

## **Summary Report**

2020 Hamilton OSIM Inspections - Batch 1C & 1D & Non-City  
Owned Structures  
Hamilton, ON  
Project # IM20108021

Prepared for:

**City of Hamilton**

77 James Street North, Suite 320, Hamilton, ON L8R 2K3

11/23/2021

11/23/2021

Mr. Trevor McClung  
Project Manager – Surface Infrastructure  
City of Hamilton  
77 James Street North, Suite 320  
Hamilton, ON  
L8R 2K3

**Dear Mr. McClung,**

As requested, Wood Environment & Infrastructure Solutions has carried out the 2020 OSIM inspections for Batch 1C and Batch 1D structures along with 32 non-City owned structures.

We trust that this summary report contains information that is sufficient for your purposes. Please contact the undersigned if you require clarification in any way.

Sincerely,

**Wood Environment & Infrastructure Solutions  
a Division of Wood Canada Limited**

**Reviewed by:**



Dante Shawil, EIT  
Structural Designer/Inspector



Matthew Galloway, M.Eng., P.Eng  
Senior Structural Engineer



Karam Albazi, P.Eng  
Senior Bridge Lead Engineer

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## Prepared by:

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**11/23/2021**

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## 1.0 Project Background

In 2020, Wood Environment & Infrastructure Solutions (Wood) was retained by the City of Hamilton (City) to perform and detailed visual inspection (OSIM) and data collection for 97 structures. Additionally, the City also requested that the inspection of 32 non-City owned structures be completed as part of this assignment. An OSIM inspection was not carried out for the non-City owned structures and only the urgent/critical work was identified for these structures within this summary report. Individual reports shall be consulted for any details.

Data for all OSIM inspected structures, including full inventory, as well as condition, recommended repairs, and cost of repairs have been recorded in the City's database.

The lead inspectors involved in the inspection of all structures are experienced and have received certification through the OGRA Bridge Inspection Course (TM45). These inspectors were

- Moustapha Ary, M.ASc, P.Eng.
- Khaled Kallas, EIT;
- Ryan Kohler, EIT;
- Nathan Kranendonk, EIT; and
- Dante Shawil, EIT.

The name of at least one of these inspectors should appear on the OSIM inspection forms.

Furthermore, a review was carried out by the following Engineers:

- Matthew Galloway, M.Eng., P.Eng. – Engineer of Record
- Karam Albazi, P.Eng. – QA / QC

The original inventory list of structures for and OSIM inspection given by the City included a total of 97 structures (70 for Batch 1C and 27 for Batch 1D). After Wood inspections, the total number of structures inspected was reduced to 83 structures (56 for Batch 1C and 27 for Batch 1D). A list of the structures that were removed from the 2020 inspection including the reason for removal are in **Appendix 'A'**.

For the 32 non-City owned structures, all 32 were inspected.

As prescribed in the Ontario Structure Inspection Manual (OSIM), the structure investigations began with a detailed visual inspection of all structures. Inventory of bridge components, as well as all quantities, were checked against previous OSIM inspections and updated as required.

A list of all the structures and their date of inspection has been included in Appendix 'A'.

Many structures were found to be in overall good condition. However, several of the structures were noted to possess deficiencies and exhibited deterioration. Two (2) structures, #046 (Christina Avenue – 10m South of Willow Lane) and #246 (Glover Road – 335m South of Barton Street), were identified for full replacement. Many other structures have sustained deterioration but are still in a condition which can be fully rehabilitated.

If these deteriorated structures are left without maintenance or rehabilitation longer than the period recommended in the individual inspection reports, they will likely deteriorate further and be at a higher risk of requiring full replacement.

Common deficiencies noted include delamination, cracking, and spalling of concrete in most elements of the structure, particularly in areas with more severe environments. Exposure to water and salt spray often correlates with these common deficiencies.

A limited number of structures traversing watercourses were partially blocked with excess vegetation growth as well as debris within the stream or river. Furthermore, there are several structures with erosion and unstable embankments. Remediation, in the form of soil stabilization is recommended at these structures. For structures with blocked streams and waterways, refer to **Section 5.0 – Recommended Maintenance** for a table identifying all maintenance needs. For structures with erosion and/or unstable embankments, refer to **Appendix 'B'** for list of all structures and associated works.

No structures have been recommended for immediate load restriction posting in this set of inspections; however, additional investigations have been recommended for several structures to provide improved data for the determination of rehabilitation work as well as potential load restriction postings. For structures recommended for additional investigations, refer to **Section 6.0 – Recommended Additional Investigations**.

A detailed priority list for all the structures in Batch 1C and Batch 1D and their corresponding recommended work has been included in **Section 7.0 – Recommended Priority List and Associated Works**. The list was organized with the more urgent work towards the top based firstly on the recommended timeline to complete the work and then by engineering judgement.

## 2.0 Structure Replacement

Based on our investigations, two (2) structures were recommended for replacement.

**Table 1 - Structures Recommended to be Replaced**

Structure No.	Structure Name	Years	Total Cost	Work Type
#046	CHRISTINA AV	3-5 yrs	\$ 310,000.00	Replacement
#246	GLOVER RD	6-10 yrs	\$ 250,000.00	Replacement

Structure #046 is recommended for replacement due to its existing condition and very low vertical clearance. Rehabilitation would be extremely difficult, inefficient, and the quality of work could suffer due to the vertical clearance. A replacement would better serve the City in the long run.

Structure #246 was recommended for replacement for similar reasons as #046, however, the structure is in better condition, so a replacement is not as urgent.

## 3.0 Structure Removal

Based on our investigations, no structures were recommended for removal.

However, it is assumed that structure #457 (currently closed) is scheduled for a rehabilitation or replacement. If not, the structure should be removed rather than abandoned to ensure that it does not collapse or wash away into the watercourse.

## 4.0 List of Urgent and Critical Works

Based on our inspections, the following Table 2 provides a list of structures requiring work to be completed "now" or within one year. All City owned structures work is considered as Minor Rehabilitation.

**Table 2 – List of Urgent and Critical Works**

Structure No.	Structure Name	Specific Location	Structure Type	Element	Recommended Work	Timeline
40	Arvin Avenue	210m West of Fruitland Road	Culvert	Barriers	Fill bases of SBGR posts	< 1

132	Quigley Road	70m North of Veevers Drive	Culvert	Barriers	Replace wooden posts	< 1
233	North Service Road	75m West of Dartmouth Gate	Culvert	Outlet Components Barriers	Replace NE outlet duct Install barriers on both sides	< 1 < 1
234	South Service Road	257m East of Jones Road	Culvert	Barriers	Repair impacted portion of SBGR	NOW
244	Hwy 8	15m West of Fifty Road	Culvert	Barriers	Repair impacted portion of SBGR	NOW
314	Claremont Access	over Charlton Avenue East	Bridge	Retaining Walls Misc.	Add railings along retaining walls Cover hole near NE wingwall	< 1 NOW
316	Claremont Access	over Stinson Street	Bridge	Soffit	Scale loose concrete	< 1
317	Sherman Access (West End) - Hairpin Bend to Eastbound	over Sherman Access	Bridge	Soffit	Scale loose concrete	< 1
329	Burlington Street Overpass centred approx. over Wilcox Street	275m West of Wilcox Street to 300m East of Wilcox Street	Bridge	Soffit	Scale loose concrete	< 1
392	Claremont Access	1100m South of Young Street	Bridge	Abutment	Reposition or replace shear block bad	< 1
<b>NON-CITY OWNED STRUCTURES</b>						
305	DUNDURN STREET SOUTH RAIL STRUCTURE		Bridge	Bearings Wingwalls	Investigate rotated bearing Invest. wide crack on SW wingwall	< 1 < 1
306	DUNDURN STREET SOUTH RAIL STRUCTURE		Bridge	Abutments Embankments	Invest. leakage of backfill material at South abutment and repair Investigate South embankment for stability and repair as required	< 1 < 1

## 5.0 Recommended Maintenance

The following Table 3 identifies all structures requiring maintenance.

**Table 3 – List of Recommended Maintenance Work**

Structure No.	Structure Name	Specific Location	Structure Type	Element	Recommended Work	Timeline (years)
49	Collegiate Avenue	30m West of Donn Avenue	Bridge	Drainage	Fill deck drains	2
89	Creighton Road	30m South of Mill Street	Bridge	Barriers	Tighten bolts	1
93	Park Street East	110m West of York Road	Culvert	Retaining Walls	Remove vegetation	2
132	Quigley Road	70m North of Veevers Drive	Culvert	Streams and Waterways	Remove debris	1
133	Quigley Road	0.5N of Munn's Avenue	Culvert	Streams and Waterways	Remove debris	1
135	Lake Avenue North	55m North of Huckleberry Drive	Culvert	Streams and Waterways	Remove debris	1
				Barrels	Remove sediment build up	2
228	North Service Road- QEW-South Service Road	108m West of Lewis Road	Culvert	Barrels	Remove vegetation	2
231	North Service Road	280m West of Waterford Crescent	Culvert	Streams and Waterways	Remove vegetation	2
233	North Service Road	75m West of Dartmouth Gate	Culvert	Streams and Waterways	Remove vegetation	2
248	King Street West	145m West of Bond Street	Bridge	Sidewalks and Medians	Remove debris	2
303	Pedestrian Rail Trail Bridge over Main Street West	105m South of Osler Drive	Bridge	Bearings	Remove debris/vegetation	2

313	Arkledun Avenue (Jolley Cut)	over Claremont Access	Bridge	Joints - Seals	Remove debris/vegetation	1
318	Claremont Access	over James Mountain Road	Bridge	Drainage	Remove debris/vegetation	2
				Joints - Seals	Remove debris/vegetation	1
319	Concession Street	over Sherman Access Cut	Bridge	Barrier/Parapet Walls	Secure Northwest Precast Cap	1
321	Pedestrian Trail Bridge over Kenilworth Access	1100m West of Lawrence Road	Bridge	Deck Wearing Surface	Remove debris/vegetation	1-5
326	Nikola Tesla Blvd Overpass	535m West of Kenilworth Ave.	Bridge	Drainage	Remove debris/vegetation	2
	centred over Kenilworth Avenue	to 225m East of Kenilworth Ave.		Joints - Seals	Remove debris/vegetation	2
				Joints - Modular Seal	Remove debris/vegetation	2
327	Nikola Tesla Blvd Overpass	500m West of Strathearne Avenue	Bridge	Joints - Seals	Remove debris/vegetation	2
	centred over Strathearne Avenue	to 900m East of Strathearne Avenue				
328	Industrial Drive	240m East of Gage Avenue North	Bridge	Joints - Seals	Remove debris/vegetation	2
329	Burlington Street Overpass	275m West of Wilcox Street	Bridge	Joints - Seals	Remove debris/vegetation	2
	centred approx. over Wilcox Street	to 300m East of Wilcox Street				
367	King Street West	130m East of Centennial Parkway	Bridge	Embankments	Remove tree at NW	1
				Streams and Waterways	Remove rock wall under bridge	2
368	King Street East	40m East of Elm Avenue	Bridge	Streams and Waterways	Remove debris/vegetation	2
392	Claremont Access	1100m South of Young Street	Bridge	Drainage	Remove debris/vegetation	2
				Joints - Seals	Remove debris/vegetation	1
453	Centennial Parkway	820m North of Ridge Road	Culvert	Embankments	Remove debris/vegetation	2
				Streams and Waterways	Remove debris/vegetation	1
458	York Boulevard	500m North of Valley Inn Road	Bridge	Drainage	Remove debris/vegetation	1
				Joints - Seals	Remove debris/vegetation	1

## 6.0 Recommended Additional Investigations

The following Table 4 identifies all structures requiring additional investigations.

**Table 4 – List of Recommended Additional Investigations**

Structure No.	Structure Name	Structure Type	Due Date / Timeline	Recommended Evaluation	Priority	Comments	Estimated Cost
48	Jones Street	Bridge	Dec. 2022	Detailed Deck Condition Survey	Normal	Determine condition	\$ 35,000.00
			Dec. 2022	Concrete Substructure Condition Survey	Normal	Determine condition	\$ 15,000.00
49	Collegiate Avenue	Bridge	Dec. 2022	Detailed Deck Condition Survey	Normal	For rehabilitation	\$ 15,000.00
			Dec. 2022	Structure Evaluation	Normal	For rehabilitation	\$ 15,000.00
86	Cross Street	Culvert	Dec. 2022	Detailed Deck Condition Survey	Normal	Determine condition	\$ 35,000.00



			Dec. 2022	Concrete Substructure Condition Survey	Normal	Determine condition	\$ 8,000.00
			Dec. 2022	Structure Evaluation	Normal	Price will increase if no drawings are available	\$ 5,000.00
			As part of OSIMs	Monitoring of Deformations, Settlement and Movements	Normal	Monitor during OSIMs	
90	McMurray Street	Bridge	Dec. 2022	Concrete Substructure Condition Survey	Normal	For rehabilitation	\$ 35,000.00
			As part of OSIMs	Monitoring of Deformations, Settlement and Movements	Normal	Monitor North Abutment & SE Retaining Wall during OSIMs	
91	Ogilvie Street	Bridge	Dec. 2022	Detailed Deck Condition Survey	Normal	Determine condition	\$ 13,000.00
			Dec. 2022	Non-Destructive Delamination Survey of Deck	Normal	Chain drag exposed concrete deck	\$ 3,000.00
232	South Service Road	Culvert	Nov. 2022	Structure Evaluation	Normal	Due to cracking at mid-span	\$ 5,000.00
			As part of OSIMs	Monitoring Crack Widths	Normal	Monitor during OSIMs	
235	South Service Road	Culvert	As part of OSIMs	Monitoring of Deformations, Settlement and Movements	Normal	Monitor during OSIMs	
			Nov. 2022				
248	King Street West	Bridge	Dec. 2022	Detailed Deck Condition Survey	Normal	Bottom-up defects observed on asphalt	\$ 15,000.00
			Dec. 2022	Concrete Substructure Condition Survey	Normal	Determine condition	\$ 12,000.00
297	Main Street	Bridge	Dec. 2022	Detailed Deck Condition Survey	Normal	For rehabilitation	\$ 20,000.00
			Dec. 2022	Structure Evaluation	Normal	For rehabilitation	\$ 15,000.00
301	Cootes Drive	Bridge	Dec. 2022	Detailed Deck Condition Survey	Normal	For rehabilitation	\$ 25,000.00
313	Arkledun Avenue	Bridge	Dec. 2022	Detailed Deck Condition Survey	Normal	For rehabilitation	\$ 35,000.00
320	Kenilworth Access	Bridge	Dec. 2022	Detailed Deck Condition Survey	Normal	For rehabilitation	\$ 30,000.00
			Dec. 2022	Concrete Substructure Condition Survey	Normal	For rehabilitation	\$ 10,000.00
			Dec. 2022	Structure Evaluation	Normal	For rehabilitation	\$ 10,000.00
372	Wilson Street East	Culvert	Dec. 2022	Concrete Substructure Condition Survey	Normal	For rehabilitation	\$ 10,000.00
			As part of OSIMs	Monitoring of Deformations, Settlement and Movements	Normal	Monitor during OSIMs	
392	Claremont Access	Bridge	As part of OSIMs	Monitoring of Deformations, Settlement and Movements	Normal	East abutment, bearing 8 from North during OSIMs	
455	Macklin Street N/Private Leg	Bridge	Dec. 2022	Concrete Substructure Condition Survey	Normal	GPR survey of channel lining	\$ 20,000.00
						<b>TOTAL COST</b>	<b>\$ 386,000.00</b>

## 7.0 Recommended Priority List

The following Table 5 identifies all recommended work in priority sequence.

**Table 5 – List of Recommended Priority List**

PRIORITY RANKING	ID.	STRUCTURE NAME	INSPECTION DATE	WORK CATEGORY	TIMING	BCI	ESTIMATED TOTAL COST (\$)	COMMENTS*
1	046	CHRISTINA AV	2021-01-13	Replacement	1-5 yrs	52.84	\$309,700.00	Significant deterioration observed within barrel. Low vertical clearance would make rehabilitation very difficult and expensive.
2	246	GLOVER RD	2021-01-13	Replacement	6-10 yrs	64.46	\$243,315.00	1-5 yrs: install barriers on side of road 6-10 yrs: replace culvert
3	137	OLD ANCASTER RD	2021-03-02	Minor Rehab.	< 1 yr	66.26	\$42,100.00	< 1 yr: repair damaged SBGR section 6-10 yrs: concrete repairs in barrel
4	234	SOUTH SERVICE RD	2020-11-27	Minor Rehab.	< 1 yr	67.72	\$49,100.00	< 1 yr: repair SBGR impact damage 1-5 yrs: stabilize south embankments, replace retaining walls, concrete repair in barrel
5	244	HWY 8	2021-01-14	Minor Rehab.	< 1 yr	71.50	\$32,300.00	< 1 yr: repair impacted SBGR at NW 1-5 yrs: repave wearing surface, add pedestrian crossing at South side of intersection
6	300	COOTES DR	2021-01-08	Minor Rehab.	< 1 yr	71.78	\$125,040.00	< 1 yr: Install SBGR North side 1-5 yrs: replace wearing surface 6-10 yrs: concrete repairs to barrel, outlet sidewalk, deck top, repair storm sewer
7	316	CLAREMONT AC	2020-11-20	Minor Rehab.	< 1 yr	74.73	\$89,290.00	< 1 yr: scale loose concrete on soffit 1-5 yrs: repair pothole at NBL approach 6-10 yrs: concrete repairs to abutment, soffit, retaining walls, barriers, and medians
8	317	SHERMAN AC (WEST END) (HAIRPIN BEND TO EASTBOUND)	2020-11-18	Minor Rehab.	< 1 yr	73.12	\$71,050.00	< 1 yr: scale loose concrete 1-5 yrs: coat railings and posts, concrete repairs to abutment and wingwalls 6-10: concrete repairs to barriers, repair wearing surface
9	392	CLAREMONT AC	2020-11-18	Minor Rehab.	< 1 yr	81.00	\$133,350.00	< 1 yr: reposition shear block pad or replace 1-5 yrs: clean joint seals 6-10 yrs: repair approach slab, deck soffit, piers, and barriers, route & seal asphalt
10	235	SOUTH SERVICE RD	2020-11-27	Major Rehab.	< 1 yr	69.21	\$112,675.00	< 1 yr: replace failed/undermining channel, add protection or reconstruct disintegrated footing 1-5 yrs: Patch repairs and crack injections in barrel. Place rip-rap at NE embankment
11	233	NORTH SERVICE RD	2020-11-27	Minor Rehab.	< 1 yr	72.19	\$65,400.00	< 1 yr: repair NE outlet duct, install railing system at sides of roadway 6-10 yrs: seal cracks in wearing surface, concrete repairs in barrel
12	314	CLAREMONT AC	2020-11-20	Major Rehab.	< 1 yr	74.68	\$208,700.00	< 1 yr: add railings over retaining walls, replace missing manhole cover 1-5 yrs: scale loose concrete on soffit, concrete repairs on median 6-10: concrete repairs to abutment, wingwalls, retaining walls, piers, and NBL curbs

13	329	BURLINGTON ST OVERPASS centred approx over WILCOX ST	2021-03-09	Minor Rehab.	< 1 yr	73.05	\$1,571,896.00	< 1 yr: scale loose concrete on soffit 1-5 yrs: repair concrete barriers and coating on hand railing, patch soffit, recoat girders 6-10 yrs: replace joint seals and end dams
14	040	ARVIN AV	2021-01-13	Minor Rehab.	< 1 yr	80.37	\$17,150.00	< 1 yr: fill bases at SBGR posts 6-10 yrs: concrete repairs to barrier and outlet
15	132	QUIGLEY RD	2020-12-02	Minor Rehab.	< 1 yr	71.91	\$54,300.00	< 1 yr: replace wooden posts, clean stream debris at inlet 1-5 yrs: place rip-rap at SW embankments, rout and seal wearing surface 6-10 yrs: concrete repairs to barrel
16	297	MAIN ST	2021-01-08	Minor Rehab.	< 1 yr	54.00	\$171,840.00	Investig.: deck condition survey, structure eval. < 1 yr: repair sidewalk and replace gabions at SW1-5 yrs: coat structural steel, concrete repairs to soffit, fill scour hole
17	296	GOVERNOR'S RD	2021-01-08	Minor Rehab.	< 1 yr	62.28	\$405,800.00	< 1 yr: replace approach wearing surface 1-5 yrs: replace barriers, drains, and sidewalk/ext soffit, repair abutments, deck top, int soffit, replace utility piers, replace wearing surface.
18	320	KENILWORTH AC	2020-12-03	Major Rehab.	1-5 yrs	65.46	\$347,810.00	Investigations: detailed deck condition survey, concrete substructure conditon survey, structure evaluation Concrete repairs to soffit, piers, sidewalks, barriers, repairs to steel railing system
19	043	SEAMAN ST	2021-01-13	Major Rehab.	1-5 yrs	52.87	\$155,280.00	Replace CSP storm sewer, Concrete repairs to retaining walls, barrel soffit, and barrel deck top, Waterproof and repave wearing surface.
20	049	COLLEGIATE AV	2020-12-02	Major Rehab.	1-5 yrs	54.9	\$112,300.00	Investigations: detailed deck condition survey, structure evaluation Recommendations: concrete repairs to soffit, sidewalks, and retaining walls.
21	313	ARKLEDUN AV (JOLLEY CUT)	2020-11-18	Major Rehab.	1-5 yrs	71.80	\$1,274,530.00	Investigations: Detailed deck condition survey for rehabilitation project 1-5 yrs: scale loose concrete on soffit, patch repairs and crack injections 6-10 yrs: replace expansion joints
22	372	WILSON ST E	2021-04-02	Major Rehab.	1-5 yrs	56.47	\$184,200.00	1-5 yrs: repair N barrel and replace outlet end 6-10 yrs: concrete repairs in barrel, replace inlet, reconstruct/protect foundation base, clear debris and regrade stream at outlet, replace gabion retaining wall
23	90	MCMURRAY ST	2021-01-07	Major Rehab.	1-5 yrs	61.16	\$295,450.00	Planned for upcoming rehabilitation. Replace missing and secure loose stone at North abutment, repair south erosions on South abutment and rehab retaining walls
24	91	OGILVIE ST	2021-01-08	Major Rehab.	1-5 yrs	68.93	\$359,520.00	Investigations: detailed deck condition survey, delamination survey of exposed deck top Recommendations: concrete repairs to abutments, wingwalls, soffit, deck top, and sidewalks, replace retaining wall at SW and gabions at SE
25	048	JONES ST	2020-12-02	Major Rehab.	1-5 yrs	55.08	\$288,730.00	Investigations: detailed deck condition survey, concrete substructure condition survey Recommendations: concrete repairs to deck, soffit, abutments and retaining walls, replace missing end caps on North railing

26	089	CREIGHTON RD	2021-01-05	Major Rehab.	1-5 yrs	56.79	\$671,600.00	Major rehabilitation recommended for the deck, joints, abutments, wearing surfaces, sidewalks, and barriers
27	086	CROSS ST	2021-01-07	Major Rehab.	1-5 yrs	64.02	\$220,122.00	Investigations: deck condition survey, substructure survey, structure eval., monitoring Recommendations: major rehab of culvert barrel & associated components, replacement of wearing surface, erosion control at NW and NE
28	407	QUEENSTON RD	2020-12-02	Minor Rehab.	1-5 yrs	66.28	\$160,952.00	1-5 yrs: concrete repairs in barrel, repair wearing surface 6-10 yrs: concrete repairs on approach, curbs, and barrel ends, install scour protection
29	232	SOUTH SERVICE RD	2020-11-27	Major Rehab.	1-5 yrs	69.92	\$66,172.00	Repair large area of cracking and delamination at mid-span of barrel and areas of scaling and spalls at inlet, outlet, and exposed deck top.
30	301	COOTES DR	2020-12-08	Minor Rehab.	1-5 yrs	70.28	\$286,720.00	concrete repairs on sidewalks, pier columns, abutments, soffit, deck top, and parapet walls, replace joint seals, remove collapsed tree in creek
31	044	ARVIN AV	2021-02-04	Minor Rehab.	1-5 yrs	72.91	\$24,220.00	1-5 yrs: add SBGR on North side, seal cracks in wearing surface 6-10 yrs: concrete repairs along barrel and outlet
32	042	LAKEVIEW DR	2021-01-13	Minor Rehab.	1-5 yrs	70.69	\$84,900.00	1-5 yrs: repair channel liner, re-pave approach wearing surface 6-10 yrs: concrete repairs to barrel and retaining walls
33	248	KING ST W	2021-01-05	Minor Rehab.	1-5 yrs	47.97	\$328,790.00	Concrete repairs to substructure, replace retaining walls, repair barrier posts that are not embedded
34	321	PEDESTRIAN RAIL TRAIL BRIDGE OVER KENILWORTH AC	2020-11-20	Minor Rehab.	1-5 yrs	65.13	\$302,900.00	1-5 yrs: add curbs for drainage 6-10 yrs: concrete repairs to multiple elements, replace bearings, recoat girders, replace damaged railing
35	303	PEDESTRIAN RAIL TRAIL BRIDGE OVER MAIN ST W	2021-03-02	Minor Rehab.	1-5 yrs	53.90	\$350,800.00	1-5 yrs: replace curb & sidewalks, recoat girders & floor beams, repair steel girders, repair concrete on abutments and wingwalls 6-10 yrs: replace wearing surface and waterproof deck
36	241	FRUITLAND RD	2021-01-13	Minor Rehab.	1-5 yrs	72.92	\$42,584.00	Replace wearing surface, repair sidewalks and mill to prevent trip hazard
37	085	PARKDALE AV S	2020-12-01	Minor Rehab.	1-5 yrs	91.36	\$11,000.00	Grind down sidewalk at NW approach to prevent trip hazard
38	368	KING ST E	2020-12-02	Minor Rehab.	1-5 yrs	69.92	\$61,196.00	1-5 yrs: concrete repairs to abutments, replace gabions 6-10 yrs: concrete repairs to wingwalls, curbs, and soffit, add scour protection to abutments, repair deck top defects, place rip-rap at exposed ret wall foundation

39	039	ARVIN AV	2021-01-13	Minor Rehab.	1-5 yrs	71.02	\$40,740.00	Concrete repairs to barrel soffit Waterproof deck Replace gabions at embankments
40	326	NIKOLA TELS BLVD OVERPASS centred approx over KENILWORTH AVE	2021-09-03	Minor Rehab.	1-5 yrs	73.45	\$1,268,860.00	1-5 yrs: replace joint seals 6-10 yrs: patch repairs to soffit, deck top, barriers, and pier columns, recoat structural steel
41	379	QUEENSTON RD	2020-12-02	Minor Rehab.	1-5 yrs	74.98	\$64,330.00	1-5 yrs: place rip-rap at exposed footings 6-10 yrs: concrete repairs in barrel, seal cracks in wearing surface
42	136	OGILVIE ST	2021-01-08	Minor Rehab.	1-5 yrs	71.97	\$82,080.00	1-5 yrs: repave wearing surface, replace wood barrier posts, replace SBGR section with impact damage 6-10 yrs: concrete repairs on barrel and retaining walls
43	133	QUIGLEY RD	2020-12-02	Minor Rehab.	1-5 yrs	70.54	\$134,200.00	Armour embankments at outlet, install headwalls at inlet and outlet, concrete repairs in barrel, route and seal cracks on wearing surface
44	280	CLAREMONT AC	2020-12-09	Minor Rehab.	1-5 yrs	78.30	\$99,520.00	Repair parapet wall, seal asphalt cracks, patch potholes
45	318	CLAREMONT AC	2020-12-09	Minor Rehab.	1-5 yrs	78.68	\$276,940.00	1-5 yrs: patch repairs to concrete barriers, soffit, and curb, crack injections on soffit 6-10 yrs: recoat structural steel, patch end dams and piers
46	238	GREEN RD	2020-12-03	Minor Rehab.	1-5 yrs	72.80	\$29,200.00	Seal cracks on wearing surface, fill voids under slope protection, concrete repairs to barrel
47	243	FIFTY RD	2021-01-14	Minor Rehab.	1-5 yrs	73.89	\$14,990.00	Repair edge cracks and potholes at approaches, replace missing offset block at NE, replace damaged SBGR on east side
48	94	YORK RD	2021-01-07	Minor Rehab.	1-5 yrs	69.15	\$29,780.00	Replace gabions at NW and SW
49	041	SEAMAN ST	2021-01-13	Minor Rehab.	1-5 yrs	72.67	\$40,000.00	Concrete repairs to soffit
50	322	KING ST E	2020-12-03	Minor Rehab.	1-5 yrs	78.96	\$50,370.00	1-5 yrs: replace joint seal at North, fill void at NW embankment 6-10 yrs: concrete repairs to soffit, wingwalls, retaining walls, sidewalks, and curbs
51	328	INDUSTRIAL DR	2020-11-26	Minor Rehab.	1-5 yrs	72.34	\$455,326.00	1-5 yrs: concrete repairs to abutments, wingwalls, and piers, overlay sidewalk 6-10 yrs: concrete repairs to deck top, median, retaining walls, replace approach slab, resurface asphalt
52	319	CONCESSION ST	2020-12-09	Minor Rehab.	1-5 yrs	71.95	\$129,580.00	1-5 yrs: replace sheet lagging 6-10 yrs: repair east approach slab and wearing surface

53	367	KING ST W	2020-12-02	Minor Rehab.	1-5 yrs	80.35	\$57,852.00	1-5 yrs: replace SBGR posts, install proper end treatment on NW SBGR, tighten loose bolts on steel railing 6-10 yrs replace NE gabions, concrete repairs to abutments, barriers, and soffit
54	327	NIKOLA TESLA BLVD OVERPASS centred approx over STRATHEARNE AVE	3//2021	Minor Rehab.	1-5 yrs	74.48	\$3,908,150.00	1-5 yrs: repair wearing surface, patch repair joint end dams, replace joint seals 6-10 yrs: repair concrete barriers and coating on hand railing, patch repair soffit/piers/pier caps, clean and repair deck drains.
55	135	LAKE AV N	2020-12-02	Minor Rehab.	1-5 yrs	72.63	\$92,570.00	1-5 yrs: remove debris & aggradation, replace railings, fill undermining voids on W sidewalk 6-10 yrs: fill scour hole at east end, replace SBGR posts, replace brick gutter
56	131	GREENHILL AV	2020-12-02	Minor Rehab.	1-5 yrs	73.21	\$50,560.00	1-5 yrs: replace clay pipes inside barrel and hand railing, concrete repairs to sidewalks 6-10 yrs: seal cracks in wearing surface
57	087	MOUNTAIN PARK AV	2020-12-09	Minor Rehab.	1-5 yrs	79.57	\$112,240.00	Replace deteriorated retaining wall lagging, repair concrete curbs
58	453	CENTENNIAL PY	2020-11-20	Minor Rehab.	1-5 yrs	73.72	\$59,950.00	1-5 yrs: install headwall at outlet 6-10 yrs: replace damaged SBGR and posts and missing bolts, concrete repairs to barrel and curbs
59	323	LAWRENCE RD	2020-12-03	Minor Rehab.	1-5 yrs	73.33	\$147,580.00	Replace current railing system with parapet wall, concrete repairs to abutments, wingwalls, sidewalks, curbs, and soffit, remove railing on barrier between pier columns.
60	458	YORK BV	2021-02-02	Minor Rehab.	1-5 yrs	73.29	\$1,126,070.00	1-5 yrs: replace SBGR at NE and NW 6-10 yrs: concrete repairs to exterior soffit, parapet walls, and curbs. Replace median.
61	333	WOODWARD AV	2021-02-04	Minor Rehab.	1-5 yrs	77.14	\$68,872.00	1-5 yrs: replace joint seals 6-10 yrs: concrete repairs to NE sidewalk, W barriers, SW wingwall, deck top, seal cracks in wearing surface
62	93	PARK ST E	2021-01-07	Minor Rehab.	1-5 yrs	70.21	\$30,000.00	1-5 yrs: replace gabions 6-10 yrs: concrete repairs to sidewalks, barrel, and retaining walls
63	334	WOODWARD AV	2021-09-04	Minor Rehab.	1-5 yrs	71.39	\$119,640.00	1-5 yrs: replace joint seals, repair sidewalks, install joint cover plate at median 6-10 yrs: concrete repairs in to piers, abutments, wingwalls, ballast walls, and end dams. Seal wearing surface cracks
64	249	NORTH SERVICE RD	2021-01-13	Minor Rehab.	1-5 yrs	72.70	\$28,600.00	Concrete repairs in barrel
65	298	SYDENHAM ST	2021-01-07	Minor Rehab.	1-5 yrs	70.55	\$109,800.00	1-5 yrs: replace CIP & timber retaining wall, replace damaged fence post, stable slope 6-10 yrs: seal wearing surface cracks

66	228	NORTH SERVICE RD	2021-01-13	Minor Rehab.	1-5 yrs	74.23	\$15,300.00	Concrete repairs in barrel
67	115	LOWER LIONS CLUB RD	2021-03-02	Minor Rehab.	1-5 yrs	67.84	\$54,100.00	Concrete repairs to barrel
68	376	PEDESTRIAN TUNNEL UNDER KING ST E	2020-12-02	Minor Rehab.	1-5 yrs	73.91	\$34,170.00	Remove trees around hand rail, replace damaged section of hand rail, repair sidewalk cracks and cracks in wearing surface
69	225	QEW-NORTH SERVICE RD - CONFEDERATION DR	2021-02-04	Minor Rehab.	1-5 yrs	72.45	\$15,268.00	Patch potholes and seal cracks on wearing surface
70	116	LOWER LIONS CLUB RD	2021-03-02	Minor Rehab.	1-5 yrs	71.86	\$38,000.00	1-5 yrs: replace NW retaining wall 6-10 yrs: concrete repairs to barrel
71	455	MACKLIN ST N/PRIVATE LEG	2021-02-02	Minor Rehab.	1-5 yrs	73.28	\$74,520.00	1-5 yrs: fill void below slope, replace steel on railings and posts 6-10 yrs: concrete repairs to abutments, wingwalls, and deck top
72	237	NORTH SERVICE RD	2021-01-14	Minor Rehab.	1-5 yrs	67.93	\$48,100.00	1-5 yrs: replace broken wood posts and disconnected posts at North SBGR 6-10 yrs: inject cracks in barrel, rehab barrier coatings, repair edge cracks on wearing surface
73	231	NORTH SERVICE RD	2020-11-27	Minor Rehab.	1-5 yrs	74.53	\$23,760.00	1-5 yrs: replace split offset blocks 6-10 yrs: concrete repairs in barrel, seal cracks on wearing surface
74	139	HUNTINGWOOD AV	2021-01-05	Minor Rehab.	1-5 yrs	71.10	\$41,320.00	Remove tree, channelize creek, remove aggradation, replace gabions, patch asphalt, concrete repairs on multiple elements
75	375	YORK RD	2021-01-08	Minor Rehab.	1-5 yrs	71.90	\$72,000.00	1-5 yrs: add armouring to SW embankment, repair asphalt surfaces 6-10 yrs: replace gabions, concrete repairs in barrel
76	236	SEABREEZE CR	2021-01-14	Minor Rehab.	1-5 yrs	74.31	\$11,460.00	1-5 yrs: replace one wood barrier post 6-10 yrs: concrete repairs to barrel
77	92	ALMA ST	2021-01-07	Minor Rehab.	1-5 yrs	72.90	\$13,000.00	Concrete repairs to abutments and retaining walls, repair barrier and hand railing
78	454	LIVINGSTONE DR	2021-01-07	Minor Rehab.	1-5 yrs	78.26	\$42,880.00	Concrete repairs to barrel and sidewalks, seal wearing surface defects, replace SBGR, and repair SW gabion
79	88	MILL ST	2021-01-05	Minor Rehab.	6-10 yrs	78.76	\$19,400.00	Concrete repairs on abutments and piers

80	448	CENTENNIAL PY	2020-11-20	Minor Rehab.	6-10 yrs	69.85	\$65,800.00	concrete repairs to barrel and curbs, repair wearing surface, replace rotated steel posts at SW, replace damaged SBGR
81	242	HWY 8	2021-01-14	Minor Rehab.	6-10 yrs	72.23	\$11,400.00	Concrete repairs to inlet and outlet, fill voids under lockblocks at outlet
82	060	BASELINE RD	2021-01-14	Minor Rehab.	6-10 yrs	74.18	\$11,800.00	Remove embankment spills and place rip-rap at embankments Route and seal cracks in approach wearing surface Inject cracks in barrel

## 8.0 Conclusion

In conclusion, a total of 83 structures City-owned structures were inspected in accordance with the requirements of the OSIM. The majority of these structures require some form of repair or maintenance, with a couple recommended for replacement.

In addition to the 83 City-owned structures, 32 non-City owned structures were also inspected and any urgent safety concerns were identified to the City within this summary report.

We trust that this report provides sufficient insight to the conditions of the inspected structures within the City of Hamilton.

Yours truly,

Wood Environment & Infrastructure Solutions  
a Division of Wood Canada Limited



## **Appendix A**

### **Removed Structure List**

## REMOVED STRUCTURES LIST

Structure No.	Structure Name	Reason for Removal
226	NORTH SERVICE RD-QEW-SOUTH SERVICE RD	MTO carrying out rehabilitation project in 2020/2021
227	NORTH SERVICE RD-QEW-SOUTH SERVICE RD	MTO carrying out rehabilitation project in 2020/2021
229	SOUTH SERVICE RD-QEW-NORTH SERVICE ROAD	MTO carrying out rehabilitation project in 2020/2021
230	NORTH SERVICE RD-QEW	MTO carrying out rehabilitation project in 2020/2021
239	NORTH SERVICE RD-QEW-SOUTH SERVICE RD	MTO carrying out rehabilitation project in 2020/2021
240	NORTH SERVICE RD-QEW-SOUTH SERVICE RD	MTO carrying out rehabilitation project in 2020/2021
250	NORTH SERVICE RD-QEW-SOUTH SERVICE RD	MTO carrying out rehabilitation project in 2020/2021
251	NORTH SERVICE RD-QEW-SOUTH SERVICE RD	MTO carrying out rehabilitation project in 2020/2021
252	NORTH SERVICE RD-QEW-SOUTH SERVICE RD	MTO carrying out rehabilitation project in 2020/2021
253	NORTH SERVICE RD-QEW-SOUTH SERVICE RD	MTO carrying out rehabilitation project in 2020/2021
255	NORTH SERVICE RD-QEW-SOUTH SERVICE RD	MTO carrying out rehabilitation project in 2020/2021
457	PEDESTRIAN BRIDGE OVER CREEK (VALLEY INN ROAD)	Bridge Closed.
157	BALDWIN ST	Structure Demolished.
158	COURT ST	Structure Demolished.

## **Appendix B**

### **Associated Structure Works List**

### STRUCTURE LIST WITH ASSOCIATED WORKS

Last updated: 22-11-2021

Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
39	Arvin Avenue	235m East of Fruitland Road	Culvert	2021-01-13	Cloudy	2 °C	Retaining Walls Barrels Deck Top Approach Wearing Surface Outlet Components	Replace gabions Patch repairs Waterproof deck Route and seal cracks Patch repairs and crack injections	1-5 1-5 1-5 6-10 1-5		\$ 40,740.00
40	Arvin Avenue	210m West of Fruitland Road	Culvert	2021-01-13	Cloudy	2	Barrier Posts Barrels Deck Top Outlet Components	Fill base around posts Patch repairs Waterproof deck Patch repairs	< 1 6-10 6-10 6-10		\$ 17,150.00
41	Seaman Street	175m East of Dewitt Road	Culvert	2021-01-13	Cloudy	2	Barrels	Patch repairs	1-5		\$ 40,000.00
42	Lakeview Drive	25m West of Sunnyside Avenue	Culvert	2021-01-13	Cloudy	2	Approach Wearing Surface Streams and Waterways Barrier Posts Railing Systems / Hand Railings Barrels Inlet Components Deck Wearing Surface Retaining Walls	Repave wearing surface Repair channel liner downstream Replace posts Recoat Patch repairs Patch repairs Route and seal cracks Patch repairs and crack injections	1-5 1-5 1-5 1-5 6-10 6-10 6-10 6-10		\$ 84,900.00
43	Seaman Street	410m West of Dewitt Road	Culvert	2021-01-13	Cloudy	2	Deck Top Retaining Walls Barrels Approach Wearing Surface Deck Wearing Surface	Patch repairs and waterproofing Replace storm CSP and patch repairs Patch repairs and crack injections Repave wearing surface Repave wearing surface	1-5 1-5 1-5 1-5 1-5		\$ 122,040.00
44	Arvin Avenue	295m West of Green Road	Culvert	2021-02-04	Partly Sunny	0	Barriers Outlet Components Barrier Posts Approach Wearing Surface Barrels Deck Wearing Surface Railing Systems / Hand Railings	Install barrier on North side Patch repairs Replace posts Route and seal cracks Patch repairs Route and seal cracks Recoat	< 1 6-10 1-5 1-5 6-10 1-5 1-5		\$ 24,220.00
46	Christina Avenue	10m South of Willow Lane	Culvert	2021-01-13	Cloudy	2	Barrels Approach Wearing Surface Inlet Components Outlet Components Deck Wearing Surface Deck Top	Replace culvert Route and seal cracks Replace culvert Replace culvert Route and seal cracks Patch repairs and waterproofing	1-5 1-5 1-5 1-5 1-5 1-5		\$ 309,700.00
48	Jones Street	110m West of King Street East	Bridge	2020-12-02	Clear / Sunny	-5	Deck Soffit Wingwalls - Precast Wingwalls - Gabions Abutment Walls Approach Wearing Surface Deck Wearing Surface Retaining Walls Barriers Sidewalk and Medians Curbs Deck Top	Patch repairs and crack injections Replace deteriorated sections Replace SW gabion Patch repairs and crack injections Replace wearing surface Replace wearing surface Replace disintegrated precast blocks Install missing end caps Patch repairs and crack injections Crack injections Patch repairs	1-5 1-5 1-5 1-5 1-5 1-5 1-5 < 1 6-10 6-10 1-5		\$ 288,730.00
49	Collegiate Avenue	30m West of Donn Avenue	Bridge	2020-12-02	Clear / Sunny	-5	Deck Soffit Sidewalk and Medians Retaining Walls Wingwalls Barriers Barrier Posts Drainage Embankments Drainage	Patch repairs and crack injections Replace portion of sidewalk Replace mass concrete walls, replace wood crib walls, replace gabion walls Patch repairs and crack injections Repair bent rails Patch repairs Rehabilitate Install erosion protection Fill deck drains	1-5 1-5 1-5 1-5 1-5 6-10 1-5 1-5 2	Maintenance	\$ 112,300.00

**STRUCTURE LIST WITH ASSOCIATED WORKS**

Last updated: 22-11-2021

Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
60	Baseline Road	550m East of North Service Road	Culvert	2021-01-14	Overcast	3	Embankments Approach Wearing Surface Barrels	Remove spill around and install erosion protection at all four corners Route and seal cracks Patch repairs and crack injections	6-10 6-10 6-10		\$ 11,800.00
85	Parkdale Avenue South	over Lawrence Road	Bridge	2020-12-02	Clear / Sunny	-5	Curbs	Grind down to eliminate trip hazard	1-5		\$ 10,000.00
86	Cross Street	25m South of Alma Street	Culvert	2021-01-07	Cloudy	0	Approach Wearing Surface Approach Curb/Gutters Barrels Deck Wearing Surface Outlet Components	Replace wearing surface Replace southwest curb Patch repairs and crack injections Replace wearing surface Patch repairs and crack injections	1-5 1-5 1-5 6-10 1-5		\$ 78,012.00
87	Mountain Park Avenue	over Sherman Access Cut	Bridge	2020-12-09	Overcast	0	Retaining Walls Sidewalk and Medians	Replace lagging Crack injections	1-5 6-10		\$ 112,240.00
88	Mill Street	80m West of Wellington Street South	Bridge	2021-01-05	Cloudy	1	Abutment Walls Piers	Patch repairs and crack injections Crack injections	6-10 6-10		\$ 19,400.00
89	Creighton Road	30m South of Mill Street	Bridge	2021-01-05	Cloudy	1	Joints Retaining Walls Deck Wearing Surface Sidewalk and medians Girders Diaphragms Streams and Waterways Approach Wearing Surface Utilities Approach Slabs Deck Top Deck Soffit Barriers Embankments Barrier Posts Abutment Walls Wingwalls Coatings - Railing System Drainage Barriers	Replace joints Replace gabions Replace wearing surface Replace sidewalks Patch repairs Patch repairs Add rock protection Replace wearing surface Replace brackets Patch repairs Patch repairs Patch repairs and crack injections, replace exterior soffit Replace barriers Add rock protection Replace posts and repair concrete beneath posts Patch repairs and crack injections Crack injections Recoat Replace drains Tighten bolts	1-5 1		\$ 671,610.00
90	McMurray Street	100m South of Hatt Street	Bridge	2021-01-07	Cloudy	0	Retaining Walls Wingwalls Abutment Walls Deck Top	Replace gabions, replace deteriorated concrete Patch repairs Replace missing masonry blocks, secure loose blocks, repoint joints Patch repairs	1-5 6-10 1-5 6-10		\$ 300,450.00
91	Ogilvie Street	30m North of Governors Road	Bridge	2021-01-08	Overcast	0	Deck Top Joint Seals Joint Concrete End Dams Retaining Walls Sidewalk and medians Abutment Walls Approach Wearing Surface Approach Slabs Deck Wearing Surface Coatings - Railing System Deck Soffit Embankments Slope Protection Wingwalls	Carry out delamination survey and replace topping as required Replace Patch repairs and crack injections Replace gabions, replace masonry wall Replace Crack injections Seal cracks Repair Seal cracks Recoat localized areas Patch repairs Install erosion protection Install erosion protection Patch repairs and crack injections	1-5 1-5 6-10 1-5 1-5 6-10 1-5 6-10 1-5 6-10 6-10 1-5 6-10 1-5 1-5 6-10		\$ 359,520.00

**STRUCTURE LIST WITH ASSOCIATED WORKS**

Last updated: 22-11-2021

Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
92	Alma Street	145m East of Sydenham Street	Culvert	2021-01-07	Cloudy	0	Barriers - Hand Railings Barriers - Railing System Retaining Walls Abutment Walls	Replace steel baseplate Install missing bolt nuts Patch repairs and crack injections Crack injections	< 1 1-5 6-10 6-10		\$ 13,000.00
93	Park Street East	110m West of York Road	Culvert	2021-01-07	Cloudy	0	Retaining Walls Outlet Components Approach Sidewalk Coatings - Railing System Barrels Sidewalk and medians Retaining Walls	Patch repair spall, replace gabion wall Patch repairs Patch repairs Recoat localized areas Crack injections Patch repairs Remove vegetation	1-5 1-5 6-10 6-10 6-10 6-10 2	Maintenance	\$ 30,000.00
94	York Road	55m North of King Street East	Culvert	2021-01-07	Cloudy	0	Signs Retaining Walls Approach Sidewalk/Curb	Install hazard signs Replace gabions Grind down concrete to remove trip hazard	1-5 1-5 1-5		\$ 29,780.00
95	Thorpe Street	60m South of Dundas Street	Bridge	2021-01-07	Cloudy	0	N/A	N/A			\$ -
115	Lower Lions Club Road	430m East of Old Dundas Road	Culvert	2021-03-02	Clear / Sunny	-3	Barrels Outlet Components Inlet Components Retaining Walls Approach Wearing Surface	Patch repairs Patch repairs Crack injections Crack injections Seal cracks	1-5 1-5 1-5 1-5 6-10		\$ 54,100.00
116	Lower Lions Club Road	240m East of Old Dundas Road	Culvert	2021-03-02	Clear / Sunny	-3	Retaining Walls Barrels Inlet Components Outlet Components	Replace Northwest retaining wall Patch repairs Patch repairs Patch repairs	1-5 6-10 6-10 6-10		\$ 38,000.00
131	Greenhill Avenue	110m West of Quigley Road	Culvert	2020-12-02	Clear / Sunny	-5	Barriers Barrels Approach Wearing Surface Deck Wearing Surface Streams and Waterways Sidewalk and Medians	Replace handrail Replace broken clay pipes, patch repairs Seal cracks Seal cracks Clean East cell to improve flow conditions Patch repairs	1-5 1-5 6-10 6-10 1-5 1-5		\$ 50,560.00
132	Quigley Road	70m North of Veevers Drive	Culvert	2020-12-02	Clear / Sunny	-5	Barrier Posts Approach Wearing Surface Barrels Embankments Slope Protection Streams and Waterways	Replace posts Seal cracks Patch repairs and crack injections Install erosion protection Install rip-rap at Southwest Remove debris	< 1 6-10 6-10 1-5 1-5 1	Maintenance	\$ 54,300.00
133	Quigley Road	0.5N of Munn's Avenue	Culvert	2020-12-02	Clear / Sunny	-5	Outlet Components Inlet Components Barrels Slope Protection Embankments Deck Wearing Surface Streams and Waterways	Install headwall Install headwall and crack injections Patch repairs and crack injections Fill voids with mass concrete Install erosion protection Seal cracks Remove debris	1-5 1-5 1-5 1-5 1-5 6-10 1	Maintenance	\$ 134,200.00
135	Lake Avenue North	55m North of Huckleberry Drive	Culvert	2020-12-02	Clear / Sunny	-5	Curbs Barriers Streams and Waterways Barrier Posts Wingwalls Approach Wearing Surface Coatings - Hand Railings Barrels Outlet Components Deck Wearing Surface Sidewalk and Medians Streams and Waterways Barrels	Replace gutter brick pan, patch repairs and crack injections Replace railing, tighten loose bolts Install erosion protection Replace wooden posts Patch repairs Repair pothole, seal cracks Recoat localized areas Patch repairs and crack injections Patch repairs Replace wearing surface Fill voids under sidewalk Remove debris Remove sediment build up	6-10 1-5 1-5 1-5 6-10 6-10 6-10 6-10 6-10 6-10 1-5 1 2	Maintenance Maintenance	\$ 93,570.00

STRUCTURE LIST WITH ASSOCIATED WORKS

Last updated: 22-11-2021

Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
136	Ogilvie Street	165m South of Governors Road	Culvert	2021-01-08	Overcast	0	Approach Curb Barrier Posts Deck Wearing Surface Barriers - Railing Systems <b>Barriers - Railing Systems</b> Approach Sidewalk/Curb Approach Wearing Surface Coatings - Hand Railings Barrels Retaining Walls	Replace wearing surface Replace Replace wearing surface Replace <b>Repair impact damage</b> Patch repairs and crack injections Replace Recoat localized areas Patch repairs and crack injections Patch repairs and crack injections	1-5 1-5 1-5 1-5 <b>&lt; 1</b> 1-5 1-5 1-5 6-10 6-10		\$ 82,080
137	Old Ancaster Road	285m South of Robinhood Drive	Culvert	2021-03-02	Clear / Sunny	-3	<b>Barriers</b> Barrels	<b>Replace</b> Patch repairs and crack injections	<b>&lt; 1</b> 6-10		\$ 42,100.00
139	Huntingwood Avenue	40m East of Creekwood Place	Culvert	2021-01-05	Cloudy	1	Barrels Retaining Walls Streams and Waterways Approach Wearing Surface Approach Curb Approach Sidewalk Deck Wearing Surface Sidewalk and Medians	Patch repairs and crack injections Replace gabions Channelize creek, remove debris Patch repairs Crack injections Crack injections Seal cracks Patch repairs	1-5 1-5 1-5 1-5 6-10 6-10 6-10 6-10		\$ 41,320.00
225	QEW-Confederation Drive North Service Road	140m East of Centennial Parkway N	Culvert	2021-02-04	Partly Sunny	0	Deck Wearing Surface Approach Wearing Surface Curbs	Repair pothole, seal cracks Repair pothole, seal cracks Patch repairs	1-5 1-5 6-10		\$ 15,268.00
228	North Service Road-QEW-South Service Road	108m West of Lewis Road	Culvert	2021-01-13	Cloudy	2	Approach Wearing Surface Barriers - Railing Systems Barrels Inlet Components <b>Barrels</b>	Seal cracks Repair connection Patch repairs Patch repairs and crack injections <b>Remove vegetation</b>	1-5 1-5 1-5 1-5 <b>2</b>		\$ 15,300
231	North Service Road	280m West of Waterford Crescent	Culvert	2020-11-27	Overcast	4	Barrier Posts Approach Wearing Surface Barriers - Railing Systems Barrels Sidewalk and Medians <b>Streams and Waterways</b>	Replace offset blocks Seal cracks Replace impacted SBGR area Patch repairs and crack injections Replace cracked sidewalk panels <b>Remove vegetation</b>	1-5 6-10 6-10 6-10 1-5 <b>2</b>	Maintenance	\$ 23,750.00
232	South Service Road	309m East of Fruitland Road	Culvert	2020-11-27	Overcast	4	Barrels Deck Wearing Surface Outlet Components Inlet Components Streams and Waterways Embankments Approach Wearing Surface Deck Top	Patch repairs and crack injections Seal cracks Patch repairs Patch repairs Clear ends to allow for flow Install erosion protection Repair pothole, seal cracks Patch repairs	1-5 1-5 1-5 1-5 1-5 1-5 6-10 1-5		\$ 66,172.00
233	North Service Road	75m West of Dartmouth Gate	Culvert	2020-11-27	Overcast	4	<b>Barriers - Railing Systems</b> <b>Utilities</b> Barrels Deck Wearing Surface Approach Wearing Surface <b>Streams and Waterways</b>	<b>Install barriers</b> <b>Repair duct</b> Patch repairs and crack injections Seal cracks Seal cracks <b>Remove vegetation</b>	<b>&lt; 1</b> <b>&lt; 1</b> 6-10 6-10 6-10 <b>2</b>		\$ 65,400.00
234	South Service Road	257m East of Jones Road	Culvert	2020-11-27	Overcast	4	<b>Barriers - Railing Systems</b> Embankments Barrels Retaining Walls Deck Wearing Surface Outlet Components Inlet Components Barrier Posts	<b>Repair impact damage</b> Stabilize embankments Patch repairs and crack injections Replace Repair pothole, seal cracks Patch repairs Patch repairs Replace damaged posts	<b>&lt; 1</b> 1-5 1-5 1-5 6-10 6-10 6-10 1-5		\$ 49,100.00

**STRUCTURE LIST WITH ASSOCIATED WORKS**

Last updated: 22-11-2021

Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
235	South Service Road	210m East of Dewill Drive	Culvert	2020-11-27	Overcast	4	Streams and Waterways Foundations Embankments Retaining Walls Barrels Approach Wearing Surface	Replace channel inlet Protect footing or reconstruct Install erosion protection Patch repairs Patch repairs and crack injections Seal cracks	1-5 < 1 1-5 6-10 1-5 6-10		\$ 112,675.00
236	Seabreeze Crescent	215m West of McNeilly Road	Culvert	2021-01-14	Overcast	3	Barrier Posts Inlet Components Outlet Components Barrels	Replace posts Patch repairs and crack injections Patch repairs and crack injections Patch repairs	1-5 6-10 6-10 6-10		\$ 11,460.00
237	North Service Road	680m East of Fifty Road	Culvert	2021-01-14	Overcast	3	Barrels Barriers - Railing Systems Coatings - Hand Railings Outlet Components Inlet Components Approach Wearing Surface Deck Wearing Surface	Crack injections Replace broken and disconnected posts New coat Patch repairs Patch repairs Seal cracks Seal cracks	6-10 1-5 6-10 6-10 6-10 6-10 6-10		\$ 48,100.00
238	Green Road	354m South of South Service Road	Culvert	2020-12-03	Cloudy	5	Barrels Approach Wearing Surface Deck Wearing Surface Slope Protection Inlet Components	Patch repairs Seal cracks Seal cracks Fill voids Patch repairs	6-10 1-5 1-5 1-5 6-10		\$ 29,200.00
241	Fruitland Road	208m North of Hwy 8	Culvert	2021-01-13	Cloudy	2	Approach Wearing Surface Deck Wearing Surface Coatings - Hand Railings Hand Railings Curbs Sidewalks and Medians	Replace wearing surface Replace wearing surface Replace Replace Crack injections Mill tripping hazards, crack injections	1-5 1-5 1-5 1-5 6-10 1-5		\$ 42,584
242	Hwy 8	75m East of Bridgman Lane	Culvert	2021-01-14	Overcast	3	Retaining Walls Outlet Components Inlet Components	Fill voids Patch repairs Patch repairs	6-10 6-10 6-10		\$ 11,400.00
243	Fifty Road	40m South of Hwy 8	Culvert	2021-01-14	Overcast	3	Approach Wearing Surface Barriers - Railing Systems Barrier Posts Inlet Components Outlet Components	Repair pothole, seal cracks Repair impact damage Replace offset blocks Patch repairs Patch repairs	6-10 1-5 1-5 6-10 6-10		\$ 14,990.00
244	Hwy 8	15m West of Fifty Road	Culvert	2021-01-14	Overcast	3	Deck Wearing Surface Barriers - Railing Systems Outlet Components Sidewalks and Medians Approach Wearing Surface	Replace wearing surface Repair impact damage Patch repairs and crack injections Add pedestrian crossing, patch repairs and crack injections Seal cracks	1-5 < 1 6-10 1-5 6-10		\$ 32,300.00
246	Glover Road	335m South of Barton Street	Culvert	2021-01-13	Cloudy	2	Barriers - Railing Systems Approach Wearing Surface Barrels Inlet Components Outlet Components Deck Wearing Surface Retaining Walls Sidewalks and Medians	Install barriers Seal cracks Replace culvert Replace culvert Replace culvert Seal cracks Patch repairs and crack injections Replace cracked sidewalk panels	< 1 6-10 6-10 6-10 6-10 6-10 6-10 1-5		\$ 243,315.00



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Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
248	King Street West	145m West of Bond Street	Bridge	2021-01-05	Cloudy	1	Abutment Walls Wingwalls Approach Curb Approach Sidewalk Approach Wearing Surface Barrier/Parapet Walls Barrier Posts Barriers - Railing Systems Diaphragms Girders Deck Top Deck Wearing Surface Deck Soffit Retaining Walls Sidewalks and Medians Sidewalks and Medians	Erosion protection, patch repairs and crack injections Patch repairs Patch repairs Patch repairs and crack injections Seal cracks Patch repairs and crack injections Embed post correctly Repair impact damage Patch repairs Patch repairs and crack injections Patch repairs Seal cracks Patch repairs and crack injections Replace Crack injections Remove debris	1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 6-10 1-5 1-5 2	Maintenance	\$ 328,790.00
249	North Service Road-QEW-South Service Road	106m East of Lewis Road	Culvert	2021-01-13	Cloudy	2.0	Barrels Inlet Components	Patch repairs and crack injections Patch repairs and crack injections	1-5 1-5		\$ 28,600
280	Claremont Access	250m West of Claremont Access	Bridge	2020-12-09	Overcast	0	Barrier/Parapet Walls Deck Top Deck Soffit Deck Wearing Surface Sidewalks and Medians	Patch repairs and crack injections Patch repairs Repair potholes, seal cracks Seal cracks Patch repairs and crack injections	1-5 1-5 6-10 1-5 6-10		\$ 99,520.00
296	Governors Road	45m East of Ogilvie Street	Bridge	2021-01-08	Overcast	0	Approach Wearing Surface Abutment Walls Utilities Barrier Posts Deck Soffit Drainage Deck Wearing Surface Slope Protection Sidewalks and Medians Wingwalls Deck Top	Replace Patch repairs and crack injections Rehab trunk sewer piers Replace Patch repairs and crack injections Replace Replace Install erosion protection Replace Patch repairs and crack injections Patch repairs	< 1 1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5		\$ 405,800.00
297	Main Street	120m South of Governors Road	Bridge	2021-01-08	Overcast	0	Deck Soffit Sidewalks and Medians Coatings - Structural Steel Slope Protection Streams and Waterways Abutment Walls Approach Slabs Approach Wearing Surface Utilities Barrier/Parapet Walls Barrier Posts Deck Top Deck Wearing Surface	Patch repairs and crack injections Repair trip hazard, patch repairs and crack injections Recoat Replace Install erosion protection Patch repairs and crack injections Patch repairs Seal cracks Replace insulated pipe between Girders 4 & 5 Patch repairs Patch repairs and crack injections Patch repairs Seal cracks	1-5 < 1 1-5 < 1 1-5 6-10 6-10 1-5 1-5 6-10 6-10 6-10 1-5		\$ 171,840.00

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Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
298	Sydenham Street	140m North of Alma Street	Culvert	2021-01-07	Cloudy	0	Retaining Walls Embankments Barriers - Railing Systems Approach Sidewalks Approach Wearing Surface Barrier Posts Barrels Outlet Components Deck Wearing Surface	Replace at outlet Install erosion protection Replace Patch repairs and crack injections Seal cracks Replace Patch repairs and crack injections Patch repairs Seal cracks	1-5 1-5 1-5 6-10 6-10 6-10 6-10 6-10 6-10		\$ 109,800.00
300	Cootes Drive	185m East of Olympic Drive	Bridge	2021-01-08	Overcast	0	Deck Top Approach Wearing Surface Barriers - Railing Systems Barrels Outlet Components Deck Wearing Surface Sidewalks and Medians	Patch repairs Replace Construct railing system on North side Patch repairs and crack injections Patch repairs Seal cracks Crack injections	6-10 1-5 < 1 6-10 6-10 6-10 6-10		\$ 125,040.00
301	Cootes Drive	600m East of Olympic Drive	Bridge	2021-01-08	Overcast	0	Sidewalks and Medians Barrier/Parapet Walls Piers Slope Protection Approach Guiderail Deck Soffit Joints - Concrete End Dams Abutment Walls Joints - Seals Barrier Posts Railing Systems Deck Top Curbs Streams and Waterways	Patch repairs, waterproof and pave under asphalt sidewalks Patch repairs and crack injections Patch repairs and crack injections Repair gabions Non-standard end treatment Patch repairs and crack injections Crack injections Patch repairs Replace Tighten bolts Tighten bolts Patch repairs Patch repairs and crack injections Remove debris/vegetation	1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 6-10 1-5 < 1		\$ 286,720.00
303	Pedestrian Rail Trail Bridge over Main Street West	105m South of Osler Drive	Bridge	2021-03-02	Cloudy	-3	Wingwalls Deck Soffit Curbs Coatings - Structural Steel Abutment Walls Girders Ballast Walls Floor Beams Deck Wearing Surface Bearings	Patch repairs and crack injections Replace Replace Recoat Repair steel Repair steel Repair potholes, seal cracks Remove debris/vegetation	1-5 1-5 6-10 1-5 1-5 1-5 6-10 1-5 2	Maintenance	\$ 350,800.00
313	Arkledun Avenue (Jolley Cut)	over Claremont Access	Bridge	2020-11-18	Overcast	-2	Abutment Walls Deck Soffit Joints - Seals Joints - Concrete End Dams Joints - Armoring Sidewalks and Medians Approach Sidewalks Deck Wearing Surface Piers Barrier/Parapet Walls Ballast Walls Retaining Walls Embankments Deck Top Coatings - Hand Railings Hand Railings Approach Wearing Surface Approach Curb Approach Slabs Wingwalls Joints - Seals	Patch repairs and crack injections Patch repairs and crack injections Replace Patch repairs and crack injections Replace Patch repairs and crack injections Seal cracks Patch repairs Patch repairs and crack injections Patch repairs and crack injections Patch repairs and crack injections Extend rip-rap areas Patch repairs Recoat Replace broken and missing end caps, replace missing anchor bolts Seal cracks Patch repairs Patch repairs Patch repairs and crack injections Remove debris/vegetation	1-5 1-5 6-10 6-10 6-10 6-10 1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 6-10 1-5 1-5 1-5 1-5 1-5 1		\$1,274,530.00

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Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
314	Claremont Access	over Charlton Avenue East	Bridge	2020-11-20	Clear / Sunny	15	Barrier/Parapet Walls Approach Wearing Surface Railing Systems Curbs Retaining Walls Piers Deck Wearing Surface Deck Soffit Deck Top Wingwalls Abutment Walls	Patch repairs and crack injections Seal cracks Replace missing nuts, replace manhole cover, extend railing system Patch repairs Patch repairs and crack injections Patch repairs and crack injections Replace Patch repairs and crack injections Patch repairs Patch repairs and crack injections Patch repairs and crack injections	1-5 1-5 < 1 6-10 6-10 6-10 6-10 1-5 6-10 6-10 6-10		\$ 208,700.00
316	Claremont Access	over Stinson Street	Bridge	2020-11-20	Clear / Sunny	15	Abutment Walls Approach Slabs Approach Wearing Surface Barrier/Parapet Walls Deck Soffit Joints - Concrete End Dams Retaining Walls	Patch repairs and crack injections Patch repairs Repair potholes, seal cracks Patch repairs and crack injections Scale loose concrete, patch repairs and crack injections Patch repairs Patch repairs and crack injections	6-10 6-10 6-10 6-10 < 1 6-10 6-10		\$ 89,290.00
317	Sherman Access (West End) - Hairpin Bend to Eastbound	over Sherman Access	Bridge	2020-11-18	Overcast	-2	Abutment Walls Hand Railings Wingwalls Approach Slabs Approach Wearing Surface Barrier/Parapet Walls Deck Top Deck Soffit Deck Wearing Surface	Patch repairs and crack injections Repair steel Patch repairs and crack injections Patch repairs Seal cracks Patch repairs and crack injections Patch repairs Scale loose concrete, patch repairs and crack injections Seal cracks	1-5 1-5 1-5 6-10 6-10 6-10 6-10 < 1 6-10		\$ 71,050.00
318	Claremont Access	over James Mountain Road	Bridge	2020-12-09	Overcast	0	Barrier/Parapet Walls Curbs Embankments Abutment Walls Piers Joints - Concrete End Dams Deck Soffit Coatings - Structural Steel Drainage Joints - Seals	Patch repairs and crack injections Patch repairs and crack injections Install erosion protection Patch repairs and crack injections Patch repairs Patch repairs and crack injections Patch repairs and crack injections Recoat Remove debris/vegetation Remove debris/vegetation	1-5 1-5 1-5 6-10 6-10 6-10 1-5 1-5 2 1	Maintenance Maintenance	\$ 276,940.00
319	Concession Street	over Sherman Access Cut	Bridge	2020-12-09	Overcast	0	Retaining Walls Approach Sidewalks Approach Wearing Surface Approach Slabs Sidewalks and Medians Railing Systems Barrier/Parapet Walls Barrier/Parapet Walls	Replace Patch repairs and crack injections Seal cracks Patch repairs Patch repairs and crack injections Replace missing bolts Patch repairs and crack injections Secure Northwest Precast Cap	1-5 6-10 6-10 6-10 6-10 1-5 1-5 1	Maintenance	\$ 129,580.00
320	Kenilworth Access	over Sherman Access EB Off-Ramp	Bridge	2020-12-03	Cloudy	5	Deck Soffit Barrier Posts Piers Deck Wearing Surface Barrier/Parapet Walls Curbs Abutment Walls Railing Systems Coatings - Hand Railings Approach Slabs Wingwalls Sidewalks and Medians Deck Top Approach Wearing Surface	Patch repairs and crack injections Replace when parapet walls are replaced Patch repairs and crack injections Replace Replace Replace when parapet walls are replaced Patch repairs and crack injections Replace Replace Replace Patch repairs Patch repairs and crack injections Patch repairs and crack injections Patch repairs Seal cracks	1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 1-5 6-10 6-10 1-5 6-10 1-5		\$ 347,810.00

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Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
321	Pedestrian Trail Bridge over Kenilworth Access	1100m West of Lawrence Road	Bridge	2020-11-20	Clear / Sunny	15	Deck Wearing Surface Piers Coatings - Structural Steel Retaining Walls Abutment Walls Ballast Walls Bearings Wingwalls Railing Systems Girders Deck Soffit Deck Wearing Surface	Add curb, seal cracks Patch repairs and crack injections Recoat Patch repairs and crack injections Patch repairs and crack injections Patch repairs and crack injections Patch repairs and crack injections Replace Patch repairs and crack injections Replace bent steel Repair steel Patch repairs and crack injections Remove debris/vegetation	1-5 1-5 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 1-5	Maintenance	\$ 302,900.00
322	King Street East	over Kenilworth Avenue South	Bridge	2020-12-03	Cloudy	5	Wingwalls Deck Soffit Embankments Joints - Seals Retaining Walls Sidewalks and Medians	Crack injections Patch repairs Fill void Replace Patch repairs and crack injections Patch repairs and crack injections	6-10 6-10 1-5 1-5 6-10 6-10		\$ 50,370.00
323	Lawrence Road	over Kenilworth Avenue South	Bridge	2020-12-03	Cloudy	5	Railing Systems Abutment Walls Wingwalls Approach Wearing Surface Barrier/Parapet Walls Barrier Posts Deck Soffit Piers Retaining Walls Sidewalks and Medians	Replace with crash-test barrier Patch repairs and crack injections Patch repairs and crack injections Seal cracks Replace with crash-test barrier Replace with crash-test barrier Patch repairs and crack injections Remove railing system between columns Patch repairs and crack injections Patch repairs and crack injections	1-5 6-10 6-10 1-5 1-5 1-5 6-10 1-5 6-10 1-5		\$ 147,580.00
326	Nikola Tesla Blvd Overpass centred over Kenilworth Avenue	535m West of Kenilworth Ave. to 225m East of Kenilworth Ave.	Bridge	2021-03-09	Partly Sunny	5	Joints - Seals Abutment Walls Wingwalls Approach Slabs Approach Wearing Surface Electrical Barrier/Parapet Walls Deck Top Deck Soffit Deck Wearing Surface Joints - Concrete End Dams Piers Retaining Walls Joints - Modular Seal Drainage Joints - Seals Joints - Modular Seal	Replace Patch repairs and crack injections Patch repairs and crack injections Patch repair Seal cracks Replace broken utility covers Patch repairs and crack injections Patch repairs Patch repairs and crack injections Repair potholes, seal cracks Patch repairs and crack injections Recoat steel Patch repairs and crack injections Replace Remove debris/vegetation Remove debris/vegetation Remove debris/vegetation	1-5 1-5 6-10 6-10 6-10 1-5 6-10 6-10 1-5 6-10 6-10 6-10 6-10 1-5 2 2 2	Maintenance Maintenance Maintenance	\$1,268,860.00

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Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
327	Nikola Tesla Blvd Overpass centred over Strathearne Avenue	500m West of Strathearne Avenue to 900m East of Strathearne Avenue	Bridge	2021-03-09	Partly Sunny	5	Barrier/Parapet Walls Barrier/Parapet Walls Railing Systems Diaphragms Girders Coatings - Railing Systems Deck Soffit Deck Wearing Surface Joints - Armoring Joints - Concrete End Dams Joints - Seals Piers Retaining Walls Wingwalls Approach Slabs Approach Wearing Surface Utilities Deck Top Drainage Joints - Seals	Remove exposed metal bar Patch repairs and crack injections Replace section Patch repairs and crack injections Patch repairs and crack injections Recoat Patch repairs and crack injections Repair potholes, seal cracks Replace/repair broken armoring Patch repairs and crack injections Replace Patch repairs and crack injections Patch repairs and crack injections Patch repairs and crack injections Patch repairs Seal cracks Replace broken utility covers Patch repairs Repair broken grate bars Remove debris/vegetation	< 1 1-5 1-5 6-10 6-10 6-10 6-10 1-5 6-10 1-5 1-5 6-10 6-10 6-10 6-10 6-10 6-10 1-5 6-10 1-5 2		\$3,908,150.00
328	Industrial Drive	240m East of Gage Avenue North	Bridge	2020-11-26	Overcast	8	Abutment Walls Wingwalls Approach Slabs Deck Top Piers Sidewalks and Medians Barrier/Parapet Walls Hand Railings Deck Soffit Retaining Walls Joints - Concrete End Dams Approach Sidewalks Approach Curb Joints - Seals	Patch repairs and crack injections Patch repairs and crack injections Replace Patch repairs Patch repairs and crack injections Replace Patch repairs and crack injections Replace missing bolts Crack injections Patch repairs and crack injections Patch repairs and crack injections Replace Patch repairs Remove debris/vegetation	1-5 1-5 6-10 6-10 1-5 1-5 6-10 1-5 6-10 6-10 1-5 6-10 6-10 2	Maintenance	\$ 455,362.00
329	Burlington Street Overpass centred approx. over Wilcox Street	275m West of Wilcox Street to 300m East of Wilcox Street	Bridge	2021-03-09	Partly Sunny	5	Barrier/Parapet Walls Abutment Walls Diaphragms Girders Deck Soffit Ballast Walls Wingwalls Approach Wearing Surface Approach Curb Barrier/Parapet Walls Deck Soffit Railing Systems Coatings - Railing Systems Deck Top Drainage Joints - Armoring Deck Wearing Surface Joints - Concrete End Dams Joints - Seals Piers Retaining Walls Curbs Joints - Seals	Patch repairs and crack injections Patch repairs and crack injections Patch repairs and crack injections Repair steel Patch repairs and crack injections Patch repairs and crack injections Patch repairs and crack injections Seal cracks Patch repairs and crack injections Repair concrete at exposed light pole base Scale loose concrete Replace section Recoat Patch repairs Clear drains Replace/repair broken armoring Seal cracks Patch repairs Replace Patch repairs and crack injections Patch repairs and crack injections Patch repairs and crack injections Remove debris/vegetation	1-5 1-5 1-5 1-5 1-5 1-5 1-5 6-10 6-10 6-10 6-10 1-5 1-5 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 2		\$1,571,896.00

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Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
333	Woodward Avenue	over Burlington Street East	Bridge	2021-02-04	Partly Sunny	5	Joints - Seals Wingwalls Approach Wearing Surface Barrier/Parapet Walls Deck Top Deck Soffit Deck Wearing Surface	Replace Patch repairs and crack injections Seal cracks Patch repairs and crack injections Patch repairs Patch repairs Seal cracks	1-5 6-10 6-10 6-10 6-10 6-10 6-10		\$ 68,872.00
334	Woodward Avenue	at Beach Boulevard/Eastport Drive	Bridge	2021-04-09	Overcast	5	Joints - Armoring Barrier/Parapet Walls Joints - Seals Abutment Walls Ballast Walls Approach Wearing Surface Diaphragms Girders Deck Soffit Deck Wearing Surface Joints - Concrete End Dams Piers Sidewalks and Medians	Install cover plate Patch repairs and crack injections Replace Patch repairs and crack injections Patch repairs and crack injections Seal cracks Patch repairs Patch repairs and crack injections Patch repairs and crack injections Seal cracks Install cover plate Patch repairs and crack injections Patch repairs and crack injections	1-5 1-5 1-5 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 1-5		\$ 119,640.00
367	King Street West	130m East of Centennial Parkway	Bridge	2020-12-02	Clear / Sunny	-5	Retaining Walls Barrier Posts Abutment Walls Approach Curb Approach Sidewalks Hand Railings Railing Systems Deck Top Deck Soffit Sidewalks and Medians Approach Wearing Surface Deck Wearing Surface Embankments Streams and Waterways	Replace gabion at NE and NW Replace Patch repairs and crack injections Patch repairs Patch repairs and crack injections Tighten bolts Install proper end treatment Patch repairs Patch repairs and crack injections Crack injections Seal cracks Seal cracks Remove tree at NW Remove rock wall under bridge	6-10 1-5 6-10 1-5 6-10 1-5 1-5 6-10 6-10 6-10 1-5 6-10 1 2	Maintenance Maintenance	\$ 57,852.00
368	King Street East	40m East of Elm Avenue	Bridge	2020-12-02	Clear / Sunny	-5	Retaining Walls Curbs Deck Soffit Deck Top Wingwalls Abutment Walls Streams and Waterways	Replace gabion wall, Install erosion protection Crack injections Patch repairs and crack injections Patch repairs Patch repairs Install erosion protection Remove debris/vegetation	1-5 6-10 6-10 6-10 6-10 1-5 2	Maintenance	\$ 61,196.00
372	Wilson Street East	1700m East of Rousseaux St. South	Culvert	2020-04-01	Overcast	0	Inlet Components Outlet Components Retaining Walls Barrels Streams and Waterways Approach Wearing Surface Deck Wearing Surface Embankments Foundations	Reconstruct inlet Reconstruct outlet Replace gabions Patch repairs and crack injections Clear debris and fill base to prevent pooling of water Seal cracks Seal cracks Add slope protection Reconstruct base at SE	6-10 1-5 6-10 1-5 6-10 6-10 6-10 6-10 6-10		\$ 184,200.00
375	York Road	100m North of Watsons Lane	Culvert	2021-01-08	Overcast	0	Embankments Approach Wearing Surface Deck Wearing Surface Barrels Retaining Walls	Install erosion protection Repave wearing surface Repave wearing surface Patch repairs and crack injections Replace gabions	1-5 1-5 1-5 6-10 6-10		\$ 72,000.00
376	Pedestrian Tunnel under King Street East	145m West of Lawrence Road	Culvert	2020-12-02	Clear / Sunny	-5	Hand Railings Deck Wearing Surface Sidewalks and Medians	Replace damaged railing and remove tree Seal cracks Crack injections	1-5 6-10 6-10		\$ 34,170.00

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Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
379	Queenston Road	120m East of Riverdale Drive	Culvert	2020-12-02	Clear / Sunny	-5	Foundations Approach Curb Approach Sidewalk Barrels Outlet Components Curbs Approach Wearing Surface Deck Wearing Surface	Install erosion protection Patch repairs and crack injections Repair settlement Patch repairs and crack injections Patch repairs Crack injections Seal cracks Seal cracks	1-5 6-10 < 1 6-10 6-10 6-10 6-10 6-10		\$ 64,330.00
392	Claremont Access	1100m South of Young Street	Bridge	2020-11-18	Overcast	-2	Retaining Walls Piers Deck Wearing Surface Deck Soffit Barrier/Parapet Walls Utilities Approach Wearing Surface Approach Slabs Abutment Walls Drainage Joints - Seals	Patch repairs Patch repairs Seal cracks Patch repairs and crack injections Patch repairs and crack injections Replace covers Seal cracks Patch repairs Reposition shear block pad, install restraints Remove debris/vegetation Remove debris/vegetation	6-10 6-10 1-5 6-10 6-10 1-5 6-10 6-10 6-10 < 1 2 1	Maintenance Maintenance	\$ 133,350.00
407	Queenston Road	320m East of Lake Avenue Drive	Culvert	2020-12-02	Clear / Sunny	-5	Barrels Approach Wearing Surface Retaining Walls Approach Curb Deck Wearing Surface Foundations Sidewalk and Medians	Patch repairs and crack injections Seal cracks Replace gabions at SW, install gabions at SE Patch repairs and crack injections Seal cracks Install erosion protection Crack injections	1-5 1-5 1-5 6-10 6-10 6-10 6-10		\$ 160,952.00
448	Centennial Parkway	660m North of Ridge Road	Culvert	2020-11-20	Clear / Sunny	15	Railing Systems Barrier Posts Barrels Outlet Components Deck Wearing Surface Curbs	Replace Replace Patch repairs and crack injections Patch repairs and crack injections Seal cracks Patch repairs and crack injections	6-10 1-5 6-10 6-10 6-10 6-10		\$ 65,800.00
453	Centennial Parkway	820m North of Ridge Road	Culvert	2020-11-20	Clear / Sunny	15	Outlet Components Approach Wearing Surface Barrier Posts Railing Systems Barrels Deck Wearing Surface Curbs Embankments Streams and Waterways	Install headwall Seal cracks Replace Replace damaged barrier and install missing bolts Patch repairs and crack injections Seal cracks Patch repairs and crack injections Remove debris/vegetation Remove debris/vegetation	1-5 6-10 6-10 6-10 6-10 6-10 6-10 2 1	Maintenance Maintenance	\$ 59,950.00
454	Livingstone Drive	10m West of Sydenham Street	Culvert	2021-01-07	Cloudy	0	Embankments Approach Curb Approach Sidewalk Railing Systems Barrels Approach Wearing Surface	Repair SW gabion Patch repairs Crack injections Replace Patch repairs and crack injections Seal cracks	1-5 6-10 6-10 1-5 6-10 6-10		\$ 45,880.00
455	Macklin Street North / Private Leg	45m East of Macklin Street North	Bridge	2021-02-02	Overcast	1	Embankments Barrier Posts Abutment Walls Wingwalls Approach Slabs Approach Wearing Surface Barrier/Parapet Walls Railing Systems Coatings - Railing Systems Deck Top Deck Soffit Deck Wearing Surface Curbs	Fill voids Replace Patch repairs and crack injections Crack injections Patch repairs Seal cracks Patch repairs and crack injections Replace deformed portions Recoat Patch repairs Patch repairs and crack injections Seal cracks Patch repairs and crack injections	1-5 6-10 6-10 6-10 6-10 6-10 6-10 1-5 1-5 6-10 6-10 6-10 6-10		\$ 74,520.00

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Structure No.	Structure Name	Specific Location	Structure Type	OSIM Inspection Date	Inspection Weather	Inspection Temperature (°C)	Element	Recommended Work	Timeline (years)	Maintenance	Total Cost
458	York Boulevard	500m North of Valley Inn Road	Bridge	2021-02-02	Overcast	1	Barrier Posts Railing Systems Curbs Embankments Barrier/Parapet Walls Utilities Approach Curb Approach Slabs Wingwalls Deck Top Coatings - Railing Systems Sidewalk and Medians Curbs Piers Hand Railings Deck Soffit Drainage Joints - Seals	Replace Replace, install proper end treatment Patch repairs and crack injections Install erosion protection Patch repairs and crack injections Fix broken utility Patch repairs and crack injections Patch repairs Patch repair Patch repairs Recoat Crack injections Patch repairs and crack injections Patch repairs and crack injections Repair steel, install missing bolt Patch repairs Remove debris/vegetation Remove debris/vegetation	1-5 1-5 6-10 1-5 6-10 1-5 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 6-10 1-5 6-10 1 1	Maintenance Maintenance	\$1,128,070.00