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Additional Town Comments – Erosion Threshold Analysis (f) – The assessment must confirm that the peak flows and post-development volume from Pond 32 contributing to MOC-2a will not increase the erosion potential across private lands, including the Petro Canada and Esso Gas Stations and further downstream.

Additional AECOM input to above – Increased erosion potential resulting from post-development outflow from Pond 32 contributing to MOC-2a may need to consider inlet/outlet/bed erosion protection of the culvert crossing Trafalgar Road at ME-T1.

Additional Town Comments – Stormwater Management Plan and Hydrology, Appendix A-3 (d) – Furthermore, we require confirmation that the hydrologic analysis has considered the future 50m (plus additional area for transit stops) for the Trafalgar Road right-of-way in accordance with the Trafalgar Road EA Study. Lastly, we understand that the NOCSS target flows at Dundas Street can be met assuming that post development flows from the full Trafalgar Road right-of-way are not captured or treated in Pond 32. Essentially the study proposed to over-control Pond 32 to meet peak flow rates at Dundas Street and it is this study's recommendation that no further quantity controls would be necessary within the Regions ROW.

Additional AECOM input to above — Please refer to AECOM comment #7 above that states that the hydrologic model currently considers the Trafalgar Road catchments to have an impervious area of 57%. The impervious area in the Trafalgar Road catchments should be estimated as 80% to reflect the widened road conditions proposed in the Region's EA and confirmation that sufficient over-control of Pond 32 can accommodate the increased flows due to the widening of Trafalgar Road.

The April 30th EIR/FSS indicates that "All SWM ponds within the EM1 and EM4 catchment area (with the exception of Pond 29) must therefore compensate for the uncontrolled release by slightly over controlling the pond release rates beyond the accepted ME-D3 rates". The proponent should clarify the degree/quantity of over-control designed within Pond 32 and confirm that an impervious area of 80% was applied to reflect the ROW recommendations with the Trafalgar Road EA.

Additional Town Comments – Stormwater Management Plan and Hydrology, Appendix A-3 (e) – [Regarding Pond 32] The future urbanization of Trafalgar Road will require separate water quality control.

Additional AECOM input to above - In the event that connection of stormwater infrastructure or overcontrol is not feasible for adjacent infrastructure (such as Pond 32), utilization of the interim superpipes and OGS units in interim (if required and pending feasibility to be determined during detailed design) could be utilized for ultimate conditions.

Additional Town Comments – Stormwater Management Plan and Hydrology, Appendix A-3 (f) – [Regarding Pond 32] Staff would appreciate any fine tuning of the pond outlet at detailed design in order to release the extended detention volume within 24-48 hours without compromising the capacity of culvert ME-T1, target release rates at Dundas Street and the erosion control rate.

Additional AECOM input to above – Increases in the expected flow rate above those required by the NOCSS and used in the design of improvements for ME-T1 recommended in the Trafalgar Road EA will exceed the capacity of the proposed culvert crossing. Consideration should also be made for the

timing of development in the event that Pond 32 and associated development precedes the recommended improvements to ME-T1. Consideration should also be given to potential erosion protection to the inlet/outlet/bed of ME-T1 with any increased release rates.

Additional Town Comments – SWM Facility Design Criteria (d) – The report should discuss the impact of the emergency flows, 15.20 m3/s beyond the pond block to Trafalgar Road culvert ME-T1. Table 7.4 in the December 2012 submission suggests that the capacity of culvert is 7.55 m3/s.

Additional AECOM input to above – The 7.55 m3/s is the flow determined for ME-T1 using rates detailed in the NOCSS and used in the design of improvements for ME-T1 as recommended in the Trafalgar Road EA. Increases in the expected flow rate above those required by the NOCSS (such as the emergency flow of 15.20 m3/s) will exceed the capacity of the proposed culvert crossing. Consideration should be made by the proponent for the conveyance of emergency flows in exceedance of upgraded watercourse infrastructure crossing Trafalgar Road.

Additional Town Comments – SWM Facility Design Criteria (c), response within April 30th, 2014 response indicates "The emergency outlet structure is not intended to be a series of large grates, which have been designed to convey the entire emergency Regional flow of 8.5 m3/s. While there is no defined emergency spillway (the pond is bounded by roads and lots), a low point in the top of the pond was created at the southwest corner. In the event that the pond outlet AND emergency outlets are blocked, the pond will drain from this low point onto the road (rather than to the north or west, towards the proposed lots)". Flooding onto Regional Roads is noted. Flooding mitigation should be considered including the proponent to evaluate increasing the capacity of the culvert located at ME-T1 to accommodate emergency flows and mitigate flooding of Regional Roads.

Additional comments upon review of Conservation Halton (CH) Memorandum dated March 13, 2014 are as follows:

CH Comment iv (f) – The flood plain model and mapping should be extended to the upstream side of Culvert ME-T5 to ensure that the regulatory flood plain is adequately mapped to the upstream end of the Dundas-Trafalgar lands and to ensure that there are no spills that may impact the Dundas-Trafalgar lands or Trafalgar Road under interim conditions.

Additional AECOM input to above – Potential spills over Trafalgar Road should consider sags in the road profile that may not coincide with the location of the culvert crossing.

CH Comment viii (a) – With respect to Green Ginger and the Region of Halton lands, we would have no objections to minor increases in flood elevations (including under Regional Storm conditions) as long as Green Ginger and the Region of Halton agree to accommodate these increases in flows and flood elevations in their future respective analysis to our satisfaction.

Additional AECOM input to above - It is noted that proposed watercourse crossing upgrades detailed in the Trafalgar Road EA are based on meeting requirements dictated within the NOCSS and any changes to these flows will impact the capacity of proposed water crossing infrastructure improvements recommended for Trafalgar Road. Further coordination between Halton Region and adjacent developments is required to determine and confirm improvements required for watercourse



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infrastructure crossing Trafalgar Road to ensure sufficient conveyance capacity and that design requirements are satisfied.

CH Comment viii (a) – In the subject situation, it is our understanding that there is the potential that flood elevations may be reduced on the subject lands if the Trafalgar Road culvert south of Dundas Street is enlarged as part of the Trafalgar Road Improvements project. The timing and the culvert changes being considered are not currently known to Conservation Halton, however, the proponent may wish to coordinate with Halton Region staff to determine if reductions in upstream flood elevations as a result of culvert upgrades and the timing of the culvert upgrades may be sufficient to reduce the level of flooding on these lands in a fashion that would warrant alternative requirements/criteria to be applicable.

Additional AECOM input to above - The East Morrison Creek culvert crossing Trafalgar Road south of Dundas Street is smaller than ME-D2 and all proposed culverts located farther upstream. Although this crossing will be sized appropriately for ultimate development conditions as part of the Region's Trafalgar Road EA, its limiting capacity should be considered at detailed design in interim development scenario models in the event that development adjacent to Trafalgar Road precedes the proposed improvements to Trafalgar Road.

5. References

AECOM (2014) Minto Communities – Dundas-Trafalgar Inc., North Oakville Environmental Implementation Report (EIR) / Functional Servicing Study (FSS) Update and Response Document (dated January 31, 2014) – Review of Channel Realignment from a Fluvial Geomorphological Perspective, Memo Issued March 11, 2014.

Conservation Halton (2014) Zoning By-Law Amendment and Plan of Subdivision: Z1312.06 & 24T-12013/1312. Minto Communities (Dundas-Trafalgar Inc) 3075 Trafalgar Road, Town of Oakville, EIR/FSS Update and Response Document, Letter to Town of Oakville dated March 13, 2014.

Stonybrook Consulting et al (2014) EIR/FSS Update and Response Document, Environmental Implementation Report / Functional Servicing Study, Dundas-Trafalgar Inc., North Oakville, submitted January 2014.

Stonybrook Consulting et al (2014) EIR/FSS Update and Response Document, Environmental Implementation Report / Functional Servicing Study, Dundas-Trafalgar Inc., North Oakville, submitted April 2014.

Town of Oakville (2014) Dundas-Trafalgar Inc. (Minto Communities), Zoning By-law Amendment & Plan of Subdivision, EIR/FSS Update and Response Document, Z. 1312.06, 24T-12013/1312, Memo from Development Engineering Department dated March 12, 2014.

2014-05-16-Minto EIR-FSS Jan 2014 & April 2014 Review FINAL-60119993.Docx

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905.501.0641 tel 905.501.0181 fax

Memorandum

То	Sheri Harmsworth	Page 1
Subject	•	grating Trafalgar Road SWM with Pond 29 and East Morrison Creek EIR/FSS)
Prepared By	Janelle Weppler, B.Sc. (Env.),	P.Eng., Water Resources Engineer
Reviewed By	Glenn Farmer, Senior Environ	mental Technologist
Date	November 4, 2013	Project Number 60119993

AECOM Canada Limited previously prepared a technical memo (dated November 9th, 2012), that evaluated the potential opportunity to integrate Trafalgar Road right-of-way (ROW) stormwater management (SWM) measures with proposed adjacent development SWM measures. More specifically, Pond 29 and Pond 30 (Figure 1) located on the west side of Trafalgar Road, north of Dundas Street East and south of Burnhamthorpe Road East were evaluated for feasibility as a potential end-of-pipe control measure for stormwater runoff generated from the proposed Trafalgar Road Corridor Improvements.

M-Halton Region-2013-11-04-SWM Pond 29 & 30 Eval-60119993.Docx

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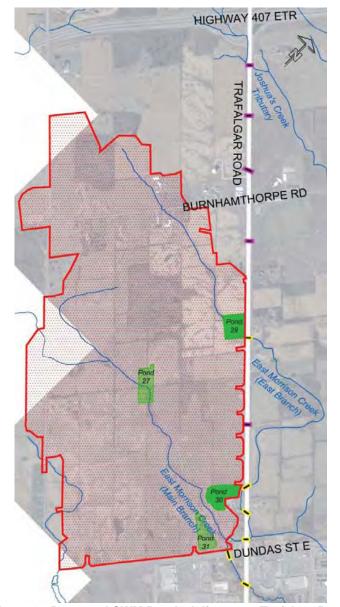


Figure 1: Proposed SWM Ponds Adjacent to Trafalgar Road

Review of the EIR/FSS for North Oakville Main-East Morrison Creek prepared by Sernas Associates on behalf of Green Ginger Developments, (May 2012) indicated that both Pond 29 and Pond 30 were potential opportunities for stormwater servicing to the adjacent Trafalgar Road ROW. Data extracted from the May 2012 EIR/FSS indicated a potential surplus volume of 10,599 m³ in Pond 29 and between 200 and 1865 m³ surplus volume for Pond 30 (range of surplus due to discrepancies in reported volumes in text of report compared to volumes documented in modeling files included in appendices provided with report).

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Both Pond 29 and Pond 30 were found to be located at low points in the road profile however, further review and analyses were recommended for detailed design to confirm details associated with the Trafalgar Road Corridor Improvements and adjacent development SWM ponds. This subsequent review and analyses may include, but not limited to the following:

- Determining the change in impervious area due to the Trafalgar Road Corridor Improvements
- Confirming positive drainage is feasible considering grading constraints
- Verifying feasibility of drainage infrastructure considering design requirements
- Evaluating potential SWM pond design modifications to gain additional surplus storage (i.e., deeper pond depth, increased footprint)
- Calculating the resultant SWM pond performance with the changes to the contributing drainage area from Trafalgar Road.

In addition to the above comments, AECOM's review of the May 2012 EIR/FSS indicated that the Trafalgar Road ROW was not included in the drainage areas serviced by Pond 29 and Pond 30, as shown in Figure 7.2 of the EIR/FSS. Note that Figure 7.4.6 of the NOCSS Implementation Report (August, 2006) includes a SWM pond at the same approximate location of Pond 30 with a contributing drainage area that includes a portion of the Trafalgar Road ROW.

Review of Documents Subsequent to May 2012 EIR/FSS

Two subsequent documents were provided to AECOM to review with respect to integration of Trafalgar Road SWM measures:

- 1. EIR/FSS for North Oakville Main-East Morrison Creek prepared by Sernas Associates on behalf of Green Ginger Developments, (February, 2013)
- 2. East Morrison Creek EMI EIR/FSS Interim Submission prepared by GHD, (July 19, 2013)

Pond 29

The subsequent February 2013 EIR/FSS and July 19, 2013 memorandum did not provide additional details for Pond 29. A summary of available data for Pond 29 within all three reviewed documents is provided in Table 1.

Table 1: Total and Regional Storage in Pond 29

Storogo Typo	Storage Volume (m³)				
Storage Type	May 2012 EIR/FSS	February 2013 EIR/FSS	July 19, 2013 Interim Submission		
Total Volume of Pond*	68,458	68,458	n/a		
Regional Storm Storage*	57,859	n/a	n/a		
Surplus (Calculated)	10,599	n/a	n/a		

^{*}Volume information extracted from Appendix H-1, GAWSER input code and results table

The identified surplus volume of 10,599 m³ within Pond 29 indicates potential for integration of Trafalgar Road SWM measures with Pond 29 as an end-of-pipe SWM measure.

Pond 30

Variation in reported required and available storage volumes within Pond 30 were noted in all three reviewed documents, as summarized in Table 2.



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Table 2: Total and Regional Storage in Pond 30

Storage Type	Storage Volume (m³)				
Storage Type	May 2012 EIR/FSS	February 2013 EIR/FSS	July 19, 2013 Interim Submission		
Data Source	Tables 7.13 & 7.15	Tables 7.15 & 7.17	Memo text		
Total Volume of Pond	47,000	65,680	46,500-59,500*		
Regional Storm Storage	46,800	55,720	42,800-55,900*		
Surplus (Calculated)	200	9,960	3,600-3,700*		
Data Source	Appendix H-1, GAWSER input code	Appendix H-1, GAWSER input code	n/a		
Total Volume of Pond	48,628	59,366	n/a		
Regional Storm Storage	46,763	n/a	n/a		
Surplus (Calculated)	1,865	n/a	n/a		

^{*}Volume range provided for five (5) pond options

Resultant surplus storage available within Pond 30 for integration of Trafalgar Road ROW SWM measures range from 200-1865 m³ in the May 2012 EIR/FSS to 9,960 m³ in the February 2013 EIR/FSS and 3,600-3,700 m³ in the most recent July 19, 2013 Interim Submission.

Potential surplus volumes should be confirmed to further evaluate the potential for integrating Trafalgar Road ROW SWM with Pond 30.

Drawing 7.1

Additional comments regarding the EIR/FSS Drawing 7.1 relevant to the Trafalgar Road ROW are summarized in Table 3.

Table 3: Comments Regarding EIR/FSS Drawing 7.1 Related to Trafalgar Road ROW

Comments Regarding Drawing 7.1 of May 2012 EIR/FSS Report Relevant to Trafalgar Road ROW	February 2013 EIR/FSS	July 19, 2013 Interim Submission	AECOM Comments
Northeast corner located outside of subcatchment boundary for SWM facility (Pond 29) and shown as draining towards Trafalgar Road ROW.	Same as May 2012 EIR/FSS	Same as May 2012 EIR/FSS	What is the recommended quality/quantity treatment of stormwater prior to entering the Trafalgar Road ROW?
Pond 29 has two connections to the east branch of East Morrison Creek 1. Storm sewer connection that crosses Trafalgar Road just south of the pond 2. Storm sewer connection located on the west side within the Trafalgar Road ROW flows south (about 700m) then crosses Trafalgar Road ROW and outlets to east branch of East Morrison Creek.	Storm sewer connection crosses Trafalgar Road, just south of Pond 29 Connection to Pond 29 is removed however same storm trunk still on drawing	Same as February 2013 EIR/FSS	Proposed stormwater infrastructure with the Trafalgar Road ROW may interfere with SWM measures designed for the Trafalgar Road ROW.

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References

GHD. "Interim Submission: East Morrison Creek EMI EIR/FSS Project No. 07370". July 29, 2013

- Green Ginger Developments Incorporated. "Environmental Implementation Report and Functional Servicing Study North Oakville Main-East Morrison Creek". Beacon Environmental, Geomorphic Solutions, Malone Given Parsons Ltd., RJ Burnside, Sernas Associates, Shad & Associates Inc., Stantec. May, 2012.
- Green Ginger Developments Incorporated. "Environmental Implementation Report and Functional Servicing Study North Oakville Main-East Morrison Creek". Beacon Environmental, Geomorphic Solutions, Malone Given Parsons Ltd., RJ Burnside, Sernas Associates, Shad & Associates Inc., Stantec. February, 2013.
- Ontario Ministry of the Environment. "Stormwater Management Planning and Design Manual.". March 2003.

Town of Oakville. "North Oakville Creeks Subwatershed Study.". August 2006.

M-Halton Region-2013-11-04-SWM Pond 29 & 30 Eval-60119993.Docx

M-Halton Region-2013-11-04-SWM Pond 29 & 30 Eval-60119993.Docx

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Appendix <

Trafalgar Road Corridor Improvements EA, Cornwall Road to Highway 407

Stormwater Management Report

• =bgdYWf]cb'FYdcflg'

Summary Action Report

Structure 03-1182340 BR01 (MTO Site No.)

Morrison Wedgewood Aqueduct

Inspection Date	e 1	0/24/2012	mm/dd/yyyy			Condition	Index Value (E	3CI) 72.3
Next Biennial I	nspection 1	0/24/2014	mm/dd/yyyy			Current R	ep. Value	\$2,125,310
Additional Investigations								
Investigation			Priority	Cost	Investigation		Priority	Cost
No additional inves		ed.						
Performance D	eficiencies	ed.						
2012	eficiencies	ed.						
Performance D	eficiencies eficiencies	ed.						
Performance D No Performance D	eficiencies eficiencies	ed.		Mainten	ance Required	Priority	Comment	

Element Group	Element	pup Element Repair/Rehabilitation		Priority	Cost	
Abutments	Abutment Walls		Minor Patch repair Rehabilitation		6-10 yrs	\$5,000
Approaches	Wearing Surface		Minor Rehabilitation	Patch repair and seal cracks	6-10 yrs	\$2,500
Approaches	Sidewalk		Minor Rehabilitation	Reconstruct sidewalk	6-10 yrs	\$5,000
Approaches	Curb/Gutters		Minor Rehabilitation	Patch repairs	6-10 yrs	\$2,500
Decks	Soffit - Thick Slab	Exterior	Minor Rehabilitation	Patch repairs	6-10 yrs	\$2,500
Decks	Soffit - Thick Slab	Interior	Minor Rehabilitation	Patch repairs	6-10 yrs	\$15,000
Decks	Wearing Surface		Minor Rehabilitation	Seal cracks	6-10 yrs	\$2,500
Embankments & Streams	Streams & Waterways		Minor Rehabilitation	Repair channel liner	6-10 yrs	\$20,000
Sidewalks/curbs	Sidewalks/Medians	Raised M	Minor Rehabilitation	Seal cracks	6-10 yrs	\$2,500
Sidewalks/curbs	Curbs		Minor Rehabilitation	Patch repairs	6-10 yrs	\$2,500
				Total Repair/Rehabilita	tion Cost	\$60,000

Overall Comments

Region of Halton

Repair/Rehabilitation

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\$91,000.00

100 %

v1112

\$31,000

\$91,000

Total Associated Work Cost

Total Cost

Patch repair abutment walls, approach curbs, deck curbs, patch repair and seal cracks in approach and deck wearing surface, patch repair and seal cracks in deck soffit, seal cracks in median and repair channel below structure. Reconstruct approach sidewalk.

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MITTE

Municipal Structure Inspection Form Structure Number: 03-1182340 BR01 **Inventory Data** Morrison Wedgewood Aqueduct **Key Photo** Structure Name Hwy No. 3 ✓ Road Rail Ped Nav. Water Non-Nav. Wat. Other Cross. Type Over Road Rail Ped Nav. Water ✔ Non-Nav. Wat. Other Cross. Type Under **Road Name** Trafalgar Road 0.30 km North of the QEW Structure Location 4813262.0 Easting 606122.0 Cur. Rep.Value \$2,125,310 Northing Owner(s)/ Region of Halton 100 % % Share % Heritage Status Not Considered for Designation MTO Region Central Urban Road Side Env. **MTO District** Central Road Class Arterial Old County Halton Lane Type Regular Geographic Twp. 60 No. of Lanes Posted Speed AADT 39890 Structure Type Rigid Frame, Vertical legs Pct. Trucks Structure Material Reinforced Cast-in-Place Concrete Inspection Route Sequence Fixed Articulation Interchange Number 8.6 m Road Width 30.8 m **Total Deck Length** Interchange Structure Number 38.7 m Vert. Clear. **Overall Width Detour Length** 0 km Skew Angle 15 ° 332.82 m2 No. of Spans **Total Deck Area** 0 m Struct. Dir. North/South Fill on Structure Special Routes ✓ Transit ✓ Schoo ☐ Truck Bicycle 1 hr Insp. Duration ** Current Replacement Value is based on in kind replacement of the existing structure and calculated using benchmark costs, Capital Spans planning should consider site specific cost factors and requirements for widening or lengthening of the structure. Span Name Span Length Span Name Span Length 7.1 m **Historical Data** 1968 yyyy Year Built Year of Last Major Rehab уууу mm/dd/yyyy Last OSIM Inspection Contract No. When Built Last Enhanced OSIM mm/dd/yyyy Last Evaluation mm/dd/yyyy **Last Enhanced Access** mm/dd/yyyy **Current Load Limit** mm/dd/yyyy

Rehab History

Last Underwater Insp.

Last Condition Survey

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Load Limit By-Law No.

By-Law Expiry Date

mm/dd/yyyy

mm/dd/yyyy

mm/dd/yyyy

Field Inspec	tion Information	1:					
Inspection Date	10/24/2012 m	m/dd/yyyy 🔲 Mul	ti Day Inspection	V	OSIM [Enhanced OSIM	BCI 72.
Inspector	D. Kelly		Eng. Respons	ible D.L.	Baxter, P.	Eng.	
Others in Party	M. Marin						
Access Equip.	Lift La	ndder Boat	☐ Bridge Master	Other			
Other Equip.	Camera, Hammer,	Other Hand Tcols					
Weather	Overcast			Tempera	iture [9 °C	
Additional In	vestigations Re	equired:					
Investigation			None	Priority Normal	Urgent	- 1	Estimated Cos
Detailed Deck Con	dition Survey			9			\$0
Delamination Surve	ey of Asphalt-Covered [Deck			m.		\$0
	ture Condition Survey			(iii)	100		\$0
Detailed Coating C					MIN.		\$0
Detailed Timber Inv							\$0
Post-Tensioned St							\$0
Underwater Investi							\$0
Fatigue Investigation							\$0
Seismic Investigation Structure Evaluation							\$0
		nd Cattlements					\$0
Monitoring of Cracl	rmations, Movements a	nd Settlements					\$0 \$0
Investigation Not						Total Cost	
Overall Struc	ctura Notas:						
Recommedend W		None	✓ Minor Rehab	Major	Rehab	Replace	Remove
Timing of Recomi		✓ 1 to 5 years	6 to 10 year		rtonab	_ торкоо	
Comments SU	atch repair abutment wa urface, patch repair and econstruct approach sid	seal cracks in deck s					wearing
BCI Change Justification							

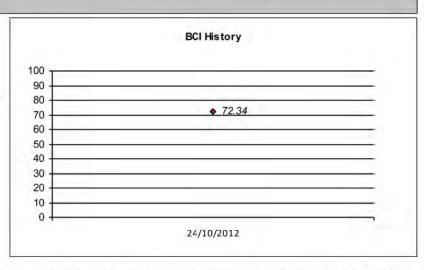
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Structure Number:

03-1182340 BR01

BCI History

Insp. Date	BCI	Inspector	
24-Oct-12	72.34	D. Kelly	



All BCI values are based on the MTO BCI methodology published in April 2008. As a result, BCI values for 2007 and earlier are approximate only, with potential discrepancies resulting from changes (over time) in the way quantities for certain elements are calculated.

Standard Codes

Suspected Performance Deficiencies

00	None
UU	IAOHE

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

- 04 Painting Steel Bridge Structures
- Bridge Deck Joint Repair 06 Bridge Bearing Maintenance
- Rough riding surface
 - Surface ponding

 - 11 Deck drainage

- Bearing not uniformly loaded/unstable
 Jammed expansion joint
 Pedestrian/vehicular hazard Slippery surfaces Flooding/channel blockage 13
 - 14 Under 15 Unstat 16 Other Undermining of foundation

 - Unstable embankments

Maintenance Needs

- 01 Lift and Swing Bridge Maintenance 07 Repair to Structural Steel Bridge Cleaning Bridge Handrail Maintenance

 - Nepair of Bridge Concrete
 Repair of Bridge Concrete
 Repair of Bridge Timber
 Bailey Bridges Maintenance
 Animal/Pest Control
 Bridge Surface Repair
- 13 Erosion Control at Bridges
- 14 Concrete Sealing15 Rout and Seal
- - 16 Bridge deck Drainage 17 Scaling (Loose or ACR Steel) 18 Other

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v1112

Municipal Structure Inspection Form

Structure Number:

03-1182340 BR01

V1850

lement Data							
Approaches - A	pproach Guid	derail					
Element Group	Approaches			Length	0.00	Width	0.00
Element Name	Approach Guid	derail	ed End	Height	0.00	Count	2.00
Location	Northwest and	Southeast Quadrants			Total Qu	antity	2.00
Material	Steel	Limited	Inspection	n			
Element Type	Steel Beam on	Environme	ent				
Protection System	Hot dip galvani	Benign					
Condition Data	Units Excell. Good Fair Poor			Moderate			
Comments	Each	0.00 2.00	0.00	✓ Severe			
Performance Deficie	ncies	Maintenance Needs	Priority	Comments			
None							
		100					
Rehab/Repair Recom	mendations	Priority Cost	Comments	_			
Abutments - Ab	utment Walls			-			
Element Group	Abutments			Length	0.00	Width	38.70
Element Name	Abutment Wal	ls		Height	0.60	Count	2.00
Location	North and Sou	th Ends			Total Qu	antity	46.44
Material	Cast-in-place	concrete		☐ Limited	Inspection	n	
Element Type			i	Environme	nt		
Protection System	None			✓ Benign			
Condition Data	Units E.	xcell. Good	Fair Poor	Modera	te		
Comments	sq. m	0.00 43.44	2.00 1.00	Severe			
Comments Wet areas and delami	nations adjacent to	construction joints.					
Performance Deficie	ncies	Maintenance Needs	Priority	Comments			
None							
		2012	Washington I				
Rehab/Repair Recom	nmendations	Priority Cost	Comments				
Minor Rehabilitation		6-10 yrs \$5,000	Patch repair				
						_	

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Structure Number: 03-1182340 BR01 **Municipal Structure Inspection Form Abutments - Wingwalls** 2.85 Width 0.00 **Element Group** Abutments Length **Element Name** Wingwalls Height 1.95 Count 3.00 Location Southeast, Southwest and Northeast Quadrants Total Quantity 16.67 Limited Inspection Material Cast-in-place concrete Element Type Environment None Benign **Protection System Condition Data** Units Excell. Good Fair Poor ✓ Moderate 0.00 0.00 sq. m 16.67 0.00 Severe Comments Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Accessories - Utilities **Element Group** Accessories Length 0.00 Width 0.00 Utilities Conduits 0.00 Count **Element Name** Height 3.00 East Side **Total Quantity** 3.00 Location Limited Inspection Steel Material **Element Type** Environment **Protection System** Hot dip galvanizing Benign **Condition Data** Units Good Fair Poor ✓ Moderate Excell. Each 0.00 3.00 0.00 0.00 Severe Comments Three conduits on East exterior soffit. **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments

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91112

ring C						
ring Surfa	ce					
Approaches			Length	6.00 W	Vidth	30.80
Wearing Surfa	ce		Height	0.00 C	ount	2.00
North and Sou	th Ends			Total Quantity		369,60
Asphalt			Limite	d Inspection		
	Environment Benign					
None						
Units E	ccell. Good Fair	Poor	☐ Moder	ate		
sq. m	0.00 357.60 6.00	6.00	✓ Severe			
es	Maintenance Needs	Priority	Comments			
endations	Priority Cost Comments					
	6-10 yrs \$2,500 Patch repa		cracks			
roach Slab	6-10 yrs \$2,500 Patch repa					
roach Slab Approaches	6-10 yrs \$2,500 Patch repa		Length		Vidth _	
roach Slab	6-10 yrs \$2,500 Patch repa			0.00 C	ount	2.00
roach Slab Approaches	6-10 yrs \$2,500 Patch repa		Length [0.00 Co	ount	2.00
roach Slab Approaches Approach Slab	6-10 yrs \$2,500 Patch repa		Length [0.00 C	ount	2.00
roach Slab Approaches Approach Slab North and Sou	6-10 yrs \$2,500 Patch repa		Length [0.00 Co	ount	2.00
Approaches Approach Slab North and Sou Cast-in-place o	6-10 yrs \$2,500 Patch repa		Length [Height [0.00 Co	ount	2.00
Approaches Approach Slab North and Sou Cast-in-place of	6-10 yrs \$2,500 Patch repairs s th Ends concrete		Length Height Limite	0.00 Co	ount	30.80 2.00 369.60
Approaches Approach Slab North and Sou Cast-in-place of	6-10 yrs \$2,500 Patch repairs s th Ends concrete asphalt membrane	ir and seal	Length Height Limite Environm Benigr	0.00 Co Total Qua d Inspection ent	ount	2.
Approaches Approach Slab North and Sou Cast-in-place of Hot rubberized	6-10 yrs \$2,500 Patch repairs sth Ends concrete asphalt membrane xcell. Good Fair	r and seal	Length Height Limite Environm Benigr Moder	0.00 Co Total Qua d Inspection ent	ount	2.0
Approaches Approach Slab North and Sou Cast-in-place of Hot rubberized Units Es	6-10 yrs \$2,500 Patch reparts s th Ends concrete asphalt membrane xcell. Good Fair 0.00 363.60 6.00	Poor 0.00	Length Height Limite Environm Benigr Moder	0.00 Co Total Qua d Inspection ent	ount	2.00
1	North and Sour Asphalt None Units Example 1	None Juits Excell. Good Fair	North and South Ends Asphalt None Units Excell. Good Fair Poor sq. m 0.00 357.60 6.00 6.00 6.00 arrow to wide cracks, sealed cracks, minor settlement at ends of decidents of the contract	North and South Ends Asphalt Environm None Units Excell. Good Fair Poor Sq. m 0.00 357.60 6.00 6.00 ✓ Severe sarrow to wide cracks, sealed cracks, minor settlement at ends of deck.	North and South Ends Asphalt Limited Inspection Environment None Units Excell. Good Fair Poor Moderate sq. m 0.00 357.60 6.00 6.00 Severe Poor Severe	North and South Ends Asphalt Limited Inspection Environment Benign Units Excell. Good Fair Poor Moderate sq. m 0.00 357.60 6.00 6.00 Severe Parrow to wide cracks, sealed cracks, minor settlement at ends of deck.

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Structure Number: 03-1182340 BR01 **Municipal Structure Inspection Form** Barriers - Barrier/Parapet Walls 13.00 Width 0.00 **Element Group** Length **Element Name** Barrier/Parapet Walls Interior Height 1.25 Count 2.00 Location East and West Sides Total Quantity 32.50 Limited Inspection Material Cast-in-place concrete Element Type Parapet Wall without Railing Environment None **Protection System** Benign Units Good Fair Poor Moderate **Condition Data** Excell. sq. m 0.00 32.50 0.00 0.00 ✓ Severe Comments Narrow cracks. Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Barriers - Barrier/Parapet Walls **Element Group** Barriers Length 13.00 Width 0.00 Exterior **Element Name** Barrier/Parapet Walls Height 1.05 Count 2.00 East and West Sides 27.30 Location Total Quantity Limited Inspection Material Cast-in-place concrete **Element Type** Parapet Wall without Railing Environment **Protection System** None Benign **Condition Data** Units Good Fair Poor ✓ Moderate Excell. sq. m 0.00 27.30 0.00 0.00 Severe Comments Narrow cracks. **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments

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Municipal Str	ucture Inspection Form	Structure Number:	03-1182340 B	R01
Barriers - Post	s			
Element Group	Parriore	Longth	0.00 Width	0.00

Barriers - Posts								
Element Group	Barriers				Length	0.00 Width	0.00	
Element Name	Posts		Posts in Chai	in Link Fence	Height	0.00 Count	20.00	
Location	East and West	Sides				Total Quantity	20.00	
Material	Steel				Limited	Inspection		
Element Type					Environment			
Protection System	Hot dip galvani	zing			Benign			
Condition Data	Units Ex	ccell. Goo	d Fair	Poor	☐ Modera	ate		
Comments	Each	0.00	0.00	0.00	✓ Severe			
Performance Deficier	ncies	Maintenance	Needs	Priority	Comments			
Rehab/Repair Recom		Priority	Cost Comm	ents				
Barriers - Railin				-		2222 1000 0000	- 1010	
Element Group	Barriers				Length	25.00 Width	0.00	
Element Name	Railing System	S			Height	0.00 Count	2.00	
Location	East and West	Sides			Total Quantity 50.0			
Material	Steel				Limited	Inspection		
Element Type	Chain Link Fer	ice			Environme	ent		
Protection System	Hot dip galvani	zing			Benign			
Condition Data		ccell. Goo		Poor	☐ Modera	ate		
	m	0.00 5	0.00	0.00	✓ Severe			
Comments Overall light corrosion.	m							

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Structure Number: 03-1182340 BR01 **Municipal Structure Inspection Form** Approaches - Sidewalk 6.00 Width 1.70 **Element Group** Approaches Length **Element Name** Sidewalk Height 0.00 Count 4.00 All Quadrants **Total Quantity** 40.80 Location Limited Inspection Material Cast-in-place concrete Element Type Environment None **Protection System** Benign Units Fair Poor Moderate **Condition Data** Excell. Good 3.00 sq. m 0.00 37.80 0.00 ✓ Severe Comments Medium settlement of the Southeast sidewalk. Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments 6-10 yrs Minor Rehabilitation \$5,000 Reconstruct sidewalk Approaches - Curb/Gutters **Element Group** Approaches Length 6.00 Width 0.15 **Element Name** Curb/Gutters Height 0.15 Count 2.00 12.00 Location Northwest and Southwest Quadrants **Total Quantity** Limited Inspection Material Cast-in-place concrete **Element Type** Environment **Protection System** None Benign **Condition Data** Good Fair Poor Moderate Units Excell. 0.00 10.00 1.00 1.00 ✓ Severe Comments Wide cracks. **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments Minor Rehabilitation 6-10 yrs \$2,500 Patch repairs

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/lunicipal	Structure	Inspection Form	
Coatings -	Railing Sys	tome/Hand Railings	

Structure Number: 03-1182340 BR01

Coatings - Raili	ng Systen	ns/Hand Ra	ailings						
Element Group	Coatings					Length	0.00	Width	0.00
Element Name	Railing Sy	stems/Hand Ra	ailings			Height	0.00	Count	0.00
Location	East and \	West Sides					Total C	uantity	39.40
Material	Hot Dip G	alvanizing				Limited Inspection			
Element Type						Environme	ent		
Protection System	None				Benign				
Condition Data	Units	Excell.	Good	Fair	Poor	☐ Modera	ate		
Comments	sq. m	0.00	35.40	2.00	2.00	✓ Severe			
Breakdown of galvaniz		- 23.7	-ove ac io		12 27 84	5.000			
Performance Deficier	ncies		enance Needs			Comments	.55		
None		Bridge	Handrail Maint	enance	2 yr	Touch up coa	ting		
Rehab/Repair Recom	mendations	Pric	ority Co	st Commen	ts				
	-1.910 (1.616) 2.01								
Decks - Deck To	р								-
Element Group	Decks					Length	8.60	Width	38.70
Element Name	Deck Top	<u>Ş</u>				Height	0.00	Count	0.00
Location	All						Total C	uantity	332.82
Material	Cast-in-pla	ace concrete				Limited Inspection			
Element Type						Environme	ent		
Protection System	Hot rubbe	rized asphalt m	embrane			Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	✓ Moderate			
Comments	sq. m	0.00	325.82	7.00	0.00	Severe			
Performance Deficier None Rehab/Repair Recom			enance Needs ority Co	st Commen		Comments			

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Structure Number: 03-1182340 BR01

Good 34.92 intenance Needs Priority Co -10 yrs \$2,5	ost Commer	ts	Total Quality Limited Inspection Environment Benign Moderate Severe	uantity 36.92		
Good 34.92 intenance Needs Priority Co -10 yrs \$2,5	Fair 1.00	Priority	Total Qu Limited Inspection Environment Benign Moderate Severe	on 36.92		
Good 34.92 intenance Needs Priority Co -10 yrs \$2,5	1.00 ost Commen	Priority	Limited Inspection Environment Benign Moderate Severe Comments	on		
Good 34.92 intenance Needs Priority Co -10 yrs \$2,5	1.00 ost Commen	Priority	Environment Benign Moderate Severe			
intenance Needs Priority Co -10 yrs \$2,5	1.00 ost Commen	Priority	□ Benign ✓ Moderate □ Severe Comments	Width 36.70		
intenance Needs Priority Co -10 yrs \$2,5	1.00 ost Commen	Priority	✓ Moderate ☐ Severe Comments	Width 36.70		
intenance Needs Priority Co -10 yrs \$2,5	1.00 ost Commen	Priority	☐ Severe Comments	Width 36.70		
intenance Needs Priority Co -10 yrs \$2,5	ost Commer 000 Patch rep	Priority	Comments	Width 36.70		
Priority Co -10 yrs \$2,5	ost Commer 00 Patch rep	ts		Width 36.70		
Priority Co -10 yrs \$2,5	ost Commer 00 Patch rep	ts		Width 36.70		
-10 yrs \$2,5	00 Patch rep		Length 7.10	Width 36.70		
-10 yrs \$2,5		pairs	Length 7.10	Width 36.70		
Į.	Interior		Length 7.10	Width 36.70		
	Interior		Length 7.10	Width 36.70		
	Interior					
			Height 0.00	Count 0.00		
			Total Quantity 260.57			
е			Limited Inspection	on		
			Environment			
		= i	✓ Benign			
Good	Fair	Poor				
238.57	12.00	10.00	Severe			
				ş.		
intenance Needs		Priority	Comments			
Priority Co	ost Commer	its				
	2.7.003.5					
	Good 238.57 [ith exposed corroc intenance Needs	Good Fair 238.57 12.00 ith exposed corroded rebar on the intenance Needs Priority Cost Commen	Good Fair Poor 238.57 12.00 10.00 ith exposed corroded rebar on the soffit adjacen intenance Needs Priority Priority Cost Comments	Environment Good Fair Poor Moderate 238.57 12.00 10.00 Severe ith exposed corroded rebar on the soffit adjacent to the construction joints intenance Needs Priority Comments Priority Cost Comments		

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Decks - Wearing		e Number:		
Element Group	Decks	Length	8.60 Width	30.80
Element Name	Wearing Surface	Height	0.00 Count	0.00
Location	All		Total Quantity	264.88
Material	Asphalt	Limited	d Inspection	
Element Type		Environme		
Protection System	None	Benign		
Condition Data	Units Excell. Good Fair Pool			
	sq. m 0.00 250.88 7.00	7.00 Severe	11	
Narrow to wide cracks	s, sealed cracks, light ravelling.			
None Rehab/Repair Recon	nmendations Priority Cost Comments			
Minor Rehabilitation	6-10 yrs \$2,500 Seal cracks			
Emhankments &	Streams - Embankments			
Linbankinents o	Otrodino Embanamento			
Element Group	Embankments & Streams	Length	0.00 Width	0.00
	ADDITION TO THE PARTY OF THE PA	Length Height	0.00 Width [0.00 6.00
Element Group	Embankments & Streams			
Element Group Element Name	Embankments & Streams Embankments	Height	0.00 Count	6.00
Element Group Element Name Location	Embankments & Streams Embankments All Quadrants and In Front of Abutments	Height	0.00 Count [Total Quantity [6.00
Element Group Element Name Location Material	Embankments & Streams Embankments All Quadrants and In Front of Abutments	Height Limited	0.00 Count [Total Quantity [d Inspection	6.00
Element Group Element Name Location Material Element Type	Embankments & Streams Embankments All Quadrants and In Front of Abutments Other Other Units Excell. Good Fair Poor	Height Limited Environment Benign or Modera	0.00 Count [Total Quantity [d Inspection	6.00
Element Group Element Name Location Material Element Type Protection System	Embankments & Streams Embankments All Quadrants and In Front of Abutments Other Other	Height Limited Environme	0.00 Count [Total Quantity [d Inspection ent	6.00
Element Group Element Name Location Material Element Type Protection System Condition Data	Embankments & Streams Embankments All Quadrants and In Front of Abutments Other Other Units Excell. Good Fair Poor	Height Limited Environme Benign Or Modera	0.00 Count [Total Quantity [d Inspection ent	6.00
Element Group Element Name Location Material Element Type Protection System Condition Data	Embankments & Streams Embankments All Quadrants and In Front of Abutments Other Other Units Excell. Good Fair Pool Each 0.00 6.00 0.00	Height Limited Environme Benign Or Modera	0.00 Count [Total Quantity [d Inspection ent	6.00
Element Group Element Name Location Material Element Type Protection System Condition Data Comments	Embankments & Streams Embankments All Quadrants and In Front of Abutments Other Other Units Excell. Good Fair Pool Each 0.00 6.00 0.00	Limited Environme Benign Or Modera 0.00 Severe	0.00 Count [Total Quantity [d Inspection ent	6.00
Element Group Element Name Location Material Element Type Protection System Condition Data Comments Performance Deficient	Embankments & Streams Embankments All Quadrants and In Front of Abutments Other Units Excell. Good Fair Pool Each 0.00 6.00 0.00 Maintenance Needs Price	Limited Environme Benign Or Modera 0.00 Severe	0.00 Count [Total Quantity [d Inspection ent	6.00

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Structure Number: 03-1182340 BR01

Element Group	Embankments	& Streams			Length	0.00 Width	0.00
Element Name	Slope Protection	420000000			Height	0.00 Count	6.00
Location		and In Front of Abut	tmonte		oigiit	Total Quantity	6.00
Location Material			morito		Limited	nspection	0,00
	Cast-in-place co	лстеце					
Element Type					Environment Benign		
Protection System	None	in alter			Benign		
Condition Data	Units Ex	0.00 Good		Poor 0.00	Moderate		
Comments Wide cracks in slope p	3.334.53		.00.00	0.00	Severe		
	ai e			2.7.00			
Performance Deficier None	ncies	Maintenance N	leeds	Priority	Comments		
Rehab/Repair Recom		Priority	Cost Comme	nts			
Embankments & Element Group	Embankments	ADDRESS OF STREET	rways		Length	0.00 Width	0.00
Chesta Carlo					=		
Element Name	Streams & Wat	erways			Height	0.00 Count	1.00
Location	Under Bridge				_	Total Quantity	1.00
Material							
Element Type					Environment		
Protection System	Units Ex	noll Good	Fair	Poor	Benign Moderate		
Condition Data	All Ex	0.00 Good	.00 0.00	0.00	Severe		
Comments Concrete paved chann				9.00	Severe		
Performance Deficier	ncies	Maintenance N	leeds	Priority	Comments		
		Priority	Cost Comme	nts			
Rehab/Repair Recom	mendations						

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Iunicipal Structure Inspection Form	lunicipa	Structure	Inspection	Form
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Structure Number:

03-1182340 BR01

Foundations - F	oundations	s (below	ground l	evel)								
Element Group	Foundations	5					Length	0.00	Width	0.00		
Element Name	Foundations	(below gro	und level)				Height	0.00	Count	0.00		
Location	At Abutmen	ts and Reta	nd Retaining Walls					Total C	Quantity	0.00		
Material							Limited Inspection					
Element Type							Environment					
Protection System						i	Benigr	1				
Condition Data	Units	Excell.	Good Fair Poor			Moderate						
Comments						Severe						
Limited inspection.												
Performance Deficier	ncies	Mair	ntenance Ne	eds		Priority	Comments					
None	10.00	_				Thenty	Commonto					
Rehab/Repair Recom	mendations	P	riority	Cost C	Commen	ts .						
Retaining walls	- Walls											
Element Group	Retaining wa	alls					Length	6.00	Width	0.00		
Element Name	Walls						Height	3.50	Count	1.00		
Location	Northwest C	Quadrant					Total Quantity 21.0					
Material	Cast-in-plac	e concrete					Limited Inspection					
Element Type							Environm	ent				
Protection System	None						Benign	1				
Condition Data	Units	Excell.	Good	Fa	ir	Poor	✓ Moderate					
Comments	sq. m	0.00	21.00)	0.00	0.00	Severe)				
Performance Deficier	ncies	Mair	ntenance Ne	eds		Priority	Comments					

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Structure Number: 03-1182340 BR01 **Municipal Structure Inspection Form** Retaining walls - Walls 3.00 Width 0.00 Retaining walls Length **Element Group Element Name** Walls Height 1.00 Count 2.00 Location Southeast and Northeast Quadrants **Total Quantity** 6.00 Limited Inspection Material Rock Element Type Gabions Environment None **Protection System** Benign Units Fair Poor ✓ Moderate **Condition Data** Excell. Good sq. m 0.00 6.00 0.00 0.00 Severe Comments Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Sidewalks/curbs - Sidewalks/Medians **Element Group** Sidewalks/curbs Length 20.60 Width 1.80 Raised Median **Element Name** Sidewalks/Medians Height 0.15 Count 1.00 Centre of Bridge 40.17 Location Total Quantity Limited Inspection Material Cast-in-place concrete **Element Type** Environment Benign **Protection System** None **Condition Data** Units Excell. Good Fair Poor Moderate sq. m 0.00 38.17 1.00 1.00 ✓ Severe Comments Wide cracks, light abrasions. **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments Minor Rehabilitation 6-10 yrs \$2,500 Seal cracks

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.91112

Minor Rehabilitation

Sidewalks/curbs	- Sidewalks	/Medians				
Element Group	Sidewalks/curb	s Length 20.6	Width	1.80		
Element Name	Sidewalks/Med	lians Height 0.1	Count	2.00		
Location	East and West	Sides Total	Quantity	80.34		
Material	Cast-in-place of	concrete Limited Inspec	Limited Inspection			
Element Type		Environment				
Protection System	None	☐ Benign				
Condition Data	Units Ex	ccell. Good Fair Poor Moderate				
Comments	sq. m	0.00 79.34 1.00 0.00 V Severe				
Performance Deficier	ncies	Maintenance Needs Priority Comments				
None Rehab/Repair Recom	mendations	Maintenance Needs Priority Comments Priority Cost Comments				
None Rehab/Repair Recom Sidewalks/curbs	mendations - Curbs	Priority Cost Comments				
None Rehab/Repair Recom Sidewalks/curbs	mendations	Priority Cost Comments S Length 8.6		0.15		
None Rehab/Repair Recom Sidewalks/curbs Element Group	mendations - Curbs	Priority Cost Comments See Length 8.6 Height 0.1	Count	1.00		
None Rehab/Repair Recom Sidewalks/curbs Element Group Element Name	- Curbs Sidewalks/curb	Priority Cost Comments See Length 8.6 Height 0.1 Total	Count Quantity	1.00		
None Rehab/Repair Recom Sidewalks/curbs Element Group Element Name Location Material	- Curbs Sidewalks/curb	Priority Cost Comments See Length 8.6 Height 0.1 Total	Count Quantity	1.00		
None Rehab/Repair Recom Sidewalks/curbs Element Group Element Name Location Material Element Type	Curbs Sidewalks/curb Curbs West Side Cast-in-place of	Priority Cost Comments See Length 8.6 Height 0.1 Total	Count Quantity	1.00		
None Rehab/Repair Recom Sidewalks/curbs Element Group Element Name Location Waterial Element Type Protection System	Curbs Sidewalks/curb Curbs West Side Cast-in-place of	Priority Cost Comments See Length 8.6 Height 0.1 Total Concrete Limited Inspect	Count Quantity	1.00		
None Rehab/Repair Recom Sidewalks/curbs Element Group Element Name Location Material	Curbs Sidewalks/curb Curbs West Side Cast-in-place of None Units	Priority Cost Comments See Length 8.6 Height 0.1 Total Concrete Limited Inspect Environment Benign Cocell. Good Fair Poor Moderate	Count Quantity	1.00		
Rehab/Repair Recomesidewalks/curbs Element Group Element Name Location Material Element Type Protection System Condition Data	Curbs Sidewalks/curb Curbs West Side Cast-in-place of None Units Sq. m	Priority Cost Comments Length 8.6 Height 0.1 Total Concrete Environment Benign CCell. Good Fair Poor Moderate 0.00 2.08 0.25 0.25 ✓ Severe	Count Quantity	1.00		
None Rehab/Repair Recom Sidewalks/curbs Element Group Element Name Location Material Element Type Protection System	Curbs Sidewalks/curb Curbs West Side Cast-in-place of None Units Sq. m	Priority Cost Comments Length 8.6 Height 0.1 Total Concrete Environment Benign CCell. Good Fair Poor Moderate 0.00 2.08 0.25 0.25 ✓ Severe	Count Quantity	0.15 1.00 2.58		

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\$2,500 Patch repairs

6-10 yrs

Structure Number:

03-1182340 BR01

Repair/Reh	abilitation Require	ed				
Element Group	Element		Repair/Rehabilitation		Priority	Cost
Abutments	Abutment Walls		Minor Rehabilitation	(6-10 yrs	\$5,000
Approaches	Curb/Gutters		Minor Rehabilitation		6-10 yrs	\$2,500
Sidewalks/curbs	Curbs		Minor Rehabilitation		6-10 yrs	\$2,500
Approaches	Sidewalk		Minor Rehabilitation		6-10 yrs	\$5,000
Sidewalks/curbs	Sidewalks/Medians	Raised M	Minor Rehabilitation	(6-10 yrs	\$2,500
Decks	Soffit - Thick Slab	Interior	Minor Rehabilitation		6-10 yrs	\$15,000
Decks	Soffit - Thick Slab	Exterior	Minor Rehabilitation		6-10 yrs	\$2,500
Embankments & Streams	Streams & Waterways		Minor Rehabilitation		6-10 yrs	\$20,000
Decks	Wearing Surface		Minor Rehabilitation		6-10 yrs	\$2,500
Approaches	Wearing Surface		Minor Rehabilitation		6-10 yrs	\$2,500
				Total Repair/Rehabilitation (Cost	\$60,000

Com	ments			E	stimated Cost
Approaches					\$0
Detours					\$0
Traffic Control					\$10,000
Utilities					\$0
Right-of-Way					\$0
Environmental Study					\$0
Other					\$0
Contingencies		î	10 %	**	\$7,000
Engineering			20 %	**	\$14,000
** If based on a percentage calc	ulated values rounded-up to the	Total Associated W	ork Cost		\$31,000
nearest thousand dollars.		Total Repair/Rehabilitat	ion Cost		\$60,000
		1	otal Cost		\$91,000
		Region of Halton Share @	100%		\$91,000
Justification					

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Municipal Structure Inspection Form

Structure Number:

03-1182340 BR01



Looking North at Bridge



Looking South at Bridge

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East Elevation



West Elevation

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Municipal Structure Inspection Form

Structure Number:

03-1182340 BR01



Light Corrosion on Chain Link Fence Post



Light Corrosion on Chain Link Fence

03-1182340 BR01



Breakdown of Galvanized Coating on Chain Link Fence



Narrow Crack on Interior Parapet Wall

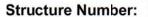
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Municipal Structure Inspection Form



03-1182340 BR01



Narrow Crack on Exterior Parapet Wall



Severe Abrasion on Curb Over Deck

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03-1182340 BR01



Wide Crack on Median



Wide Crack on Deck Wearing Surface

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Municipal Structure Inspection Form

Structure Number:

03-1182340 BR01



Typical Soffit



East Construction Joint

03-1182340 BR01



Middle Construction Joint



West Construction Joint

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Municipal Structure Inspection Form

Structure Number:

03-1182340 BR01



Wide Crack on Exterior Soffit



Displaced Rebar on Interior Soffit

03-1182340 BR01



Medium Crack in Sidewalk



North Abutment

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Municipal Structure Inspection Form

Structure Number:

03-1182340 BR01



South Abutment



Delamination on Abutment Wall

03-1182340 BR01



Typical Wingwall



Typical Retaining Wall in Northwest Quadrant

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Municipal Structure Inspection Form

Structure Number:

03-1182340 BR01



Typical Gabion Basket at East Side of Structure



Wide Crack in Slope Protection in Front of Abutment

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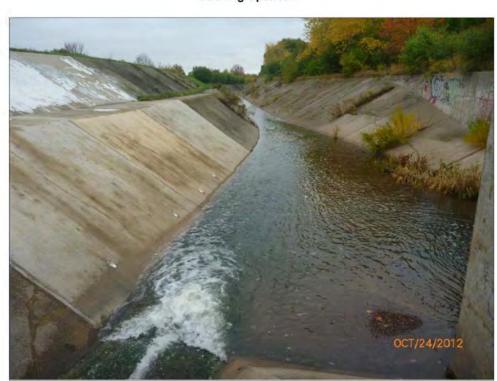
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03-1182340 BR01



Looking Upstream



Looking Downstream

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Municipal Structure Inspection Form

Structure Number:

03-1182340 BR01



Watercourse Below Structure



Severe Ravelling of Approach Wearing Surface

Structure Number:

03-1182340 BR01



Wide Crack on Approach Curb



Medium Settlement of Approach Sidewalk in Southeast Quadrant



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Summary Action Report Structure 03-1182320 CU01 (MTO Site No.) Trafalgar Road

TONE DICTITION I	nspection 10/24/2014	mm/dd/yyyy			Current Rep. V	alue	9,724,00
Additional Inve	estigations	23155.4	72.77			12100	OAT.
Investigation		Priority	Cost I	nvestigation		Priority	Cost
No additional inve	stigations required.						
Performance D							
Maintenance N	ands				7.70		
Element Group	Element		Maintenan	ce Required	Priority Co	mment	
Embankments & Streams	Streams & Waterways		Other		1 yr Ren	move tree	
Repair/Rehabil	itation						
Element Group	Element		Repair/Reha	abilitation		Priority	Cost
Barriers	Posts		Minor Rehabilitation		eteriorated posts	1-5 yrs	\$2,500
Barriers	Railing Systems		Minor Rehabilitation		amaged section	1-5 yrs	\$2,500
Culverts	Barrels		Minor Rehabilitation	Patch repa	irs	1-5 yrs	\$9,000
Culverts	Inlet Components	Headwall/	Minor Rehabilitation		ir and seal cracks	1-5 yrs	\$5,000
Culverts	Inlet Components	Gabion B	Minor Rehabilitation		oken basket	1-5 yrs	\$5,000
Culverts	Outlet Components	Headwall/	Minor Rehabilitation		ir and seal cracks	1-5 yrs	\$5,000
Decks	Wearing Surface		Minor Rehabilitation		irs and seal cracks	1-5 yrs	\$5,000
Barriers	Railing Systems		Minor Rehabilitation		issing section	1-5 yrs	\$5,000
Sidewalks/curbs	Curbs		Minor Rehabilitation	Seal crack	S	1-5 yrs	\$5,000
				Т	otal Repair/Rehabilitat	ion Cost	\$44,000
Region of Halton		100 % \$	70,400.00		Total Associated W	ork Cost	\$26,400
		%				Total Cost	\$70,400

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Municipal Structure Inspection Form

Structure Number:

03-1182320 CU01

Inventory Data			
Structure Name	Trafalgar Road	Hwy No.	3 Key Photo
Cross. Type Over Cross. Type Under		Water	Other Other
Road Name	Trafalgar Road		
Structure Location	0.60 km North of Queen Elizabeth Way		
Northing	4813384.0 Easting 605840.0	Cur. Rep.Value \$9	,724,000
Owner(s)/ % Share	Region of Halton	100 %	**
		% Heritage Status	Not Considered for Designation
MTO Region	Central	Road Side Env.	Semi Urban
MTO District	Central	Road Class	Arterial
Old County	Halton	Lane Type	Regular
Geographic Twp.		Posted Speed	60 No. of Lanes 4
Structure Type	Rectangular Culvert	AADT	42822 Pct. Trucks 3
Structure Material	Reinforced Cast-in-Place Concrete	Inspection Route	Sequence
Articulation		Interchange Num	ber
Total Deck Length	360 m Road Width	16 m Interchange Stru	cture Number
Overall Width	3.5 m Vert. Clear.	3.1 m Detour Length	0 km Skew Angle 90 °
Total Deck Area	1260.00 m ² No. of Spans	1 Fill on Structure	4 m Struct. Dir. North/South
Special Routes	✓ Transit ✓ Schoo ☐ Truck ☐	Bicycle Insp. Duration	2 hr
Spans	** Current Replacement Value is based on in k planning should conside	aind replacement of the existing ser site specific cost factors and re	tructure and calculated using benchmark costs. Capita equirements for widening or lengthening of the structure
Span Name	Span Length 3.0 m	Span Name	Span Length
Historical Data			
Year Built	1980 уууу	Year of Last Major Rehab	уууу
Last OSIM Inspectio	n mm/dd/yyyy	Contract No. When Built	
Last Enhanced OSIN	mm/dd/yyyy	Last Evaluation	mm/dd/yyyy
Last Enhanced Acce	mm/dd/yyyy	Current Load Limit	t t
Last Underwater Insp	p. mm/dd/yyyy	Load Limit By-Law No.	mm/dd/yyyy
Last Condition Surv	ey mm/dd/yyyy	By-Law Expiry Date	mm/dd/yyyy

Rehab History

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January 28, 2013

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WITE

Field Inspe	ection Information	1:					
Inspection Dat			Multi Day Inspection	V	OSIM 🗆	Enhanced OSIM	BCI 74.6
Inspector	D. Kelly		Eng. Respons	ible D.L.	Baxter, P.	Eng.	
]	10.5	1		
Others in Party		dua Da	Deider Mester	Ott [
Access Equip.	-	dder Boa	27.00	Other			
Other Equip.	Camera, Hammer,	Other Hand Tools					
Weather	Overcast			Tempera	ature	10 °C	
Additional	Investigations Re	equired:					
Investigation			None	Priority Normal	Urgent		Estimated Cost
Detailed Deck C	Condition Survey						\$0
Delamination Su	urvey of Asphalt-Covered [Deck	m				\$0
Concrete Subst	ructure Condition Survey		(411)				\$0
Detailed Coating	g Condition Survey		(01)				\$0
Detailed Timber	Investigation						\$0
Post-Tensioned	Strand Investigation						\$0
Underwater Inve	estigation						\$0
Fatigue Investig	ation						\$0
Seismic Investig	gation						\$0
Structure Evalua	ation						\$0
Monitoring of De	eformations, Movements a	nd Settlements					\$0
Monitoring of Cr	rack Widths						\$0
Investigation N	Notes					Total Cost	\$0
Overall Str	ructure Notes:						
Recommedend	Work on Structure	None	✓ Minor Rehab	☐ Major	Rehab	Replace	Remove
Timing of Reco	ommended Work	✓ 1 to 5 yea	ars 6 to 10 year	rs			
Overall Comments		n basket at inlet, s	e damaged section of guic eal cracks and patch repa				on of
BCI Change Justification	2						

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Estimated Load Limit

10/24/2014 mm/dd/yyyy

Next Inspection

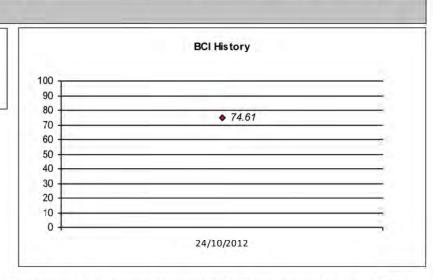
Municipal Structure Inspection Form

Structure Number:

03-1182320 CU01

BCI History

BCI Inspector Insp. Date 24-Oct-12 74.61 D. Kelly



All BCI values are based on the MTO BCI methodology published in April 2008. As a result, BCI values for 2007 and earlier are approximate only, with potential discrepancies resulting from changes (over time) in the way quantities for certain elements are calculated.

Standard Codes

Suspected Performance Deficiencies

- None
 Load carrying capacity
 Excessive deformations (deflections/rotations)
- 03 Continuing settlement
- 04 Continuing movements
- 05 Seized bearings

Maintenance Needs

- 01 Lift and Swing Bridge Maintenance

- 06 Bearing not uniformly loaded/unstable
- Jammed expansion joint
- Pedestrian/vehicular hazard
- 10 Surface ponding 11 Deck drainage

- 02 Bridge Cleaning
 03 Bridge Handrail Maintenance
 04 Painting Steel Bridge Structures
 05 Bridge Deck Joint Repair
- 06 Bridge Bearing Maintenance

- 14 Undermining of foundation 15 Unstable embankments 16 Other
- Rough riding surface
- 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
- 16 Bridge deck Drainage 17 Scaling (Loose or ACR Steel) 18 Other

12 Slippery surfaces

13 Flooding/channel blockage

13 Erosion Control at Bridges

14 Concrete Sealing 15 Rout and Seal

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WITEE

Structure Number:

03-1182320 CU01

Element Name P	arriers		
Location			Length 0.00 Width 0.0
	osts		Height 0.00 Count 14.0
	orth and South Sides		Total Quantity 14.0
Material V	ood		Limited Inspection
Element Type	ood Posts in Steel Flexbeam Syster	n	Environment
Protection System N	one		Benign
Condition Data U	its Excell. Good	Fair Poor	Moderate
Comments	ch 0.00 6.00	4.00 4.00	✓ Severe
Light to severe end rot, ligh	to severe checking.		
Performance Deficiencies	Maintenance Need	ds Priority	Comments
None			
Rehab/Repair Recommer		Cost Comments	
Minor Rehabilitation		2,500 Replace deteriorated po	osts
Barriers - Railing S		1	45.50 115.11
	arriers	10	Length 15.50 Width 0.0
A THE STATE OF THE	ailing Systems		Height 0.00 Count 2.0
Location	orth and South Sides		Total Quantity 31.0
Material	eel		Limited Inspection
Element Type S	eel Flex Beam on wood post		Environment
Protection System H	ot dip galvanizing		Benign
Condition Data U	its Excell. Good	Fair Poor	Moderate
Comments	0.00 29.00	0.00 2.00	✓ Severe
Localized severe impact da	nage, light corrosion.		
Performance Deficiencies	Maintenance Need	ds Priority	Comments
None		Sep Same	
	2.50		
None Rehab/Repair Recommer Minor Rehabilitation		Cost Comments 1,500 Replace damaged sect	£5.

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lunic	ipal	Structur	e Inspection Form	
	-	0.770.270.071		

Structure Number:

03-1182320 CU01

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Flomont (Froun	A	iuiderail			1	1 mark 1 F	0.00	Manuar -	
Element Group	Approache		i	10		Length	0.00	Width	0.00
Element Name	Approach (Terminal End		Height	0.00	_	4.00
Location	All Quadra	nts						Quantity	4.00
Material	Steel					Limited	d Inspecti	on	
Element Type		n on Wood Pos	sts			Environme	ent		
Protection System	Hot dip gal	vanizing	2.22			Benign	11		
Condition Data	Units	Excell.	Good	Fair	Poor	Modera			
Comments	Each	0.00	4.00	0.00	0.00	✓ Severe			
Performance Deficier	ncies	Mainte	enance Need	ds	Priority	Comments			
None Rehab/Repair Recom	nmendations	Prio	ority (Cost Commen	ts				
Coatings - Raili	ng System	s/Hand Ra	ilings						-
Element Group	Coatings					Length	0.00	Width	0.00
Element Name	Railing Sys	stems/Hand Ra	ailings			Height	0.00	Count	0.00
Location	North and	South Sides					Total C	Quantity	18.60
Material	Hot Dip Ga	alvanizing				Limited	d Inspecti	on	
						Environme	ent		
Element Type						Benign	Í		
Element Type Protection System	None		Cood	Fair	Poor	☐ Modera	ate		
	None Units	Excell.	Good						
Protection System		Excell. 0.00	18.60	0.00	0.00	✓ Severe			
Protection System Condition Data	Units sq. m	0.00 [
Protection System Condition Data Comments Minor breakdown of ga	Units sq. m	0.00 [18.60			Severe			
Protection System Condition Data Comments Minor breakdown of ga	Units sq. m	0.00 [18.60						

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Structure Number: 03-1182320 CU01

Culverts					Length	360.00 Width	3.00
Barrels					Height	3.10 Count	1.00
Under Roa	adway					Total Quantity	4392.00
Cast-in-pla	ace concrete				Limite	d Inspection	
Box					Environm	ent	
None					✓ Benigr	1	
Units	Excell.	Good	Fair	Poor	☐ Moder	ate	
sq. m	0.00	4374.00	12.00	6.00	Severe		
cies	Mainte	nance Needs		Priority	Comments		
mendations	Pric	ority Co	st Commen	nts			
	1-5	yrs \$9,00	00 Patch rep	pairs			
ompone	nts						
Culverts					Length	0.00 Width	0.00
Inlet Comp	onents	H	leadwall/Retair	ning Wall	Height	0.00 Count	0.00
North Side	r					Total Quantity	26.00
Cast-in-pla	ace concrete				Limite	d Inspection	
					Environm	ent	
None					Benigr	1	
Units	Excell.	Good	Fair	Poor	✓ Moder	ate	
sq. m	0.00	22.00	2.00	2.00	Severe	9	
vest retaining	wall, wide crac	ks separating r	etaining wall ar	nd headwall.			
cies	Mainte	enance Needs		Priority	Comments		
cies	Mainte	nance Needs		Priority	Comments		
cies		3 /2	est Commen		Comments		
	Under Roa Cast-in-pla Box None Units sq. m nations, wet a aorescence state cies mendations Componer Culverts Inlet Componer North Side Cast-in-pla None Units sq. m	Under Roadway Cast-in-place concrete Box None Units Excell. sq. m 0.00 nations, wet areas and light sorescence staining and stain cies Mainte Mainte Components Culverts Inlet Components North Side Cast-in-place concrete None Units Excell. sq. m 0.00	Under Roadway Cast-in-place concrete Box None Units Excell. Good sq. m 0.00 4374.00 nations, wet areas and light spalling with exporescence staining and stained cracks, several	Under Roadway Cast-in-place concrete Box None Units Excell. Good Fair sq. m 0.00 4374.00 12.00 nations, wet areas and light spalling with exposed corroded or scence staining and stained cracks, severe scouring at a cies Maintenance Needs Maintenance Needs Components Culverts Inlet Components Rorth Side Cast-in-place concrete None Units Excell. Good Fair sq. m 0.00 22.00 2.00 2.00	Under Roadway Cast-in-place concrete Box None Units Excell. Good Fair Poor sq. m 0.00 4374.00 12.00 6.00 nations, wet areas and light spalling with exposed corroded rebar adjacer prescence staining and stained cracks, severe scouring at base of barrences and base of barrences are severed by the severed severed severed by the severed severed by the severed severed severed by the severed sev	Under Roadway Cast-in-place concrete Box Environm None Units Excell. Good Fair Poor Moder sq. m 0.00 4374.00 12.00 6.00 Severe nations, wet areas and light spalling with exposed corroded rebar adjacent to storm dra orescence staining and stained cracks, severe scouring at base of barrel walls at various and stained cracks, severe scouring at base of barrel walls at various and stained cracks. Cies Maintenance Needs Priority Comments 1-5 yrs \$9,000 Patch repairs Components Culverts Inlet Components Headwall/Retaining Wall Height North Side Cast-in-place concrete Limite Environm None Units Excell. Good Fair Poor ✓ Moder sq. m 0.00 22.00 2.00 2.00 Severe	Under Roadway Cast-in-place concrete Box Environment None Units Excell. Good Fair Poor Moderate Sq. m 0.00 4374.00 12.00 6.00 Severe Inations, wet areas and light spalling with exposed corroded rebar adjacent to storm drain outlets and prescence staining and stained cracks, severe scouring at base of barrel walls at various points throughout prescence staining and stained cracks. Interest Sq. m 1-5 yrs Sq. 000 Patch repairs Components Culverts Length 0.00 Width Height 0.00 Count Inlet Components North Side Total Quantity Cast-in-place concrete Limited Inspection Environment None Units Excell. Good Fair Poor Moderate Sq. m 0.00 22.00 2.00 Severe

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Municipal Structure Inspection Form	N	luni	ci	pal	Str	ucture	Inspe	ction	Form	
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Structure Number: 03-1182320 CU01

Culverts - Inlet	Components							
Element Group	Culverts				Length	0.00	Width	0.00
Element Name	Inlet Componen	its	Gabion Basket	is	Height	0.00	Count	0.00
Location	North Side					Total C	luantity	36.00
Material	Rock				Limited	d Inspecti	on	
Element Type	Retaining Wall				Environm	ent		
Protection System	None				Benign	1		
Condition Data	Units Ex	cell. Good	Fair	Poor	✓ Modera	ate		
Comments	sq. m	0.00 33.0	0.00	3.00	Severe			
Hole in one basket at N	vormeast quadrant,	complete loss of for	cks in this dasket.					
Performance Deficier	ncies	Maintenance Ne	eds	Priority	Comments			
None								
A STATE OF THE STA		0.23						
Rehab/Repair Recom	mendations	Priority	Cost Comme					
Minor Rehabilitation			\$5,000 Replace	broken basket				
Culverts - Outle	-	5			1	0.00	MC-445	0.00
Element Group	Culverts		16		Length	0.00	Width	0.00
Element Name	Outlet Compone	ents	Headwall/Reta	ining Wall	Height	0.00	_	0.00
Location	South Side						uantity	42,00
Material	Cast-in-place co	oncrete			Limited	d Inspecti	on	
Element Type					Environm	ent		
Protection System	None				Benigr			
Condition Data		cell. Good	Fair	Poor	✓ Modera	ate		
Comments	sq. m	0.00 40.0	1.00	1.00	Severe			
Wide crack on retainin		inations on headwall		Priority	Comments			+
None								
Rehab/Repair Recom	mendations	Priority	Cost Comme	ents				
Minor Rehabilitation		1-5 yrs	\$5,000 Patch re	epair and seal c	racks			

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Structure Number: 03-1182320 CU01 **Municipal Structure Inspection Form Decks - Wearing Surface** 15.50 Width 16.00 **Element Group** Length **Element Name** Wearing Surface Height 0.00 Count 0.00 Above Culvert Total Quantity 248.00 Location Limited Inspection Material Asphalt **Element Type** Environment None **Protection System** Benign Units Fair Poor Moderate **Condition Data** Excell. Good sq. m 0.00 242.00 3.00 3.00 ✓ Severe Comments Narrow to wide cracking, asphalt patches, light to severe ravelling, sealed cracks, light wheel track rutting. Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Minor Rehabilitation 1-5 yrs \$5,000 Patch repairs and seal cracks **Embankments & Streams - Embankments Element Group** Embankments & Streams Length 0.00 Width 0.00 **Element Name** Embankments Height 0.00 Count 4.00 All Quadrants 4.00 Location **Total Quantity** Limited Inspection Material Vegetation **Element Type** Environment Benign **Protection System** Vegetation **Condition Data** Units Good Fair Poor Moderate Excell. Each 0.00 4.00 0.00 0.00 Severe Comments **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments

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Iunicipal Structure Inspection Form	lunicipa	I Structure	Inspection	Form
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Structure Number:

03-1182320 CU01

Elamant Carrier			tection				12.27		-
Element Group	Embankments					Length	0.00	Width	0.00
Element Name	Slope Protecti	ion				Height	0.00	Count	4.00
Location	All Quadrants	4					Total C	Quantity	4.00
Material	Vegetation					Limite	d Inspecti	on	
Element Type						Environm	ent		
Protection System	None					Benigr	1		
Condition Data	Units E	xcell.	Good	Fair	Poor	Moder	ate		
Comments	Each	0.00	4.00	0.00	0.00	Severe	Э		
Performance Deficient None Rehab/Repair Recom		Mainter	ity Co	ost Commen		Comments			
Embankments 8	Streams - S	Streams 8	Waterwa	iys	-				
Element Group	Embankments	s & Streams				Length	0.00	Width	0.00
Element Name	Streams & W	aterways				Height	0.00	Count	1.00
Location	Through Culv	ert					Total C	Quantity	1.00
						Limite	d Inspecti	on	
Material					1	Environm			
						Environm	ent		
Element Type						Benigr			
Material Element Type Protection System Condition Data	Units E	Excell.	Good	Fair	Poor		1		
Element Type Protection System	Units E	0.00	Good	<i>Fair</i> 0.00	Poor 0.00	Benigr	n ate		
Element Type Protection System Condition Data Comments Tree partially obstruction	All and a state of the state of	0.00 tinlet.	1.00	0.00	0.00	Benigr Moder	n ate		
Element Type Protection System Condition Data Comments Tree partially obstruction Performance Deficient	All and a state of the state of	0.00 t inlet.	-	0.00	0.00	Benigr Moder Severe	n ate		
Element Type Protection System Condition Data Comments	All and a state of the state of	0.00 tinlet.	1.00	0.00	0.00	Benigr Moder	n ate		

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03-1182320 CU01 Structure Number: **Municipal Structure Inspection Form** Foundations - Foundations (below ground level) 0.00 Width 0.00 **Element Group** Length Foundations **Element Name** Foundations (below ground level) Height 0.00 Count 0.00 Below Culvert Location **Total Quantity** 0.00 ✓ Limited Inspection Material Element Type Environment **Protection System** Benign **Condition Data** Units Excell. Fair Poor Moderate Good Severe Comments Limited inspection. Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Barriers - Railing Systems **Element Group** Barriers Length 19.00 Width 0.00 Railing Systems **Element Name** Height 1.00 Count 1.00 North Side **Total Quantity** 19.00 Location Limited Inspection Steel Material **Element Type** Environment **Protection System** Epoxy zinc/acrylic/acrylic Benign **Condition Data** Units Fair Poor ✓ Moderate Excell. Good 0.00 16.00 0.00 3.00 Severe Comments Section of railing missing/broken. Performance Deficiencies **Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments Minor Rehabilitation 1-5 yrs \$5,000 Replace missing section

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.91112

Coatings - Raili	ng Systems/H	land Railings					
Element Group	Coatings			Length	0.00 V	Vidth	0.00
Element Name	Railing System	s/Hand Railings		Height	0.00	ount	0.00
Location	North Side				Total Qua	antity	19.00
Material	Hot Dip Galvan	izing		Limite	d Inspection		
Element Type			i	Environm	ent		
Protection System	None		i	☐ Benigi	1		
Condition Data	Units Ex	cell. Good Fair	Poor	✓ Moder	ate		
Comments	sq. m	0.00 19.00 0.00	0.00	Severe	9		
Performance Deficier	ncies	Maintenance Needs	Priority	Comments			
None							
Debah/Derais Dasses	mondations	Priority Cost Comm	onto				
Rehab/Repair Recom	imenuations						
	MI 311 MAN 210-	Thomas cost comm	Circo				
Sidewalks/curbs		Thomas dost domin					
Element Group	Sidewalks/curb			Length [V idth	
Element Group	s - Curbs Sidewalks/curb	s		Length [0.15 C	Count	2.00
Element Group Element Name Location	Sidewalks/curb Curbs North and Sout	is th Sides		Height	0.15 C	count antity	2.00
Element Group Element Name Location	s - Curbs Sidewalks/curb	is th Sides		Height	0.15 C	count antity	2.00
Element Group Element Name Location Material Element Type	Sidewalks/curb Curbs North and Sout	is th Sides		Height	0.15 C	count antity	2.00
Sidewalks/curbs Element Group Element Name Location Material Element Type Protection System	Sidewalks/curb Curbs North and Sout	is th Sides		Height Limite	0.15 C Total Qua d Inspection	count antity	2.00
Element Group Element Name Location Material Element Type	Sidewalks/curb Curbs North and Sout Cast-in-place continuous None Units	th Sides concrete	Poor	Height Limite Environm Benign Moder	0.15 C Total Qua d Inspection ent	count antity	2.00
Element Group Element Name Location Material Element Type Protection System	Sidewalks/curb Curbs North and Sout Cast-in-place of	th Sides		Height Limite Environm Benigi	0.15 C Total Qua d Inspection ent	count antity	0.15 2.00 9.30
Element Group Element Name Location Material Element Type Protection System Condition Data	Sidewalks/curb Sidewalks/curb Curbs North and Sout Cast-in-place of None Units Sq. m	th Sides concrete coell. Good Fair 0.00 7.30 1.00	Poor	Height Limite Environm Benign Moder	0.15 C Total Qua d Inspection ent	count antity	2.00
Element Group Element Name Location Material Element Type Protection System Condition Data	Sidewalks/curb Sidewalks/curb Curbs North and Sout Cast-in-place of None Units Sq. m	th Sides concrete coell. Good Fair 0.00 7.30 1.00	Poor	Height Limite Environm Benign Moder	0.15 C Total Qua d Inspection ent	count antity	2.00
Element Group Element Name Location Material Element Type Protection System Condition Data Comments Wide cracks, light sca	Sidewalks/curb Curbs North and Sout Cast-in-place of None Units Exits and abrasions	th Sides concrete coell. Good Fair 0.00 7.30 1.00	Poor	Height Limite Environm Benign Moder	0.15 C Total Qua d Inspection ent	count antity	2.00
Element Group Element Name Location Material Element Type Protection System Condition Data Comments Wide cracks, light sca	Sidewalks/curb Curbs North and Sout Cast-in-place of None Units Exits and abrasions	ich Sides concrete CCEII. Good Fair 0.00 7.30 1.00	Poor 1.00	Height Limite Environm Benigi Moder	0.15 C Total Qua d Inspection ent	count antity	2.00
Element Group Element Name Location Material Element Type Protection System Condition Data Comments Wide cracks, light sca	Sidewalks/curb Sidewalks/curb Curbs North and Sout Cast-in-place of None Units Exits sq. m ling and abrasions	ich Sides concrete CCEII. Good Fair 0.00 7.30 1.00	Poor 1.00	Height Limite Environm Benigi Moder	0.15 C Total Qua d Inspection ent	count antity	2.00
Element Group Element Name Location Material Element Type Protection System Condition Data Comments Wide cracks, light sca	Sidewalks/curb Sidewalks/curb Curbs North and Sout Cast-in-place of None Units Exits sq. m ling and abrasions	th Sides concrete CCEIL Good Fair 0.00 7.30 1.00	Poor 1.00 Priority	Height Limite Environm Benigi Moder	0.15 C Total Qua d Inspection ent	count antity	2.00

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Structure Number:

03-1182320 CU01

	- Sidewalks	s/wedians							
Element Group	Sidewalks/cur	bs				Length	15.50	Width	1.50
Element Name	Sidewalks/Medians			Height	0.00	Count	2.00		
Location	North and South Sides					Total Qu	uantity	46.50	
Material	Cast-in-place concrete				Limited Inspection				
Element Type					Environment				
Protection System	None				Benign				
Condition Data	Units Excell. Good Fair Poor				☐ Moderate				
Comments	sq. m	0.00	46.50	0.00	0.00	✓ Severe)		
Light scaling.									
Light scaling.	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1				2.5.00				
Light scaling.	ncies	Mainten	ance Needs		Priority	Comments			
E FORMULE OF THE	ncies	Mainter	ance Needs		Priority	Comments			

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Repair/Reh	abilitation Requi	red				
Element Group	Element		Repair/Rehabilitation		Priority	Cost
Culverts	Barrels		Minor Rehabilitation		1-5 yrs	\$9,000
Sidewalks/curbs	Curbs		Minor Rehabilitation		1-5 yrs	\$5,000
Culverts	Inlet Components	Gabion B	Minor Rehabilitation		1-5 yrs	\$5,000
Culverts	Inlet Components	Headwall	Minor Rehabilitation		1-5 yrs	\$5,000
Culverts	Outlet Components	Headwall	Minor Rehabilitation		1-5 yrs	\$5,000
Barriers	Posts		Minor Rehabilitation		1-5 yrs	\$2,500
Barriers	Railing Systems		Minor Rehabilitation		1-5 yrs	\$5,000
Barriers	Railing Systems		Minor Rehabilitation		1-5 yrs	\$2,500
Decks	Wearing Surface		Minor Rehabilitation		1-5 yrs	\$5,000
Associated	7072300					
Approaches	Comments			-	Estin	nated Cos
Detours						\$0
Traffic Control				_		\$10,000
Utilities				_		\$10,000
Right-of-Way						\$0
Environmental S	Study					\$0
Other						\$0
Contingencies				10 %	**	\$5,400
Engineering				20 %	**	\$11,000
	ercentage calculated value	es rounded-up t	o the Total Associated Wor	rk Cost		\$26,400
nearest thousand	dollars.		Total Repair/Rehabilitatio	n Cost		\$44,000
			То	tal Cost		\$70,400
			Region of Halton Share @	100%	1 - 1	\$70,400

Justification			

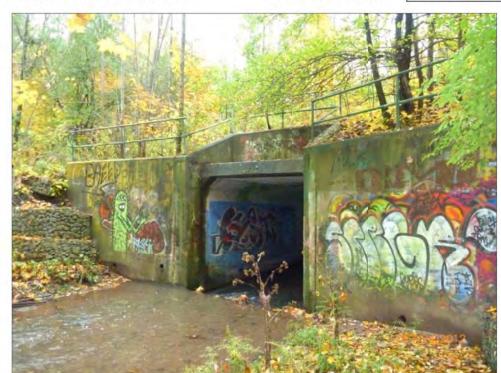
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Looking East at Roadway Over Culvert



Looking West at Roadway Over Culvert

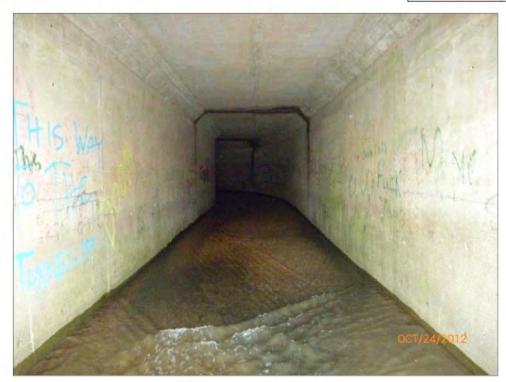


North Elevation



South Elevation

03-1182320 CU01



Looking North Through Barrel



Looking North Through Barrel at Midspan

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Municipal Structure Inspection Form

Structure Number:

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Looking South Through Barrel at Midspan



Looking South Through Barrel

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WHILE



Severe End Rot on Guiderail Post



Severe Impact Damage on Flex Beam Guiderail

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Municipal Structure Inspection Form

Structure Number:

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Light Corrosion on Guiderail Over Structure



Missing Handrail at Barrel Inlet

W1111

03-1182320 CU01



Wide Crack on Curb



Light Scaling on Sidewalk

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Municipal Structure Inspection Form

Structure Number:

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Wide Crack on Wearing Surface



North Construction Joint

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South Construction Joint



Delamination on Barrel Soffit

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Municipal Structure Inspection Form

Structure Number:

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Light Spalling of Barrel Soffit



Spalling Around Storm Sewer Outlet

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Structure Number:

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Severe Scouring of Barrel Walls



Severe Scaling Below Storm Sewer Outlet on Barrel Wall

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Municipal Structure Inspection Form

Structure Number:

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Tree at Barrel Inlet



Delamination on Inlet Retaining Wall

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N11112



Loss of Rock at Inlet Gabion Basket



Delamination on Outlet Headwall

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Municipal Structure Inspection Form

Structure Number:

03-1182320 CU01



Wide Crack on Outlet Retaining Wall



Looking Upstream

W1118

Structure Number:

03-1182320 CU01



Looking Downstream

January 28, 2013



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Summary Action Report Structure 03-1182510 CU01 (MTO Site No.)

Trafalgar Road Culvert

Inspection Date	9	01/23/2012	mm/dd/yyyy	4		Condition	Index Value (B	CI) 73.8
Next Biennial I	nspection	01/23/2014	mm/dd/yyyy	1		Current R	ep. Value	\$743,24
Additional Inve	stigations							
Investigation	a fra		Priority	Cost	Investigation		Priority	Cost
No additional inves	stigations req	uired.						
Performance D	eficiencies	s						
No Performance D	eficiencies							
Maintenance N	eeds							
Element Group	Element			Maintena	ance Required	Priority	Comment	
Coatings	Railing Syst	tems/Hand		Bridge Ha	andrail Maintenance	2 уг	Touch up coating	3
Repair/Rehabil	itation							
Element Group	Element			Repair/Re	habilitation		Priority	Cost
Sidewalks/curbs	Curbs			Minor Rehabilitat	Seal cracks	3	6-10 yrs	\$5,000
					To	otal Repair/Reha	bilitation Cost	\$5,000
Region of Halton			100%	\$13,500.00	1	Total Associa	ted Work Cost	\$8,500
			%				- Total Cost	\$13,500
Overall Comme	ents							
Seal cracks in cur	b.							

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Renab Date	
	Rehab Date

Municipal Structure Inspection Form

Structure Number:

03-1182510 CU01

Structure Name	Trafalgar Road Culve	ort .		Hwy No.	03 Key	Photo	
Cross. Type Over	✓ Road □ Rail		Nav. Water		Other	-1-	1
Cross. Type Over	Road Rail		Nav. Water		Other		
Road Name	Trafalgar Road				- 1	MACH I	- Company
Structure Location	0.01 km North of Dur	ndas Street Eas	t			Man Wall	
Northing	12107.1011.1021.11.61.61.61	sting 481565		ur. Rep.Value	5743.242		· · · · · · · · · · · · · · · · · · ·
Owner(s)/	Region of Halton		100	ALCOHOL DO SO	**	Pale at A	1
% Share	riogion or rionon			% Heritage Status	Not Considered	for Designation	No. of Contract of
MTO Region	Central			Road Side Env.	Rural	To Beolgitation	
ATO District	Central			Road Class	Arterial		
	Halton				Alterial		
Old County	nallon			Lane Type	70	No offere	
Seographic Twp.				Posted Speed	70	No. of Lanes	6
Structure Type	Rectangular Culvert			AADT	0	Pct. Trucks	0
tructure Material	Reinforced Cast-in-P	lace Concrete		Inspection Route	Sequence		
rticulation				Interchange Num	ber		
otal Deck Length	31 m Roa	ad Width	24	m Interchange Stru	cture Number		
Overall Width	2.9 m Ver	t. Clear.	0	m Detour Length	0 km	Skew Angle	0 °
Total Deck Area	89.90 m ² No.	of Spans	1	Fill on Structure	1.3 m	Struct. Dir.	East/Wes
Special Routes	Transit School	Truck	Bicycle	e Insp. Duration	1 hr		
oans *				lacement of the existing s pecific cost factors and re			
Span Name		Span Length	Span I	m d w	Care Company and the company	pan Length	•
1		2.4 m					
P. 4 - 1 D - 4							
listorical Data	4000	1.00	V	of Lord Major Babab	_	Time	
ear Built	1990			of Last Major Rehab		уууу	70.1
ast OSIM Inspection		mm/dd/yyyy		act No. When Built		_	1
ast Enhanced OSIM		mm/dd/yyyy	Last	Evaluation		mm/dd/yyyy	
ast Enhanced Acces	ss	mm/dd/yyyy	Curre	ent Load Limit	t	t	
ast Underwater Insp		mm/dd/yyyy	Load	Limit By-Law No.		mm/dd/yyyy	
Last Condition Surve	у	mm/dd/yyyy	By-La	aw Expiry Date		mm/dd/yyyy	
ehab History							
Rehab Date Re	ehab Description						

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03-1182510 CU01 **Municipal Structure Inspection Form** Structure Number: Field Inspection Information: BCI 73.8 Inspection Date 01/23/2012 mm/dd/yyyy Multi Day Inspection ✓ OSIM ☐ Enhanced OSIM Eng. Responsible J.Parkinson D. L. Baxter, P. Eng. Inspector Others in Party J. Dynes Lift Ladder Boat Access Equip. Bridge Master Other Camera, Hammer, Other Hand Tools Other Equip. -19 °C Cloudy Weather Additional Investigations Required: Investigation Priority **Estimated Cost** Normal Urgent Detailed Deck Condition Survey \$0 Delamination Survey of Asphalt-Covered Deck 10 \$0 Concrete Substructure Condition Survey \$0 **Detailed Coating Condition Survey** \$0 **Detailed Timber Investigation** \$0 Post-Tensioned Strand Investigation \$0 Underwater Investigation \$0 Fatigue Investigation \$0 Seismic Investigation \$0 Structure Evaluation \$0 Monitoring of Deformations, Movements and Settlements \$0 \$0 Monitoring of Crack Widths **Total Cost** \$0 **Investigation Notes Overall Structure Notes:** Remove None ✓ Minor Rehab Major Rehab Replace Recommedend Work on Structure 1 to 5 years ✓ 6 to 10 years Timing of Recommended Work Overall Seal cracks in curb. Comments

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Estimated Load Limit

BCI Change Justification

Next Inspection

01/23/2014 mm/dd/yyyy

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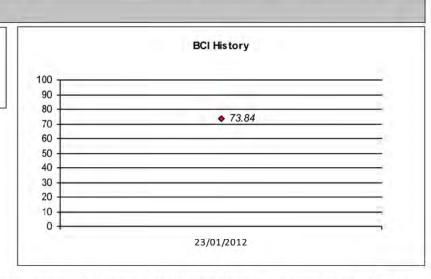


Inspector

BCI History

Insp. Date

BCI 23-Jan-12 73.84 J.Parkinson



Structure Number:

03-1182510 CU01

All BCI values are based on the MTO BCI methodology published in April 2008. As a result, BCI values for 2007 and earlier are approximate only, with potential discrepancies resulting from changes (over time) in the way quantities for certain elements are calculated

Standard Codes

Suspected Performance Deficiencies

- 00 None
- Load carrying capacity
- Excessive deformations (deflections/rotations)
- Continuing settlement
- Continuing movements
- 05 Seized bearings

Maintenance Needs

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

- Bearing not uniformly loaded/unstable
- Jammed expansion joint
- Pedestrian/vehicular hazard
- Rough riding surface Surface ponding
- 11 Deck drainage
- - Repair to Structural Steel
 - Repair of Bridge Concrete 09 Repair of Bridge Timber
 - Bailey Bridges Maintenance Animal/Pest Control
- 12 Bridge Surface Repair
- 13 Erosion Control at Bridges
- 14 Concrete Sealing 15 Rout and Seal

Slippery surfaces

Flooding/channel blockage

Undermining of foundation

Unstable embankments

- Bridge deck DrainageScaling (Loose or ACR Steel)
- 18 Other

16 Other

13

Structure Number:

03-1182510 CU01

Culverts - Barre	ls								
Element Group	Culverts					Length	31.00	Width	2.43
Element Name	Barrels					Height	1.20	Count	1.00
Location	Below Roa	idway					Total Qu	uantity	225.06
Material	Cast-in-pla	ce concrete				☐ Limite	d Inspectio	n	
Element Type						Environm	ent		
Protection System	None					✓ Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	☐ Mode	ate		
Comments	sq. m	0.00	218.06	4.00	3.00	Sever	е		
Performance Deficie	ncies	Mainte	enance Needs	i	Priority	Comments			
None									
Rehab/Repair Recon	nmendations	Prio	ority C	ost Commen	ts				
Culverts - Inlet	Componer	nts							
	Componer	nts				Length [0.00	Width [2.80
Element Group][Length [Width [
Element Group Element Name	Culverts					1000		Count	1.00
Element Group Element Name Location	Culverts Inlet Comp					Height [0.50	Count [1.00
Element Group Element Name Location Material	Culverts Inlet Comp	oonents				Height [0.50 Total Qu	Count [1.00
Element Group Element Name Location Material Element Type	Culverts Inlet Comp East Side Cast-in-pla	oonents				Height [0.50 Total Quantum dispection	Count [1.00
Element Group Element Name Location Material Element Type Protection System	Culverts Inlet Comp East Side Cast-in-pla Headwall	oonents	Good	Fair	Poor	Height [0.50 Total Qued Inspection	Count [2.80 1.00 1.40
Element Group Element Name Location Material Element Type Protection System Condition Data	Culverts Inlet Comp East Side Cast-in-pla Headwall None	oonents ace concrete	Good 1.40	Fair 0.00	Poor 0.00	Height Limite	0.50 Total Qu d Inspectio	Count [1.00
Element Group Element Name Location Material Element Type Protection System Condition Data Comments	Culverts Inlet Comp East Side Cast-in-pla Headwall None Units sq. m	ece concrete Excell. 0.00	The same of the sa	0.00	0.00	Height Limite Environm Benig	0.50 Total Qu d Inspectio	Count [1.00
Element Group Element Name Location Material Element Type Protection System Condition Data Comments Performance Deficient	Culverts Inlet Comp East Side Cast-in-pla Headwall None Units sq. m	Excell. 0.00 Mainte	1.40	0.00	0.00	Height Limite Environm Benig Moder	0.50 Total Qu d Inspectio	Count [1.00
Culverts - Inlet Element Group Element Name Location Material Element Type Protection System Condition Data Comments Performance Deficient None Rehab/Repair Recons	Culverts Inlet Comp East Side Cast-in-pla Headwall None Units sq. m	Excell. 0.00 Mainte	1.40	0.00	0.00	Height Limite Environm Benig Moder	0.50 Total Qu d Inspectio	Count [1.00
Element Group Element Name Location Material Element Type Protection System Condition Data Comments Performance Deficient	Culverts Inlet Comp East Side Cast-in-pla Headwall None Units sq. m	Excell. 0.00 Mainte	1.40	0.00	0.00	Height Limite Environm Benig Moder	0.50 Total Qu d Inspectio	Count [1.00

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Culverts - Outle	t Compon	ents							
Element Group	Culverts					Length	0.00	Width	3.05
Element Name	Outlet Cor	nponents				Height	2.20	Count	1.00
ocation	West Side					200	Total Qua	antity	6.70
Material	Cast-in-pla	ace concrete				Limited	Inspection	1	
Element Type	Headwall					Environme	ent		
Protection System	None					Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	✓ Moderate			
Comments	sq. m 0.00 6.70 0.00 0.00				Severe				
Performance Deficie None Rehab/Repair Recom		Mainte	enance Needs	ost Commen		Comments			
Embankments &		- Embankr	3236,0027		1	Length	0.00	Width	0.00
Element Group Element Name	Embankm					Height		Count	4.00
ocation	All Quadra					neight	Total Qua	_	4.00
Material	Other	into				Limited	Inspection	_	3.00
Element Type	Other				_	Environme			
Protection System	Vegetation	i i			=	Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	Modera			
Comments	Each	0.00	4.00	0.00	0.00	Severe			
Performance Deficier None	ncies	Mainte	enance Needs prity Co	ost Commen		Comments			

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Structure Number: 03-1182510 CU01 **Municipal Structure Inspection Form** Embankments & Streams - Slope Protection 0.00 Width 0.00 **Element Group** Embankments & Streams Length **Element Name** Slope Protection Height 0.00 Count 4.00 Location All Quadrants **Total Quantity** 4,00 Limited Inspection Material Vegetation Element Type Environment None **Protection System** Benign **Condition Data** Units Excell. Good Fair Poor Moderate Each 0.00 0.00 4.00 0.00 Severe Comments Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Embankments & Streams - Streams & Waterways Embankments & Streams **Element Group** Length 0.00 Width 0.00 Streams & Waterways 0.00 Count **Element Name** Height 1.00 Through Structure **Total Quantity** 1.00 Location Limited Inspection Material **Element Type** Environment **Protection System** Benign **Condition Data** Units Excell. Good Fair Poor Moderate All 0.00 1.00 0.00 0.00 Severe Comments **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments

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Iunicipal Stru	cture Inspe	ction Form Str	ucture Nu	mber:	03-11	82510	CU01	
Retaining walls	- Walls							
Element Group	Retaining walls			Length	3.00	Width	0.00	
Element Name	Walls			Height	2.00	Count	3.00	
Location	Northeast, Nor	thwest and Southwest Quadrants			Total Q	uantity	18.00	
Material	Rock			Limited	l Inspection	on		
Element Type	Gabions			Environme	ent			
Protection System	None			Benign				
Condition Data	Units E	ccell. Good Fair	Poor	✓ Modera	ate			
Comments	sq. m	0.00 18.00 0.00	0,00	Severe				
Performance Deficier None Rehab/Repair Recom		Maintenance Needs Priority Cost Comm		Comments				
Retaining walls								
Element Group	Retaining walls	1		Length	10.00	Width	0.00	
Element Name	Walls			Height	1.90	Count	1.00	
Location	Southeast Qua			П	Total Q	-	19.00	
Material	Precast concre	ete			Inspection	on.		
Element Type				Environme				
Protection System	None	and the same		Benign				
Condition Data Comments	Sq. m	0.00 Fair 0.00 0.00	9.00 0.00	✓ Modera ☐ Severe				
Performance Deficier None Rehab/Repair Recom		Maintenance Needs		Comments				

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Structure Number: 03-1182510 CU01 **Municipal Structure Inspection Form** Barriers - Railing Systems 16.00 Width 0.00 **Element Group** Length **Element Name** Railing Systems Height 1.00 Count 1.00 Location Above Headwall Total Quantity 16.00 Limited Inspection Material Steel Element Type Environment Hot dip galvanizing **Protection System** Benign **Condition Data** Units Fair Poor ✓ Moderate Excell. Good 0.00 0.00 0.00 16.00 Severe Comments Light corrosion. Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Sidewalks/curbs - Curbs **Element Group** Sidewalks/curbs Length 15.50 Width 0.20 Curbs 0.20 Count **Element Name** Height 2.00 East and West Sides **Total Quantity** 12.40 Location Limited Inspection Cast-in-place concrete Material **Element Type** Environment **Protection System** None Benign **Condition Data** Units Excell. Good Fair Poor Moderate sq. m 0.00 10.40 1.00 1.00 ✓ Severe Comments Narrow to wide cracks, light honeycombing. **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments Minor Rehabilitation 6-10 yrs \$5,000 Seal cracks

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Coatings - Raili	ng Systems/	Hand Railing	S						
Element Group	Coatings					Length	0.00	Width	0.00
Element Name	Railing System	ns/Hand Railings	- 1		\equiv	Height	0.00	Count	0.00
Location	Above Headw	all					Total Qu	antity	9.85
Material	Hot Dip Galva	nizing				☐ Limite	d Inspectio	n	
Element Type					j	Environment			
Protection System	None					Benigi	n		
Condition Data	Units E	xcell. Go	od	Fair	Poor	✓ Moderate			
Comments	sq. m 0.00 8.85 0.50				0.50	Severe	е		
Performance Deficier	ncies	Maintenance	Needs		Priority	Comments			
None Rehab/Repair Recom	mendations	Bridge Handr			2 yr	Touch up coa	ating		
Rehab/Repair Recom Barriers - Railin	g Systems		ail Mainte		2 yr			V2. 207.	
Rehab/Repair Recom Barriers - Railin Element Group	g Systems Barriers	Priority	ail Mainte		2 yr	Length [15.50	Width	- 1142.9
Rehab/Repair Recom Barriers - Railin Element Group Element Name	g Systems Barriers Railing System	Priority	ail Mainte		2 yr		15.50	Count	2.00
Rehab/Repair Recom Barriers - Railin Element Group Element Name Location	g Systems Barriers Railing System East and Wes	Priority	ail Mainte		2 yr	Length [15.50 0.00 Total Qu	Count _	2.00
Rehab/Repair Recom Barriers - Railin Element Group Element Name Location Material	g Systems Barriers Railing System East and Wester Steel	Priority ns t Sides	Co.		2 yr	Length [Height [15.50 0.00 Total Qu	Count _	2.00
Rehab/Repair Recom Barriers - Railin Element Group Element Name Location Material Element Type	g Systems Barriers Railing System East and Wes Steel Steel Flex Bea	Priority ns t Sides m over other railin	Co.		2 yr	Length [Height [Limite	15.50 0.00 Total Quid Inspectionent	Count _	2.00
Rehab/Repair Recom Barriers - Railin Element Group Element Name Location Material Element Type Protection System	g Systems Barriers Railing System East and Wes Steel Steel Flex Bea Hot dip galvan	Priority ns t Sides m over other railinizing	Co.	st Comme	2 yr	Length [Height [Limite Environm Benig	15.50 0.00 Total Qu d Inspection	Count _	2.00
Rehab/Repair Recom Barriers - Railin Element Group Element Name Location Material Element Type Protection System Condition Data	g Systems Barriers Railing System East and Wes Steel Steel Flex Bea Hot dip galvan	Priority ns t Sides m over other railir izing xcell. Goo	Co.		2 yr	Length [Height [Limite	15.50 0.00 Total Quid Inspectionent	Count _	0.00 2.00 31.00
Rehab/Repair Recom Barriers - Railin Element Group Element Name Location Material Element Type Protection System Condition Data Comments	g Systems Barriers Railing System East and Wes Steel Steel Flex Bea Hot dip galvan Units E	Priority ns t Sides m over other railir izing xcell. Goo	Co.	st Comme	2 yr	Length [Height [Limite Environm Benigi	15.50 0.00 Total Quid Inspectionent	Count _	2.00
Rehab/Repair Recom Barriers - Railin Element Group Element Name Location Material Element Type Protection System Condition Data Comments	g Systems Barriers Railing System East and Wes Steel Steel Flex Bea Hot dip galvan Units m	Priority ns t Sides m over other railir izing xcell. Goo	Co.	st Comme	2 yr	Length [Height [Limite Environm Benigi	15.50 0.00 Total Quid Inspectionent	Count _	2.00
Rehab/Repair Recom Barriers - Railin Element Group Element Name Location Material Element Type Protection System Condition Data	g Systems Barriers Railing System East and Wes Steel Steel Flex Bea Hot dip galvan Units m	Priority ns t Sides m over other railir izing xcell. Go	Co.	st Comme	2 yr nts Poor 0.00	Length ☐ Height ☐ Limite Environm ☐ Benigi ☐ Moder ☑ Severe	15.50 0.00 Total Quid Inspectionent	Count _	2.00

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Municipal Structure Inspection Form Structure Number: 03-1182510 CU01 Barriers - Posts 0.20 Width 0.20 **Element Group** Barriers Length Posts **Element Name** Height 0.80 Count 7.00 Location West Side **Total Quantity** 7.00 Limited Inspection Material Wood Element Type Wood Posts In Steel Flexbeam System Environment None **Protection System** Benign **Condition Data** Units Excell. Good Fair Poor Moderate Each 0.00 0.00 0.00 7.00 ✓ Severe Comments Light checking. Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Coatings - Railing Systems/Hand Railings **Element Group** Coatings Length 0.00 Width 0.00 0.00 Count **Element Name** Railing Systems/Hand Railings Height 0.00 Steel Flex Beam Total Quantity 23.40 Location Limited Inspection Material Hot Dip Galvanizing **Element Type** Environment **Protection System** None Benign **Condition Data** Units Excell. Good Fair Poor Moderate sq. m 0.00 23.40 0.00 0.00 ✓ Severe Comments **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments

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	Side Posts in Steel Flexbeam System lip galvanizing	Environm		0.15 6.00 6.00			
Element Name Posts Location East Material Steel Element Type Steel Protection System Hot d Condition Data Units Each	Side Posts in Steel Flexbeam System lip galvanizing	Height Limited	0.10 Count Total Quantity d Inspection	6.00			
Location East Material Steel Element Type Steel Protection System Hot d Condition Data Units Each	Side Posts in Steel Flexbeam System lip galvanizing	Limite	Total Quantity d Inspection				
Material Steel Element Type Steel Protection System Hot d Condition Data Units Each	Posts in Steel Flexbeam System	Environm	d Inspection	6.00			
Element Type Steel Protection System Hot d Condition Data Units Each	Posts in Steel Flexbeam System	Environm	ent				
Protection System Hot d Condition Data Units Each	lip galvanizing	₹ _					
Condition Data Units	ART A COLOR ART ARE	Benigr		Environment			
Each	Excell Good Fair Poor	Benign					
	2000	Moder	ate				
	0.00 6.00 0.00 0.00	0 ✓ Severe	911				
Performance Deficiencies None Rehab/Repair Recommendat	Maintenance Needs Priority tions Priority Cost Comments	Comments					
	ations (below ground level)						
	dations	Length	0.00 Width	0.00			
Element Name Foun	dations (below ground level)	Height	0.00 Count	0.00			
ocation Below	w Ground Level	i i	Total Quantity	0.00			
Material		✓ Limite	d Inspection				
Element Type		Environm	ent				
Protection System		Benigr					
Condition Data Units	Excell. Good Fair Poor	■ Moder					
		Severe	e				
Comments Limited inspection.		1) /2/3/3/3/					
		-750					
Performance Deficiencies	Maintenance Needs Priority	Comments					
Performance Deficiencies None	Maintenance Needs Priority	Comments					

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NAMES

Structure Number: 03-1182510 CU01 **Municipal Structure Inspection Form Decks - Wearing Surface** 15.50 Width 24.00 **Element Group** Length **Element Name** Wearing Surface Height 0.00 Count 1.00 Above Structure Total Quantity 372.00 Location Limited Inspection Material Asphalt Element Type Environment None **Protection System** Benign Units Excell. Good Fair Poor Moderate **Condition Data** 0.00 sq. m 0.00 372.00 0.00 ✓ Severe Comments Narrow sealed and unsealed cracks. Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Approaches - Approach Guiderail **Element Group** Approaches Length 0.00 Width 0.00 End Treatments **Element Name** Approach Guiderail Height 0.00 Count 1.00 Northeast Quadrant 1.00 Location **Total Quantity** Limited Inspection Material Steel **Element Type** Environment **Protection System** Hot dip galvanizing Benign **Condition Data** Fair Poor Moderate Units Excell. Good Each 0.00 1.00 0.00 0.00 ✓ Severe Comments Eccentric loader end treatment is provided in the Northeast. **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments

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Structure Number:

03-1182510 CU01

Element Group	Approach	es	Approaches					
Element Name	Approach	Guiderail	End Treatment	ls	Height	0.00 Coun	t 3.00	
Location	Northwest	, Southwest and South	neast Quadrants			Total Quantity	3.00	
Material	Steel				Limited Inspection			
Element Type					Environme	ent		
Protection System	Hot dip ga	lvanizing		i	Benign	1		
	100.0	The same of the sa		TANK TO SEE				
Condition Data	Units	Excell. God	d Fair	Poor	Modera	ate		
A TOTAL PARK	Each [0.00	3.00 0.00	0.00	✓ Severe		ninal	
Comments Terminal end treatmen end treatment has bee	Each [standard sprovided in provided.	0.00 the Northwest and Sc	3.00 0.00 outhwest quadrants. S	0.00 outheast guide	Severe		ninal	
Comments Terminal end treatmen end treatment has bee	Each [standard sprovided in provided.	0.00	3.00 0.00 outhwest quadrants. S	0.00 outheast guide	✓ Severe		ninal	
	Each [standard sprovided in provided.	0.00 the Northwest and Sc	3.00 0.00 outhwest quadrants. S	0.00 outheast guide	Severe		ninal	

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MITTE

Structure Number:

03-1182510 CU01

Repair/Reh	abilitation Requir	red		
Element Group	Element	Repair/Rehabilitation	Priority	Cost
Sidewalks/curbs	Curbs	Minor Rehabilitation	6-10 yrs	\$5,000
-			Total Repair/Rehabilitation Cost	\$5,000
Associated	Work			

Associated Work Comments				Estimated Cos
Approaches			1	\$0
Detours				\$0
Traffic Control				\$0
Utilities				\$0
Right-of-Way				\$0
Environmental Study				\$0
Other				\$0
Contingencies		10%	**	\$500
Engineering		%	**	\$8,000
** If based on a percentage calculated values rounded-up to the	Total Associated W		\$8,500	
nearest thousand dollars.	Total Repair/Rehabilita	tion Cost		\$5,000
			\$13,500	
	Region of Halton Share (@ 100%		\$13,500
Justification				

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Municipal Structure Inspection Form

Structure Number:

03-1182510 CU01



Looking South at Roadway Over Culvert



East Elevation

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03-1182510 CU01



West Elevation



Light Corrosion of Light Pipe Handrail

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Municipal Structure Inspection Form

Structure Number:

03-1182510 CU01



Typical Steel Flex Beam (West Side)



Checking of Flex Beam Wood Post

Structure Number:

03-1182510 CU01



Wide Vertical Crack in East Concrete Curb



Sealed and Unsealed Narrow Cracks in Wearing Surface

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Municipal Structure Inspection Form

Structure Number:

03-1182510 CU01



Narrow Stained Crack in Barrel Soffit Extension



Narrow Stained Crack in Barrel Soffit

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WITE

Structure Number:

03-1182510 CU01



Light Scaling of Original Barrel Wall



Medium Vertical Crack in Barrel Soffit

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Municipal Structure Inspection Form

Structure Number:

03-1182510 CU01



Looking East Through Barrel



Looking West Through Barrel

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Light Honeycombing of Outlet Headwall



Typical Concrete Retaining Wall (East Side)

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Municipal Structure Inspection Form

Structure Number:

03-1182510 CU01



Looking Downstream



Looking Upstream

Summary Action Report Structure 03-1182530 CU02 (MTO Site No.)

Trafalgar Road Culvert

Next Biennial Ins Additional Invest Investigation No additional investig Performance Def No Performance Defi Maintenance Nee No Maintenance Nee	gations required. ficiencies iciencies	Priority	Cost	Investigation	Current Rep. Value	Priority	\$668,05
Investigation No additional investig Performance Defi No Performance Defi Maintenance Nee	gations required. ficiencies iciencies	Priority	Cost	Investigation		Priority	Cost
No additional investion Performance Define No Performance Define Maintenance Nee	ficiencies iciencies	Priority	Cost	Investigation		Priority	Cost
Performance Defi No Performance Defi	ficiencies iciencies						
No Performance Defi	iciencies eds						
Maintenance Nee	eds						
46 2010 000 00000000000000000000000000000							
46 2010 02 20 17 17 17 17 17 17 17 17 17 17 17 17 17							
14-14-14-14-14-14-14-14-14-14-14-14-14-1							
Repair/Rehabilita	ation Element		Repair/R	ehabilitation		Priority	Cost
Culverts B	Barrels		Replace	Replace o			\$280,000
Barriers P	Posts		Replace			Now	\$0
					Total Repair/Rehabilitation	Cost	\$280,000
Region of Halton		100 % \$	624,000.00	h	Total Associated Work	Cost	\$344,000
		%			Total	Cost	\$624,000
Overall Commen	its						
Replace culvert.							
France amount							

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Structure Number:

03-1182530 CU02

Inventory Data					
Structure Name Cross. Type Over	Trafalgar Road Culvert ✓ Road □ Rail □ Ped □ Nav. V	Hwy No.	03 Key	Photo	
Cross. Type Under	Road Rail Ped Nav. V	Vater Von-Nav. Wat.	Other		
Road Name	Trafalgar Road				() ()
Structure Location	0.10 km South of Dundas Street		245		
Northing	603474.0 Easting 4815849.0	Cur. Rep.Value	668,059		
Owner(s)/ % Share	Region of Halton	100 % We Heritage Status	** Not Considered	I for Designation	A STATE OF THE
MTO Region	Central	Road Side Env.	Rural	3	
MTO District	Central	Road Class	Arterial		
Old County	Halton	Lane Type			
Geographic Twp.		Posted Speed	70	No. of Lanes	4
Structure Type	Arch Culvert	AADT		Pct. Trucks	0
Structure Material	Corrugated Steel Pipe	Inspection Route	Sequence		
Articulation		Interchange Nun	nber		
Total Deck Length	36.75 m Road Width 20.	75 m Interchange Stru	cture Number		
Overall Width	3.5 m Vert. Clear.	0 m Detour Length	0 km	Skew Angle	0 °
Total Deck Area	128.63 m ² No. of Spans	1 Fill on Structure	1.8 m	Struct. Dir. Ea	st/West
Special Routes		icycle Insp. Duration	1 hr	ded solve because of	Cit-l
Spans	** Current Replacement Value is based on in kin planning should consider	site specific cost factors and re			
Span Name 1	Span Length S 3.5 m	pan Name	S	pan Length	
Historical Data	Name and the second				
Year Built	1990 уууу	ear of Last Major Rehab		уууу	
Last OSIM Inspectio	n mm/dd/yyyy C	Contract No. When Built	P		
Last Enhanced OSIN	mm/dd/yyyy L	ast Evaluation		mm/dd/yyyy	
Last Enhanced Acce	ess mm/dd/yyyy C	Current Load Limit	t	t t	
Last Underwater Ins	p. mm/dd/yyyy L	oad Limit By-Law No.		mm/dd/yyyy	
Last Condition Surv	ey mm/dd/yyyy E	By-Law Expiry Date		mm/dd/yyyy	

Rehab History

Municipal Structure Inspection Form

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WHEE

03-1182530 CU02 **Municipal Structure Inspection Form** Structure Number: Field Inspection Information: BCI 37.8 Inspection Date 01/23/2013 mm/dd/yyyy Multi Day Inspection ✓ OSIM ☐ Enhanced OSIM Eng. Responsible D. L. Baxter, P. Eng. J.Parkinson Inspector Others in Party J. Dynes Lift Ladder Boat Other Access Equip. Bridge Master Other Equip. Camera, Hammer, Other Hand Tools Cloudy -19 °C Weather Additional Investigations Required: Investigation Priority **Estimated Cost** None Normal Urgent Detailed Deck Condition Survey \$0 Delamination Survey of Asphalt-Covered Deck 10 \$0 Concrete Substructure Condition Survey \$0

0

Detailed Coating Condition Survey

Post-Tensioned Strand Investigation

Monitoring of Deformations, Movements and Settlements

Detailed Timber Investigation

Underwater Investigation

Fatigue Investigation

Seismic Investigation

Structure Evaluation

Investigation Notes

Monitoring of Crack Widths

Total Cost

\$0

\$0

\$0

\$0

\$0

\$0

\$0

\$0

\$0

\$0

Overall St	ructure Notes:	
	d Work on Structure	NoneMinor RehabMajor Rehab✓ ReplaceRemove✓ 1 to 5 years6 to 10 years
Overall Comments	Replace culvert.	

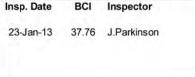
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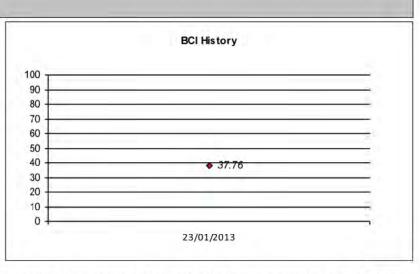
Municipal Structure Inspection Form

Structure Number:

03-1182530 CU02







All BCI values are based on the MTO BCI methodology published in April 2008. As a result, BCI values for 2007 and earlier are approximate only, with potential discrepancies resulting from changes (over time) in the way quantities for certain elements are calculated

Standard Codes

Suspected Performance Deficiencies

- 00 None
- 01 Load carrying capacity
- Excessive deformations (deflections/rotations)
- Continuing settlement
- Continuing movements
- 05 Seized bearings

Maintenance Needs

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

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

Repair to Structural Steel

- 09 Repair of Bridge Timber

- 12 Bridge Surface Repair

- 12 Slippery surfaces
- 13 Flooding/channel blockage
- Undermining of foundation
- Unstable embankments
- 16 Other

- Repair of Bridge Concrete
- Bailey Bridges Maintenance Animal/Pest Control
- 13 Erosion Control at Bridges 14 Concrete Sealing
- 15 Rout and Seal
- 16 Bridge deck Drainage 17 Scaling (Loose or ACR Steel)
- 18 Other

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WHEE

Structure Number:

03-1182530 CU02

	ls				
Element Group	Culverts				Length 36.75 Width 3.8
Element Name	Barrels				Height 2.10 Count 1.0
Location	Below Roadway	у			Total Quantity 333.2
Material	Corrugated stee	el			☐ Limited Inspection
Element Type	Arch			i	Environment
Protection System	Hot dip galvaniz	zing			✓ Benign
Condition Data	1.77	ccell. Good	Fair	Poor	Moderate
	sq. m	0.00 24.82	154.20	154.20	Severe
Comments Severe corresion, perf	orations on barrel in	nverts, heaving of the bar	rrel invert		
Performance Deficier None Rehab/Repair Recom		Maintenance Needs	ost Comment		Comments
Replace		Now \$280,0	000 Replace c	ulvert	
Culverts - Inlet	Components				
Element Group	Culverts				Length 0.00 Width 12.0
Element Name	Inlet Componer	nts	Gabion Basket		Height 1.60 Count 1.60
Location	Interior of Struc	ture			Total Quantity 19.2
Material	Rock				☐ Limited Inspection
Element Type					Environment
Protection System	None				Benign
Condition Data	Units Ex	ccell. Good	Fair	Poor	✓ Moderate
	sq. m	0.00 19.20	0.00	0.00	Severe
Comments					
Comments Minor outward rotation	aniae	Maintanaura Na - ta		Delociti	Comments
	ncies	Maintenance Needs	r	Priority	Comments

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Municipal Structure Inspection Form

Structure Number: 03-1182530 CU02

Coatings - Struc	tural Steel							
Element Group	Coatings				Length	0.00	Width	0.00
Element Name	Structural Steel				Height	0.00	Count	0.00
Location	Culvert Barrel					Total C	Quantity	333.22
Material	Hot Dip Galvanizi	ing			Limite	d Inspecti	on	
Element Type					Environm	ent		
Protection System	Hot dip galvanizin	ng			✓ Benigi	1		
Condition Data	Units Exce		Fair	Poor	Moder			
Comments	sq. m	0.00 100.00	133.22	100.00	Severe	9		
Breakdown of protectiv	e coating.							
Performance Deficier	ncies	Maintenance Nee	eds	Priority	Comments			
None	-							
Rehab/Repair Recom		Priority						
Element Group	Culverts				Length	0.00	Width	15.50
Element Name	Outlet Componer	nts	Gabion Basket		Height	1.80	Count	1.00
ocation	Exterior of Structi	ure				Total C	Quantity	27.90
Material	Rock				Limite	d Inspecti	on	
Element Type					Environm	ent		
Protection System	None				Benigi	1		
Condition Data	Units Exce	ell. Good	Fair	Poor	✓ Moder	ate		
Condition Data	sq. m	0.00 27.90	0.00	0.00	Severe	9		
Comments								

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Structure Number: 03-1182530 CU02 **Municipal Structure Inspection Form Embankments & Streams - Embankments** 0.00 Width 0.00 **Element Group** Embankments & Streams Length **Element Name** Embankments Height 0.00 Count 4.00 All Quadrants Location **Total Quantity** 4,00 Limited Inspection Material Other Element Type Environment Vegetation **Protection System** Benign **Condition Data** Units Excell. Good Fair Poor Moderate Each 0.00 0.00 4.00 0.00 Severe Comments Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments **Embankments & Streams - Slope Protection** Embankments & Streams **Element Group** Length 0.00 Width 0.00 0.00 Count **Element Name** Slope Protection Height 4.00 All Quadrants **Total Quantity** 4.00 Location Limited Inspection Material Vegetation **Element Type** Environment **Protection System** None Benign **Condition Data** Units Excell. Good Fair Poor Moderate Each 0.00 4.00 0.00 0.00 Severe Comments **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments

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200	cture In					_			
Embankments &		- Streams		ays	-	Length	0.00	Width	0.00
Element Group		7 17 17 17 17 17 17	3			10000		_	
Element Name		& Waterways				Height	0.00		1.00
ocation	Inrough	Structure				П. 1.:шiа.		uantity	1.00
Material							d Inspection	on	
Element Type						Environm			
Protection System	None	252.120				Benign Mederate			
Condition Data	Units Excell. Good Fair Poor				Poor	Moderate Savera			
Comments						Sever	9		
	nmendations	s Prio	enance Needs	ost Commen	Priority				
Rehab/Repair Recom		s Prid	ority C						
Rehab/Repair Recom		alks/Mediar	ority C			Length [15.50	Width	1,50
Rehab/Repair Recom Sidewalks/curbs	Sidewalk	alks/Mediar	ority C			Length [15.50		
Rehab/Repair Recom Sidewalks/curbs Element Group Element Name	Sidewalk	alks/Mediar s/curbs	ority C				0.00		1.00
Rehab/Repair Recom Sidewalks/curbs Element Group Element Name .ocation	Sidewalk: Sidewalk: East Side	alks/Mediar s/curbs s/Medians	ority C			Height	0.00	Count [1.00
Rehab/Repair Recom Sidewalks/curbs Element Group Element Name Location	Sidewalk: Sidewalk: East Side	alks/Medians/Medians e Sidewalk	ority C			Height	0.00 Total Q	Count [1.00
Rehab/Repair Recom Sidewalks/curbs Element Group Element Name Location Material	Sidewalk: Sidewalk: East Side	alks/Medians/Medians e Sidewalk	ority C			Height Limite	0.00 Total Q d Inspection	Count [1.00
Rehab/Repair Recom Sidewalks/curbs Element Group Element Name Location Material Element Type	Sidewalk: Sidewalk: East Side Cast-in-p	alks/Medians/Medians e Sidewalk	ority C			Height Limite	0.00 Total Q d Inspection	Count [1.50 1.00 23.25
None Rehab/Repair Recom Sidewalks/curbs Element Group Element Name Location Waterial Element Type Protection System Condition Data Comments	Sidewalk: Sidewalk: East Side Cast-in-p	alks/Medians/Medians e Sidewalk lace concrete	ority C	ost Commen	ts	Height Limite Environm Benig	0.00 Total Q d Inspection	Count [1.00
Rehab/Repair Recom Sidewalks/curbs Element Group Element Name Location Material Element Type Protection System Condition Data	Sidewalk: Sidewalk: East Side Cast-in-p None Units	alks/Mediars/s/curbs/Medians/s/Sidewalk/blace concrete	ority C	ost Commen	Poor	Height Limite Environm Benig	0.00 Total Q d Inspection	Count [1.00
Rehab/Repair Recom Sidewalks/curbs Element Group Element Name Location Material Element Type Protection System Condition Data	Sidewalk: Sidewalk: Sidewalk: East Side Cast-in-p None Units sq. m	alks/Mediars/s/curbs/Medians/s/Medians/s/Sidewalk/slace concrete	ority C	Fair 0.00	Poor 0.00	Height Limite Environm Benig	0.00 Total Q d Inspection	Count [1.00

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Structure Number: 03-1182530 CU02 **Municipal Structure Inspection Form** Sidewalks/curbs - Sidewalks/Medians 15.50 Width 0.95 **Element Group** Sidewalks/curbs Length **Element Name** Sidewalks/Medians Height 0.15 Count 1.00 Location Median **Total Quantity** 17.05 Limited Inspection Material Cast-in-place concrete Element Type Environment None Benign **Protection System Condition Data** Units Excell. Good Fair Poor Moderate 0.00 0.00 sq. m 17.05 0.00 ✓ Severe Comments Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Barriers - Railing Systems **Element Group** Barriers Length 15.50 Width 0.00 Railing Systems Chain Link Fence **Element Name** Height 1.35 Count 1.00 On Retaining Wall (Black Fence) **Total Quantity** 15.50 Location Limited Inspection Steel Material **Element Type** Environment **Protection System** Epoxy zinc/vinyl Benign **Condition Data** Units Good Fair Poor Moderate Excell. 0.00 15.50 0.00 0.00 ✓ Severe Comments **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments

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91112

Poor 0.00 Priority	Length Height Limited Environme Benign Modera Severe	ate	0.18 2.00 9.30
0.00	Height Limited Environme Benign Modera	0.15 Count Total Quantity d Inspection ent	2.00
0.00	Limited Environme Benign Modera	Total Quantity d Inspection ent	
0.00	Environme Benign Modera	d Inspection ent ate	
0.00	Environme Benign Modera	ent n ate	
0.00	☐ Benign	ate	
0.00	☐ Modera	ate	-
0.00			
	<u> </u>		Ī
Priority			
mments			
		0.00] 145.44	0.00
	_		0.00
	Height		0.00
	Limitos		20.93
Poor	☐ Modera		
F-001	IVIOUEI &	ale	
0.00	✓ Severe		
	mments	Length Height Limited	Length 0.00 Width

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Structure Number: 03-1182530 CU02 **Municipal Structure Inspection Form** Decks - Wearing Surface 15.50 Width 20.75 **Element Group** Length **Element Name** Wearing Surface Height 0.00 Count 1.00 Deck Top Location Total Quantity 321.63 Limited Inspection Material Asphalt **Element Type** Environment None **Protection System** Benign Units Excell. Good Fair Poor Moderate **Condition Data** 0.00 sq. m 0.00 321.63 0.00 ✓ Severe Comments Sealed and unsealed cracks. Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Barriers - Railing Systems **Element Group** Barriers Length 15.50 Width 0.00 Railing Systems 0.00 Count **Element Name** Height 1.00 **Total Quantity** 15.50 Location Above Structure Limited Inspection Steel Material **Element Type** Wood post and 3 cable Environment Benign **Protection System** Hot dip galvanizing **Condition Data** Units Good Fair Poor Moderate Excell. 0.00 0.00 11.50 4.00 ✓ Severe Comments Outward rotation, missing cable stays. **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments

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Municipa	I Structure	Inspection	Form

Structure Number: 03-1182530 CU02

Approaches - A	pproach Guid	erail						
Element Group	Approaches				Length	0.00	Width	0.00
Element Name	Approach Guide	erail	End Treatment	s	Height	0.00	Count	2.00
Location	Northwest and	Southwest Quadran	ts		_	Total C	Quantity	2.00
Material	Steel				Limited	d Inspecti	on	
Element Type					Environme	ent		
Protection System	Hot dip galvaniz	ting			Benign	1:1		
Condition Data		cell. Good	Fair	Poor	Modera	ate		
Comments	Each	0.00 2.0	0.00	0.00	✓ Severe	,		
Three cable guiderail i	s end buried in the	Northwest and Sout	nwest quadrant.					
Performance Deficier	ncies	Maintenance No	eeds	Priority	Comments			
None								
Rehab/Repair Recom	nmendations	Priority	Cost Comme	nts				
Barriers - Posts					-			
Element Group	Barriers				Length	0.00	Width	0.00
Element Name	Posts				Height	1.00	Count	6.00
Location	West Side					Total C	Quantity	6.00
Material	Timber				Limited	d Inspecti	on	
Element Type	Wood Posts in	3-Cable System			Environme	ent		
Protection System	None				Benign	10		
Condition Data	Units Ex	cell. Good	Fair	Poor	☐ Moderate			
Comments	Each	0.00 3.0	2.00	1.00	✓ Severe			
Severe split in one pos	t, outward rotation.							
Performance Deficier	ncies	Maintenance No	eeds	Priority	Comments			
None								
Rehab/Repair Recom	nmendations	Priority	Cost Comme	nts				
Replace		Now	\$0 Costed (inder culvert ba	arrel			

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Structure Number: 03-1182530 CU02 **Municipal Structure Inspection Form** Foundations - Foundations (below ground level) 0.00 Width 0.00 **Element Group** Foundations Length **Element Name** Foundations (below ground level) Height 0.00 Count 0.00 Location Below Ground Level **Total Quantity** 0.00 ✓ Limited Inspection Material Element Type Environment **Protection System** Benign Fair Moderate **Condition Data** Units Excell. Good Poor Severe Comments Limited inspection. Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Approaches - Approach Guiderail **Element Group** Approaches Length 0.00 Width 0.00 **Element Name** Approach Guiderail End Treatments Height 0.00 Count 2.00 Northeast and Southeast Quadrants 2.00 Location **Total Quantity** Limited Inspection Material Steel **Element Type** Environment Benign **Protection System** Hot dip galvanizing **Condition Data** Fair Poor Moderate Units Excell. Good Each 0.00 2.00 0.00 0.00 ✓ Severe Comments Eccentric loader end treatments are provided in the Northeast and Southeast quadrant. **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments

AECOM January 28, 2013 Page 13 of 25 Structure Number: 03-1182530 CU02

Barriers - Railin	g Systems						
Element Group	Barriers			Length	15.50	Width	0.00
Element Name	Railing System	ns		Height	0.80	_	1.00
Location	Above Structur				Total Q		15.50
Material	Steel			☐ Limite	d Inspection	on	
Element Type	Steel Flex Bea	m on wood post		Environm	nent		
Protection System	Hot dip galvani			Benig			
Condition Data		xcell. Good	Fair Poor	Mode			
Comments	m	0.00 15.50	0.00	✓ Sever	е		
Performance Deficier None		Maintenance Needs	Priority	Comments			
Rehab/Repair Recom		Priority Cost	Comments				
Element Group	Barriers			Length	0.20	Width	0.2
Element Name	Posts			Height	0.80		8.0
Location	East Flex Bear	n				uantity	8.0
Material	Timber			Limite	d Inspection	-	
Element Type		3-Cable System		Environment			
Protection System	None	- 2- 2- 2- 2- 2- 2- 2- 2- 2- 2- 2- 2- 2-		☐ Benig			
Condition Data	Units E.	xcell. Good	Fair Poor	☐ Mode			
Comments	Each	0.00 8.00	0.00	✓ Sever	е		
Performance Deficier None Rehab/Repair Recom		Maintenance Needs Priority Cost	Priority Comments	Comments			

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Municipal Structure Inspection Form 03-1182530 CU02 Structure Number: Coatings - Railing Systems/Hand Railings 0.00 Width 0.00 **Element Group** Length **Element Name** Railing Systems/Hand Railings Height 0.00 Count 0.00 Steel Flex Beam Location **Total Quantity** 9.30 ☐ Limited Inspection Material Hot Dip Galvanizing **Element Type** Environment None **Protection System** Benign **Condition Data** Units Excell. Good Fair Poor Moderate sq. m 0.00 9.30 0.00 0.00 ✓ Severe Comments Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments

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Municipal Structure Inspection Form

Structure Number: 03-1182530 CH02

numcipal s	structure inspection	Form	Structure Num	ber. 03-1162530	CUUZ
Repair/Reh	abilitation Required				
Element Group	Element	Repair/I	Rehabilitation	Priority	Cost
Culverts	Barrels	Replace		Now	\$280,000
Barriers	Posts	Replace		Now	\$0
			Total F	Repair/Rehabilitation Cost	\$280,000
Associated	Work				
_	Comments			Esti	mated Cost
Approaches					\$70,000
Detours					\$0
Traffic Control			·		\$100,000

Traffic Control			\$100,000
Utilities			\$20,000
Right-of-Way			\$0
Environmental Study			\$10,000
Other			\$0
Contingencies	10 %	**	\$48,000
Engineering	20 %	**	\$96,000
** If based on a percentage calculated values rounded-up to the	Total Associated Work Cost		\$344,000
nearest thousand dollars.	Total Repair/Rehabilitation Cost		\$280,000
	Total Cost		\$624,000
	Region of Halton Share @ 100%		\$624,000
Justification			

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03-1182530 CU02



Looking South at Roadway Over Culvert



East Elevation

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Municipal Structure Inspection Form

Structure Number:

03-1182530 CU02



West Elevation



Outward Rotation of 3 Cable Guiderail (West Side)

771114

03-1182530 CU02



Typical Steel Flex Beam (East Side)



Typical Chain Link Fence (East Side)

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Municipal Structure Inspection Form

Structure Number:

03-1182530 CU02



Missing Cable Stays on Timber Post



Severe Split in Timber Guiderail Post

03-1182530 CU02



Sealed Cracks and Unsealed Narrow Cracks in Wearing Surface



Severe Perforations in Barrel Invert

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Municipal Structure Inspection Form

Structure Number:

03-1182530 CU02



Heaving of Barrel Invert



Minor Outward Rotation of Inlet Component

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Structure Number:

03-1182530 CU02



Severe Corrosion of Bolts in Barrel Obvert



Looking East From Midspan

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Municipal Structure Inspection Form

Structure Number:

03-1182530 CU02



Looking West From Midspan



Looking West Through Barrel

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WHEN

Structure Number:

03-1182530 CU02



Looking Downstream



Looking Upstream



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Summary Action Report Structure 03-1182530 CU01 (MTO Site No.)

Trafalgar Road Culvert

Inspection Date		09/27/2012	mm/dd/yyyy			Condition	Index Value (BC	CI) 84.7
Next Biennial In	spection	09/27/2014	mm/dd/yyyy			Current R	ep. Value	\$603,72
Additional Inves	stigations							
Investigation			Priority	Cost	Investigation		Priority	Cost
No additional inves	itigations requ	uired.						
Performance De	eficiencies							
No Performance De	eficiencies						_	
Maintenance Ne	eeds							
Element Group	Element			Mainter	nance Required	Priority	Comment	
Barriers	Railing Syst	ems		Bridge H	Handrail Maintenance	1-5 yrs	Tighten cables	
Barriers	Posts			Bridge H	landrail Maintenance	1-5 yrs	Replace missing	post
Repair/Rehabili	tation							
No Repair/Rehabilit		ements						
Danian of Haltan			100%	60.00	1	Tatal Associat	ted Work Cost	***
Region of Halton			100 %	\$0.00	1	I otal Associa		\$0
		7 34	V ₀		ــــــ بر		Total Cost	\$0
Overall Comme	ents							

AECOM January 28, 2013 Page 1 of 17 v1112 Spans Span Name Span Length

Municipal Structure Inspection Form

Trafalgar Road Culvert

43.48927 Longitude -79.72129

Trafalgar Road

Structure Location 0.20 km North of Dundas Street East

Region of Halton

Central

Central

Halton

Open Footing

81.60

Special Routes ☐ Transit ✓ Schoo ☐ Truck

Reinforced Cast-in-Place Concrete

34 m Road Width

m2 No. of Spans

2.4 m Vert. Clear.

✓ Road Rail Ped Nav. Water Non-Nav. Wat. Other

Road Rail Ped Nav. Water Non-Nav. Wat. Other

Cur. Rep.Value

Heritage Status

Road Side Env.

Road Class

Lane Type

AADT

Posted Speed

Detour Length

Insp. Duration

Fill on Structure

Inspection Route Sequence

Interchange Structure Number

Interchange Number

100 %

16.8 m

Bicycle

Inventory Data

Structure Name

Road Name

Latitude Owner(s)/

% Share

MTO Region

MTO District

Old County

Geographic Twp.

Structure Type Structure Material

Articulation

Overall Width

Total Deck Area

Total Deck Length

Cross. Type Over

Cross. Type Under

** Current Replacement Value is based on in kind replacement of the existing structure and calculated using benchmark costs. Capital planning should consider site specific cost factors and requirements for widening or lengthening of the structure. Span Name Span Length 1.8 m

Structure Number:

Hwy No. 03

\$603,720

Semi Urban

Arterial

Regular

03-1182530 CU01

Key Photo

Not Considered for Designation

60 No. of Lanes 22717 Pct. Trucks

0 km Skew Angle

Struct. Dir.

0.6 m

1 hr

-30

East/West

Historical Data						
Year Built	1990	уууу	Year of Last Major Rehab	уууу		
Last OSIM Inspection		mm/dd/yyyy	Contract No. When Built			
Last Enhanced OSIM		mm/dd/yyyy	Last Evaluation	mm/dd/yyyy		
Last Enhanced Access		mm/dd/yyyy	Current Load Limit	t t		
Last Underwater Insp.		mm/dd/yyyy	Load Limit By-Law No.	mm/dd/yyyy		
Last Condition Survey		mm/dd/yyyy	By-Law Expiry Date	mm/dd/yyyy		

Rehab History

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03-1182530 CU01 **Municipal Structure Inspection Form** Structure Number: Field Inspection Information: BCI 84.7 Inspection Date 09/27/2012 mm/dd/yyyy Multi Day Inspection ✓ OSIM ☐ Enhanced OSIM Eng. Responsible D. L. Baxter, P. Eng. D. Kelly Inspector Others in Party P. Burton Lift Ladder Boat Other Access Equip. Bridge Master Other Equip. Camera, Hammer, Other Hand Tools Clear 18 °C Weather Additional Investigations Required: Investigation Priority **Estimated Cost** None Normal Urgent Detailed Deck Condition Survey \$0 Delamination Survey of Asphalt-Covered Deck 10 \$0 Concrete Substructure Condition Survey \$0

Detailed Coating Condition Survey

Post-Tensioned Strand Investigation

Monitoring of Deformations, Movements and Settlements

Detailed Timber Investigation

Underwater Investigation

Fatigue Investigation

Seismic Investigation

Structure Evaluation

Monitoring of Crack Widths

Total Cost

\$0

\$0

\$0

\$0

\$0

\$0

\$0

\$0

\$0

\$0

Investigation Notes	Total Cost
Overall Structure Notes:	
Recommedend Work on Structure	None Minor Rehab Major Rehab Replace Remov
Timing of Recommended Work	1 to 5 years 6 to 10 years
Overall Comments	
3CI Change Justification	
Next Inspection 09/27/2014	nm/dd/yyyy Estimated Load Limit t t

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Municipal Structure Inspection Form

Inspector

Structure Number:

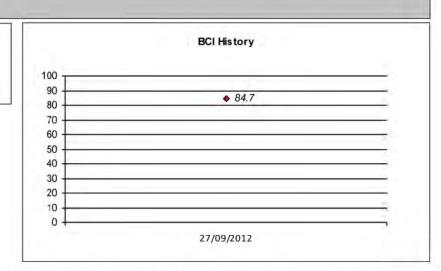
03-1182530 CU01



Insp. Date

27-Sep-12 84.7 D. Kelly

BCI



All BCI values are based on the MTO BCI methodology published in April 2008. As a result, BCI values for 2007 and earlier are approximate only, with potential discrepancies resulting from changes (over time) in the way quantities for certain elements are calculated

Standard Codes

Suspected Performance Deficiencies

- 00 None
- 01 Load carrying capacity
- Excessive deformations (deflections/rotations)
- Continuing settlement
- Continuing movements
- 05 Seized bearings

Maintenance Needs

- Bridge Handrail Maintenance Painting Steel Bridge Structures
- Bridge Deck Joint Repair
- 06 Bridge Bearing Maintenance

- 06 Bearing not uniformly loaded/unstable
- Jammed expansion joint
- Pedestrian/vehicular hazard
- Rough riding surface
- Surface ponding
- 11 Deck drainage
- Repair to Structural Steel
- Repair of Bridge Concrete 09 Repair of Bridge Timber
- Bailey Bridges Maintenance Animal/Pest Control
- 12 Bridge Surface Repair

- Slippery surfaces
- 13 Flooding/channel blockage
- Undermining of foundation
- Unstable embankments
- 16 Other

- 01 Lift and Swing Bridge Maintenance
- 02 Bridge Cleaning

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

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MITTE

Structure Number:

03-1182530 CU01

Decks - Wearing	_			1	1		
Element Group	Decks		-16		Length 14.40 Width 16.80		
Element Name	Wearing Surfa				Height 0.00 Count 1.00		
_ocation	Above Structur	е			Total Quantity 241.92		
Material	Asphalt				Limited Inspection		
Element Type					Environment		
Protection System	None				Benign		
Condition Data		ccell. Good		Poor	Moderate		
Comments	sq. m	0.00 240	.92 1.00	0.00	✓ Severe		
Rehab/Repair Recom		Priority	Cost Comme	ents			
Barriers - Railin				ī	Length 14.40 Width 0.00		
Element Group Element Name	Barriers	2.	76		Length 14.40 Width 0.00 Height 0.00 Count 2.00		
ocation	Railing System	5			Total Quantity 28.80		
ocation	Both Sides				Limited Inspection		
Astorial	Steel						
7.157.07	Steel				E. diam.		
Element Type					Environment		
Element Type Protection System	None	veall Good	Eair	Poor	Benign		
Element Type Protection System	None	ccell. Good		Poor 14.40	☐ Benign ☐ Moderate		
Element Type Protection System Condition Data Comments	None Units Ex		Fair	0.7077	Benign		
Element Type Protection System Condition Data Comments Loose cables due to m	None Units Example 1		.40 0.00	14.40	☐ Benign ☐ Moderate		
Material Element Type Protection System Condition Data Comments Loose cables due to m Performance Deficien None Rehab/Repair Recom	None Units Example is sissing post.	0.00 14	.40 0.00	Priority 1-5 yrs	☐ Benign ☐ Moderate ☑ Severe Comments		

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Municipal Str	ucture Inspection Form	Inspection Form Structure Number:			
Culverts - Barr	els				
Element Group	Culverts	Length	34.00	Width	1.80
Element Name	Barrels	Height	1.00	Count	1.00

Element Group	Culverts					Length	34.00	Width	1.80
Element Name	Barrels					Height	1.00	_	1.00
Location	Through (Culvert						uantity	190.40
Material		ace concrete				Limited	Inspection	_	400139
Element Type	Box	000 001101010				Environme			
Protection System	None					✓ Benign			
Condition Data	Units Excell. Good Fair Poor			Modera					
Condition Data	sq. m				Severe				
Two construction joints	s noted, efflor	escence stainin	g, rust stainin	g, narrow cracks	s, wet areas.				
Performance Deficier	ncies	Mainte	enance Needs	s	Priority	Comments			
Rehab/Repair Recom	nmendations	Prio	rity C	ost Commen	ts				
Culverts - Inlet	Compone	nts			-				
Element Group	Culverts					Length	0.00	Width	0.00
Element Name	Inlet Com	ponents				Height	0.00	Count	8.00
Location	West Side	Э					Total Q	uantity	8.00
Material	Cast-in-pl	ace concrete				Limited	Inspection	on	
Element Type	Headwall					Environme	ent		
Protection System	None					✓ Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	☐ Modera	ite		
Comments	sq. m	5.00	3.00	0.00	0.00	Severe			
Performance Deficier	ncies	Mainte	enance Needs	S	Priority	Comments			

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7113

03-1182530 CU01 Structure Number: **Municipal Structure Inspection Form Culverts - Outlet Components** 0.00 Width 0.00 **Element Group** Culverts Length **Element Name** Outlet Components Height 0.00 Count 8.00 Location East Side **Total Quantity** 8.00 Limited Inspection Material Cast-in-place concrete Headwall Element Type Environment None **Protection System** ✔ Benign **Condition Data** Units Excell. Good Fair Poor Moderate 5.00 0.25 sq. m 2.75 0.00 Severe Comments Narrow stained crack. Performance Deficiencies **Maintenance Needs** Priority Comments None Rehab/Repair Recommendations Priority Cost Comments Embankments & Streams - Streams & Waterways **Element Group** Embankments & Streams Length 0.00 Width 0.00 Streams & Waterways 0.00 Count **Element Name** Height 1.00 **Total Quantity** 1.00 Location Through Culvert Limited Inspection Material **Element Type** Environment **Protection System** None Benign **Condition Data** Units Excell. Good Fair Poor Moderate All 0.00 1.00 0.00 0.00 Severe Comments **Performance Deficiencies Maintenance Needs Priority Comments** None Rehab/Repair Recommendations Priority Cost Comments

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Embankments &	Streams - E	mbankments					
Element Group	Embankments	& Streams		Length	0.00 Wi	dth	0.00
Element Name	Embankments			Height	0.00 Co	unt	4.00
Location	Each Quadran	t.			Total Quan	tity	4.00
Material				Limited	Inspection		
Element Type				Environment			
Protection System	Vegetation			Benign			
Condition Data	Units Ex	ccell. Good Fair	Poor	Modera	ite		
Comments	Each	0.00 4.00 0.00	0.00	Severe			
Rehab/Repair Recon		Priority Cost Comme	nts				
Embankments & Element Group	Streams - S Embankments	See No. of Contrast of Contras	-	Length	0.00 Wid	dth	0.00
Element Name	Slope Protection	1		Height	0.00 Co		4.00
Location	Each Quadran				Total Quan	tity	4.00
Material	Vegetation			Limited Inspection			
Element Type				Environment			
Protection System				Benign			
Condition Data	Units Ex	ccell. Good Fair	Poor	Modera	ite		
Comments	Each	0.00 4.00 0.00	0.00	Severe			
		Maintenance Needs	Priority	Comments			

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7119

03-1182530 CU01 **Municipal Structure Inspection Form** Structure Number: Barriers - Posts 0.00 Width 0.00 **Element Group** Barriers Length Posts **Element Name** Height 0.00 Count 8.00 Both Sides **Total Quantity** 8.00 Location Limited Inspection Material Wood Element Type Environment Benign **Protection System** Units Excell. Good Fair Poor Moderate **Condition Data** Each 0.00 0.00 7.00 1.00 ✓ Severe Comments One missing post. Performance Deficiencies **Maintenance Needs** Priority Comments None Bridge Handrail Maintenance 1-5 yrs Replace missing post Rehab/Repair Recommendations Priority Cost Comments Foundations - Foundations (below ground level) **Element Group** Foundations Length 0.00 Width 0.00 0.00 Count **Element Name** Foundations (below ground level) Height 0.00 Below Ground Level 0.00 Location **Total Quantity** ✓ Limited Inspection Material **Element Type** Environment **Protection System** Benign **Condition Data** Units Excell. Fair Poor Moderate Good All Severe Comments Limited inspection. **Performance Deficiencies Maintenance Needs** Priority Comments None

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Cost Comments

Priority

Rehab/Repair Recommendations

Municipal Structure Inspection Form

Structure Number:

03-1182530 CU01

Repair/Rehabilitation Required

Associated Work		
Comments		Estimated Cos
Approaches	li .	\$0
Detours		\$0
Traffic Control		\$0
Utilities		\$0
Right-of-Way		\$0
Environmental Study		\$0
Other		\$0
Contingencies	%	** \$0
Engineering	%	** \$0
** If based on a percentage calculated values rounded-up to the	Total Associated Work Cost	\$0
nearest thousand dollars.	Total Repair/Rehabilitation Cost	\$0
	Total Cost	\$0
	Region of Halton Share @ 100%	\$0
Justification		

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MITTER



Looking North at Roadway Over Culvert



Looking South at Roadway Over Culvert



East Elevation



West Elevation

WITE

Structure Number:

03-1182530 CU01



Medium Ravelling on Wearing Surface



Missing Cable Guiderail Post on East Side of Structure

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v1112

Municipal Structure Inspection Form

Structure Number:

03-1182530 CU01



Efflorescence Staining on Barrel Wall



East Construction Joint

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V1119

03-1182530 CU01



West Construction Joint



Looking East Through Barrel

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v1112

Municipal Structure Inspection Form

Structure Number:

03-1182530 CU01

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Looking West Through Barrel



Looking Downstream

Structure Number:

03-1182530 CU01



Looking Upstream



Stained Crack on Outlet Wingwall



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v1112