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 Light whe			Light to m	edium longit	udanal and transvers	se crac	cking throughout.	
Recommended wor	k:						Maintenance Nee	ds: -		
Comments										
Replace at time of no	ext major re	habilitation	n.				☐ 1 year, ☐ 2 year ☐ Urgent	S,		
Туре	7	Γiming								
□ Rehab, □ Repair, ☑ Replace		☑ 1 - 5 year □ Urgent	rs, □ Now	/ < 1 year,	□ 6 - 10 ye	ears,				

Ontario Structure Inspection Manual — Inspection Form

Bridge ID:	DY-13

•	•								
Element Group:	Embankm	Embankments and Streams Length:							(m)
Element Name:	Streams a	ind Water	ways				Width:		(m)
Location:	Center	Center					Height:		(m)
Element Description:							Count:		1
Material:							Total Quantity:		1.0 (each)
Element Type:							Not Inspected:		
Environment:	☑ Benign,	□ Moder	ate, □ Seve	re			Limited Inspection:		
Protection System:							Perform. Deficiencies	i	
Canditian Data	Units	Exc.	Good	Fair	Poor*	k	:		
Condition Data:	each	0.00	1.0	0.00	0.00		BCI TEV:		BCI CEV:
Comments:	In good co	ondition.							
Recommended work:	ded work: Maintenance Needs: -								
Comments							□ 1 year, □ 2 years, □ Urgent		
Type Timing									
Element Group:	Embankment	s & Strea	ms			Le	ength:	(m)	
Element Name:	Embankment	:S				8	Width: (m)		
Location:	NE/NW/SE/SV	V				He	eight:	(m)	
Element Description:						Č	ount:	4	
Material:						То	otal Quantity:	4.0 (each)
Element Type:						No	ot Inspected:		
Environment	□ Ponian □	Modorato	□ Sovoro			1 ;-	mitad Increations	П	

Perform. Deficiencies

Maintenance Needs: -

 \square 1 year, \square 2 years,

 \square Urgent

BCI TEV: 4000.0

Units

each

In good condition

Exc.

0.00

Good

4.0

Fair

0.00

Poor*

0.00

Protection System:

Recommended work:

Condition Data:

Comments:

Comments

Type Timing

BCI CEV: 3000.0

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

Ontario Structure II	nspection Manual –	– Inspection Form	Bridge II

Ontario Structure Inspection	Manual — Inspection Form	Bridge ID:				DY-13	
Repair and Rehabilitation	Required	Priority				Estimated	
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost
Replace Structure				✓			\$500,000.00
	•					Total	\$500,000.00

Assosciated 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)



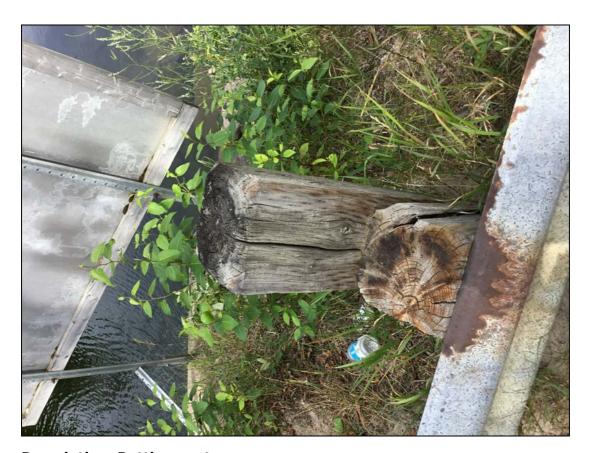
Description: NW wingwall with utility conduit attached, general conditions.

Abutments / Wingwalls (SE/SW only)



 $\label{eq:Description: NE wingwall, scaling throughout waterline.} \\$

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.

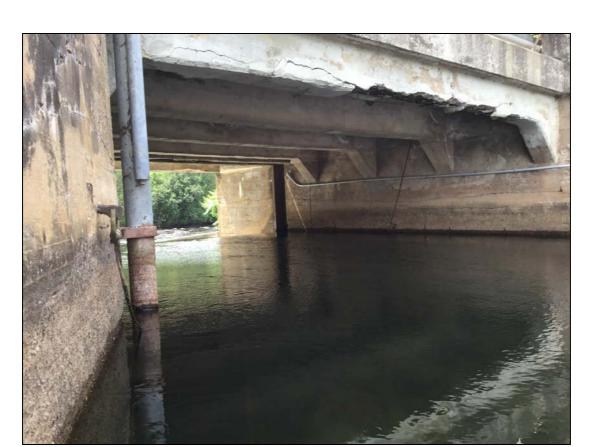
Barriers / Barrier/Parapet Walls



Description: Girders looking SE.

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

DY-13



Description: Girders looking SW.

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



Decks / Deck Top



Description: General conditions, facing west.

Decks / Wearing Surface

Bridge ID:	DY-14

Inventory Data:						
Structure Name	Pelaw River Bridge					
Main Hwy/Road #	7	☑ On □ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove	Over water, [□ Over 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: □ Desig., □ Desig./not List, □		Cons./not App	o., 🗆 List/not
MTO Region			Road Class: Freeway, Residential, Collector Col Local Commercial, Rur more lanes	mmercial, 🛭 Lo	ocal, 🗆 Local	Residential,
MTO District			Posted Speed	50	No. of Lanes	2
Old County			AADT		% Trucks	
Geographic Twp.			Inspection Route Sequence			
Structure Type	Concrete deck on timber	r	Interchange Number			
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, ☐ ☐ ☐ Bicycle, ☐ ☐		-
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 Y	ear of Last Major Rehab.			
Last OSIM Inspec	tion	2016 L	ast Evaluation			
Last Enhanced O	SIM Inspection		Current Load Limit		/ /	(tonnes)
Enhanced Access	Equipment	L	oad Limit By-Law #		/ /	
Last Underwater	Inspection	B	By-Law Expiry Date			
Last Condition Su	ırvey					
Rehab History: ([Date/description)					

Ontario Structure Inspection Manual — Inspection Form	n		Bridge ID:	DY-14
Scheduled Improvements:				
Regional Priority Number	Progran	nmed W	ork Year	
Nature of Program Work:				
Appraisal Indices:			Comments	
Fatigue				
Seismic				
Scour				
Flood				
Geometrics				
Barrier				
Curb				
Load Capacity				

Ontario Structure Inspection Manual — Insp	Brid	ge ID:		DY-	-14		
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 Investigation	ons:						
Due date	Priority		Comments				
Additional Investigations Required:					Priority		
				None	Normal	Urge	nt
Material Condition Survey				✓			
Detailed Deck Condition Survey:				✓			
Non-destructive Delamination Surve	ey of Asphalt-Co	overed Deck:		✓			
Concrete Substructure Condition Su	✓						
Detailed Coating Condition Survey:				1			
Detailed Timber Investigation				✓			
Post-Tensioned Strand Investigation	1			✓			
Underwater Investigation:				✓			
Fatigue Investigation:				✓			
Seismic Investigation:				✓			
Structure Evaluation:				1			
Monitoring				1			
Monitoring of Deformations, Settlen	nents and Move	ments:		1			
Monitoring Crack Widths:				1			
Investigation Notes:							
None							

Ontario Structure Inspection Manual — Inspection	Br	idge ID:	DY-14	
Overall Structure Notes:				
Recommended Work on Structure:				
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1	- 5 years, □ 6 - 1	0 years, $\square > 10$	0 years
Overall Comments:				
Date of Next Inspection:				
Overall Bridge Condition:			63.	.86
Becommended in an estimate and lowestimate		Bus data	Dui a vita	Commonto
Recommended inspections and Investigation	ions	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	06 Bearing not uniformly load	ed/unstable 12	Slippery surfaces	5
01 Load carrying capacity	07 Jammed expansion joint		Flooding/channe	
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazar	14	Undermining of f	oundation
03 Continuing settlement	09 Rough riding surface	15	Unstable embanl	kments
04 Continuing movements	10 Surface ponding	16	Other	
05 Seized bearings	11 Deck drainage	17	None	
Maintenance Needs				
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel		Erosion Control a	=
02 Bridge Cleaning	08 Repair of Bridge Concrete		Concrete Sealing	J
03 Bridge Handrail Maintenance	09 Repair of Bridge Timber		Rout and Seal	
04 Painting Steel Bridge Structures	10 Bailey bridges - Maintenand	ce 16	Bridge Deck Drai	inage

11 Animal/Pest Control

12 Bridge Surface Repair

05 Bridge Deck Joint Repair

06 Bridge Bearing Maintenance

17 Scaling (Loose Concrete or ACR Steel)

18 Other

ridge ID:	[DY-14

Element Data

Element Group:	Abutments	5					Length:					
Element Name:	Ballast wal	lls					Width:			9.0 (m)		
Location:							Height:		1.0 (m)		
Element Description:							Count:		2			
Material:	Wood						Total Quan	tity:	18.0	(m)		
Element Type:							Not Inspec	ted:				
Environment:	☑ Benign,	□ Moderat	te, 🗆 Seve	re			Limited Ins	spection:				
Protection System:							Perform. D	eficiencies				
Condition	Units	Exc.	Good	Fair	P	Poor*						
Data:	sq.m	0.00	6.0	3.0		9.0	BCI TEV: 63	300.0	BCI	CEV: 1995.0		
Comments:	Inward rota Ballast wal							ion of lagging without (evider	nce of material loss.		
Recommended	d work:						Maintenance Needs:					
Comments Type Timing							☐ 1 year, ☐ 2 years, ☐ Urgent					
Element Group	o:	Abutme	ents					Length:				
Element Name): 	Wingwa	alls					Width:		3.0 (m)		
Location:								Height:		2.0 (m)		
Element Descr	ription:							Count:		4		
Material:		Wood						Total Quantity:		24.0 (sq.m)		
Element Type:								Not Inspected:				
Environment:		☑ Beni	gn, 🗆 Mod	erate, 🗆	Seve	ere		Limited Inspection	:			
Protection Sys	stem:					ı	ı	Perform. Deficienc	ies			
Condition Data	a:	Units	s Exc.	Go	od	Fair	Poor*			Γ		
		sq.m	0.00	12	.0	8.0	4.0	BCI TEV: 8400.0		BCI CEV: 4270.0		
Comments:		South v	vingwalls i	n good c	ondit	ion. Nor	th wingwalls i	rotated inward.				
Recommended	l work:							Maintenance Need	s:			
Comments								☐ 1 year, ☐ 2 years, ☐ Urgent				
Type Timing												

Ontario Structure I	nspection M	lanual — I	nspection F	orm		Bridge II	DY-14	
Element Group:	Accessor	ies				Length:		
Element Name:	Signs					Width:		
Location:	All quadr	ants.				Height:		
Element Description:	4 hazard	signs, tw	o load limit	signs.		Count:	0	
Material:	Steel					Total Quantity:	0.0	
Element Type:						Not Inspected:		
Environment:	□ Benigr	n, 🗆 Mode	rate, 🛭 Sev	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data.	each	0.00	2.0	1.0	3.0	BCI TEV:	BCI CEV: 190.0	
Comments:	North ha	_	s obstructed	d by vege	tation. South	neast hazard sign bent. South r	ating sign obstructed by	
Recommended w	ork:					Maintenance Needs:		
Comments						☑ 1 year, □ 2 years, □ Urgent		
Type Timing						Trim back vegetation, straig	ghten southeast sign.	
Element Group:	Approache	ac .				Length:	6.0 (m)	
Element Name:	Wearing s					Width:	5.4 (m)	
Location:	Treating 5					Height:	3.1 ()	
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	64.8 (sq.m)	
Element Type:						Not Inspected:		
Environment:	☐ Benian.	□ Modera	ate, ☑ Seve	re		Limited Inspection:		
Protection System:	- 3 /					Perform. Deficiencies		
	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	46.8	12.0	6.0	BCI TEV: 388.8	BCI CEV: 239.4	
Comments:	Edge rave encroachir			ruts at no	rth approac	n. Some patching and ravelling	south side. Vegetation	
Recommended w	ork:					Maintenance Needs:		
Comments						☑ 1 year, □ 2 years, □ Urgent		
Type Timing						Trim back vegetation at both approaches.		

Ontario Structure Inspection	on Manual —	- Inspectio	on Form			Bridge ID:	DY-14	
Element Group:	Barriers					Length:	100.0 (m)	
Element Name:	Railing S	ystems				Width:		
Location:	Approach	and dec	k.			Height:		
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	200.0 (m)	
Element Type:						Not Inspected:		
Environment:	☐ Benigr	ı, □ Mode	erate, 🗹 Sev	/ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	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 a	nd damage	☐ 1 year, ☐ 2 years, ☐ Urgent						
Туре	Timing							
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 <u>y</u> □ Urger		Now < 1 ye	ar, 🗆 6 -	10 years,			
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,	□ Modera	ate, ☑ Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	154.6	0.00	0.00	BCI TEV: 18552.0	BCI CEV: 13914.0	
Comments:	Narrow lon	gitudinal	cracks bet	ween gird	lers, and na	row transverse crack at mid	span.	
Recommended work:						Maintenance Needs:		
Comments			☐ 1 year, ☐ 2 years, ☐ Urgent					
Type Timing								

Ontario Structure I	nspection M	anual — I	nspection Fo	orm		Bridge ID:	DY-14			
Element Group:	Decks					Length:	18.4 (m)			
Element Name:	Soffit - Th	in Slab				Width:	8.4 (m)			
Location:	Underside	of deck.				Height:				
Element Description:						Count:	1			
Material:	Laminate	d Wood				Total Quantity:	154.6 (sq.m)			
Element Type:						Not Inspected:				
Environment:	☑ Benign	, □ Moder	ate, □ Seve	ere		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 w	ork:					Maintenance Needs:				
Comments				☐ 1 year, ☐ 2 years, ☐ Urgent						
Type Timing										
						I	T			
Element Group:	Decks					Length:	5.0			
Element Name:	Wearing S	urface				Width:	2.3			
Location:						Height:				
Element Description:						Count:	1			
Material:	Asphalt					Total Quantity:	1.0			
Element Type:						Not Inspected:				
Environment:	□ Benign,	□ Modera	ate, 🛭 Seve	re		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 we abrasion, r			ortion of	deck top. Go	ood condition, some pitting and settling. Some plough				
Recommended work:					Maintenance Needs:					
Comments						☐ 1 year, ☐ 2 years, ☐ Urgent				
Type Timing										

Ontario Structure Inspecti	Ontario Structure Inspection Manual — Inspection Form										DY-14
Element Group:	Embankm	ents & S	treams					Leng	th:		
Element Name:	Embankm	ents						Widt	h:		
Location:								Heig	ht:		
Element Description:								Coun	t:	4	
Material:	Rock fill, g	gravel, ve	egetatio	n.				Total	Quantity:	4.0 (each)	
Element Type:								Not I	nspected:		
Environment:	□ Benign,	nign, ☑ Moderate, □ Severe						Limit	ed Inspection:		
Protection System:								Perfo	orm. Deficiencies		
Condition Data:	Units	Exc.	God	od	Fair	Poo	r*				
Condition Data.	each	0.00	4.0	0	0.00	0.00	0	всі т	TEV: 4000.0	BCI CE	V: 3000.0
Comments:	Some und	lermining	of vege	etation	root m	ay at no	rthe	ast sid	e. Bank is steep but sta	ble.	
Recommended work:								Main	tenance Needs:		
Comments							□ 1 year, ☑ 2 years, □ Urgent				
Type Timing	Timing							Add	armour stone protectior	n at wate	erline.
									Г		
Element Group:		bankmer						Length:			
Element Name:	Str	eams and	d Water	ways					Width:		
Location:	Eas	st and we	est						Height:		
Element Description:								Count:			1
Material:								Total Quantity:			1.0 (each)
Element Type:									Not Inspected:		
Environment:	☑ E	Benign, □] Modera	ate, 🗆 S	Severe				Limited Inspection:		
Protection System:									Perform. Deficienci	es	
Condition Data:	ι	Jnits	Exc.	God	od	Fair	Po	or*			
Condition Data.	(each	0.00	1.0	0	0.00	0	.00	BCI TEV:		BCI CEV:
Comments:	Un	obstructe	ed and fl	owing.	Botton	n is ston	e.				
Recommended work:									Maintenance Needs	:	
Comments 1 year, Urgent						☐ 1 year, ☐ 2 years, ☐ Urgent					
Type Timing											

Ontario Structu	ire Inspectio	on Manual	— Inspection	on Form		Bridge ID:				
Element Group:	Piers					Length:				
Element Name:	Shafts/col	umns/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,	□ Moder	ate, □ Seve	re		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition	Units	Exc.	Good	Fair	Poor*					
Data:	sq.m	0.00	118.7	13.2	18.8	BCI TEV: 135630.0	BCI CEV: 84874.5			
Comments:				-		Moderate checks at abutment piers with separation from cap of n with abrasion at lower 1m.				
Recommended work:						Maintenance Needs:				
Comments	Comments					□ 1 year, □ 2 years, □ Urgent				
Type Timing										

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

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

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



Description: General elevation, looking east.

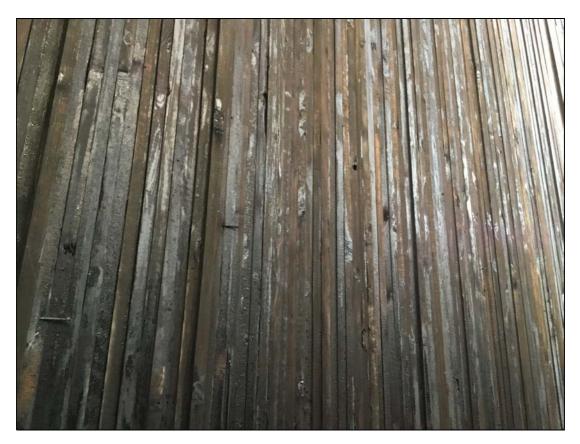


Description: General arrangement, looking south.



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

DY-14



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



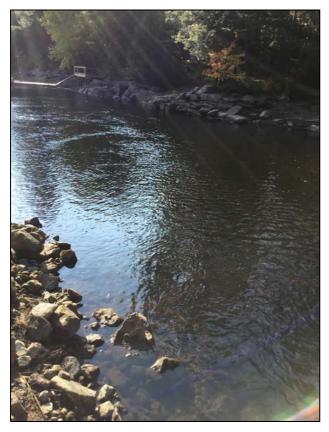
Description: South approach, general condition.

Approaches / Wearing surface



Description: North approach, general condition.





Description: West.

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



Description: Area of rot at northeast armour pile.

Piers / Shafts/columns/Pile Bents

Bridge ID: D'	
2age :2:	Y-15

Inventory Data:									
Structure Name	Drag River Bridge								
Main Hwy/Road #	118	☑ On □ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove	\square Over water, \square Over 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	Heritage designation: Desig., Desig./not List,		p., □ List/not				
MTO Region			Road Class: Freeway, Residential, Collector Cor Local Commercial, Rur more lanes	mmercial, 🛭 Local, 🗆 Loca	l Residential,				
MTO District			Posted Speed	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, ☐ Sch☐ Bicycle, ☐ Emergency,	-				
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 Inspec	tion	2014 Last I	Evaluation						
Last Enhanced O	SIM Inspection	Curre	ent Load Limit	20.0 / / 32.0	(tonnes)				
Enhanced Access	Equipment	Load	Limit By-Law #	1 1					
Last Underwater	Inspection	By-La	w Expiry Date		l				
Last Condition Su	ırvey								
Rehab History: (I (Date/description)	Date/description)								

Ontario Structure Inspection Manual — Inspection Form		Bridge ID:	DY-15	
Scheduled Improvements:				
Regional Priority Number	Programn	ned Wo	ork 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 Ty	pe		OSIM				
Inspector:		Sean Wetmore								
Others in Party:		Ben Belfry								
Access Equipment Used:		Tape, hammer, flashlight	Tape, hammer, flashlight							
Weather:		Sunny								
Temperature:		25.0 ℃								
Upcoming Inspections and Investigation	ons:	ı								
Due date	Priority		Comments							
						1				
Additional Investigations Required:				Na	Priority					
Material Condition Cons				None	Normal	Urgent				
Material Condition Survey										
Detailed Deck Condition Survey:		A Consens d Deed								
Non-destructive Delamination Surve		t-Covered Deck:								
Concrete Substructure Condition Sur	rvey:									
Detailed Coating Condition Survey:										
Detailed Timber Investigation										
Post-Tensioned Strand Investigation	l									
Underwater Investigation:										
Fatigue Investigation:										
Seismic Investigation:										
Structure Evaluation:										
Monitoring										
Monitoring of Deformations, Settlem	ents and M	lovements:								
Monitoring Crack Widths:										
Investigation Notes:										

Ontario Structure Inspection Manual — Inspection Form

Bridge ID: DY-15

Ontario Structure Inspection Manual — Inspect	Bri	Bridge ID: DY-								
Overall Structure Notes:										
Recommended Work on Structure:										
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 -	5 years, □ 6 - 10	years, $\square > 10$) years						
Overall Comments:	Substructure in good condition. S	Superstructure in t	fair to poor co	ndition.						
Date of Next Inspection:										
	•									
Overall Bridge Condition:			69	.73						
			T							
Recommended inspections and Investigat	tions	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	06 Bearing not uniformly loade07 Jammed expansion joint		Slippery surface Flooding/channe							
02 Excessive deformations (deflections & rotations	·		Indermining of	=						
03 Continuing settlement	09 Rough riding surface	15 (Jnstable emban	kments						
04 Continuing movements	10 Surface ponding	16 (Other							
05 Seized bearings	11 Deck drainage	17 1	lone							
Maintenance Needs										

07 Repair to Structural Steel

08 Repair of Bridge Concrete

09 Repair of Bridge Timber

11 Animal/Pest Control

12 Bridge Surface Repair

10 Bailey bridges - Maintenance

01 Lift and Swing Bridge Maintenance

03 Bridge Handrail Maintenance

06 Bridge Bearing Maintenance

05 Bridge Deck Joint Repair

04 Painting Steel Bridge Structures

02 Bridge Cleaning

13 Erosion Control at Bridges

17 Scaling (Loose Concrete or ACR Steel)

14 Concrete Sealing

16 Bridge Deck Drainage

15 Rout and Seal

18 Other

ridge ID:	DY-15

Element Data

Element Group:	Abutments	5				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-pla	ce concret	e			Total Qua	ntity:	34.5	(sq.m)	
Element Type:						Not Inspe	cted:			
Environment:	☑ Benign,	□ Moderat	e, □ Seve	re		Limited In	spection:			
Protection System:						Perform.	Deficiencies			
Condition	Units	Exc.	Good	Fair	Poor*					
Data:	sq.m	0.00	34.5	0.00	0.00	BCI TEV: 3	31050.0	ВСІС	CEV: 23287.5	
Comments: Light vertical cracks throughout south abutment. Scaling from high water mark down throughout both abut Overall abutments are in good condition.										
Recommended	work:			Maintena	nce Needs:					
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent				
Element Group		Abutmer	nts				Length:	(m)		
Element Name:		Wingwal	ls			Width:			3.0 (m)	
Location:		All quad	rants.			Height:			2.0 (m)	
Element Descri	ption:						Count:		4	
Material:		Cast-in-p	lace conc	rete			Total Quantity:		24.0 (sq.m)	
Element Type:							Not Inspected:			
Environment:		☐ Benigi	n, 🗹 Mode	rate, 🗆 Se	evere		Limited Inspection	n:	\square	
Protection Syst	tem:						Perform. Deficienc	cies		
Condition Data		Units	Exc.	Good	d Fair	Poor*				
Condition Data	•	sq.m	0.00	24.0	0.00	0.00	BCI TEV: 8400.0		BCI CEV: 6300.0	
Comments:		Limited i	nspection	due to slo	ope coverin	g wingwalls.	No defects noted.			
Recommended	work:						Maintenance Need	ls:		
Comments							☐ 1 year, ☐ 2 years, ☐ Urgent			
Type Timing										

Ontario Structure Ins	pection Mai	nual — lı	nspection I		Bridge ID:		DY-15				
Element Group:	Approache	es					Leng	gth:		6.0 (m)	
Element Name:	Wearing s	urface					Wid	th:		8.0 (m)	
Location:	North and	south					Height:			(m)	
Element Description:							Count:			2	
Material:	Asphalt						Tota	l Quantity:	!	96.0 (sc	,m)
Element Type:							Not	Inspected:			
Environment:	☐ Benign,	□ Mode	rate, 🛭 Se	vere			Limi	ted Inspec	tion:		
Protection System:	Coal Tar E	роху					Perf	orm. Defici	iencies		
Condition Data:	Units	Exc.	Good	Fa	ir Po	or*					
Condition Data.	sq.m	0.00	46.8	12.	.0 6	5.0	BCI	TEV: 576.0		BCI CE	V: 239.4
Comments:	Settling of north app		pproach a	t joint ca	using pot	tholes	and ra	avelling. Ligh	t wheel rutting a	and light	cracking in
Recommended wo	rk:						Maiı	ntenance N	eeds:		
Comments							□ 1 year, □ 2 years, □ Urgent				
Type Timing											
									<u> </u>		<u> </u>
Element Group:			Barriers				Length:				0.5 (m)
Element Name:			Barrier/Pa	rapet Wa	alls		Width:				
Location:			Interior.				Height:				1.2 (m)
Element Description	on:								Count:		4
Material:			Cast-in-pla	ice conc	rete				Total Quantit		2.4 (sq.m)
Element Type:									Not Inspecte		
Environment:			□ Benign,	□ Mode	rate, ☑ S	evere			Limited Insp	ection:	
Protection System	:				1			Г	Perform. Def	iciencie	s
Condition Data:		_	Units	Exc.	Good	d	Fair	Poor*			Ι
			sq.m	0.00	0.6		0.6	1.2	BCI TEV: 240.	.0	BCI CEV: 69.0
Comments:			Spalls, abı	asions,	and expo	sed re	bar wi	th narrow cr			
Recommended wo	rk:									Needs:	
Comments											
Patch repair damaged concrete.									□ 1 year, □ 2 □ Urgent	years,	
Туре		Timing									

Ontario Structure Inspection	Manual — In	spection I	Form					Bridge ID:		DY-15	
Element Group:		Barriers						Length:		0.5 (m)	
Element Name:		Barrier/	Parapet Wa	alls				Width:			
Location:		Exterior					Height:			1.0 (m)	
Element Description:								Count:		4	
Material:								Total Qua	2.0 (sq.m)		
Element Type:								Not Inspe			
Environment:		□ Benig	ın, □ Mode	rate, 🗆 Se	evere		Limited Inspection:				
Protection System:								Perform.	Deficiencies		
Candition Date:	Units	Exc.	Good	d Fair	-	Poor*					
Condition Data:	sq.m	0.00	1.8	0.00)	0.2	BCI TEV:		BCI CEV:		
Comments:		Narrow	do medium	r cracks a	t bases.						
Recommended work:		Maintena	nce Needs:								
Comments											
Patched damaged concrete.									□ 2 years,		
Туре	Timing							□ Urgent			
☑ Rehab, \square Repair, \square Replace \square 1 - 5 years, \square Now < 1 year, \square 6 - 10 years, \square Urgent											
	1								ı		
Element Group:	Barriers					L	Length: 22.		22.2 (m)	1	
Element Name:	Railing Sys	stems				٧	Width: (m)				
Location:	East and w	rest				١	Height: (m)				
Element Description:	Steel verti	cal bar an	d post			(Count: 2				
Material:	Wood					י	Total Quantity: 44.4 (n			1	
Element Type:	Steel Flex	Beam on	Wood Post			N	Not Inspected:				
Environment:	□ Benign,	□ Modera	ite, ☑ Seve	re		L	Limited Inspection:				
Protection System:	Galvanized	d / Creoso	te			F	Perform. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Poor*						
	m	0.00	33.3	10.8	0.3	E	BCI TEV: 8	880.0	/: 5859.0		
Comments:								and minor o	corrosion west ses.	side.	
Recommended work:							Maintenance Needs:				
Comments											
Grind corrosion, seal edge defects at outside corners of steel posts, and re-paint steel railing / posts.							□ 1 year, [□ Urgent	□ 2 years,			
Туре	Timing										
☑ Rehab, □ Repair, □ Replace	□ 1 - 5 yea	ars, □ Nov	w < 1 year,	☑ 6 - 10	years,						

Ontario Structure Inspection	Manual — Ir	nspection	Form			Bridge ID:	DY-15			
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-Pla	ice Concr	ete on Lamii	nated Wo	od	Not Inspected:				
Environment:	☐ Benign,	☑ Modera	ate, □ Sever	re		Limited Inspection:				
Protection System:	Asphalt					Perform. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Poor*					
Condition Data:	sq.m	0.00	148.75	0.00	0.00	BCI TEV: 17850.0	BCI CEV: 13387.5			
Comments:						•	•			
Recommended work:						Maintenance Needs:				
Comments		☐ 1 year, ☐ 2 years, ☐ Urgent								
Type Timing										
Element Group:	Decks					Length:	17.5 (m)			
Element Name:	Soffit - Th	in Slab		Width:	11.5 (m)					
Location:	Soffit					Height:	(m)			
Element Description:	THICK SLA	 \В				Count:	1			
Material:	Cast-in-pla	ace concr	ete			Total Quantity:	201.25 (sq.m)			
Element Type:	N/A					Not Inspected:				
Environment:	☑ Benign,	, □ Moder	ate, □ Seve	ere		Limited Inspection:				
Protection System:						Perform. Deficiencies				
	Units	Exc.	Good	Fair	Poor*					
Condition Data:	sq.m	0.00	156.4	0.00	1.0	BCI TEV: 24150.0	BCI CEV: 14076.0			
Comments:			on and spall I in good cor		an along ce	ntre soffit joint on west soff	fit. Very light bug holes			
Recommended work:	•					Maintenance Needs:				
Comments										
Repair large spall and delam joint.	ination at c		□ 1 year, □ 2 years, □ Urgent							
Туре	Timing									
☑ Rehab, ☐ Repair, ☐ Replace	□ 1 - 5 ye □ Urgent	ars, □ No	w < 1 year,	☑ 6 - 10	years,					

Ontario Structure Inspection Manual — Inspection Form									Bridge ID	:	DY-15	
Element Group:	Decks							Length:		17.5 (m)		
Element Name:	Wearing S	Surface						Width:		8.5 (m)		
Location:								Height:		(m)		
Element Description:								Count:		1		
Material:	Concrete							Total Quant	tity:	148.75 (sq.m)		
Element Type:								Not Inspect	ed:			
Environment:	ironment: ☐ Benign, ☐ Moderate, ☑ Severe							Limited Ins	pection:			
Protection System:	Asphalt							Perform. De	eficiencies			
Condition	Units	Exc.	G	ood	Fair	Poo	r*					
Data:	sq.m	0.00	14	8.75	0.00	0.00	0	BCI TEV: 37	18.75	BCI C	EV: 2789.06	
Comments:	-				_				f midspan. General wearing of surface. Asphalt veling. Overall in good condition.			
Recommende	d work:							Maintenand	e Needs:			
Comments □ 1 year, □ Urgent Type Timing							□ 1 year, □ □ Urgent	2 years,				
									1		1	
Element Grou	p:	Emb	ankme	ents & St	reams				Length:		(m)	
Element Nam	e:	Emb	ankme	ents					Width:		(m)	
Location:		All qu	uadraı	nts.					Height:		(m)	
Element Desc	ription:								Count:	4		
Material:									Total Quantity:		4.0 (each)	
Element Type) :								Not Inspected:			
Environment:		☑ Be	enign,	□ Mode	rate, 🗆	Severe			Limited Inspection:			
Protection Sy	stem:							_	Perform. Deficiencies			
Condition Dat					Poor*							
each 0.00 4.0 0.00							0.00	0.00	BCI TEV: 4000.0		BCI CEV: 3000.0	
Comments:		No d	efects	noted.	All emba	ankmen	ts in	good conditio	ion.			
Recommende	Recommended work:							Maintenance Needs:				
Comments Type Timing	ı								☐ 1 year, ☐ 2 years	S,		

Ontario Structure Inspection Ma	nual — I	Inspection	Form						Bridge ID:		DY-15	
Element Group:	Emba	inkments (& Streams	5		Len	gth:		(m)			
Element Name:	Strea	ms and W	aterways					Wid	th:		(m)	
Location:	East a	and west						Heig	ght:		(m)	
Element Description:								Cou	nt:	1		
Material:								Tota	al Quantity:		1.0 (each)	
Element Type:								Not	Inspected:			
Environment:	☑ Ber	nign, 🗆 Mo	oderate, 🗆	Sever	e e			Limi	Limited Inspection:			
Protection System:						Perf	orm. Deficier	ncies				
Condition Date:	Uni	its Ex	c. G	ood	Faiı	P	oor*					
Condition Data:	ead	ch 0.0	00 1	L.0	0.00) C	.00	BCI	TEV:		BCI CEV:	
Comments:	No de	efects note	ed, stream	n in god	d con	dition.						
Recommended work:								Maiı	ntenance Nee	eds:		
Comments									1 year, □ 2 years, Urgent			
Type Timing								rgent				
									_			
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 Quant	ity:	18.2 (sq.m)	
Element Type:									Not Inspect	ed:		
Environment:		□ Benign	, □ Moder	ate, ☑	Sever	e			Limited Insp			
Protection System:									Perform. Deficiencies			
Condition Data:		Units	Exc.	Go	od	Fair	Po	or*				
Condition Data:			0.00	10	.3	3.7	4	.2	BCI TEV: 728	3.0	BCI CEV: 368.2	
Comments:		Abrasions	througho	ut, spa	alling a	nd expo	sed re	bar. M	ledium to wide	cracks.		
Recommended work:							Maintenance	e Needs:				
Comments												
Replace curb at next rehab.								☐ 1 year, ☐ 2 years, ☐ Urgent				
Туре	Timing	g										
□ Rehab, □ Repair, ☑ Replace	□ 1 - 5 years □ Now < 1 year □ 6 - 10 years											

Ontario Structure Inspection I	Manual — In		Bridge ID: DY-15							
Element Group:	Sidewalks	/curbs				Length:	18.4 (m)			
Element Name:	Sidewalks	and med	ians			Width:	2.0 (m)			
Location:	E/W					Height:				
Element Description:	East curb	0.45m, w	est 1.5m.			Count:	2			
Material:	Cast-in-pla	ace concre	ete			Total Quantity:	73.6 (sq.m)			
Element Type:						Not Inspected:				
Environment:	☐ Benign,	□ Moder	ate, ☑ Seve	ere		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Poor*					
Condition Data:	sq.m	0.00	64.2	9.2	0.2	BCI TEV: 11040.0	BCI CEV: 7774.5			
Comments:	General at	orasion ar	nd wearing	througho	ut. Overall g	ood condition.				
Recommended work:	Recommended work:						Maintenance Needs:			
Comments						□ 1 year, □ 2 years, □ Urgent				
Type Timing										

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

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

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



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)

Bridge ID:



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)

Bridge ID:



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)

Bridge ID:



Description: West curb, typical condition.

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



Description: South abutment, typical vertical crack.

Abutments / Abutment walls (North and south)

Bridge ID:



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)



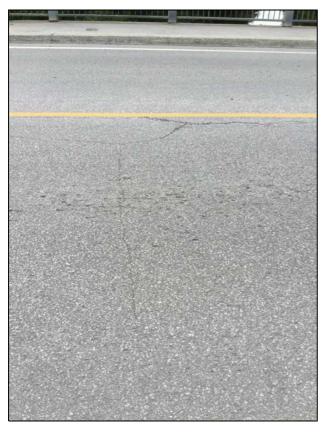
Description: Edge defect in steel, interior side (detail).

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)

Bridge ID:	DY-16

Inventory Data:						
Structure Name	Highland Street Culvert					
Main Hwy/Road #		☐ On ☑ Under	Crossing Type: ☑ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove	Over water, I	□ Over Road	
Hwy/Road Name	Highland Street					
Structure Location	0.05 km West of Pine Av	enue				
Latitude	45.047030		Longitude	-78.506374		
Northing			Easting			
Owner(s)	Municipality of Dysart et	: al	Heritage designation: Desig., Desig./not List,		Cons./not App	o., 🗆 List/not
MTO Region			Road Class: Freeway, Residential, Collector Collector Collector Collector Commercial, Rure more lanes	mmercial, 🛭 L	ocal, 🗆 Local	Residential,
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, ☐ ☐ ☐ Bicycle, ☐		
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	fear of Last Major Rehab.			
Last OSIM Inspec	tion	2014	ast Evaluation			
Last Enhanced O	SIM Inspection		Current Load Limit		/ /	(tonnes)
Enhanced Access	Equipment	ı	Load Limit By-Law #		/ /	
Last Underwater	Inspection	E	By-Law Expiry Date			
Last Condition Su	ırvey					
Rehab History: (Date/description)	Pate/description)					

Ontario Structure Inspection Manual — Inspection For	·m			Bridge ID:	DY-16
Scheduled Improvements:					
Regional Priority Number		Program	med W	ork Year	
Nature of Program Work:					
Appraisal Indices:				Comments	
Fatigue					
Seismic					
Scour					
Flood					
Geometrics					
Barrier					
Curb					
Load Capacity			_		

Ontario Structure Inspection Manual — Insp	Bridg	ge ID:		DY-16					
Field Inspection Information:									
Date of Inspection:		July 31, 2018 Inspection Type OS							
Inspector:		Sean Wetmore							
Others in Party:		Ben Belfry							
Access Equipment Used:		Hammer, flashlight, tape	2.						
Weather:		Sunny							
Temperature:		25.0 ℃							
Upcoming Inspections and Investigation	ons:								
Due date	Priority		Comments						
				T					
Additional Investigations Required:			Priority	I					
				None	Normal	Urgent			
Material Condition Survey				•					
Detailed Deck Condition Survey:				•					
Non-destructive Delamination Surve	y of Aspha	It-Covered Deck:		✓					
Concrete Substructure Condition Su	rvey:			✓					
Detailed Coating Condition Survey:				1					
Detailed Timber Investigation				✓					
Post-Tensioned Strand Investigation	1			✓					
Underwater Investigation:				✓					
Fatigue Investigation:				•					
Seismic Investigation:				>					
Structure Evaluation:				✓					
Monitoring				1					
Monitoring of Deformations, Settlen	nents and N	Novements:		1					
Monitoring Crack Widths:				1					
Investigation Notes:									
None									

Ontario Structure Inspection Manual — Inspecti	on Form		Bridg	e ID:	DY-16
Overall Structure Notes:					
Recommended Work on Structure:					
Timing of Recommended Work:	☐ Urgent, ☐ Now < 1 year, I	□ 1 - 5 years, □	6 - 10 y	rears, □ > 10) years
Overall Comments:					
Date of Next Inspection:	2020				
					_
Overall Bridge Condition:				44.	43
Recommended inspections and Investigat	ions	Due d	ate	Priority	Comments
Boat Inspection					
Bridge master					
Coating survey					
Detailed condition survey					
Evaluation					
Fatigue					
Monitor Settlements/Movements					
Seismic					
Substructure condition survey					
Underwater					
Suspected Performance Deficiencies	06 Bearing not uniformly lo	paded/unstable	12 Slip	ppery surfaces	5
01 Load carrying capacity	07 Jammed expansion join	t	13 Flo	oding/channel	l blockage
02 Excessive deformations (deflections & rotations)		zard	14 Un	dermining of f	oundation
03 Continuing settlement	09 Rough riding surface			stable embanl	kments
04 Continuing movements	10 Surface ponding		16 Oth		
05 Seized bearings	11 Deck drainage		17 Noi	ne	
Maintenance Needs	O7 Demain to Character 101	-1	12 5	alam Control	.h Duidean
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Ste			sion Control a	=
02 Bridge Cleaning 03 Bridge Handrail Maintenance	08 Repair of Bridge Concre09 Repair of Bridge Timber			ncrete Sealing ut and Seal	l

10 Bailey bridges - Maintenance

11 Animal/Pest Control

12 Bridge Surface Repair

16 Bridge Deck Drainage

18 Other

17 Scaling (Loose Concrete or ACR Steel)

04 Painting Steel Bridge Structures

05 Bridge Deck Joint Repair

06 Bridge Bearing Maintenance

Bridge ID:	DY-16

Element Data

Element Group:	А	pproache	es.					Length:		6.0 (m)
Element Name:	W	earing sı	urface					Width:		8.0 (m)
Location:	Е	ast / Wes	it					Height:		(m)
Element Description	on:							Count:		2
Material:	А	sphalt						Total Quantity:		96.0 (sq.m)
Element Type:								Not Inspected:		
Environment:		Benign,	□ Moder	ate, 🛭 Sev	ere			Limited Inspection:		
Protection System	ı: A	sphalt						Perform. Deficiencies		
Canditian Data		Units	Exc.	Good	Fai	ir Po	or*			
Condition Data:		sq.m	0.00	0.00	24.	.0 7:	2.0	BCI TEV: 576.0	BCI CEV: 57.6	
Comments:								g edge of asphalt. Severe lo	ngitu	udinal crack on West
Recommended wo	rk:							Maintenance Needs:		
Comments										
Repave approaches	at next	major rel	nabilitatio	on.				☐ 1 year, ☐ 2 years, ☐ Urgent		
Туре		Timing								
 □ Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, □ Replace □ Urgent 										
									I	
Element Group:	Barriers	\$					Len	gth:	23.	1 (m)
Element Name:	Hand R	ailings					Wid	th:	(m	n)
Location:	South						Heig	ght:	1.2	(m)
Element Description:	South s	ide only.					Cou	nt:	1	
Material:	Steel						Tota	al Quantity:	27.	7 (m)
Element Type:							Not	Inspected:		
Environment:	□ Beni	ʒn, □ Mo	derate, 🗵	Severe			Limi	ited Inspection:		
Protection System:							Perf	form. Deficiencies		
Condition Data:	Unit	s Exc	c. Go	ood Fa	air	Poor*				
Condition Bata.	m	0.0	0 2	3.8 3	.1	0.8	ВСІ	TEV: 2770.0	ВСІ	I CEV: 1909.0
Comments:	Caps m	issing on	seven p	osts. Impad	t dama	age on so	utheas	st side.		
Recommended wo	rk:						Mai	ntenance Needs: 03. Bridg	ge Ha	andrail Maintenance
Comments Replace								year, □ 2 years, Irgent		
Туре	т	iming					Clea	an debris and vegetation are	ound	handrail to promote
□ Rehab, □ Repair,☑ Replace		l 1 - 5 yea ears, □ U		w < 1 year	r, □ 6 -	10	prop	per surface water drainage.	Insta	all top caps.

Ontario Structure Inspection Manual -	– Inspectior	n Form				Bridge ID:	DY-16				
Element Group:	Barriers					Length:	(m)				
Element Name:	Posts					Width:	(m)				
Location:	North side	e only.				Height:	(m)				
Element Description:						Count:	30				
Material:	Wood					Total Quantity:	30.0 (each)				
Element Type:						Not Inspected:					
Environment:	□ Benign,	. 🗆 Moder	ate, ☑ Seve	ere		Limited Inspection:					
Protection System:						Perform. Deficienci	es				
Condition Pales	Units	Exc.	Good	Fair	Poor*						
Condition Data:	each	0.00	14.0	8.0	8.0	BCI TEV: 6000.0	BCI CEV: 2740.0				
Comments:	Several po	osts rotte	n, checking	, and spli	t. Light to m	edium splits throughout					
Recommended work:	•					Maintenance Needs	5:				
Comments											
Replace rotten wood posts						\square 1 year, \square 2 years,					
						□ Urgent					
Type Timing											
I Renan Renair √ Reniace	- 5 years, □ gent	Now < 1	year, □ 6 -	10 years	5,						
Element Group:	Barriers					Length:	80.0 (m)				
Element Name:	Railing Sys	stems				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,	□ Modera	ate, ☑ Seve	re		Limited Inspection:					
Protection System:	Galvanized	d				Perform. Deficiencie	es				
	Units	Exc.	Good	Fair	Poor*						
Condition Data:	m	0.00	75.0	5.0	0.00	BCI TEV: 16000.0	BCI CEV: 11650.0				
Comments:	Minor corr	osion. Im	oact damag	e to nortl	heast quadra	ant.					
Recommended work:						Maintenance Needs	: -				
Comments											
Replace damaged SBGR when replace posts.	☐ 1 year, ☐ 2 years, ☐ Urgent										
Type Timi	ng										
□ Rehab, □ Repair, ☑ Replace □ Ur	ò,										

Ontario Structu	re Inspection	on Manual	— Inspecti	on Form				Bridge ID	:	DY-16	
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:	Corrugate	d Steel				Total Qu	antity:		225.0 (sq.	m)	
Element Type:	Pipe Arch					Not Insp	ected:				
Environment:	☐ Benign,	☑ Modera	ate, 🗆 Seve	ere		Limited I	nspection	!			
Protection System:						Perform. Deficiencies					
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	sq.m	0.00	0.00	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.											
Recommende	d work:					Maintena	ance Need	ds:			
Comments □ 1 year, ☑ 2 year □ Urgent											
Type Timing											
										Γ	
Element Grou	p:		Decks					Length:		22.4 (m)	
Element Name	e:		Wearing	Surface		Width:				8.0 (m)	
Location:			Тор			Height:				(m)	
Element Desc	ription:							Count:		1	
Material:			Asphalt					Total Qua	ntity:	179.2 (sq.m)	
Element Type	:							Not Inspe	cted:		
Environment:			☐ Benig	ın, □ Mode	erate, ☑ Sev	vere		Limited In	spection:		
Protection Sy	stem:		Asphalt	_	_			Perform. I	Deficienci	es	
Condition Dat	a:		Units	Exc.	Good	Fair	Poor*				
			sq.m	0.00	0.00	163.2	16.0	BCI TEV: 4	480.0	BCI CEV: 1632.0	
Comments:			Severe	cracking ir	n ravelling i	n south lane	e. Transvers	e and longitu	udinal crack	king throughout.	
Recommende	d work:							Maintenai	nce Needs	:	
Comments											
Repave deck wearing surface at next major rehabilitation.									□ 2 years,		
Туре		Tin	ning					□ Urgent			
□ Rehab, □ Re	pair, ☑ Rep	nace	5 years, Jrgent	□ Now <	1 year, ☑ 6	- 10 years,					

Ontario Structure Insp	ection Man	ual — Insp	ection For	m			Bridge ID:		DY-16		
Element Group:	Embankm	nents & Str	eams			Length:		(m)			
Element Name:	Embankm	nents				Width:		(m)			
Location:	All quadra	ants.				Height:		(m)			
Element Description:						Count:		4			
Material:						Total Q	uantity:	4.0 (eac	h)		
Element Type:						Not Ins	pected:				
Environment:	☑ Benign,	, □ Modera	ate, 🗆 Sev	ere		Limited	Limited Inspection:				
Protection System:						Perform	Perform. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Poor*						
Condition Data.	each	0.00	4.0	0.00	0.00	BCI TEV	: 4000.0	BCI CEV	/: 3000.0		
Comments:	Stable and	d in good o	condition.	Steep but	well estab	lished.					
Recommended work	(:					Mainter	nance Needs: -				
Comments			□ Urger	☑ 1 year, □ 2 years,□ UrgentRemove vegetation growth as part of regular							
Type Timing							maintenance				
Element Group:		Embankm	nents & Sti	reams			Length:		(m)		
Element Name:		Streams 8	x Waterwa	ıys			Width:		(m)		
Location:			/ Downstr				Height:		(m)		
Element Description	n:						Count:		2		
Material:							Total Quantity:		2.0 (each)		
Element Type:							Not Inspected:				
Environment:		☑ Benign	, □ Modera	ate, □ Sev	vere		Limited Inspection	ո։			
Protection System:							Perform. Deficien	cies			
Condition Data:		Units	Exc.	Good	Fair	Poor*					
Condition Data:		each	0.00	2.0	0.00	0.00	BCI TEV:		BCI CEV:		
Comments:		Unobstru	cted and fl	owing wel	I.						
Recommended work	(:						Maintenance Need	ds: -			
Comments							□ 1 year, □ 2 years	5,			
Type Timing											

Ontario Structure Inspection	on Manual –	- Inspecti	on Form		Bridge ID:	DY-16			
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 cond		/sw on sout	th side, 1r	n asphalt	Count:	2		
Material:	Cast-in-pla	ace Concr	ete			Total Quantity:	60.0 (sq.m)		
Element Type:						Not Inspected:			
Environment:	☐ Benign,	□ Moder	ate, ☑ Seve	ere		Limited Inspection:			
Protection System:						Perform. Deficiencies	•		
Candition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	0.00	25.2	34.8	BCI TEV: 2400.0 BCI CEV: 403.			
Comments:	Severe ab Heavy we		-	eterminat	tion of north	and south curb. Sand cove	ers north asphalt sidewalk.		
Recommended work:						Maintenance Needs: -			
Comments									
Replace curbs and south sidewalk.						☐ 1 year, ☐ 2 years, ☑ Urgent			
Туре	Timing					Sweep sand from sidewalk.			
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 y □ Urgen		low < 1 yea	ar, 🗆 6 - 1	0 years,				

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

Repair and Rehabilitation Re	quired			Priority			Fatimatad
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Estimated Cost
Deck Wearing Surface	Repave deck wearing surface at next major rehabilitation.		1				\$10,000.00
Approach Wearing Surface	Repave approaches at next major rehabilitation.		1				\$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

Assosciated 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.)



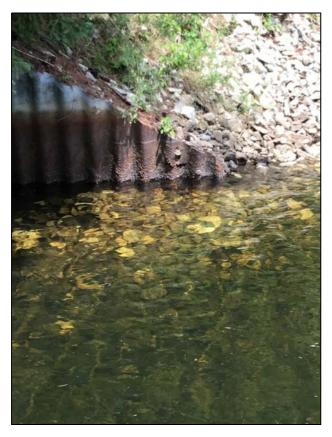
Description: Impact damage, northeast.

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)



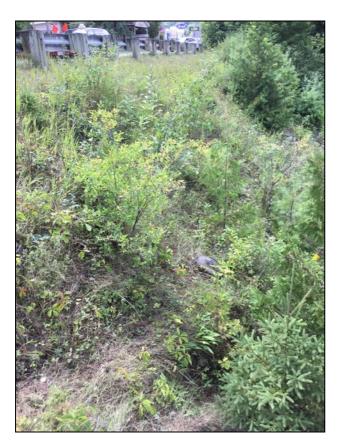
Description: Southeast slope well vegetated with rock slope protection under debris cover.

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)

Bridge ID:	DY-17

Inventory Data:							
Structure Name	West Shore Kennisis Lak	e Culvert					
Main Hwy/Road #		☑ On □ Under	Crossing Type: ☐ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove				
Hwy/Road Name	West Shore Road						
Structure Location	0.2 km West of Lipsy Lak	ce Drive]		
Latitude	45.180740		Longitude	-78.636870]		
Northing			Easting				
Owner(s)	Municipality of Dysart et	al	Heritage designation: □ Desig., □ Desig./not List, □		op., □ List/not		
MTO Region			Road Class: ☐ Freeway, ☐ Arterial, ☐ Collector, ☐ Collector Residential, ☐ Collector Commercial, ☐ Local, ☐ Local Reside ☐ Local Commercial, ☐ Rural Expressways, ☐ Alleyways, ☐ 4 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, ☐ Sc☐ Bicycle, ☐ Emergency	-		
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			ear of Last Major Rehab.				
Last OSIM Inspec			ast Evaluation				
Last Enhanced OS	SIM Inspection		Current Load Limit	/ /	(tonnes)		
Enhanced Access			oad Limit By-Law #	1 1			
Last Underwater	•	B	By-Law Expiry Date				
Last Condition Su							
Rehab History: (Date/description)	Pate/description)						

Ontario Structure Inspection Manual — Inspection For	m			Bridge ID:	DY-17
Scheduled Improvements:					
Regional Priority Number		Program	med Wo	ork Year	
Nature of Program Work:					
Appraisal Indices:				Comments	
Fatigue					
Seismic					
Scour					
Flood					
Geometrics					
Barrier					
Curb					
Load Capacity			_		

F	ield Inspection Information:										
D	ate of Inspection:		Aug. 8, 2018	Inspection Type OSIM							
Ir	nspector:		Sean Wetmore								
0	thers in Party:		Ben Belfry								
A	ccess Equipment Used:		Waders, tape measure, han	nmer, flashligh.							
٧	leather:		Rain								
Т	emperature:		20.0 ℃								
U	pcoming Inspections and Investigation										
D	ue date	,	Comments								
						Driceite.					
A	dditional Investigations Required:				None	Priority Normal	Urgent				
	laterial Condition Survey				Hone	Norman	Orgent				
	Detailed Deck Condition Survey:										
	Non-destructive Delamination Surve										
	Concrete Substructure Condition Su										
	Detailed Coating Condition Survey:										
	Detailed Timber Investigation										
	Post-Tensioned Strand Investigation	<u> </u>									
U	nderwater Investigation:										
F	atigue Investigation:										
s	eismic Investigation:										
s	tructure Evaluation:										
M	lonitoring										
	Monitoring of Deformations, Settlem	nents an	d Movements:								
	Monitoring Crack Widths:										
Ir	nvestigation Notes:										

Bridge ID:

DY-17

Ontario Structure Inspection Manual — Inspection Form

Ontario Structure Inspection Manual — Inspecti	Br	idge ID:	DY-17				
Overall Structure Notes:							
Recommended Work on Structure:							
Timing of Recommended Work:	l - 5 years, □ 6 - 1	0 years, $\square > 10$	years				
Overall Comments:	Substructure in good condition.						
Date of Next Inspection:	2020-08-09						
Overall Bridge Condition:		74.8	33				
			T				
Recommended inspections and Investigat	ions	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	06 Bearing not uniformly load	led/unstable 12	Slippery surfaces				
01 Load carrying capacity	07 Jammed expansion joint		Flooding/channel	blockage			
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazar	rd 14	Undermining of fo	oundation			
03 Continuing settlement	09 Rough riding surface	15	Unstable embank	ments			
04 Continuing movements	10 Surface ponding	16	Other				
05 Seized bearings	11 Deck drainage	17	None				
Maintenance Needs							
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel		Erosion Control at	: Bridges			
02 Bridge Cleaning	08 Repair of Bridge Concrete		Concrete Sealing				
03 Bridge Handrail Maintenance	09 Repair of Bridge Timber	15	Rout and Seal				

10 Bailey bridges - Maintenance

11 Animal/Pest Control

12 Bridge Surface Repair

16 Bridge Deck Drainage

18 Other

17 Scaling (Loose Concrete or ACR Steel)

04 Painting Steel Bridge Structures

05 Bridge Deck Joint Repair

06 Bridge Bearing Maintenance

Bridge ID:	DY-17

Element Data

Element Group:		Approac	h				Length:		6.0 (m)		
Element Name:		Wearing	Surface				Width:		6.8 (m)		
Location:		N/S Height: (m)							(m)		
Element Descripti	on:						Count:		2		
Material:		Asphalt Total Quantity: 81.						81.6 (sq.m)			
Element Type:							Not Inspected:				
Environment:		□ Benig	n, 🗆 Moder	ate, ☑ Se	vere		Limited Inspect	Limited Inspection:			
Protection System	1:						Perform. Deficie	encies			
Condition Boto		Units	Exc.	Good	Fair	Poor*					
Condition Data:		sq.m	0.00	81.6	0.00	0.00	BCI TEV:		BCI CEV:		
Comments:		Repaveo	d recently.	Good to e	xcellent co	ndition.					
Recommended wo	ork:						Maintenance Ne	eds:			
Comments □ 1 year, □ 2 years, □ Urgent						ars,					
Type Timing											
Florent Course								20.04 ()			
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 C	oncrete				Total Qua	ntity:	220.0 (sq.	m)		
Element Type:						Not Inspe	cted:				
Environment:	☑ Benign,	□ Modera	te, □ Seve	re		Limited Inspection:					
Protection System:						Perform. Deficiencies					
Condition Data:	Units	Exc.	Good	Fair	Poor*						
Condition Data.	sq.m	0.00	219.5	0.00	0.5	BCI TEV:	77000.0	BCI CEV:	57618.75		
Comments:	Seepage a		two sectior	n joints to	the north,	and spalling	at third section join	t to the sou	th. Overall in		
Recommended wo	ork:					Maintena	nce Needs:				
Comments						□ 1 year,	□ 2 years,				
Type Timing											

Ontario Structure Inspection M	1anual — In	spection	Form			Bridge ID:	DY-17
Element Group:	Culverts					Length:	0.3
Element Name:	Inlet Comp	onents				Width:	4.9
Location:	South					Height:	2.0
Element Description:						Count:	1
Material:	Precast co	ncrete				Total Quantity:	2.1
Element Type:						Not Inspected:	
Environment:	□ Benign,	□ Moder	ate, □ Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencie	S
Condition Data:	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	0.00	2.1	0.00	0.00	BCI TEV: 735.0	BCI CEV: 551.25
Comments:	Small at S	E quadrar	nt. Rest in g	ood cond	ition.		•
Recommended work:						Maintenance Needs:	
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent	
Element Group:	Culverts					Length:	0.3 (m)
Element Name:	Outlet Cor	nponents				Width:	4.9 (m)
Location:	North					Height:	2.0 (m)
Element Description:						Count:	1
Material:	Precast co	ncrete				Total Quantity:	2.1 (sq.m)
Element Type:						Not Inspected:	
Environment:	□ Benign,	☑ Moder	ate, □ Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencie	s
Condition Data:	Units	Exc.	Good	Fair	Poor*		
Condition Data.	sq.m	0.00	2.1	0.00	0.00	BCI TEV: 735.0	BCI CEV: 551.25
Comments:	No defects	s noted. C	verall in go	od condit	ion.		
Recommended work:						Maintenance Needs:	
Comments Type Timing						☐ 1 year, ☐ 2 years, ☐ Urgent	

Ontario Structure Inspection Mar	nual — Insp	ection	Form						Bridge ID:	DY-17	
Element Group:	Decl	Decks							Length:	4.87 (m)	
Element Name:	Wea	ring Su	urface						Width:	6.8 (m)	
Location:	Тор								Height:	(m)	
Element Description:									Count:	1	
Material:	Aspl	nalt							Total Quantity:	33.1 (sq.m)	
Element Type:									Not Inspected:		
Environment:	□Ве	enign, I	□ Moder	ate, 🗹 S	Sever	re			Limited Inspection:		
Protection System:									Perform. Deficiencies		
Condition Data:	Uı	nits	Exc.	Goo	od	Fair	Poo	r*	08. Pedestrian/vehicula	ar hazard	
Condition Data:	SC	m.p	0.00	33.	1	0.00	0.0	0	BCI TEV: 827.5	BCI CEV: 620.63	
Comments:	Som	e rippl	ing and p	onding	, rave	elling at	edges,	overa	all good condition.		
Recommended work:	_								Maintenance Needs:		
Comments									□ 1 year, □ 2 years,		
Type Timing									□ Urgent		
\square Rehab, \square Repair, \square Replace \square 1 - 5 years, \square Now < 1 year, \square 6 - 10 years, \square Urgent											
			<u> </u>								
Element Group:	Emankme		Streams						gth: 	(m)	
Element Name:	Embankm							Wid		(m)	
Location:	NE/NW/SE	:/SW							ght:	(m)	
Element Description:								Cou	int:	4	
Material:									al Quantity:	4.0 (each)	
Element Type:									Inspected:		
Environment:	☑ Benign	, □ Mo	derate, [□ Sever	e				ited Inspection:		
Protection System:								Per	form. Deficiencies		
Condition Data:	Units	Exc	c. G	ood	Fai	ir P	oor*				
	each	0.0	00 4	4.0	0.0	0	0.00	BCI	TEV:	BCI CEV:	
Comments:	Well vege	etated a	and stab	le, in go	od co	ondition					
Recommended work:								Mai	ntenance Needs: -		
Comments									. year, □ 2 years, Jrgent		
Type Timing											

Ontario Structure Inspection Manual — Inspection Form									Bridge ID:	DY-17		
Element Group:	Er	mankmer	nts & Stre	eams					Length:	(m)		
Element Name:	St	reams &	Waterwa	iys					Width:	(m)		
Location:	Up	pstream /	/ Downstr	ream					Height:	(m)		
Element Description	on:								Count:	2		
Material:									Total Quantity:	2.0 (each)		
Element Type:									Not Inspected:			
Environment:	7	Benign, l	□ Modera	ate, 🗆 Se	vere				Limited Inspection:			
Protection System	:								Perform. Deficiencies			
Condition Data:		Units	Exc.	Good	I	Fair	Po	or*				
Condition Data.		each	0.00	2.0		0.00	0.0	00	BCI TEV:	BCI CEV:		
Comments:	De	ebris coll	ecting in	stream a	t culv	ert inle	et, ove	rall in	good condition.			
Recommended wo	rk:								Maintenance Needs: 02. Bridge	: Cleaning		
Comments									☑ 1 year, □ 2 years, □ Urgent			
Type Timing									Remove debris from stream chainlet.	nnel at		
Element Group:	Embank	ments						Leng	ength: (m)			
Element Name:	Slope Pr	rotection						Widt	:h: (m)			
Location:	All quad	uadrants.							ht:	(m)		
Element Description:					Count: 4					4		
Material:								Total Quantity: 4.0 (each)				
Element Type:								Not Inspected:				
Environment:	☑ Benig	n, 🗆 Mod	lerate, □	Severe				Limited Inspection:				
Protection System:								Perform. Deficiencies				
Condition Data:	Units	Exc	. Go	od F	air	Po	or*					
Condition Data:	each	0.00	3.	.0 0	0.00	1.	.0	BCI -	TEV:	BCI CEV:		
Comments:	Very de	ep erosio	n at sout	hwest qu	adrar	nt. Othe	er qua	drants	s stable. North side armoured.			
Recommended wo	rk:							Mair	ntenance Needs: -			
Comments								☐ 1 year, ☐ 2 years, ☑ Urgent				

Type Timing

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.

Ontario Structure	Increation Ma	nual Inche	oction Ea	rm

Bridge ID: DY-17

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

Assosciated 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.

Emankments & 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.)

Bridge ID:	DY-18

Inventory Data:								
Structure Name	Footbridge Steel							
Main Hwy/Road #	Pedestrian Bridge	☑ On □ Under	Crossing Type: ☐ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove	Over water, I	□ Over Road			
Hwy/Road Name	York Street							
Structure Location	Haliburton Rotary Park							
Latitude	45.046993		Longitude	-78.512377				
Northing			Easting					
Owner(s)	Dysart		Heritage designation: ☑ Desig., □ Desig./not List, □		Cons./not App	o., □ List/not		
MTO Region	Haliburton		Road Class: Freeway, Residential, Collector Co	mmercial, 🗆 L	ocal, 🗆 Local	Residential,		
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, ☐ ☐ ☐ Bicycle, ☐		•		
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			ear of Last Major Rehab.					
Last OSIM Inspec			ast Evaluation			<i>"</i>		
Last Enhanced O			Current Load Limit			(tonnes)		
Enhanced Access			oad Limit By-Law #		/ /			
Last Underwater Last Condition Su								
Rehab History: ([

Ontario Structure Inspection Manual — Inspection For	·m			Bridge ID:	DY-18
Scheduled Improvements:					
Regional Priority Number		Program	nmed Wo	ork Year	
Nature of Program Work:					
Appraisal Indices:				Comments	
Fatigue					
Seismic					
Scour					
Flood					
Geometrics					
Barrier					
Curb					
Load Capacity					

Field Inspection Information:	eld Inspection Information:										
Date of Inspection:		Aug. 9, 2018	Inspection Typ	pe		OSIM					
Inspector:		Sean Wetmore									
Others in Party:		Ben Belfry									
Access Equipment Used:		Hip waders, measuring tape, flashlight									
Weather:		Partly Cloudy									
Temperature:		26.0 ℃									
Upcoming Inspections and Investigation	ns:	T									
Due date	Priority		Comments								
						1					
Additional Investigations Required:				B.7	Priority						
Material Condition Com	None	Normal	Urgent								
Material Condition Survey											
Detailed Deck Condition Survey:											
Non-destructive Delamination Surve		IT-Covered Deck:									
Concrete Substructure Condition Sur	vey:										
Detailed Coating Condition Survey:											
Detailed Timber Investigation											
Post-Tensioned Strand Investigation											
Underwater Investigation:											
Fatigue Investigation:											
Seismic Investigation:											
Structure Evaluation:											
Monitoring											
Monitoring of Deformations, Settlem	ents and M	Novements:									
Monitoring Crack Widths:											
Investigation Notes:											

Bridge ID:

Ontario Structure Inspection Manual — Inspection Form

Ontario Structure Inspection Manual — Inspecti	on Form	Ві	ridge ID:	DY-18			
Overall Structure Notes:							
Recommended Work on Structure:							
Timing of Recommended Work:	\square Urgent, \square Now < 1 year, \square 1	- 5 years, \square 6 - 10 years, \square > 10 years					
Overall Comments:	Substructure in fair condition, se	uperstructure in g	good conditio	n.			
Date of Next Inspection:	2020-08-09						
Overall Bridge Condition:			6	65.13			
			Т				
Recommended inspections and Investigat	Due date	Priority	y Comments				
Boat Inspection							
Bridge master							
Coating survey							
Detailed condition survey							
Evaluation							
Fatigue							
Monitor Settlements/Movements							
Seismic							
Substructure condition survey							
Underwater							
		•	-	- 1			
Suspected Performance Deficiencies	06 Bearing not uniformly loade	ed/unstable 12	Slippery surfa	ces			
01 Load carrying capacity	07 Jammed expansion joint		Flooding/chan				
02 Excessive deformations (deflections & rotations)			Undermining of	=			
03 Continuing settlement	09 Rough riding surface		Unstable emb				
04 Continuing movements	10 Surface ponding	16	Other				
05 Seized bearings	11 Deck drainage	17	None				
Maintenance Needs	-						
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel	13	Erosion Contro	ol at Bridges			
02 Bridge Cleaning	08 Repair of Bridge Concrete		Concrete Seal				

09 Repair of Bridge Timber

11 Animal/Pest Control

12 Bridge Surface Repair

10 Bailey bridges - Maintenance

15 Rout and Seal

18 Other

16 Bridge Deck Drainage

17 Scaling (Loose Concrete or ACR Steel)

03 Bridge Handrail Maintenance

05 Bridge Deck Joint Repair

06 Bridge Bearing Maintenance

04 Painting Steel Bridge Structures

Bridge ID: DY-18		
2. age .2.	Bridge ID:	DY-18

Element Data

Element Group:	Abutments	5				L	ength:	0.85	(m)		
Element Name:	Abutment	walls				ν	Vidth:	1.8 (m)		
Location:	N/S					Н	leight:	0.3 (m)		
Element Description:						C	ount:	2			
Material:	Cast-in-pla	ice concre	ete			Т	otal Quantity:	4.14	1.14 (sq.m)		
Element Type:	Cast in pla granular	ce concre	ete on timb	er crib fill	ed with	N	ot Inspected:				
Environment:	☑ Benign,	□ Moder	ate, □ Seve	ere		L	imited Inspection:				
Protection System:	Norm cond	overlay				Р	erform. Deficiencies				
Canditian Data	Units	Exc.	Good	Fair	Poor*						
Condition Data:	sq.m	0.00	4.14	0.00	0.00	В	CI TEV: 3726.0	ВСІ	CEV: 2794.5		
Comments: Honeycombing on N abutment. Overall in good condition.											
Recommended work:			M	laintenance Needs:							
Comments Type Timing		☐ 1 year, ☐ 2 years, ☐ Urgent									
Element Group:	Approa	ches					Length:	1.7			
Element Name:	Sidewa	lk/Curbs					Width:		1.8		
Location:	N/S						Height:				
Element Description:	Concre	te concre	te slab.				Count:		2		
Material:	Cast-in	-place co	ncrete				Total Quantity:		6.1		
Element Type:							Not Inspected:				
Environment:	□ Beni	gn, 🗹 Mod	derate, □ S	evere			Limited Inspection:				
Protection System:							Perform. Deficiencies	5	•		
	Unit	s Exc	. Goo	d Fai	ir Po	or*					
Condition Data:		0.0	0 6.0	0.0	0 0	.1	BCI TEV:		BCI CEV:		
Comments:	Small s	pall on so	outh slab. G	ood cond	ition.						
Recommended work:							Maintenance Needs:				
Comments							☐ 1 year, ☐ 2 years, ☐ Urgent				

Type Timing

Ontario Structure Inspection I	Ontario Structure Inspection Manual — Inspection Form Bridge ID: DY-18											
Element Group:	Barriers					Leng	th:	17.0	6 (m)			
Element Name:	Hand Ra	ilings				Widtl	n:					
Location:	N/S					Heigl	nt:					
Element Description:	Steel wit	h wood ba	nisters			Coun	t:	2				
Material:	Steel					Total	Quantity:	35.2	2 (m)			
Element Type:						Not I	nspected:					
Environment:	□ Benigi	n, 🗆 Moder	ate, □ Se	evere		Limit	Limited Inspection:					
Protection System:	Paint					Perfo	rm. Deficiencies					
Condition Data:	Units	Exc.	Good	Fair	Poor	*						
Condition Data.	m	0.00	35.2	0.00	0.00	всі т	EV: 3520.0	ВСІ	CEV: 2640.0			
Comments:	mments: Good condition. Some paint chips. Some debris build up in rail channel.											
Recommended work:		Main	enance Needs:									
Comments	ear, □ 2 years, gent											
Type Timing												
									T			
Element Group:		Beams/Ma	in Longitu	udinal Elem	ents		Length:		0.075 (m)			
Element Name:		Floor bear	ns				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,	□ Moder	ate, □ Seve	ere		Limited Inspecti	on:				
Protection System:		Sealing pa	int				Perform. Deficie	ncie	s			
Condition Data:		Units	Exc.	Good	Fair	Poor*						
Condition Data.		sq.m	0.00	0.00	6.2	0.00	BCI TEV: 1240.0		BCI CEV: 496.0			
Comments:		Severe fla	king and	corrosion, i	n fair con	dition.						
Recommended work:							Maintenance Ne	eds:	1			
Comments												
Grind and repaint.		☐ 1 year, ☐ 2 yea	ars,									
Туре	Timin	g										
☑ Rehab, □ Repair, □ Replace	ce ☐ 1 - 5		Now < 1 <u>y</u>	year, 🗆 6 -	10 years,							

Ontario Structure Inspection Manual $-$ In	spection Fo	rm				Bridge ID:	DY-18				
Element Group:	Beams/Ma	ain Longit	udinal Elem	ents		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,	☐ Moder	ate, □ Seve	ere		Limited Inspection	on: 🗆				
Protection System:	Sealing pa	aint				Perform. Deficier	ncies				
Condition Date:	Units	Exc.	Good	Fair	Poor*						
Condition Data:	each	0.00	0.00	2.0	0.00	BCI TEV:	BCI CEV:				
Comments:	Severe fla	king and	corrosion th	roughou	t, in fair cond	dition.					
Recommended work:						Maintenance Nee	eds:				
Comments											
Grind and repaint.						☐ 1 year, ☐ 2 yea	rs,				
Turkur	Type Timing										
☑ Rehab, ☐ Repair, ☐ Replace ☐ 1 - 5 y		w < 1 yea	ar, □ 6 - 10	years,							
						1					
Element Group:	Bracing					Length:	1.9 (m)				
Element Name:	Bracing					Width: 0.05 (m)					
Location:	Below dec	k, betwee	en floorbean	ns		Height: 0.05 (m)					
Element Description:						Count:	12				
Material:	Steel					Total Quantity:	12.0 (each)				
Element Type:	Box					Not Inspected:					
Environment:	☑ Benign,	□ Moder	ate, □ Seve	re		Limited Inspectio	n: 🗆				
Protection System:	Sealing pa	int				Perform. Deficien	cies				
Condition Data:	Units	Exc.	Good	Fair	Poor*						
Condition Data.	each	0.00	0.00	12.0	0.00	BCI TEV:	BCI CEV:				
Comments:	Severe fla	king and	corrosion, ir	n fair cond	dition.						
Recommended work:						Maintenance Nee	ds:				
Comments											
Grind and repaint.						☐ 1 year, ☐ 2 year	S,				
		□ Urgent									
Type Timing											
□ Popular □ Popular □ 1 - 5 y		i contract of the contract of									
☑ Rehab, ☐ Repair, ☐ Replace ☑ Urgen		w < 1 yea	ar, ⊔ 6 - 10	years,							

Ontario Structure Inspection N	1anual — In	spection Fo	orm				Bridge ID:		DY-18			
Element Group:	Decks						Length:		17.6 (m)			
Element Name:	Deck To	ор					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:	□ Beni	gn, 🗆 Mode	erate, 🗆 Se	evere			Limited Inspectio	Limited Inspection:				
Protection System:	Penetra	ant applied					Perform. Deficiencies					
Condition Data:	Unit	s Exc.	Good	d Fa	air	Poor*	*					
Condition Data:		0.00	19.36	5 0.0	00	0.00	BCI TEV:	BCI TEV:				
Comments:	Some wear and splits. Rust stains. Good condition.											
Recommended work:							Maintenance Needs:					
Comments		□ 1 year, □ 2 year □ Urgent	S,									
Type Timing												
Element Group:	Embankm	ents & Stre	ams				Length:					
Element Name:	Embankm	ents					Width:					
Location:	All quadra	nts.					Height:					
Element Description:	Natural gr	ass with ar	mour ston	e.			Count:	4				
Material:							Total Quantity:	4.0 (each)			
Element Type:							Not Inspected:					
Environment:	□ Benign,	□ Moderat	e, 🗆 Seve	re			Limited Inspection:					
Protection System:							Perform. Deficiencie	es				
Condition Data:	Units	Exc.	Good	Fair		Poor*						
Condition Data.	each	0.00	4.0	0.00		0.00	BCI TEV: 4000.0	BCI	CEV: 3000.0			
Comments:	Vegetated	and stable	. Stream เ	unobstru	ıcted	l.						
Recommended work:							Maintenance Needs:					
Comments						□ 1 year, □ 2 years, □ Urgent						
Type Timing												

Ontario Structure Inspection Ma	nual — In		Bridge ID:	DY-18					
Element Group:	Tr	russes/Ar	ches				Length:	17.6 (m)	
Element Name:	Во	ottom ch	ords				Width:	0.15 (m)	
Location:	E/	/W					Height:	0.075 (m)	
Element Description:							Count:	2	
Material:	w	/eatherin	g Steel				Total Quantity:	10.6 (sq.m)	
Element Type:	Во	ox					Not Inspected:		
Environment:	Ø	Benign,	□ Modera	ate, □ Seve	re		Limited Inspection:		
Protection System:	Se	ealing pa	int				Perform. Deficiencie	es	
Condition Data:		Units Exc. Good Fair Poor*							
Condition Data:		sq.m	0.00	0.00	10.6	0.00	BCI TEV: 3180.0	BCI CEV: 1272.0	
Comments:	Se	evere flal	king and	corrosion th	roughout	. In fair cond	lition.		
Recommended work:							Maintenance Needs:		
Comments									
Grind and repaint.							☐ 1 year, ☐ 2 years, ☐ Urgent		
Туре	Timing								
☑ Rehab, ☐ Repair, ☐ Replace	☐ 1 - 5 <u>y</u> ☑ Urger	•	Now < 1	year, 🗆 6 -	10 years	,			

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

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

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



Description: General arrangement, looking north.

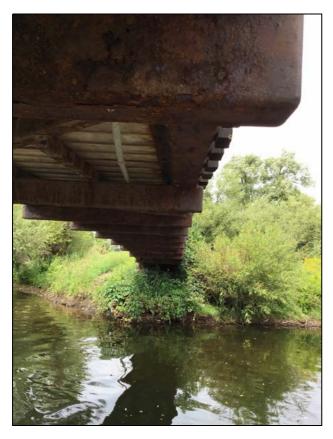


Description: General elevation, east.



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)

Bridge ID:



Description: South end, typical conditions.

Decks / Deck Top (Top of deck)



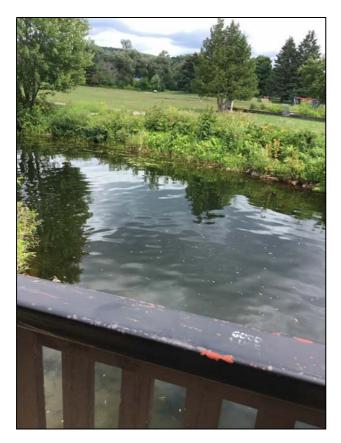
Description: North approach slab.

Approaches / Sidewalk/Curbs (N/S)



Description: South approach slab.

Approaches / Sidewalk/Curbs (N/S)



Description: Inlet side of stream.

Embankments & Streams / Embankments (All quadrants.)

Bridge ID:



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.)

Bridge ID: DY	
Briage ID.	-19

Inventory Data:										
Structure Name	Footbridge Timber									
Main Hwy/Road #	118	☑ On □ Under	Crossing Type: ☐ Navi. W ☐ Road, ☐ Ped., ☐ Other, ☐ railway, ☐ Unknown, ☐ Ove							
Hwy/Road Name	Maple Avenue									
Structure Location	Halibuton Skateboard Park									
Latitude	45.047676		Longitude	-78.510385						
Northing			Easting							
Owner(s)	Dysart		Heritage designation: ☑ Desig., ☐ Desig./not List, ☐		ons./not App	o., 🗆 List/not				
MTO Region	Haliburton		Road Class: Freeway, Residential, Collector Co Local Commercial, Rui more lanes	mmercial, 🛭 Lo	cal, 🗆 Local	Residential,				
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, ☐ T☐ Bicycle, ☐ E	•	•				
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 Y	ear of Last Major Rehab.							
Last OSIM Inspec	tion	L	ast Evaluation							
Last Enhanced O	SIM Inspection		Current Load Limit		/ /	(tonnes)				
Enhanced Access	Equipment	L	oad Limit By-Law #		/ /					
Last Underwater	Inspection	E	By-Law Expiry Date							
Last Condition Su	ırvey									
Rehab History: ([Date/description)									

Ontario Structure Inspection Manual — Inspection For		Bridge ID: DY-19				
Scheduled Improvements:						
Regional Priority Number	Program	med W	ork Year			
Nature of Program Work:						
Appraisal Indices:			Comments			
Fatigue						
Seismic						
Scour						
Flood						
Geometrics						
Barrier						
Curb						
Load Capacity		_				

Ontario Structure Inspection Manual — Insp	Bridg	ge ID:		DY-19					
Field Inspection Information:									
Date of Inspection:		Aug. 9, 2018	Inspection Ty	pe		OSIM			
Inspector:		Sean Wetmore							
Others in Party:		Ben Belfry							
Access Equipment Used:		Tape measure, hip wade	ape measure, hip waders, flashlight.						
Weather:									
Temperature:		24.0 ℃							
Upcoming Inspections and Investigation	ons:								
Due date	Priority		Comments						
				1	Priority				
Additional Investigations Required:		None		T					
Material Condition Suggest				None	Normal	Urgent			
Material Condition Survey						-			
Detailed Deck Condition Survey:	of Acaba	It Covered Deck		1					
Non-destructive Delamination Surve		1							
Concrete Substructure Condition Su	rvey:								
Detailed Coating Condition Survey:				•		•			
Detailed Timber Investigation Post-Tensioned Strand Investigation				1					
Underwater Investigation:	•			1					
Fatigue Investigation:				1					
Seismic Investigation:				1					
Structure Evaluation:				1					
Monitoring				1					
Monitoring of Deformations, Settlen	nents and N	lovements:		1					
Monitoring Crack Widths:	nerits and i	iovements.		1					
Investigation Notes:				•					
investigation notes.									

Ontario Structure Inspection Manual — Inspect	Bri	Bridge ID: DY-1			
Overall Structure Notes:					
Recommended Work on Structure:					
Timing of Recommended Work:	\square Urgent, \square Now < 1 year, \square 1	- 5 years, □ 6 - 10) years, □ > 10) years	
Overall Comments:	Substructure in poor condition.				
Date of Next Inspection:					
Overall Bridge Condition:				33.2	
			Ι	Т	
Recommended inspections and Investigation	tions	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	06 Bearing not uniformly load	ed/unstable 12 9	Slippery surfaces	5	
01 Load carrying capacity	07 Jammed expansion joint		looding/channel		
02 Excessive deformations (deflections & rotations	on Pedestrian/vehicular hazar	d 14 (Jndermining of f	oundation	
03 Continuing settlement	09 Rough riding surface		Jnstable embanl	kments	
04 Continuing movements	10 Surface ponding	16	Other		
05 Seized bearings	11 Deck drainage	17	None		
Maintenance Needs					
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel		Erosion Control a		
02 Bridge Cleaning	08 Repair of Bridge Concrete		Concrete Sealing		
03 Bridge Handrail Maintenance	09 Repair of Bridge Timber	15 F	Rout and Seal		

10 Bailey bridges - Maintenance

11 Animal/Pest Control

12 Bridge Surface Repair

16 Bridge Deck Drainage

18 Other

17 Scaling (Loose Concrete or ACR Steel)

04 Painting Steel Bridge Structures

05 Bridge Deck Joint Repair

06 Bridge Bearing Maintenance

Bridge ID:	DY-19

Element Data

Element Group:	Abutments	5					Le	ength:			
Element Name:	Ballast wa	lls					Wi	dth:	3.8 (m)		
Location:	N/S						Не	eight:	1.4 (m)		
Element Description:	Original cr	Original creosote rail material.					Со	unt:	2		
Material:	Wood						To	tal Quantity:	10.6 (sq.m)		
Element Type:							No	t Inspected:			
Environment:	☐ Benign,	□ Modera	ate, □ Seve	re			Lin	nited Inspection:			
Protection System:							Pe	rform. Deficiencies	•		
	Units	Exc.	Good	Fa	ir	Poor*	14.	. Undermining of foundation			
Condition Data:	sq.m	0.00	0.00	0.0	00	10.6	вс	I TEV: 3710.0	BCI CEV:		
Comments:								hind wall. Holes and displace n of sink holes at approaches			
Recommended work:							Ма	aintenance Needs:			
Comments											
Replace ballast at next m	najor rehab.							□ 1 year, □ 2 years, □ Urgent			
Туре	Timing										
□ Rehab, □ Repair, ☑ Replace											
Element Group:	Access	sories						Length:			
Element Name:	Signs							Width:			
Location:	N/S							Height:			
Element Description:	'No atv	v': north,	'no jumping	g': sou	uth			Count:	0		
Material:	Steel	Steel						Total Quantity:	2.0 (each)		
Element Type:								Not Inspected:			
Environment:	□ Ben	ign, 🗆 Mo	oderate, 🗆 S	Severe	9			Limited Inspection:			
Protection System:								Perform. Deficiencies			
Condition Data:	Unit	s Exe	c. Goo	d	Fair	Pooi	r*				
Condition Data:	eacl	h 0.0	0 2.0		0.00	0.00	C	BCI TEV: 200.0	BCI CEV: 150.0		
Comments:	Good	condition.									
Recommended work:								Maintenance Needs:			
Comments								☐ 1 year, ☐ 2 years, ☐ Urgent			
Type Timing											

Ontario Structure Inspection N	ıanuaı — I	inspection	Form					Bridge ID:	D1-19		
Element Group:	Approacl	hes					Length	1:	6.0 (m)		
Element Name:	Sidewalk	:/Curbs					Width:	-	2.0 (m)		
Location:	South on	ıly.					Height	:			
Element Description:	Asphalt s	sidewalk					Count:	(0		
Material:							Total C	Quantity:	12.0 (sq.m)		
Element Type:							Not Ins	spected:			
Environment:	□ Benigr	n, 🗆 Mode	rate, 🗵 Se	evere			Limite	d Inspection:			
Protection System:							Perfor	m. Deficiencies			
Condition Data:	Units	Exc.	Good	l Fair	Poor	*					
Condition Data:	sq.m	0.00	11.8	0.2	0.00)	BCI TE	V: 720.0	BCI CEV: 535.8		
Comments:	Crack in	asphalt ra	mp to ded	ck.				_			
Recommended work:							Mainte	nance Needs:			
Comments □ 1 year, □ 2 years, □ Urgent											
Type Timing											
									1		
Element Group:		Approaches I					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,	□ Modera	ate, □ Seve	ere			Limited Inspection	ı : 🗆		
Protection System:								Perform. Deficienc	cies		
Condition Data:		Units	Exc.	Good	Fair	P	Poor*				
Condition Data.		sq.m	0.00	2.0	5.2		0.00	BCI TEV: 43.2	BCI CEV: 21.48		
Comments:		General w	ear, steep	slope for o	disabled a	icces	ss.				
Recommended work:								Maintenance Need	ls:		
Comments											
Extend asphalt a next rehab.								☐ 1 year, ☐ 2 years, ☐ Urgent			
Туре	Timing	g						- J			
☑ Rehab, ☐ Repair, ☐ Replac	e □ 1 - 5 □ Urge		Now < 1 y	year, ☑ 6 -	10 years,						

Ontario Structure Inspection	n Manual —	Inspect	ion Form				Bridge ID:	DY-19	
Element Group:	Barriers	;					Length:	18.3 (m)	
Element Name:	Hand R	ailings					Width:		
Location:	E/W						Height:		
Element Description:	Wooder	railing	system 2x6	5 pt.			Count:	2	
Material:	Wood						Total Quantity:	36.6 (m)	
Element Type:		Not Inspected:							
Environment:	☐ Benig	jn, □ Mo	derate, 🗆 S	Severe			Limited Inspection:		
Protection System:							Perform. Deficiencies		
Condition Data:	Units	Ex	c. God	d Fai	r Poor	*			
Condition Data.	m	0.0	00 35.	4 1.2	0.00		BCI TEV: 3660.0	BCI CEV: 2703.0	
Comments:	Good co	ondition.	Some split	s and end	of boards ar	nd m	ninor twists.		
Recommended work:							Maintenance Needs: 09	9. Repair of Bridge	
Comments									
Replace top handrail.						☐ 1 year, ☑ 2 years, ☐ Urgent			
Туре	Timing						Sand and paint, replace weathered boards.	twisted or overly	
□ Rehab, □ Repair,☑ Replace	□ 1 - 5 ; □ Urger		Now < 1 y						
Element Group:	Beams/Ma	in Longit	udinal Elen	nents		Le	ength:	0.2 (m)	
Element Name:	Floor bean	าร				w	idth:	3.6 (m)	
Location:						Не	eight:	0.2 (m)	
Element Description:						Co	ount:	59	
Material:	Wood					То	otal Quantity:	132.2	
Element Type:						No	ot Inspected:		
Environment:	☑ Benign,	□ Mode	rate, □ Sev	ere		Li	mited Inspection:		
Protection System:	Creosote					Pe	erform. Deficiencies		
Candidan Batas	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	13.2	119.0	0.00	ВС	CI TEV: 26440.0	BCI CEV: 11500.0	
Comments:	Localized r	otting fl	oor beams.	Splits thro	ughout flooi	r bea	ams, overall in fair conditi	on.	
Recommended work:						Ма	aintenance Needs:		
Comments] 1 year, □ 2 years,] Urgent		
Type Timing									

Ontario Structure Inspe	ection Ma	anual — In	spection	Form					Bridge ID:	DY-19		
Element Group:	E	Beams/Ma	in Longit	udinal	Elemer	nts			Length:	3.6 (m)		
Element Name:	C	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,	□ Moder	ate, 🗆	Severe	5			Limited Inspection:			
Protection System:						Perform. Deficiencies						
Condition Data:		Units	Exc.	Go	od	Fair	Po	or*				
Condition Data:		sq.m	0.00	181	1.0	20.6	0.0	00	BCI TEV: 40320.0	BCI CEV: 28798.0		
Comments:	C	Girders in	good to f	air con	dition.				•			
Recommended work	:								Maintenance Needs:			
Comments 1 year, 2 years, Urgent												
Element Group:	Decks							Len	gth:	18.3 (m)		
Element Name:	Deck T	Гор						Wid	th:	2.0 (m)		
Location:	Top of	deck.						Heig	jht:	(m)		
Element Description:	Longit	udinal 2x6	pt					Cou	nt:	0		
Material:	Wood							Tota	al Quantity:	36.6 (sq.m)		
Element Type:								Not	Inspected:			
Environment:	□ Beni	ign, 🗆 Mo	derate, □	Sever	re			Limi	ited Inspection:			
Protection System:								Perf	orm. Deficiencies			
Condition Data:	Unit	ts Exc	Go	ood	Fair	Po	oor*					
Condition Data:	sq.n	m 0.0	0 30	0.0	6.6	0	.00	BCI	TEV: 4392.0	BCI CEV: 3016.8		
Comments:	Some s	splits and	cracks th	rough	out. Mir	nor wea	athering	g loca	lized to centre of span. Ov	erall good condition.		
Recommended work								Maiı	ntenance Needs:			
Comments Type Timing									year, □ 2 years, rgent			

Ontario Structure Inspection N	1anual — Ir	nspection I	Form				Bridge ID:		DY-19	
Element Group:	Piers					Length:		4.35 (m)	1	
Element Name:	Caps				Width:		0.3 (m)			
Location:						Height:		0.35 (m)	0.35 (m)	
Element Description:						Count:	6			
Material:						Total Qua	ntity:	35.9 (sq	.m)	
Element Type:						Not Inspe	cted:			
Environment:	□ Benign,	□ Modera	☐ Moderate, ☐ Severe Limited Inspection: ☐							
Protection System:	Creosote					Perform.	Deficiencies			
	Units	Exc.	Good	Fair	Poor*					
Condition Data:	sq.m	0.00	0.00	35.9	0.00	BCI TEV: 3	32310.0	BCI CEV	BCI CEV: 12924.0	
Comments:	Check on S	5 side of s	econd to S	cap. Caps	are in fair	condition.				
Recommended work:						Maintena	nce Needs:			
Comments						□ 2 years,	2 years,			
Type Timing										
Fl							1			
Element Group:		Piers	- l (D!)	- Dt-			Length:		0.5 (***)	
Element Name:		Shafts/c	olumns/Pile	e Bents			Width:		0.5 (m)	
Location:							Height:		1.6 (m)	
Element Description:						Count:	_	30		
Material:		Wood					Total Quanti		75.4 (sq.m)	
Element Type:							Not Inspecte			
Environment:		+	n, 🗆 Mode	rate, □ Se	evere		Limited Inspe			
Protection System:		Creosote	1	1		1	Perform. Def			
Condition Data:		Units		Good		Poor*	01. Load carry		1	
		sq.m	0.00	0.00	0.00	75.4	BCI TEV: 6786	60.0	BCI CEV:	
Comments:		All piers	severely r	otten, spli	t, and chec	ked. In poor	ī			
Recommended work:							Maintenance	Needs:		
Comments										
Replace							□ 1 year, □ 2 □ Urgent	years,		
Туре	Timing									
□ Rehab, □ Repair, ☑ Replac	e □ 1 - 5 ☑ Urge	•	Now < 1 ye	ear, 🗆 6 - 1	10 years,					

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

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

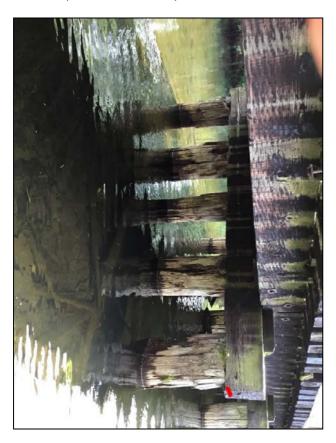
Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
	Total	



Description: General arrangement, looking south.

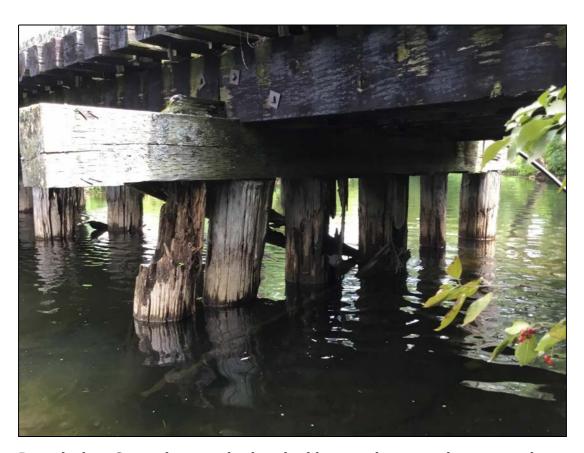


Description: General elevation, west.



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



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



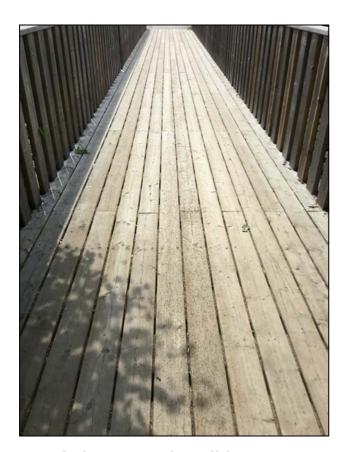
Description: Second to north piers looking, looking southeast. Severe disintegration.

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)



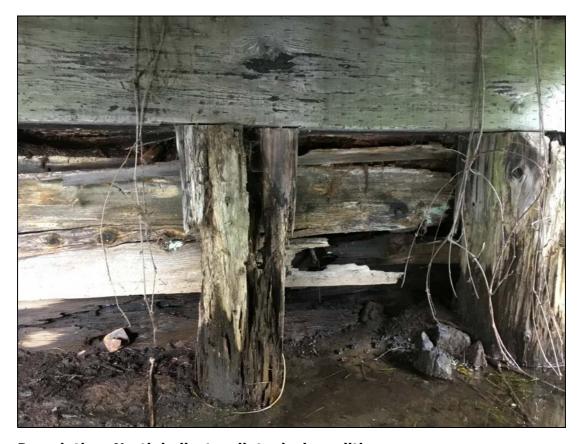
Description: East railing, general condition.

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)