

Gardiner Stormwater Assessment Project



Project Scope

The **objectives** of this project are:

- 1. To fully locate stormwater infrastructure within study area and update GIS map
- 2. To assess the existing condition of the stormwater conveyance system in Gardiner
- 3. To identify opportunities for upgrades to improve stormwater management, including potential for Green Infrastructure / Low Impact Development

Areas Investigated:



Review of First Public Meeting

- 1. Reporting of Initial work
 - a. Visual investigation of catch basins and piping
 - b. Developed an initial scope of work from field investigation to be addressed with internal inspection (CCTV)
- 2. Received Public Comment

Review of Second Public Meeting

- 1. Reporting of CCTV Inspection work
 - a. 7 Days of Camera Investigation
 - b. 71 Pipe Segments Inspected
 - c. 7927 Feet of Inspected Pipe
- 2. Reporting of Results Analysis
 - a. 23 Delineated Watersheds
 - b. Review of Opportunities for Improvements & Low Impact Development Concerns
 - c. Capital Improvement Recommendations
- 3. Received Public Comments

Project Wrap-up

1. Finalized Field Work

- a. Last Day of CCTV Inspected an additional 1000' of pipe
- b. Surveyed sections of Washington Avenue, High Holborn Street, Heselton Street, Harrison Street and Winter Street to determine feasibility of various re-routing solutions
- 2. Additional Investigation Projects
- 3. Prioritize Recommended Improvements
 - a. Developed a recommendations workbook

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1 Seve	erity Recommendation Type 🗸	lssue	Recommendation	Address	Street	Secondary Street 🔻	Catchment Area 🗸 Cul	lvert Des	scription				
2	3 Maintenance	Sediment Deposits	Clean	28 Autumn Street	Autumn	N/A	16 N	At 2	28 Autumn Street, 1	he influent p	ipe is rough	nly 50% full	I
3	1 Maintenance	Inflow	Investigate	City Hall	City Hall	N/A	5 N	At	City Hall, continuo	us inflow to o	atch basin	CHSW12 w	v
4	4 Engineering	Flooding	Redesign	Commonwealth Avenue	Commonwealth	n N/A	11 Y	Flo	oding has been rep	orted along	Commonw	ealth Aven	a
5	2 Maintenance	Unknown Origin	Investigate	18 Dennis Street	Dennis	N/A	3 N	At 1	18 Dennis Street, th	ere is a 6" P	/C line influ	ient to cate	c
6	2 Maintenance	Buried Structure	Raise Structure	50 Elm Street	Elm	Washington	8 N	bur	ied catch basin in f	ront of 50 El	m Street, re	commend	ie
7	2 Maintenance	Deteriorated Piping	Replace	50 Elm Street	Elm	Washington	8 Y	Pipi	ing between the 50	Elm Street c	atch basin	and WASS	V
8	3 Maintenance	Joint	Additional Infrastructure	Fairview Street	Fairview	N/A	11 N	The	e piping at the nort	n end of Fair	iew Street	is disconne	e
9	4 Maintenance	Sediment Deposits	Clean	Harden Street	Harden	N/A	21 N	cat	ch basins and pipin	g on Harden	Street pack	ed with se	:0
10	4 Engineering	Sediment Deposits	Additional Infrastructure	Harden Street	Harden	N/A	21 N	Flo	oding from plugged	catch basins	have been	reported	¢
11	3 Maintenance	Sag	Replace	22 Harrison Avenue	Harrison	N/A	18 Y	The	e piping between H	ASW07 and H	ASW08 is s	agged up t	<u>×</u>
12	2 Maintenance	Elevated Catch Basin	Regrade	Intersection	Harrison	Pray	21 N	Flo	oding at the Harris	on/Pray inter	section app	pears to be	2
13	4 Engineering	Deteriorated Piping	Reroute	22 Harrison Avenue	Harrison	Fountain	18 N	Car	nera inspection of	the cross-co	untry line b	etween 22	<u> </u>
14	4 Engineering	Flooding	Reroute	10 Heselton Street	Heselton	Plummer	4 N	Floo	oding has been rep	orted at cato	h basin in f	ront of 10	-
15	4 Maintenance	Deteriorated Piping	Replace	109 High Holborn	High Holborn	N/A	12 N	The	e outfall pipe at 10	High Holbor	n Street is i	in poor cor	n
10	3 Maintenance	Deteriorated Piping	Replace	167 High Holborn	High Holborn	N/A	13 N	The	e outfall pipe at 16	High Holbor	n Street is i	in poor cor	n
1/	5 Maintenance	Catch Basin Deterioration	Replace	194 High Holborn	High Holborn	N/A	14 N	At 1	194 High Holborn S	treet, the co	icrete arou	na the rim	
18	4 Engineering	FIOOding	Resize Pipe, Additional Infrastructure	90 High Holborn Street	High Holborn	N/A	11 N	Floo	oding has been rep	orted at the	catch basin	in front of	ſ

Recommendations Workbook

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2	3	B Maintenance	Sediment Deposits	Clean	A.	<u>S</u> ort A to Z		N/A	16	Ν	At 28 Autumn Street, the influent pipe	is roughly 50%	% full
3	1	Maintenance	Inflow	Investigate	Z	Sort Z to A		N/A	5	N	At City Hall, continuous inflow to cate	ch basin CHSW	/12 w
4	4	Engineering	Flooding	Redesign	A*	Carthu Calar		N/A	11	Y	Flooding has been reported along Cor	mmonwealth /	Avenı
5	2	2 Maintenance	Unknown Origin	Investigate		Sor <u>i</u> by Color	,	N/A	3	N	At 18 Dennis Street, there is a 6" PVC	line influent to	o cato
6	2	2 Maintenance	Buried Structure	Raise Structure	T _x	< <u>C</u> lear Filter From "Street"		Washington	8	N	buried catch basin in front of 50 Elm S	itreet, recomm	nende
7	2	2 Maintenance	Deteriorated Piping	Replace		Filter by Color		Washington	8	Υ	Piping between the 50 Elm Street catc	h basin and W	ASSV
8	3	B Maintenance	Joint	Additional Infrastructure	_	Text Filters	•	N/A	11	N	The piping at the north end of Fairviev	N Street is disc	onne
9	4	Maintenance	Sediment Deposits	Clean	_			N/A	21	N	catch basins and piping on Harden Stre	eet packed wit	th sec
10	4	Engineering	Sediment Deposits	Additional Infrastructure	_	Search	Q	N/A	21	N	Flooding from plugged catch basins ha	ave been repor	rted c
11	3	B Maintenance	Sag	Replace		(Select All)	^	N/A	18	Y	The piping between HASW07 and HAS	W08 is sagged	l up te
12	2	2 Maintenance	Elevated Catch Basin	Regrade		Arcade		Pray	21	N	Flooding at the Harrison/Pray intersec	tion appears t	to be
13	4	Engineering	Deteriorated Piping	Reroute		Autumn	=	Fountain	18	N	Camera inspection of the cross-count	ry line betwee	en 22
14	4	Engineering	Flooding	Reroute		Commonwealth		Plummer	4	N	Flooding has been reported at catch b	asin in front o	if 10 I
15	4	Maintenance	Deteriorated Piping	Replace		Dennis		N/A	12	N	The outfall pipe at 109 High Holborn S	treet is in poo	r con
16	3	B Maintenance	Deteriorated Piping	Replace		- Im		N/A	13	N	The outfall pipe at 167 High Holborn S	treet is in poo	r con
17	5	Maintenance	Catch Basin Deterioration	Replace				N/A	14	N	At 194 High Holborn Street, the concr	ete around the	e rim
18	4	Engineering	Flooding	Resize Pine. Additional Infrastructu	Ire	- 🗹 Fountain		N/A	11	N	Flooding has been reported at the cat	ch basin in fro	nt of

Recommendations Workbook

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1	Severity	Recommendation Type 🗸	lssue	Recommendation	*	Address	Street	Secondary Street -	Catchment Area 🗸	Culvert	Description				
42	2	Maintenance	Buried Structure	Raise Structure		Intersection	Washington	Oak	9 N		buried manhole in W	ashington,	/Oak interse	ction, rec	omn
43	2	Maintenance	Erosion	Replace		109 Washington Avenue	Washington	N/A	9 Y		The culvert on Washi	ngton Ave	nue betwee	n 30 Oak	Stre
44	3	Engineering	Blockage	Reroute		109 Washington Avenue	Washington	Water	9 N		The cross-country lin	e that sta	rts at 109 Wa	ashington	Ave
45	5	Engineering	Blockage	Reroute		83 Washington Avenue	Washington	Maple	9 N		A cross-country line v	vas found	between 83	Washing	ton
61	3	Maintenance	Deteriorated Piping	Replace		63 Washington Avenue	Washington	Elm	8 N		PIPE 911 - multiple br	eaks, mul	tiple cracks,	fracture,	sag,
64	4	Engineering	Deteriorated Piping	Replace		83 Washington Avenue	Washington	Maple	9 N		The Cross-country lin	e that sta	rts between	83 and 77	/ Wa
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Recommendations Workbook

High Priority Recommendations

Prioritization of Maintenance Recommendations is based on several factors:

- 1. Public Safety concerns (including flooding)
- 2. Potential for asset failure
- 3. Effects on associated assets and contribution to flooding issues
- 4. Coordination with City paving program

Only Maintenance Recommendations were prioritized since Engineering Recommendations are part of larger scale issues requiring alternatives analysis or other engineering design. As a result, some high priority Maintenance Recommendations are included as part of Engineering Recommendations.

Street	Repairs
Washington Avenue	109 – Repair eroded culvert invert* 63 – Replace damaged pipe
Harrison Street	22 – Replace sagged culvert*
Plummer Street	29 – Install catch basin 36 – Repair damaged pipe
Lincoln Avenue	49 – Replace collapsed pipe 39 – Replace deteriorated catch basin 24 – Install outlet
Water Street	Mill – Dig out buried outfall Bridge Street – Clean piping
Kingsbury Street	25 – Dig out buried outfall
High Holborn Street	194 – Replace deteriorated catch basin* 109 – Replace collapsed piping*
Harden Street	Clean sediment deposits*
Maine Avenue	Bridge Street – Replace outfall piping
Winter Street	87 – Replace outfall piping* 42 – Install catch basin

Engineering Analyses

12 locations were selected for further engineering analysis.

Analyses ranged from preliminary design to alternatives evaluation.

Each analysis is accompanied by preliminary opinions of probable cost for budgeting purposes.

Assumed construction by contractor

Harrison to Winter Cross-Country Alternatives:



73 Summer Street Alternatives:



Harden Street Improvements:



Commonwealth Avenue Improvements:



10 Heselton Street Cross-Country:



109 Washington Avenue Cross-Country:



83 Washington Avenue Cross-Country:



74 High Holborn Alternatives:



98 High Holborn Alternatives:



116 High Holborn Alternatives:



194 High Holborn Improvements:



27 Lincoln Street Improvements:



Final Results

80 Recommendations from general cleaning to redesign

Maintenance Total Cost - \$521,000

Engineering Total Cost – \$853,000 to \$2,194,000 plus engineering fees as applicable