



Development Charges Background Study

City of Hamilton

This report consolidates the March 13, 2019 Background Study, the May 15, 2019 Addendum 1 Report, and the June 10, 2019 Addendum 2 Report

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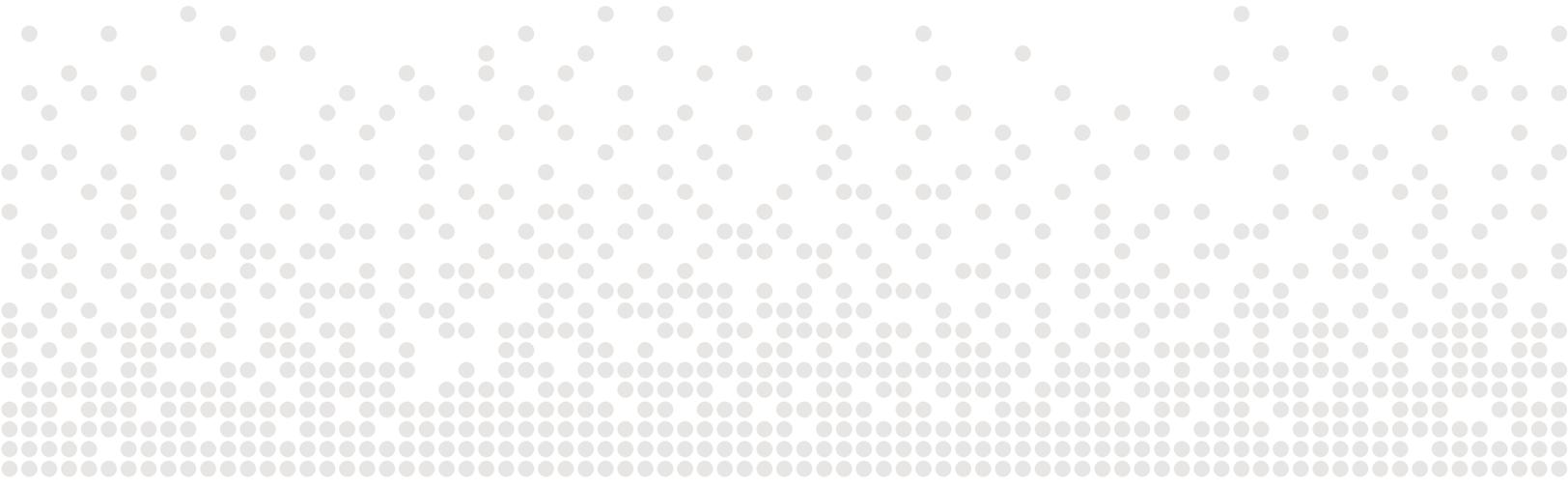
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List of Acronyms and Abbreviations

Acronym	Full Description of Acronym
A.E.G.D.	Airport Employment Growth District
A.M.P.	Asset Management Plan
A.N.S.I.	Areas of National and Scientific Interest
A.T.	Active Transportation
B.I.A.	Business Improvement Area
B.T.E.	Benefit to existing
CANSIM	Canadian Socio-Economic Information Management System (Statistics Canada)
C.H.	Conservation Halton
C.I.P.A.	Community Improvement Project Area
CSO	Combined Sewer Overflow
D.C.	Development Charge
D.C.A.	Development Charges Act, 1997, as amended
D.F.O.	Department of Fisheries and Oceans
E.A.	Environmental Assessments
E.R.A.S.E.	Environmental Remediation and Site Enhancement
E.S.A.	Environmentally Significant Area
F.I.R.	Financial Information Return
G.F.A.	Gross floor area
G.R.C.A.	Grand River Conservation Authority
G.R.I.D.S.	Growth Related Integrated Development Strategy
G.T.A.	Greater Toronto Area
ha	Hectare



List of Acronyms and Abbreviations (Cont'd)

I.S.D.	Investigative Services Division
H.C.A.	Hamilton Conservation Authority
H.O.V.	High Occupancy Vehicle
H.S.R.	Hamilton Street Railway
H.T.M.P.	Hamilton Transportation Master Plan
I.J.P.A.	Infrastructure for Jobs and Prosperity Act
kPa	Kilopascal
L.P.A.T.	Local Planning Appeal Tribunal
L.R.T.	Light rail transit
M.D.P.	Master Drainage Plan
M	Million
MLD	Millions of litres per day
mm	Milimeter
M.N.R.	Ministry of Natural Resources
M.N.R.F.	Ministry of Natural Resources and Forestry
M.O.E.	Ministry of the Environment
M.O.E.E.	Ministry of Energy and Environment
M.O.E.C.P.	Ministry of the Environment, Conservation and Parks
M.T.C.	Mountain Transit Centre
M.T.O.	Ministry of Transportation of Ontario
N.E.C.	Niagara Escarpment Commission
N.F.P.O.W.	No Fixed Place of Work
N.H.S.	Natural Heritage System
N.P.C.A.	Niagara Peninsula Conservation Authority
O.M.B.	Ontario Municipal Board
O.P.	Official Plan
O.P.A.	Official Plan Amendment
O.Reg.	Ontario Regulation
P.O.A.	Provincial Offences Administration
P.P.	Post period



List of Acronyms and Abbreviations (Cont'd)

P.P.U.	Persons per unit
psi	Pounds per square inch
P.T.I.F.	Public Transit Infrastructure Fund
R.O.W.	Right-of-way
R.R.O.	Revised Regulations of Ontario
R.S.A.	Rural Settlement Area
S.C.U.B.E.	Stoney Creek Urban Boundary Expansion
S.D.E.	Single detached equivalent
S.D.U.	Single detached unit
S.P.A.	Special Policy Area
S.W.M.	Stormwater management
S.W.M.F.	Stormwater management facilities
S.W.M.P.	Stormwater management practices
sq.ft.	square foot
sq.m.	square metre
T.D.M.	Travel Demand Management
V.P.Z.	Vegetation Protection Zone
W.W.T.P.	Wastewater Treatment Plant

Unique identifiers confined in Appendix F

W	Waterdown
A	Ancaster
B	Binbrook
MH	A.E.G.D./Mount Hope
HM	Hamilton Mountain
SCU	Stoney Creek Upper
SCL	Stoney Creek Lower
W-19	Water Projects
S-19	Wastewater Projects



Executive Summary



Executive Summary

1. The report provided herein represents the Development Charges (D.C.) Background Study for the City of Hamilton required by the Development Charges Act, 1997, as amended by Bill 73 (D.C.A.). This report has been prepared in accordance with the methodology required under the D.C.A. The contents include the following:

- Chapter 1 – Overview of the legislative requirements of the Act;
- Chapter 2 – Review of present D.C. policies of the City;
- Chapter 3 – Summary of the residential and non-residential growth forecasts for the City;
- Chapter 4 – Approach to calculating the D.C.;
- Chapter 5 – Review of historic service standards and identification of future capital requirements to service growth and related deductions and allocations;
- Chapter 6 – Calculation of the D.C.s;
- Chapter 7 – D.C. policy recommendations and rules; and
- Chapter 8 – By-law implementation.

2. D.C.s provide for the recovery of growth-related capital expenditures from new development. The D.C.A. is the statutory basis to recover these charges. The methodology is detailed in Chapter 4; a simplified summary is provided below:

- 1) Identify amount, type and location of growth;
- 2) Identify servicing needs to accommodate growth;
- 3) Identify capital costs to provide services to meet the needs;
- 4) Deduct:
 - Grants, subsidies and other contributions;
 - Benefit to existing development;
 - Statutory 10% deduction (soft services);
 - Amounts in excess of service standard calculations;
 - D.C. reserve funds (where applicable);



- 5) Net costs are then allocated between residential and non-residential benefit; and
 - 6) Net costs divided by growth to provide the D.C. charge.
3. A number of changes to the D.C. process need to be addressed as a result of Bill 73. These changes have been incorporated throughout the report and in the updated draft by-law, as necessary. These items include:
- a. Area-rating: Council must consider the use of area-specific charges.
 - b. Asset Management Plan for New Infrastructure: The D.C. background study must include an asset management plan that deals with all assets proposed to be funded, in whole or in part, by D.C.s. The asset management plan must show that the assets are financially sustainable over their full lifecycle.
 - c. 60-day Circulation Period: The D.C. background study must be released to the public at least 60-days prior to passage of the D.C. by-law.
 - d. Timing of Collection of Development Charges: The D.C.A. now requires D.C.s to be collected at the time of the first building permit.
4. The growth forecast (Chapter 3) on which the City-wide D.C. is based, projects the following population, housing and non-residential floor area for the 10-year (2019 to 2028) and 13-year (2019 to 2031) periods.

Measure	10-Year	13-Year	13-Year	13-Year	13-Year
	City-wide 2019-2028	City-wide 2019-2031	Urban Area 2019-2031	Combined Sewer System 2019-2031	Separated Sewer System 2019-2031
(Net) Population Increase	65,046	86,183	86,142	8,007	78,135
Residential Unit Increase	33,274	42,848	42,435	9,278	33,530
Non-Residential Gross Floor Area Increase (sq.ft.)	28,791,900	39,111,300	38,758,400	8,031,700	30,726,700

Source: Watson & Associates Economists Ltd. Forecast 2019

5. On June 25, 2014, the City of Hamilton passed By-law 14-153 under the D.C.A. The by-law imposes D.C.s on residential and non-residential uses. This by-law was amended on July 13, 2018 via By-law 18-196 and August 20, 2018 via by-law 18-228. This by-law, as amended, will expire on July 6, 2019. The City is



undertaking a D.C. public process and anticipates passing a new by-law in advance of the expiry date. The mandatory public meeting has been set for April 18, 2019 with adoption of the by-law on May 22, 2019. It is noted that the GO Transit By-law 11-174, as amended, has not been updated as part of this background study.

6. The City's D.C.s currently in effect (excluding GO Transit service and area-specific charges) are \$38,318 for single detached dwelling units for full services and non-residential charges are \$20.54 per square foot for full services. Note that water, wastewater and stormwater are applicable only in the urban areas. This report has undertaken a recalculation of the charge based on future identified needs (presented in Schedule ES-1 for residential and non-residential). Charges have been provided on a City-wide basis for all services except for stormwater. Historically, stormwater has been calculated on a City-wide basis, but as approved by Council (report FCS18034), direction has provided to utilize an area specific approach based on the combined and separated sewer systems for the Stormwater component for the 2019 D.C. background study. The corresponding single detached unit charge is \$43,489 for the combined sewer system area and \$50,003 for the separated sewer system area. The non-residential charge is \$18.02 per square foot of building area for the combined system, and \$20.18 for the separated system area per square foot of building area. These rates are submitted to Council for its consideration.
7. The City's area-specific D.C.s currently in effect in Binbrook for water and wastewater services are \$3,211 for single detached dwelling equivalent units. There is no non-residential area-specific charge in Binbrook. Currently it is anticipated that all development will be complete prior to the 2019 by-law being passed and therefore, there will no longer be a Binbrook area specific D.C. included in the 2019 by-law. For Dundas and Waterdown, the area specific D.C.s, currently in effect for single detached dwelling units related to wastewater services is \$1,588 and is \$1.09 per square foot for non-residential development. This study has undertaken updates to the area-specific charge for Dundas and Waterdown and the resulting charge is \$1,971 for single detached dwelling units and \$1.04 per square foot for non-residential development.



8. The D.C.A. requires a summary be provided of the gross capital costs and the net costs to be recovered over the life of the by-law. This calculation is provided by service and is presented in Table 6-7. A summary of these costs is provided below:

Total gross expenditures planned over the next five years	\$ 2,849,223,312
Less:	
Benefit to existing development	\$ 946,283,371
Post planning period benefit	\$ 162,098,114
Ineligible	\$ 31,192,195
Mandatory 10% deduction for certain services	\$ 21,566,486
Grants, subsidies and other contributions	\$ 449,484,218
Net Costs to be recovered from development charges	\$ 1,238,598,926

Hence, \$1.610 billion (or an annual amount of \$322 million) will need to be contributed from taxes and rates, or other sources. Of this amount, \$162 million will be included in subsequent D.C. study updates to reflect the portion of capital that benefits growth in the post period D.C. forecasts.

Based on the above table, the City plans to spend \$2.849 billion over the next five years, of which \$1.238 billion (43%) is recoverable from D.C.s. Of this net amount, \$821.88 million is recoverable from residential development and \$416.72 million from non-residential development. It is noted also that any exemptions or reductions in the charges would reduce this recovery further.

9. Considerations by Council – The background study represents the service needs arising from residential and non-residential growth over the forecast periods.

The following services are calculated based on a 13-year City-wide forecast:

- Fire Protection Services;
- Police Services;
- Services Related to a Highway; and
- Public Works Facilities, Fleet & Equipment.

The following services are calculated based on a 13-year urban-wide forecast:

- Wastewater Services – Treatment;
- Wastewater Services – Linear; and



- Water Services.

The following service is based on a 13-year urban area-specific forecast for the separated sewer system and combined sewer system:

- Stormwater Drainage and Control Services.
 - Combined Sewer System; and
 - Separated Sewer System.

All other services are calculated based on a 10-year forecast. These include:

- Transit Services;
- Parking Services;
- Airport Services;
- Parkland Development;
- Indoor Recreation Services;
- Library Services;
- Administrative Studies – Engineering Services Studies;
- Administrative Studies – Community Based Studies;
- Long Term Care;
- Provincial Offences Act;
- Health Services;
- Social and Child Services;
- Paramedics;
- Social Housing; and
- Waste Diversion.

Dundas/Waterdown area-specific charges are based on the remaining single detached equivalent units and the non-residential charges are based on the remaining building area (sq.ft.) anticipated.

Council will consider the findings and recommendations provided in the report and, in conjunction with public input, approve such policies and rates it deems appropriate. These directions will refine the draft D.C. by-law which is appended in Appendix K. These decisions may include:



- Adopting the charges and policies recommended herein;
- Considering additional exemptions to the by-law; and
- Considering reductions in the charge by class of development (obtained by removing certain services on which the charge is based and/or by a general reduction in the charge).



Table ES-1
Schedule of Development Charges

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per unit)	Townhouses & Other Multiple Unit Dwellings (per unit)	Apartments 2-Bedrooms+ (per unit)	Apartments Bachelor & 1-Bedroom (per unit)	Residential Facility Dwelling (per bedroom)	(per sq.ft. of Gross Floor Area)
City Wide Services:						
Services Related to a Highway	10,769	7,708	6,306	4,314	3,479	8.05
Public Works Facilities, Vehicles & Equipment	784	561	459	314	253	0.41
Police Services	524	375	307	210	169	0.26
Fire Protection Services	462	331	271	185	149	0.23
Transit Services	1,917	1,372	1,123	768	619	0.98
Parkland Development	2,352	1,683	1,377	942	760	0.11
Indoor Recreation Services	4,430	3,171	2,594	1,775	1,431	0.20
Library Services	1,045	748	612	419	338	0.05
Administrative Studies - Community Based Studies	330	236	193	132	107	0.17
Administrative Studies - Engineering Services Studies	166	119	97	66	54	0.08
Paramedics	137	98	80	55	44	0.03
Long Term Care	125	89	73	50	40	0.01
Health Services	1	1	1	-	-	0.00
Social & Child Services	15	11	9	6	5	0.00
Social Housing	648	464	379	260	209	0.00
Airport lands	419	300	245	168	135	0.21
Parking services	490	351	287	196	158	0.25
Provincial Offences Administration	40	29	23	16	13	0.02
Waste Diversion	657	470	385	263	212	0.13
Total City Wide Services	25,311	18,117	14,821	10,139	8,175	11.18
Urban Services						
Wastewater Facilities	4,048	2,897	2,371	1,622	1,308	1.95
Wastewater Linear Services	5,415	3,876	3,171	2,169	1,749	2.61
Water Services	4,767	3,412	2,792	1,910	1,540	2.29
Combined Sewer System						
Stormwater Drainage and Control Services	3,948	2,826	2,312	1,582	1,275	0.00
Separated Sewer System						
Stormwater Drainage and Control Services	10,462	7,488	6,127	4,191	3,380	2.16
GRAND TOTAL RURAL AREA	25,311	18,117	14,821	10,139	8,175	11.18
GRAND TOTAL URBAN AREA (COMBINED SEWER SYSTEM)	43,489	31,128	25,467	17,422	14,047	18.02
GRAND TOTAL URBAN AREA (SEPARATED SEWER SYSTEM)	50,003	35,790	29,282	20,031	16,152	20.18
Additional Special Area Charges						
Dundas/Waterdown	1,971	1,410	1,154	789	637	1.04



Report



Chapter 1

Introduction



1. Introduction

1.1 Purpose of this Document

This background study has been prepared pursuant to the requirements of the Development Charges Act (D.C.A.) (s. 10) and, accordingly, recommends new D.C.s and policies for the City of Hamilton.

The City retained Watson & Associates Economists Ltd. (Watson), to undertake the Development Charges (D.C.) study process throughout 2018 and 2019. Watson worked with City staff as well as engineering consultants (GM BluePlan Engineering Consultants Limited (GM BluePlan), Wood Environment & Infrastructure Solutions (Wood), and Dillon Consulting Limited (Dillon)) in preparing the D.C. analysis and policy recommendations.

This D.C. background study, containing the proposed D.C. by-law, will be distributed to members of the public in order to provide interested parties with sufficient background information on the legislation, the study's recommendations and an outline of the basis for these recommendations.

This report has been prepared, in the first instance, to meet the statutory requirements applicable to the City's D.C. background study, as summarized in Chapter 4. The requirement to address "rules" (contained in Chapter 7) and the proposed by-law to be made available as part of the approval process (included as Appendix K).

In addition, the report is designed to set out sufficient background on the legislation (Chapter 4), Hamilton's current D.C. policies (Chapter 2) and the policies underlying the proposed by-law, to make the exercise understandable to those who are involved.

Finally, it addresses post-adoption implementation requirements (Chapter 8) which are critical to the successful application of the new policy.

The Chapters in the report are supported by Appendices containing the data required to explain and substantiate the calculation of the charge. A full discussion of the statutory requirements for the preparation of a background study and calculation of a D.C. is provided herein.



1.2 Summary of the Process

The public meeting required under Section 12 of the D.C.A., has been scheduled for April 18, 2019. Its purpose is to present the findings of the study to the public and to solicit public input. The meeting is also being held to answer any questions regarding the study's purpose, methodology and the proposed modifications to the City's D.C.s.

In accordance with the legislation, the background study and proposed D.C. by-law will be available for public review on March 13, 2019.

The process to be followed in finalizing the report and recommendations includes:

- consideration of responses received prior to, at, or immediately following the Public Meeting; and
- finalization of the report and Council consideration of the by-law subsequent to the public meeting.

Figure 1-1 outlines the proposed schedule to be followed with respect to the D.C. by-law adoption process.



Figure 1-1
Schedule of Key D.C. Process Dates for the City of Hamilton

1. Data collection, staff review, engineering work, D.C. calculations and policy work	January 2018 to February 2019
2. Development Charges Stakeholders Sub-Committee Meetings	<ol style="list-style-type: none"> 1. March 1, 2018 2. June 14, 2018 3. September 13, 2018 4. January 28, 2019 5. February 19, 2019 6. March 25, 2019
3. Public meeting advertisement placed in newspaper(s)	<p>March 21 & 28, 2019 (Hamilton Community News)</p> <p>March 22 & 29, 2019 (Hamilton Spectator)</p>
4. Background study and proposed by-law available to public	March 13, 2019
5. Public meeting at Audit, Finance & Administration Committee	April 18, 2019
6. Addendum report available to the public	May 15, 2019
7. Audit, Finance & Administration Committee considers adoption of background study and by-law	June 6, 2019
8. Addendum report #2 available to the public	June 7, 2019
9. Council adoption of by-law	June 12, 2019
10. Newspaper notice given of by-law passage	By 20 days after passage
11. Last day for by-law appeal	40 days after passage
12. City makes pamphlet available (where by-law not appealed)	By 60 days after in force date



1.3 Changes to the D.C.A.: Bill 73

With the amendment of the D.C.A. (as a result of Bill 73 and O.Reg. 428/15), there are a number of areas that must be addressed to ensure that the City is in compliance with the D.C.A., as amended. The following provides an explanation of the changes to the Act that affect the City's Background Study and how they have been dealt with to ensure compliance with the amended legislation.

1.3.1 Area Rating

Bill 73 has introduced two new sections where Council must consider the use of area-specific charges:

- 1) Section 2 (9) of the Act now requires a municipality to implement area-specific D.C.s for either specific services which are prescribed and/or for specific municipalities which are to be regulated. (Note that at this time, no municipalities or services are prescribed by the Regulations.)
- 2) Section 10 (2) c.1 of the D.C.A. requires that, "the development charges background study shall include consideration of the use of more than one development charge by-law to reflect different needs for services in different areas."

In regard to the first item, there are no services or specific municipalities identified in the regulations which must be area-rated. The second item requires Council to consider the use of area rating.

City of Hamilton staff have discussed area rating with the D.C. Stakeholders Subcommittee during the March 1, 2018 meeting and prepared a subsequent staff report (FCS18034) to recommend the use of an area-specific approach (combined sewer system versus separated sewer system) for the Stormwater component for the 2019 D.C. Background Study. This recommendation was approved by Council on March 26, 2018.



1.3.2 Asset Management Plan for New Infrastructure

The new legislation now requires that a D.C. background study must include an Asset Management Plan (s.10 (2) c.2). The asset management plan must deal with all assets that are proposed to be funded, in whole or in part, by D.C.s. The current regulations provide very extensive and specific requirements for the asset management plan related to transit services; however, they are silent with respect to how the asset management plan is to be provided for all other services. As part of any asset management plan, the examination should be consistent with the municipality's existing assumptions, approaches and policies on asset management planning. This examination may include both qualitative and quantitative measures such as examining the annual future lifecycle contributions needs (discussed further in Appendix J of this report).

1.3.3 60-Day Circulation of D.C. Background Study

Previously the legislation required that a D.C. background study be made available to the public at least two weeks prior to the public meeting. The amended legislation now provides that the D.C. background study must be made available to the public (including posting on the municipal website) at least 60 days prior to passage of the D.C. by-law. No other changes were made to timing requirements for such things as notice of the public meeting and notice of by-law passage.

This D.C. study is being provided to the public on March 13, 2019 to ensure the new requirements for release of the study is met.

1.3.4 Timing of Collection of D.C.s

The D.C.A. has been refined by Bill 73 to require that D.C.s are collected at the time of the first building permit. For the majority of development, this will not impact the City's present process. There may be instances, however, where several building permits are to be issued and either the size of the development or the uses will not be definable at the time of the first building permit. In these instances, the City may enter into a delayed payment agreement in order to capture the full development.



1.3.5 Transit

As per O.Reg. 428/15 and O.Reg. 82/98, Transit services now require a revised form of calculation. The following changes and requirements are as follows:

- 10% mandatory deduction from the growth-related costs removed;
- Methodology for determining the “planned level of service” set out in the regulations; and
- Methodology requires ridership forecasts and ridership capacity for all modes of transit over the 10 years, identification of excess capacity which exists at the end of 10 years, identification of whether new ridership is from existing or planned development.

To this end, Watson has retained Dillon Consulting Ltd. to undertake the Transit forecast as per the requirements of O.Reg. 428/15. The findings of their work are in Appendix I to this study.

In addition to the revisions above, a detailed evaluation for Transit asset management is required and consist of the following:

- Identifying the state of local infrastructure for the existing assets;
- Definition of service levels through time frames and provides performance measures;
- Provides an asset management strategy and a financial strategy for existing and future assets;
- Assessment of options to achieve level of service;
- Review of procurement measures to achieve level of service; and
- Review of risks associated with strategies.

The asset management requirements are provided in Appendix J.

1.3.6 Other Changes

It is also noted that a number of other changes were made through Bill 73 and O.Reg. 428/15 including the changes to Waste Diversion and the ability for collection of additional levies. Due to these changes, growth-related waste diversion infrastructure is being included in this D.C. Further, the City’s local service policy has been refined as presented in Appendix E.



Chapter 2

Current City of Hamilton Policy



2. Current City of Hamilton Policy

2.1 Schedule of Charges

On June 25, 2014, the City of Hamilton passed By-law 14-153 under the D.C.A. This by-law was amended on July 13, 2018 via By-law 18-196 and August 20, 2018 via By-law 18-228.

By-law 11-174 was passed on June 15, 2011, and amended by By-law 18-228 on August 20, 2018, and By-law 12-053 amended on February 15, 2012 which set out GO Transit D.C.s (this background study does not include any updates to the GO Transit D.C.s).

These by-laws impose D.C.s for residential and non-residential uses. The table below provides the rates currently in effect, as at July 6, 2018.

Table 2-1
City of Hamilton
Current D.C. Rates

Service	Residential					Non-Residential
	Single-Detached Dwelling & Semi-Detached Dwelling (per unit)	Townhouses & Other Multiple Unit Dwellings (per unit)	Apartments 2-Bedrooms+ (per unit)	Apartments Bachelor & 1-Bedroom (per unit)	Residential Facility Dwelling (per Bedroom)	per sq.ft.
City Wide Charges						
Services Related to a Highway	8,939	6,460	5,458	3,797	2,900	9.10
Public Works	333	241	204	141	108	0.19
Police Services	421	305	256	179	137	0.23
Fire Protection Services	371	268	227	158	120	0.21
Transit Services	544	393	332	231	176	0.34
Parkland Development	1,479	1,069	903	628	480	0.11
Indoor Recreation Services	2,271	1,641	1,387	965	737	0.16
Library Services	642	464	392	273	208	0.04
Administrative Studies	795	575	485	337	258	0.48
Paramedics	39	28	24	16	13	0.02
Long Term Care	257	186	157	110	83	0.04
Health Services	28	21	18	12	9	-
Social & Child Services	31	22	19	13	10	-
Social Housing	583	421	356	248	189	-
Airport Services	261	188	159	111	84	0.16
Parking Services	366	264	223	156	118	0.22
Provincial Offences Act	25	19	15	11	8	0.01
Hamilton Conservation Authority	24	18	14	10	8	0.02
Total City Wide Charges	17,409	12,583	10,629	7,396	5,646	11.33
Urban Area Charges						
Stormwater Drainage and Control Services	7,065	5,106	4,313	3,001	2,293	1.41
Wastewater Facilities	4,090	2,956	2,497	1,737	1,328	2.30
Wastewater Linear Services	5,151	3,723	3,146	2,188	1,671	2.90
Water Service	4,603	3,327	2,811	1,955	1,493	2.60
Total Urban Area Charges	20,909	15,112	12,767	8,881	6,785	9.21
Grand Total (Urban Area & Municipal Wide)	38,318	27,695	23,396	16,277	12,431	20.54
Additional Special Area Charges						
Binbrook	3,211	2,320	1,961	1,364	1,042	-
Dundas/Waterdown	1,588	1,147	970	674	515	1.09
GO Transit (City-Wide)	252	180	156	104	82	-



2.2 Services Covered

The following services are covered under By-laws 14-153 (as amended) and 11-174 (as amended):

By-law 14-153, as amended:

- Services Related to a Highway;
- Public Works;
- Police Services;
- Fire Protection Services;
- Transit Services;
- Parkland Development;
- Indoor Recreation Services;
- Library Services;
- Administrative Studies;
- Paramedics;
- Long Term Care;
- Health Services;
- Social and Child Services;
- Social Housing;
- Airport Services;
- Parking Services;
- Provincial Offenses Act;
- Hamilton Conservation Authority;
- Water Service;
- Wastewater Facilities;
- Wastewater Linear Services;
- Stormwater Drainage and Control Services; and
- Special Area Charges (i.e. Dundas/Waterdown).

By-law 11-174, as amended:

- GO Transit Service.



2.3 Timing of D.C. Calculation and Payment

D.C.s are payable at the time of building permit issuance and are collected by the City of Hamilton Building Department. Deferrals are available for non-residential developments, apartment developments, and residential facility developments for up to a maximum of 5 years. The deferral agreement is subject to interest charges and administration fees.

2.4 Indexing

Rates shall be indexed on the anniversary date of the D.C. by-laws (every July 6) by the percentage change recorded in the average annual Non-Residential Building Construction Price Index produced by Statistics Canada.

2.5 Redevelopment Allowance

As a result of the redevelopment of land, a building or structure existing on the same land within 5 years prior to the date of payment of building permit issuance in regard to such redevelopment was, or is to be demolished, in whole or in part, or converted from one principal use to another principal use on the same land, in order to facilitate the redevelopment, the D.C.s otherwise payable with respect to such redevelopment shall be reduced by the following amounts:

- (a) in the case of a residential building or structure, or in the case of a mixed-use building or structure, the residential uses in the mixed-use building or structure, an amount calculated by multiplying the applicable D.C. under subsections 24(b) or 26 by the number, according to type, of dwelling units that have been or will be demolished or converted to another principal use; and
- (b) in the case of a non-residential building or structure or, in the case of mixed-use building or structure, the non-residential uses in the mixed-use building or structure, an amount calculated by multiplying the applicable D.C.s under subsection 24(b) or 25 by the gross floor area that has been or will be demolished or converted to another principal use;



provided that such amounts shall not exceed, in total, the amount of the D.C.s otherwise payable with respect to the redevelopment.

2.6 Exemptions

The following discretionary exemptions are provided under By-laws 14-153, as amended, and 11-174, as amended:

- Residential:
 - Enlargement of existing dwelling unit and addition of one or two dwellings to a single detached dwelling or one additional dwelling to any other residential building is exempt;
 - Affordable Housing – Projects receiving federal or provincial funding or either City of Hamilton or CityHousing Hamilton Corporation funding (but not receiving funding to cover D.C.s) 100% exempted;
 - Farm Help Houses – Considered to be Agricultural Use – 100% exempt - but does not include single detached dwelling on agricultural land; and
 - Heritage Buildings – redevelopment 100% exempt within the existing building envelope.
- Non-Residential:
 - Expansion of existing Industrial Buildings – Expansion of up to 50% of existing G.F.A. exempted (attached or detached as long as on same property);
 - Parking Garage/Structure – 100% exempted;
 - Agricultural Use – 100% exempted for bona fide farming/agriculture uses;
 - Place of Worship – 100% exempted (must be exempt from property taxes);
 - Covered Sports Field – Playing surface and spectator viewing areas 100% exempted (does not include ancillary areas i.e. hallways, change rooms, concessions etc.);
 - Temporary Building or Structure – 100% exempted provided the temporary building or structure is on the land for less than one year;
 - Non-Industrial Expansion:
 - First 5,000 sq.ft. of G.F.A. for expansion exempt from D.C.s, can be attached or unattached as long as on same site (original development must exist as of by-law date); and



- Heritage Buildings – redevelopment 100% exempt within the existing building envelope.

Note that the mandatory exemptions required as per the D.C.A. are also included in the by-laws.

2.7 Reductions

- Residential:
 - Downtown Hamilton Community Improvement Project Area (C.I.P.A.) Exemption (Figure 2-1) – 70% exemption of D.C.s otherwise payable if within boundaries (to be applied after all other exemptions and credits are applied);
 - Student Residence – 50% exemption for student residence built by a University, College of applied arts and technology or other accredited post-secondary institution; and
 - Redevelopment of existing residential development – exempt from 50% of D.C.s generated within the existing building envelope (credit for 100% of previous use) (for example turning an S.D.U. into a rooming house).
- Non-Residential:
 - New Industrial:
 - 10,000 sq.ft. or less – pay \$9.41 per sq.ft.
 - 10,000+ sq. ft. – pay \$12.53 per sq.ft.
 - Non-Industrial (Commercial/Institutional) Stepped Rates:
 - First 5,000 sq.ft. of development \$10.27/sq.ft. (50% of charge in effect)
 - Second 5,000 sq.ft. of development \$15.41/sq.ft. (75% of charge in effect)
 - 10,000+ sq.ft. of development \$20.54/sq.ft. (100% of charge in effect)
 - Academic/Teaching Space – exempt from all City D.C.s except for the Transit component if development is by a University, other post-secondary school offering a degree or diploma recognized by the Province, or a not-for-profit private elementary or secondary school operated in compliance with Section 16 of the *Education Act*;
 - Public Hospital – Exempt from 50% of the D.C.s otherwise payable;
 - ERASE/Brownfield – Exemption for the lesser of environmental remediation costs (approved through ERASE grant) or D.C.s otherwise payable; and

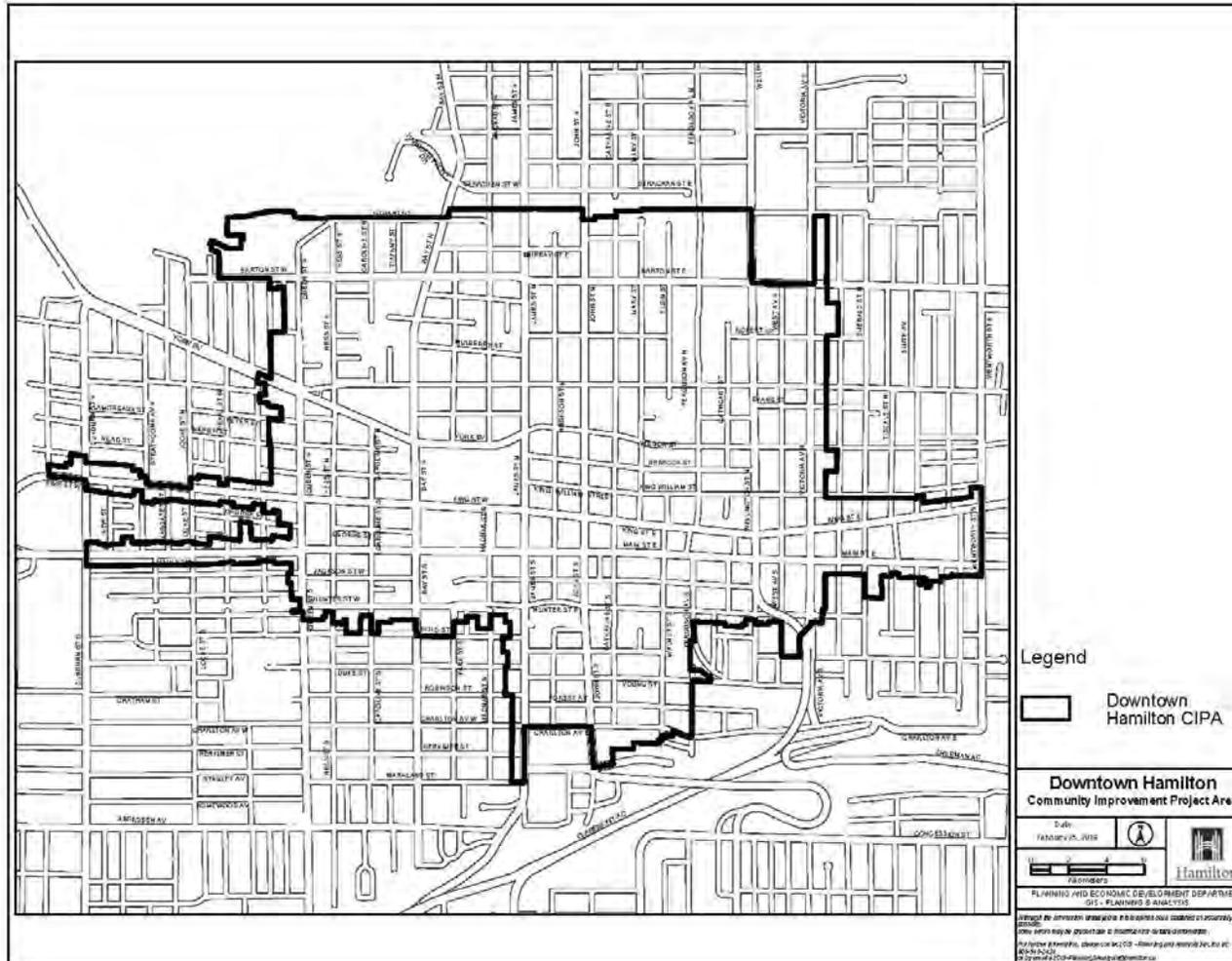


- Downtown Hamilton Community Improvement Project Area (C.I.P.A.) Exemption (Map in Figure 2-1 below) – 70% exemption of D.C.s otherwise payable if within boundaries (to be applied after all other exemptions and credits are applied).

These exemptions and reductions were recently subject to review by the City under separate cover and will be revised in the draft by-law as per section 7.3.4 of this report.



Figure 2-1
Downtown Hamilton Community Improvement Project Area





Chapter 3

Anticipated Development in the City of Hamilton



3. Anticipated Development in the City of Hamilton

3.1 Requirements of the Act

Chapter 4 provides the methodology for calculating a D.C. as per the D.C.A. Figure 4-1 presents this methodology graphically. It is noted in the first box of the schematic that in order to determine the D.C. that may be imposed, it is a requirement of section 5 (1) of the D.C.A. that “the anticipated amount, type and location of development, for which development charges can be imposed, must be estimated.”

The growth forecast contained in this chapter (with supplemental tables in Appendix A) provides for the anticipated development for which the City of Hamilton will be required to provide services, over a 10-year (early 2019 to early 2029) and a longer term (early 2019 to mid-2031) time horizon.

3.2 Basis of Population, Household and Non-Residential Gross Floor Area Forecast

The D.C. growth forecast has been derived from the City of Hamilton, Growth Related Integrated Development Strategy: Growth Report, 2006, which is consistent with Schedule 3 of the Growth Plan for the Greater Golden Horseshoe, Ministry of Infrastructure, June 2013 and the identified 2031A growth projections. In compiling the growth forecast, the following specific information sources were consulted to help assess the residential and non-residential development potential for the City of Hamilton over the forecast period, including:

- The City of Hamilton Development Charge Background Study, Watson & Associates Economists Ltd., May 20, 2014;
- City of Hamilton Growth Related Integrated Development Strategy: Growth Report, May 2006;
- The Urban Hamilton Official Plan, December 2015;
- Rural Hamilton Official Plan, April 2014;
- Historical residential and non-residential building permit data over the 2011-2018 period;



- The City of Hamilton Growth Related Integrated Development Strategy Traffic Zone level population, housing and employment dataset;
- Residential supply (in the development process and other designated residential lands) along with residential intensification opportunities as provided by the City of Hamilton Planning and Economic Development Department;
- Non-residential supply opportunities as provided by the City of Hamilton Planning and Economic Development Department; and
- City of Hamilton Ward Boundary Review, 2017.

3.3 Summary of Growth Forecast

A detailed analysis of the residential and non-residential growth forecasts is provided in Appendix A and the methodology employed is illustrated in Figure 3-1. The discussion provided herein summarizes the anticipated growth for the City and describes the basis for the forecast. The results of the residential growth forecast analysis are summarized in Table 3-1 below, and *Schedule 1* in Appendix A.

As identified in Table 3-1 and Appendix A, *Schedule 1*, the City's population is anticipated to reach 614,943 by early 2029 and 636,080 by mid-2031, resulting in an increase of 65,046 and 86,183 persons, respectively, over the 10-year and longer term (2019 to 2031) forecast periods.¹

¹ The population figures used in the calculation of the 2019 D.C. exclude the net Census undercount, which is estimated at approximately 3.7%.



Figure 3-1
Household Formation-based Population and Household Projection Model

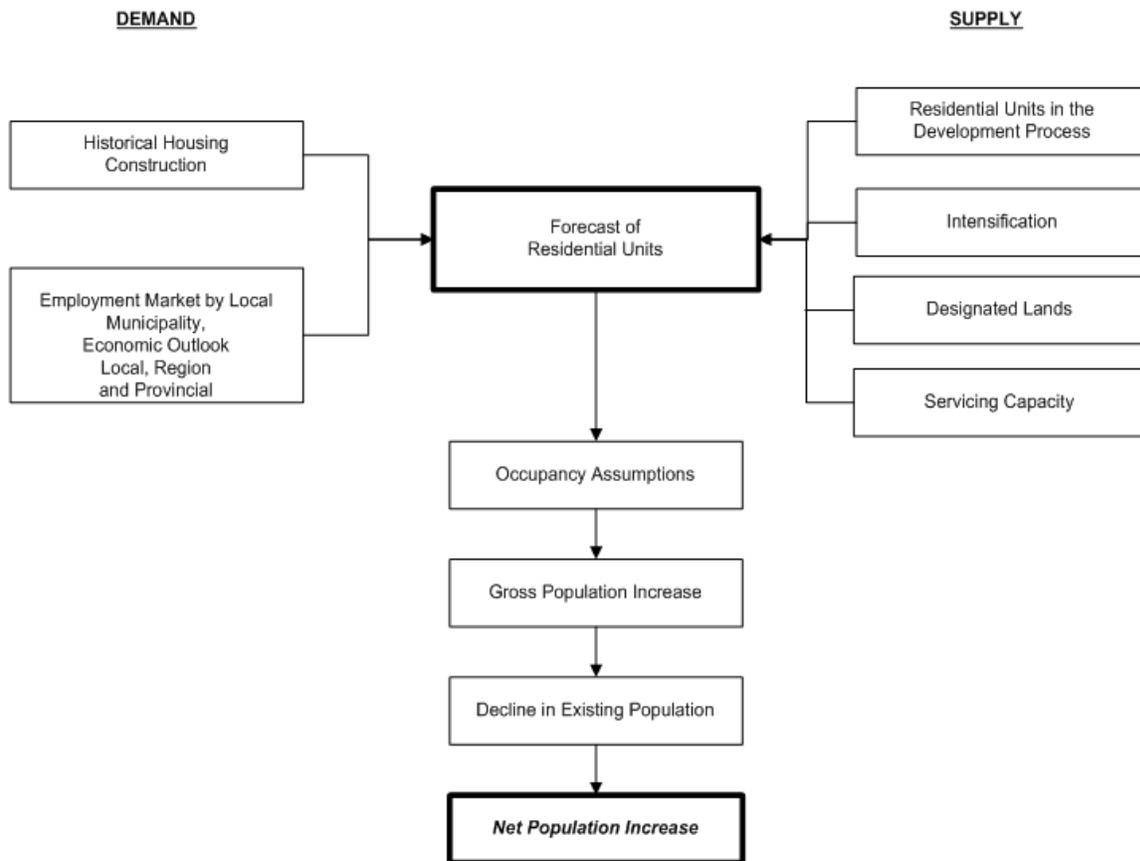




Table 3-1
City of Hamilton
Residential Growth Forecast Summary

	Year	Population (Including Census Undercount) ¹	Excluding Census Undercount			Housing Units						Person Per Unit (P.P.U.): Total Population/ Total Households	Persons in Private Households/ Total Households
			Population	Institutional Population	Population Excluding Institutional Population	Singles & Semi- Detached	Multiple Dwellings ²	Apartments ³	Other	Total Households	Equivalent Institutional Households		
Historical	Mid-2006	523,530	504,559	8,929	495,630	118,410	25,095	50,155	795	194,455	8,117	2.595	2.549
	Mid-2011	539,500	519,949	10,314	509,635	124,435	27,765	50,805	810	203,815	9,376	2.551	2.500
	Mid-2016	557,110	536,917	8,987	527,930	127,705	31,405	51,675	815	211,600	8,170	2.537	2.495
Forecast	Early-2019	570,570	549,897	9,058	540,839	129,668	33,693	53,605	815	217,781	8,235	2.525	2.483
	Early-2029	638,060	614,943	9,460	605,483	142,660	43,993	63,222	815	250,690	8,600	2.453	2.415
	Mid-2031	660,000	636,080	9,541	626,539	146,175	46,843	66,357	815	260,190	8,674	2.445	2.408
Incremental	Mid-2006 to Mid-2011	15,970	15,390	1,385	14,005	6,025	2,670	650	15	9,360	1,259		
	Mid-2011 to Mid-2016	17,610	16,968	-1,327	18,295	3,270	3,640	870	5	7,785	-1,206		
	Mid-2016 to Early-2019	13,460	12,980	71	12,909	1,963	2,288	1,930	0	6,181	65		
	Early-2019 to Early-2029	67,490	65,046	402	64,644	12,992	10,300	9,617	0	32,909	365		
	Early-2019 to Mid-2031	89,430	86,183	483	85,700	16,507	13,150	12,752	0	42,409	439		

Source: Watson & Associates Economists Ltd., 2018.

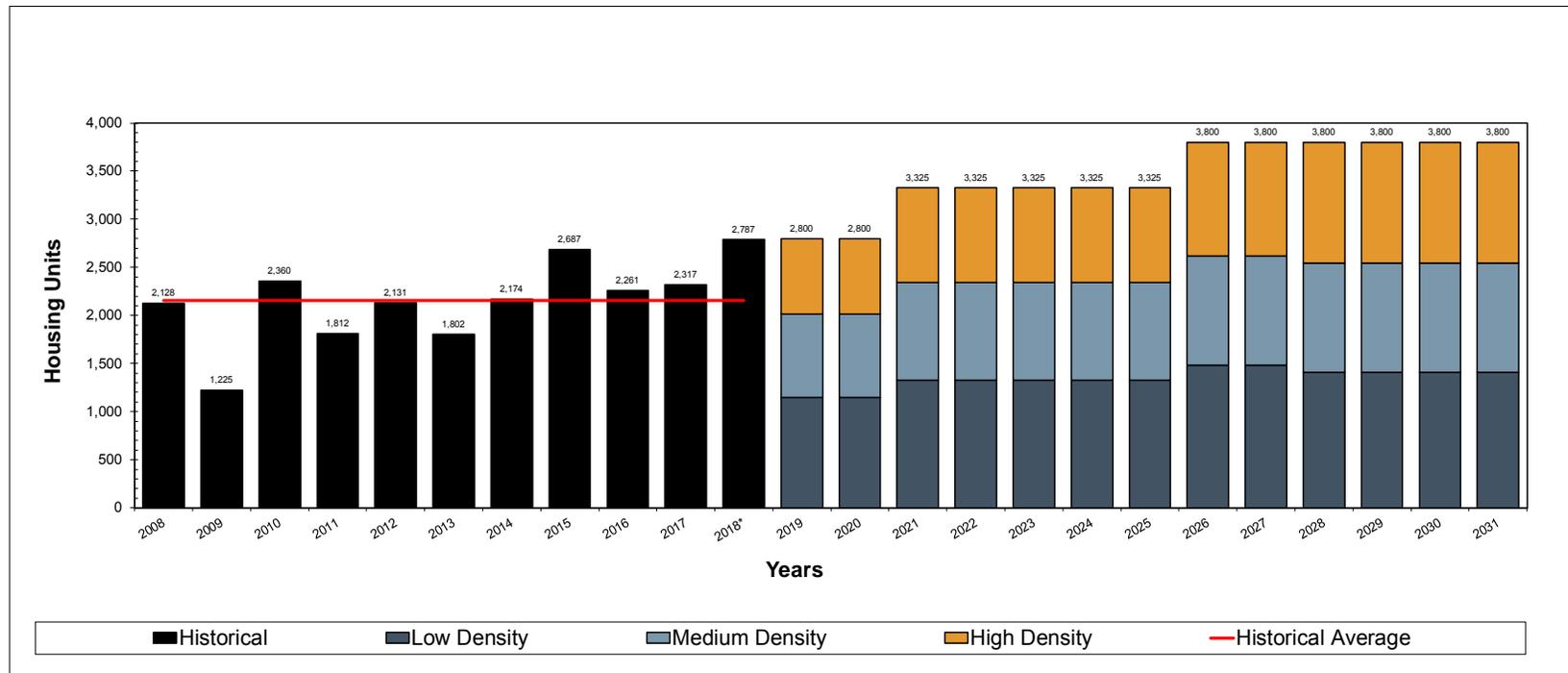
¹ Census undercount estimated at approximately 3.7%. Note: Population including the undercount has been rounded.

² Includes townhouses and apartments in duplexes.

³ Includes bachelor, 1 bedroom and 2 bedroom+ apartments.



Figure 3-2
City of Hamilton
Annual Housing Forecast



Source: Historical housing activity (2008-2016) based on Statistics Canada building permits, Catalogue 64-001-XIB. 2016-2017 based on City of Hamilton building permit data.

Note: 2018 is an estimate based on City of Hamilton building permit data (January-May, 2018).

* Growth forecast represents calendar year.



1. Unit Mix (Appendix A – Schedules 1, 2, and 6)

- The unit mix for the City was derived from a detailed review of historical development activity (as per Schedule 6), as well as active residential development applications and other designated lands and intensification opportunities.
- Based on the above indicators, the 2019 to 2031 household growth forecast is comprised of a unit mix of 39% low density (single detached and semi-detached), 31% medium density (multiples except apartments) and 30% high density (bachelor, 1-bedroom and 2-bedroom apartments).
- Institutional household growth is forecast to grow by 439 units between 2019 to 2031.

2. Geographic Location of Residential Development (Appendix A – Schedules 2)

- Schedule 2 summarizes the anticipated amount, type and location of development for City of Hamilton by area.
- In accordance with forecast demand and available land supply, the percentage of forecast housing growth between 2019 and 2031 by development location is summarized below.
- Water and wastewater services are based on the urban development location identified in Appendix A, Schedule 2.
- Within the urban development location, there are two area-specific services, one for the Combined Sewer System, and one for the Separated Sewer System (Other Built Boundary and Greenfield).
- All other services are based upon the total city-wide development.



Development Location	Percentage Housing Growth, 2019 to 2031
<i>Urban</i>	
Combined Sewer System	21.7%
Separated Sewer System – Other Built Boundary	16.0%
Separated Sewer System – Greenfield	61.3%
Urban Total	99.0%
<i>Rural</i>	
Rural Total	1.0%
Total	100.0%

3. Planning Period

- Short and longer-term time horizons are required for the D.C. process. The D.C.A. limits the planning horizon for certain services, such as parks, recreation and libraries, to a 10-year planning horizon. Services related to a highway, public works, fire, police, stormwater, water and wastewater services can utilize a longer planning period.

4. Population in New Units (Appendix A - Schedules 2 through 5)

- The number of housing units to be constructed in the City of Hamilton during the short- and long-term periods is presented on Figure 3-2. Over the 10-year and 2019 to 2031 forecast periods, the City is anticipated to average of approximately 3,290 and 3,390 new housing units per year, respectively.
- The institutional population¹ is anticipated to grow by 485 persons between 2019 to 2031.
- Population in new units is derived from Schedules 3, 4, and 5, which incorporate historical development activity, anticipated units (see unit mix

¹ Institutional includes special care facilities including but not limited to nursing home, residences for senior citizens, hospices, group homes, etc. A P.P.U. of 1.100 depicts 1-bedroom and 2 or more bedroom units in these special care facilities.



discussion) and average persons per unit (P.P.U.) by dwelling type for new units.

- Schedule 7 summarizes the P.P.U. for the new housing units by age and type of dwelling based on a 2016 custom Census data. The total calculated P.P.U. for all density types has been adjusted to account for the downward P.P.U. trend which has been recently experienced in both new and older units, largely due to the aging of the population. Adjusted 20-year average P.P.U.s by dwelling type are as follows:
 - Low density: 3.405
 - Medium density: 2.437
 - High density¹: 1.663
 - Institutional density 1.100

5. Existing Units and Population Change (Appendix A - Schedules 3, 4 and 5)

- Existing households for early 2019 are based on the 2016 Census households, plus estimated residential units constructed between mid-2016 and 2018 assuming a 6-month lag between construction and occupancy (see Schedule 3).
- The decline in average occupancy levels for existing housing units is calculated in Schedules 3 through 5, by aging the existing population over the forecast period. The forecast population decline in existing households over the 2019 to 2031 forecast period is 23,755.

6. Employment (Appendix A, Schedules 9a, 9b, 10 and 11)

- Employment projections are largely based on the activity rate method, which is defined as the number of jobs in a municipality divided by the number of residents. Key employment sectors include primary, industrial, commercial/ population-related, institutional, and work at home, which are considered individually below.

¹ Includes bachelor, 1-bedroom and 2 or more bedroom apartments



- 2016 employment data¹ (place of work) for the City of Hamilton is outlined in Schedule 9a. The 2016 employment base is comprised of the following sectors:
 1. 1,855 primary (1%);
 2. 15,785 work at home employment (8%);
 3. 47,758 industrial (23%);
 4. 74,273 commercial/population related (37%); and
 5. 63,665 institutional (31%).

- The 2016 employment by usual place of work, including work at home, is estimated at 203,336. An additional 29,165 employees have been identified for the City in 2016 that have no fixed place of work (N.F.P.O.W.).² The 2016 employment base, including N.F.P.O.W., totals 232,501.

- Total employment, including work at home and N.F.P.O.W., for Hamilton is anticipated to reach 285,130 by early-2029 and 300,000 by mid-2031. This represents an employment increase of 46,114 for the 10-year forecast period and 60,984 for the 2019 to 2031 forecast period.

- Schedule 9b, Appendix A, summarizes the employment forecast, excluding work at home employment and N.F.P.O.W. employment, which is the basis for the D.C. employment forecast. The impact on municipal services from work at home employees has already been included in the population forecast. The need for municipal services related to N.F.P.O.W. employees has largely been included in the employment forecast by usual place of work (i.e. employment and gross floor area generated from N.F.P.O.W. construction employment). Furthermore, since these employees have no fixed work address, they cannot be captured in the non-residential gross floor area (G.F.A.) calculation.

¹ 2016 employment estimated by Watson & Associates Economists Ltd.

² Statistics Canada defines "No Fixed Place of Work" (N.F.P.O.W.) employees as, "persons who do not go from home to the same work place location at the beginning of each shift. Such persons include building and landscape contractors, travelling salespersons, independent truck drivers, etc."



- Total employment for the City of Hamilton (excluding work at home and N.F.P.O.W. employment) is anticipated to reach 231,447 by early-2029 and 244,839 by mid-2031. This represents an employment increase of 38,744 and 52,136 over the 10-year and longer-term forecast periods, respectively.

7. Non-Residential Sq.ft. Estimates (Gross Floor Area (G.F.A.), Appendix A, Schedule 9b)

- Square footage estimates were calculated in Schedule 9b based on the following employee density assumptions:
 - 1,200 sq.ft. per employee for industrial;
 - 450 sq.ft. per employee for commercial/population-related; and
 - 700 sq.ft. per employee for institutional employment.
- The City-wide incremental Gross Floor Area (G.F.A.) increase is anticipated to be 28.79 million sq.ft. over the 10-year forecast period and 39.11 million sq.ft. over the 2019 to 2031 forecast period.
- In terms of percentage growth, the 2019 to 2031 incremental G.F.A. forecast by sector is broken down as follows:
 1. industrial – 52%;
 2. commercial/population-related – 26%; and
 3. institutional – 22%.

8. Geographic Location of Non-Residential Development (Appendix A, Schedule 9c)

- Schedule 9c summarizes the anticipated amount, type and location of non-residential development for City of Hamilton by area.
- In accordance with forecast demand and available land supply, the percentage of forecast total non-residential growth between 2019 and 2031 by development location is summarized below.
- Water and wastewater services are based on the urban development location identified in Appendix A, Schedule 9c.
- Within the urban development location, there are two area-specific services, one for the Combined Sewer System, and one for the Separated Sewer System (Other Built Boundary and Greenfield).



- All other services are based upon the total city-wide development.

Development Location	Percentage Total Non-Residential Growth G.F.A., 2019 to 2031
Urban Combined Sewer System Separated Sewer System - Other Built Boundary Separated Sewer System - Greenfield Urban Total	20.5% 10.6% 68.0% 99.1%
Rural Rural Total	0.9%
Total	100.0%



Chapter 4

The Approach to the Calculation of the Charge



4. The Approach to the Calculation of the Charge

4.1 Introduction

This chapter addresses the requirements of s. 5 (1) of the D.C.A. with respect to the establishment of the need for service which underpins the D.C. calculation. These requirements are illustrated schematically in Figure 4-1.

4.2 Services Potentially Involved

Table 4-1 lists the full range of municipal service categories which are provided within the City.

A number of these services are defined in s. 2 (4) of the D.C.A. as being ineligible for inclusion in D.C.s. These are shown as “ineligible” on Table 4-1. Two ineligible costs defined in s. 5 (3) of the D.C.A. are “computer equipment” and “rolling stock with an estimated useful life of (less than) seven years...” In addition, local roads are covered separately under subdivision agreements and related means (as are other local services). Services which are potentially eligible for inclusion in the City’s D.C. are indicated with a “Yes.”

4.3 Increase in the Need for Service

The D.C. calculation commences with an estimate of “the increase in the need for service attributable to the anticipated development,” for each service to be covered by the by-law. There must be some form of link or attribution between the anticipated development and the estimated increase in the need for service. While the need could conceivably be expressed generally in terms of units of capacity, s. 5 (1) 3, which requires that City Council indicate that it intends to ensure that such an increase in need will be met, suggests that a project-specific expression of need would be most appropriate.



Figure 4-1
The Process of Calculating a Development Charge under the Act
that must be followed

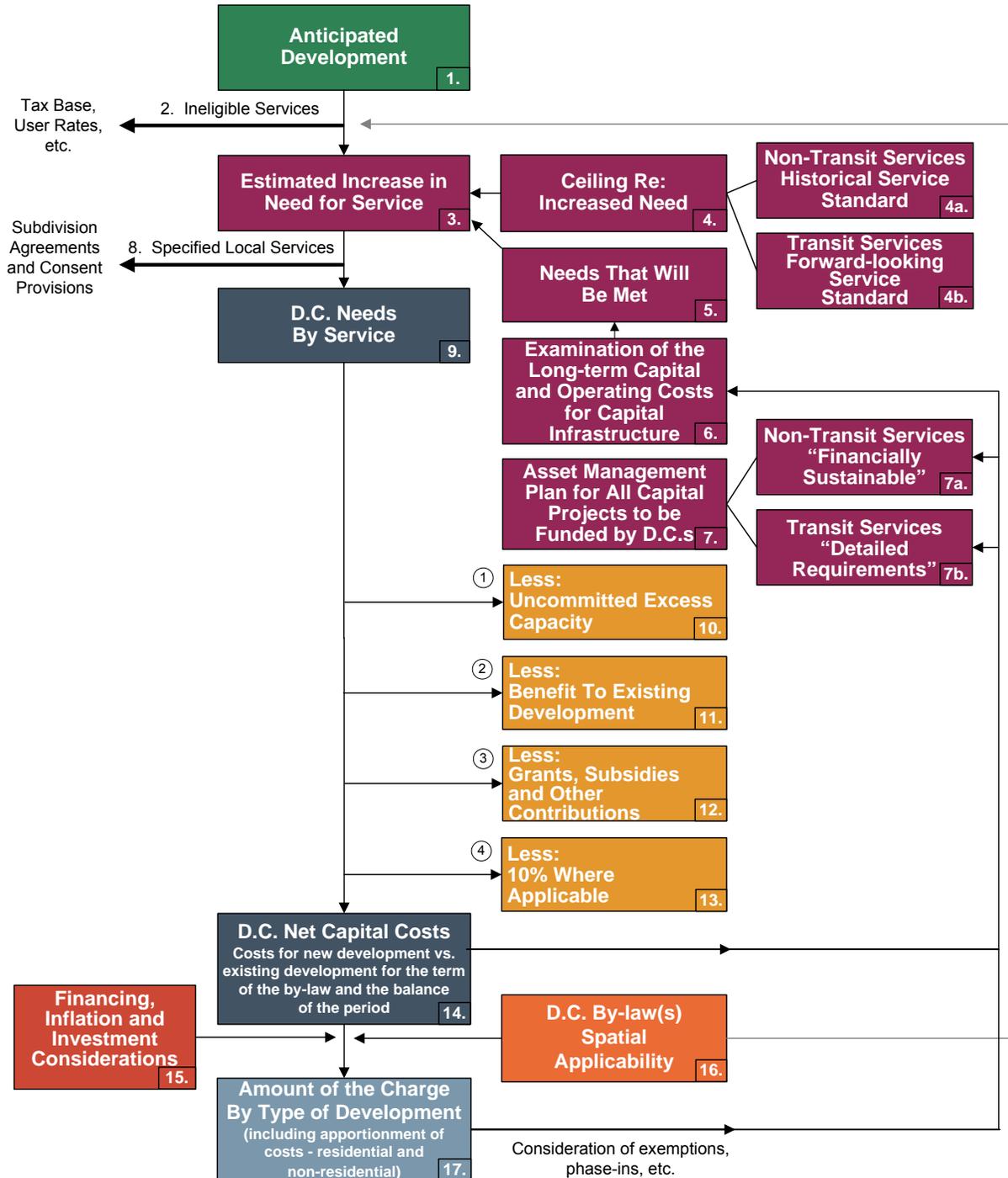




Table 4-1
Categories of Municipal Services to be Addressed as Part of the Calculation

Categories of Municipal Services	Eligibility for Inclusion in the D.C. Calculation	Service Components	Maximum Potential D.C. Recovery %
1. Services Related to a Highway	Yes	1.1 Arterial roads	100
	Yes	1.2 Collector roads	100
	Yes	1.3 Bridges, Culverts and Roundabouts	100
	No	1.4 Local municipal roads	0
	Yes	1.5 Traffic signals	100
	Yes	1.6 Sidewalks and streetlights	100
	Yes	1.7 Active Transportation	100
2. Other Transportation Services	Yes	2.1 Transit vehicles ¹ & facilities	100
	Yes	2.2 Other transit infrastructure	100
	Yes	2.3 Municipal parking spaces - indoor	90
	Yes	2.4 Municipal parking spaces - outdoor	90
	Yes	2.5 Works Yards	100
	Yes	2.6 Rolling stock ¹	100
	n/a	2.7 Ferries	90
	Yes	2.8 Airport	90
3. Stormwater Drainage and Control Services	Yes	3.1 Main channels and drainage trunks	100
	Yes	3.2 Channel connections	100
	Yes	3.3 Retention/detention ponds	100
	Yes	3.4 Studies	100
4. Fire Protection Services	Yes	4.1 Fire stations	100
	Yes	4.2 Fire pumpers, aerials and rescue vehicles ¹	100
	Yes	4.3 Small equipment and gear	100

¹with 7+ year useful life

*same percentage as service component to which it pertains
computer equipment excluded throughout



Categories of Municipal Services	Eligibility for Inclusion in the D.C. Calculation	Service Components	Maximum Potential D.C. Recovery %
5. Outdoor Recreation Services (i.e. Parks and Open Space)	Ineligible	5.1 Acquisition of land for parks, woodlots and E.S.A.s	0
	Yes	5.2 Development of area municipal parks	90
	Yes	5.3 Development of district parks	90
	Yes	5.4 Development of municipal-wide parks	90
	Yes	5.5 Development of special purpose parks	90
	Yes	5.6 Parks rolling stock ¹ and yards	90
6. Indoor Recreation Services	Yes	6.1 Arenas, indoor pools, fitness facilities, community centres, etc. (including land)	90
	Yes	6.2 Recreation vehicles and equipment ¹	90
7. Library Services	Yes	7.1 Public library space (incl. furniture and equipment)	90
	Yes	7.2 Library vehicles ¹	90
	Yes	7.3 Library materials	90
8. Electrical Power Services	Ineligible	8.1 Electrical substations	0
	Ineligible	8.2 Electrical distribution system	0
	Ineligible	8.3 Electrical system rolling stock	0
9. Provision of Cultural, Entertainment and Tourism Facilities and Convention Centres	Ineligible	9.1 Cultural space (e.g. art galleries, museums and theatres)	0
	Ineligible	9.2 Tourism facilities and convention centres	0
10. Wastewater Services	Yes	10.1 Treatment plants	100
	Yes	10.2 Sewage trunks	100
	n/a	10.3 Local systems	0
	Yes	10.4 Vehicles and equipment ¹	100

¹with 7+ year life time



Categories of Municipal Services	Eligibility for Inclusion in the D.C. Calculation	Service Components	Maximum Potential D.C. Recovery %
11. Water Supply Services	Yes	11.1 Treatment plants	100
	Yes	11.2 Distribution systems	100
	n/a	11.3 Local systems	0
	Yes	11.4 Vehicles and equipment ¹	100
12. Waste Management Services	Ineligible	12.1 Landfill collection, transfer vehicles and equipment	0
	Ineligible	12.2 Landfills and other disposal facilities	0
	Yes	12.3 Waste diversion facilities	90
	Yes	12.4 Waste diversion vehicles and equipment ¹	90
13. Police Services	Yes	13.1 Police detachments	100
	Yes	13.2 Police rolling stock ¹	100
	Yes	13.3 Small equipment and gear	100
14. Homes for the Aged	Yes	14.1 Homes for the aged space	90
	No	14.2 Vehicles ¹	90
15. Child Care	Yes	15.1 Child care space	90
	No	15.2 Vehicles ¹	90
16. Health	Yes	16.1 Health department space	90
	Yes	16.2 Health department vehicles ¹	90
17. Social Housing	Yes	17.1 Social Housing space	90
18. Provincial Offences Administration (P.O.A.)	Yes	18.1 P.O.A. space	90
19. Social Services	Yes	19.1 Social service space	90
20. Paramedics	Yes	20.1 Paramedics station space	90
	Yes	20.2 Vehicles ¹	90
21. Hospital Provision	Ineligible	21.1 Hospital capital contributions	0

¹with 7+ year life time



Categories of Municipal Services	Eligibility for Inclusion in the D.C. Calculation	Service Components	Maximum Potential D.C. Recovery %
22. Provision of Headquarters for the General Administration of Municipalities and Area Municipal Boards	Ineligible Ineligible Ineligible	22.1 Office space 22.2 Office furniture 22.3 Computer equipment	0 0 0
23. Other Services	Yes Yes	23.1 Studies in connection with acquiring buildings, rolling stock, materials and equipment, and improving land ² and facilities, including the D.C. background study cost 23.2 Interest on money borrowed to pay for growth-related capital	0-100 0-100

¹with a 7+ year life time

²same percentage as service component to which it pertains

Eligibility for Inclusion in the D.C. Calculation	Description
Yes	Municipality provides the service – service has been included in the D.C. calculation.
No	Municipality provides the service – service has not been included in the D.C. calculation.
n/a	Municipality does not provide the service.
Ineligible	Service is ineligible for inclusion in the D.C. calculation.

4.4 Local Service Policy

Some of the need for services generated by additional development consists of local services related to a plan of subdivision. As such, they will be required as a condition of



subdivision agreements or consent conditions. The local service policy is included as Appendix E.

4.5 Capital Forecast

Paragraph 7 of s. 5 (1) of the D.C.A. requires that “the capital costs necessary to provide the increased services must be estimated.” The Act goes on to require two potential cost reductions and the Regulation sets out the way in which such costs are to be presented. These requirements are outlined below.

These estimates involve capital costing of the increased services discussed above. This entails costing actual projects or the provision of service units, depending on how each service has been addressed.

The capital costs include:

- a) costs to acquire land or an interest therein (including a leasehold interest);
- b) costs to improve land;
- c) costs to acquire, lease, construct or improve buildings and structures;
- d) costs to acquire, lease or improve facilities, including rolling stock (with a useful life of 7 or more years), furniture and equipment (other than computer equipment), materials acquired for library circulation, reference or information purposes;
- e) interest on money borrowed to pay for the above-referenced costs;
- f) costs to undertake studies in connection with the above-referenced matters; and
- g) costs of the D.C. background study.

In order for an increase in need for service to be included in the D.C. calculation, City Council must indicate “...that it intends to ensure that such an increase in need will be met” (s. 5 (1) 3). This can be done if the increase in service forms part of a Council-approved Official Plan, capital forecast or similar expression of the intention of Council (O.Reg. 82/98 s. 3). The capital program contained herein reflects the City’s approved and proposed capital budgets and master servicing/needs studies.



4.6 Treatment of Credits

Section 8, paragraph 5, of O.Reg. 82/98 indicates that a D.C. background study must set out “the estimated value of credits that are being carried forward relating to the service.” Subsection 17, paragraph 4, of the same Regulation indicates that “...the value of the credit cannot be recovered from future D.C.s,” if the credit pertains to an ineligible service. This implies that a credit for eligible services can be recovered from future D.C.s. As a result, this provision should be made in the calculation, in order to avoid a funding shortfall with respect to future service needs. Outstanding credit obligations have been included in the D.C. calculations.

4.7 Eligible Interest Costs

Section 5(3)7 of the D.C.A. states that the interest on money borrowed to pay for capital costs, which are eligible under the D.C.A., can be included in the imposed development charge. There are a number of large projects included in the D.C. where staff have indicated debenture financing will be required. For these projects, financing costs have been estimated using a 15-year term and an interest rate of 5%.

Future projects where debenture financing will be required:

- Fire Services:
 - New Station Waterdown Growth Area;
- Police Services:
 - Investigative Services Division Forensics Headquarters;
- Services Related to a Highway:
 - Waterdown Road (Burlington portion) – Mountain Brow Road to Craven Avenue;
- Transit Services:
 - Transit & Maintenance Storage Facility;
- Parkland Development:
 - Confederation Park (financing for projects that require funding within the five-year by-law period only);



- Indoor Recreation Services:
 - Riverdale Community Hub & Domenic Agostino Riverdale Community Centre Expansion;
 - Sir Wilfrid Laurier Gymnasium;
- Library Services:
 - Valley Park – Expansion;
- Wastewater – Linear:
 - All projects within five years (2019 to 2023); and
- Water Services:
 - All projects within five years (2019 to 2023).

In addition to the above, outstanding existing growth-related debt has been included, where applicable.

4.8 Existing Reserve Funds

Section 35 of the D.C.A. states that:

“The money in a reserve fund established for a service may be spent only for capital costs determined under paragraphs 2 to 8 of subsection 5 (1).”

There is no explicit requirement under the D.C.A. calculation method set out in s. 5 (1) to net the outstanding reserve fund balance as part of making the D.C. calculation; however, s. 35 does restrict the way in which the funds are used in future.

For services which are subject to a per capita based, service level “cap,” the reserve fund balance should be applied against the development-related costs for which the charge was imposed once the project is constructed (i.e. the needs of recent growth). This cost component is distinct from the development-related costs for the next 10-year period, which underlie the D.C. calculation herein.

The alternative would involve the City spending all reserve fund monies prior to renewing each by-law, which would not be a sound basis for capital budgeting. Thus, the City will use these reserve funds for the City’s cost share of applicable development-related projects, which are required but have not yet been undertaken, as a way of directing the funds to the benefit of the development which contributed them (rather



than to future development, which will generate the need for additional facilities directly proportionate to future growth).

The City's D.C. Reserve Fund Balance by service for December 31, 2018 (adjusted for commitments) is shown below:

Service	Dec 31, 2018 Balance	Add back funding for projects in 2019 Study that have already partial received D.C. Funding	Less funding for projects in progress that are not in the 2019 study and have yet to be funded from the reserve funds	Add Funding of Exemptions/ Discounts	Adjusted Dec. 31, 2018 Balance
Services Related to a Highway	\$11,021,537	\$14,854,998	(\$32,044,458)	\$26,501,858	\$20,333,935
Public Works Facilities, Vehicles & Equipment	\$2,698,519	\$58,245		\$1,006,457	\$3,763,222
Transit Services	(\$2,558,013)	\$3,627,022	(\$29,432)	\$1,491,513	\$2,531,090
Parking Services	\$2,817,352			\$886,420	\$3,703,772
Airport Lands	\$1,237,314			\$753,535	\$1,990,849
Fire Protection Services	\$3,099,459			\$1,117,909	\$4,217,369
Police Services	(\$28,532)			\$1,175,236	\$1,146,703
Parkland Development	(\$2,223,025)	\$252,793	(\$3,609,113)	\$1,594,489	(\$3,984,856)
Indoor Recreation Services	\$3,486,029	\$1,623,090	(\$1,370,371)	\$2,373,614	\$6,112,363
Library Services	(\$871,136)			\$681,917	(\$189,220)
Administrative Studies	(\$4,060,750)	\$2,937,265	(\$2,438,040)	\$2,261,536	(\$1,299,988)
Long Term Care	\$1,747,300			\$305,071	\$2,052,370
Social & Child Services	\$597,979		(\$1,045,800)	\$32,442	(\$415,379)
Provincial Offences Administration	\$185,366			\$48,006	\$233,372
Health Services	\$506,121		(\$34,740)	\$29,022	\$500,402
Social Housing	\$7,524,775		(\$920,500)	520,975.91	\$7,125,251
Paramedics	(\$502,894)			\$101,010	(\$401,884)
Stormwater Drainage and Control Services	\$23,985,939	\$180,212	(\$30,492,194)		(\$6,326,043)
Water	\$26,177,112	\$10,873,863	(\$10,869,695)		\$26,181,280
W.W.T.P.	\$64,665,961				\$64,665,961
Wastewater Linear	\$4,643,404	\$1,971,745	(\$51,197,862)		(\$44,582,713)
Total	\$144,149,817	\$36,379,233	(\$134,052,204)	\$40,881,010	\$87,357,856
Area Specific:					
Dundas Waterdown Special Area Charge	(\$7,685,420)				(\$7,685,420)
Grand Total	\$136,464,398	\$36,379,233	(\$134,052,204)	\$40,881,010	\$79,672,436

Note: Excludes Binbrook special area charge as per section 5.4.2

Note: Amounts in brackets are Deficit balances.

4.9 Deductions

The D.C.A. potentially requires that five deductions be made to the increase in the need for service. These relate to:

- the level of service ceiling;
- uncommitted excess capacity;
- benefit to existing development;
- anticipated grants, subsidies and other contributions; and



- 10% reduction for certain services.

The requirements behind each of these reductions are addressed as follows:

4.9.1 Reduction Required by Level of Service Ceiling

This is designed to ensure that the increase in need included in section 4.3 does “...not include an increase that would result in the level of service (for the additional development increment) exceeding the average level of the service provided in the Municipality over the 10-year period immediately preceding the preparation of the background study...” O.Reg. 82.98 (s. 4) goes further to indicate that “...both the quantity and quality of a service shall be taken into account in determining the level of service and the average level of service.”

In many cases, this can be done by establishing a quantity measure in terms of units as floor area, land area or road length per capita and a quality measure, in terms of the average cost of providing such units based on replacement costs, engineering standards or recognized performance measurement systems, depending on circumstances. When the quantity and quality factor are multiplied together, they produce a measure of the level of service, which meets the requirements of the Act, i.e. cost per unit.

With respect to transit services, the changes to the Act as a result of Bill 73 have provided for an alternative method for calculating the services standard ceiling. Transit services must now utilize a forward-looking service standard analysis, described later in this section.

The average service level calculation sheets for each service component in the D.C. calculation are set out in Appendix B (and Appendix I for transit services).

4.9.2 Reduction for Uncommitted Excess Capacity

Paragraph 5 of s. 5 (1) requires a deduction from the increase in the need for service attributable to the anticipated development that can be met using the City’s “excess capacity,” other than excess capacity which is “committed”.

“Excess capacity” is undefined, but in this case must be able to meet some or all of the increase in need for service, in order to potentially represent a deduction. The



deduction of uncommitted excess capacity from the future increase in the need for service would normally occur as part of the conceptual planning and feasibility work associated with justifying and sizing new facilities, e.g. if a road widening to accommodate increased traffic is not required because sufficient excess capacity is already available, then widening would not be included as an increase in need, in the first instance.

4.9.3 Reduction for Benefit to Existing Development

Section 5 (1) 6 of the D.C.A. provides that, “The increase in the need for service must be reduced by the extent to which an increase in service to meet the increased need would benefit existing development.” The general guidelines used to consider benefit to existing development included the following:

- the repair or unexpanded replacement of existing assets that are in need of repair;
- an increase in average service level of quantity or quality;
- the elimination of a chronic servicing problem not created by growth; and
- providing services where none previously existed (generally considered for water or wastewater services).

This step involves a further reduction in the need, by the extent to which such an increase in service would benefit existing development. The level of services cap in section 4.4 is related but is not the identical requirement. Sanitary, storm and water trunks are highly localized to growth areas and can be more readily allocated in this regard than other services such as services related to a highway, which do not have a fixed service area.

Where existing development has an adequate service level which will not be tangibly increased by an increase in service, no benefit would appear to be involved. For example, where expanding existing library facilities simply replicates what existing residents are receiving, they receive very limited (or no) benefit as a result. On the other hand, where a clear existing service problem is to be remedied, a deduction should be made accordingly.

In the case of services such as recreation facilities, community parks, libraries, etc., the service is typically provided on a City-wide system basis. For example, facilities of the



same type may provide different services (i.e. leisure pool vs. competitive pool), different programs (i.e. hockey vs. figure skating) and different time availability for the same service (i.e. leisure skating available on Wednesday in one arena and Thursday in another). As a result, residents will travel to different facilities to access the services they want at the times they wish to use them, and facility location generally does not correlate directly with residence location. Even where it does, displacing users from an existing facility to a new facility frees up capacity for use by others and generally results in only a very limited benefit to existing development. Further, where an increase in demand is not met for a number of years, a negative service impact to existing development is involved for a portion of the planning period.

4.9.4 Reduction for Anticipated Grants, Subsidies and Other Contributions

This step involves reducing the capital costs necessary to provide the increased services by capital grants, subsidies and other contributions (including direct developer contributions required due to the local service policy) made or anticipated by Council and in accordance with various rules such as the attribution between the share related to new vs. existing development. That is, some grants and contributions may not specifically be applicable to growth or where Council targets fundraising as a measure to offset impacts on taxes (O.Reg. 82/98 s. 6).

4.9.5 The 10% Reduction

Paragraph 8 of s. 5 (1) of the D.C.A. requires that, “the capital costs must be reduced by 10 percent.” This paragraph does not apply to water supply services, waste water services, storm water drainage and control services, services related to a highway, police, transit and fire protection services. The primary services to which the 10% reduction does apply include services such as parks, recreation, libraries, childcare/ social services, the Provincial Offences Act, paramedics, homes for the aged, and health.

The 10% is to be netted from the capital costs necessary to provide the increased services, once the other deductions have been made, as per the infrastructure costs sheets in Chapter 5.



4.10 Municipal-wide vs. Area Rating

This step involves determining whether all of the subject costs are to be recovered on a uniform municipal-wide basis or whether some or all are to be recovered on an area-specific basis. Under the amended D.C.A., it is now mandatory to “consider” area-rating of services (providing charges for specific areas and services), however, it is not mandatory to implement area-rating. Further discussion specific to the City’s decision related to this issue is provided in section 7.4.4.

4.11 Allocation of Development

This step involves relating the costs included to anticipated development for each period under consideration and using allocations between residential and non-residential development and between one type of development and another, to arrive at a schedule of charges.

4.12 Asset Management

The new legislation now requires that a D.C. Background Study must include an Asset Management Plan (s. 10 (2) c. 2). The asset management plan must deal with all assets that are proposed to be funded, in whole or in part, by D.C.s. The current regulations provide very extensive and specific requirements for the asset management plan related to transit services (as noted in the subsequent subsection); however, they are silent with respect to how the asset management plan is to be provided for all other services. As part of any asset management plan, the examination should be consistent with the municipality’s existing assumptions, approaches and policies on the asset management planning. This examination has been included in Appendix J.

4.13 Transit

The most significant changes to the Act relate to the transit service. These changes relate to four areas of the calculations, as follows:

- A. Transit no longer requires the statutory 10% mandatory deduction from the net capital cost (section 5.2 (i) of the D.C.A.).



- B. The Background Study requires the following in regard to transit costs (as per section 8 (2) of the Regulations):
1. The calculations that were used to prepare the estimate for the planned level of service for the transit services, as mentioned in subsection 5.2 (3) of the Act.
 2. An identification of the portion of the total estimated capital cost relating to the transit services that would benefit,
 - i. the anticipated development over the 10-year period immediately following the preparation of the background study, or
 - ii. the anticipated development after the 10-year period immediately following the preparation of the background study.
 3. An identification of the anticipated excess capacity that would exist at the end of the 10-year period immediately following the preparation of the background study.
 4. An assessment of ridership forecasts for all modes of transit services proposed to be funded by the development charge over the 10-year period immediately following the preparation of the background study, categorized by development types, and whether the forecasted ridership will be from existing or planned development.
 5. An assessment of the ridership capacity for all modes of transit services proposed to be funded by the development charge over the 10-year period immediately following the preparation of the background study.
- C. A new forward-looking service standard (as per 6.1 (2) of the Regulations):
1. The service is a discrete service.
 2. No portion of the service that is intended to benefit anticipated development after the 10-year period immediately following the preparation of the background study may be included in the estimate.



3. No portion of the service that is anticipated to exist as excess capacity at the end of the 10-year period immediately following the preparation of the background study may be included in the estimate.

D. A very detailed asset management strategy and reporting requirements (section 6.1 (3) of the Regulation) that includes lifecycle costs, action plans that will enable the assets to be sustainable, summary of how to achieve the proposed level of service, discussion on procurement measures and risk.

As stated in Chapter 1, Watson retained Dillon to undertake the above calculations, which are provided in Appendix I of this study.



Chapter 5

D.C.-Eligible Cost Analysis by Service



5. D.C.-Eligible Cost Analysis by Service

5.1 Introduction

This chapter outlines the basis for calculating eligible costs for the D.C.s to be applied on a uniform basis. In each case, the required calculation process set out in s. 5 (1) paragraphs 2 to 8 in the D.C.A. and described in Chapter 4, was followed in determining D.C. eligible costs.

The nature of the capital projects and timing identified in the Chapter reflects Council's current intention. However, over time, City projects and Council priorities change and accordingly, Council's intentions may alter and different capital projects (and timing) may be required to meet the need for services required by new growth.

5.2 Service Levels and 10-Year Capital Costs for D.C. Calculation

This section evaluates the development-related capital requirements for all of the “softer” services over a 10-year planning period. Each service component (except Transit) is evaluated on two format sheets: the average historical 10-year level of service calculation (see Appendix B), which “caps” the D.C. amounts; and, the infrastructure cost calculation, which determines the potential D.C. recoverable cost.

5.2.1 *Transit Services*

Under Bill 73, changes to the D.C.A. now require a forward-looking forecast for ridership in order to determine the D.C. eligibility of any future transit vehicles. Dillon and City staff have worked closely together to identify the required modal split targets for the City as well as a ridership forecast. The 2028 modal split target of 8.5% (currently at 6.5%) translates to an a.m. peak ridership forecast of 29,836 for Hamilton Street Railway (H.S.R.) trips. The 2031 modal split target of 9.8% translates to an a.m. peak ridership forecast of 36,200 for H.S.R. trips.

Based on the information provided in Dillon's technical report in Appendix I, which explains the transit forecast in detail, the inclusion of 219 new buses, 73 specialized transit vehicles and 14 operations vehicles has been included in the transit capital



forecast. Some of these buses are replacements of existing buses to larger size buses in which case only the incremental costs to go from a smaller to larger bus have been included in the D.C. calculation. The gross cost of these buses and vehicles is \$185,678,800 with a deduction of \$9,844,000 to recognize the growth benefit of these services beyond the 2019 to 2028 forecast period. A deduction of \$22,270,000 was made in order to recognize only the incremental costs in replacing existing buses with larger size buses in the D.C.-eligible cost. Further, a deduction of \$113,272,300 was made to recognize the benefit to existing. This results in a D.C. eligible cost of \$40,292,500 for transit buses and vehicles in the 2019 to 2028 forecast period.

In addition to the vehicles, a new transit facility and the associated land has been identified in the forecast, at a total gross cost of \$282,500,000. This facility will accommodate 304 buses, including 67 existing buses which are currently temporarily stored outside at the Mountain Facility. The city has identified the need for growth-related financing for this facility, which is anticipated to be approximately \$7,198,306 (discounted), based on a debenture term of 15 years at an interest rate of 5%. In addition, a deduction of \$108.8 million has been applied against this facility as a result of anticipated Public Transit Infrastructure Fund (P.T.I.F.) funding. An attribution to recognize the growth benefit of these services beyond the 2019 to 2028 forecast period has been identified in the amount of \$11,566,866. Accounting for existing buses being moved to the new facility and the projected modal increase with respect to transit use, an attribution to reflect the benefit to existing has been made in the amount of \$130,828,000, resulting in a D.C. eligible cost of \$38,503,440 for the facility, associated land and related financing costs.

The total gross cost for transit vehicles and the new transit facility (including financing) is \$475,377,106. A deduction of \$2,531,090 has been made to reflect the existing reserve fund balance. Further adjustments were made with regards to growth-related financing, deductions for post period benefit, grant funding, benefit to existing and incremental costs associated with replacing smaller buses with larger buses, as discussed above. These attributions result in a net growth-related cost of \$76,264,849 that has been included in the D.C. calculations.

The growth costs have been allocated 63% residential and 37% non-residential based on the incremental growth in population to employment, for the 10-year forecast period.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Transit Services

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share	Non-Residential Share
	2019-2028									63%	37%
1	New Conventional Bus - (40 ft.) (117)	2019-2028	94,957,200	2,943,700		92,013,500	66,185,200		25,828,300	16,271,829	9,556,471
2	New Conventional Bus - (40 ft.) (Spares) (32)	2019-2028	25,971,200	805,100		25,166,100	18,101,900		7,064,200	4,450,446	2,613,754
3	Replacement of Retired 40 ft. buses on L.R.T. corridor (18)	2019-2028	14,608,800	452,900		14,155,900	10,182,300		3,973,600	2,503,368	1,470,232
4	New Conventional Bus - (40 ft.) (12)	2029-2031	9,739,200	2,951,000		6,788,200	6,788,200		-	-	-
5	New Conventional Bus - (40 ft.) (Spares) (8)	2029-2031	6,492,800	1,967,300		4,525,500	4,525,500		-	-	-
6	Replace 40 ft. buses with 60 ft. buses (11)	2019	11,055,000	65,900	8,927,600	2,061,500	1,482,800		578,700	364,581	214,119
7	Replace 40 ft. buses with 60 ft. buses (10)	2023	10,050,000	60,000	8,116,000	1,874,000	1,348,000		526,000	331,380	194,620
8	Replace 40 ft. buses with 30 ft. buses (6)	2019	3,833,400	-	3,833,400	-	-		-	-	-
9	Replace 26 ft. buses with 30 ft. buses (5)	2019	3,236,000	57,100	1,393,000	1,785,900	1,284,600		501,300	315,819	185,481
10	New Specialized Transit (Chevy 34' Braun) (3)	2019-2028	663,900	-		663,900	393,700		270,200	170,226	99,974
11	New Specialized Transit (Chevy 34' Braun) (1)	2029-2031	221,300	90,100		131,200	131,200		-	-	-



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Transit Services

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share	Non-Residential Share
	2019-2028									63%	37%
12	New Specialized Transit (Dodge Promaster) (16)	2019-2028	1,740,800	-		1,740,800	1,032,300		708,500	446,355	262,145
13	New Specialized Transit (Dodge Promaster) (5)	2029-2031	544,000	221,400		322,600	322,600		-	-	-
14	New Specialized Transit (Dodge Caravan) (38)	2019-2028	1,447,800	-		1,447,800	858,500		589,300	371,259	218,041
15	New Specialized Transit (Dodge Caravan) (10)	2029-2031	381,000	155,100		225,900	225,900		-	-	-
16	Support Vehicles - Facility Vehicles - Service Truck	2019-2028	114,400	-		114,400	86,200		28,200	17,766	10,434
17	Support Vehicles - Facility Vehicles - Stock Room Vehicle	2019-2028	34,300	-		34,300	25,800		8,500	5,355	3,145
18	Support Vehicles - Facility Vehicles - Garage Equipment Repair Walk Behind Forklift	2019-2028	166,400	38,400		128,000	125,300		2,700	1,701	999
19	Support Vehicles - Facility Vehicles - Garage Fork Lift	2019-2028	104,000	24,000		80,000	78,300		1,700	1,071	629
20	Support Vehicles - Facility Vehicles - Garage Tow Mobile	2019-2028	52,000	12,000		40,000	39,200		800	504	296
21	Support Vehicles - Facility Vehicles - Garage Equipment Repair Express Van Vehicles	2019-2028	72,800	-		72,800	54,800		18,000	11,340	6,660



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Transit Services

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share	Non-Residential Share
	2019-2028									63%	37%
22	Support Vehicles - Operations Vehicles	2019-2028	192,500	-		192,500	-		192,500	121,275	71,225
23	Transit & Maintenance Storage Facility	2020-2022	272,000,000	9,305,000		262,695,000	122,920,000	108,800,000	30,975,000	19,514,250	11,460,750
24	Transit & Maintenance Storage Facility - Land	2020-2022	10,500,000	599,000		9,901,000	7,908,000		1,993,000	1,255,590	737,410
25	Transit & Maintenance Storage Facility Growth Related Debt Interest (Discounted)	2023-2038	7,198,306	1,662,866		5,535,440	-		5,535,440	3,487,327	2,048,113
26	Reserve Fund Adjustment			-			2,531,090		(2,531,090)	(1,594,587)	(936,503)
	Total		475,377,106	21,410,866	22,270,000	431,696,240	246,631,390	108,800,000	76,264,849	48,046,855	28,217,994



5.2.2 Airport

The City currently provides 1,561 acres of land at the Hamilton Airport. This represents 2.9 acres of land per 1,000 residents and a value of \$292 per capita. Based on this service standard the City would be eligible to collect an additional \$18,961,559 million from D.C.s for additional airport land over the 10-year period.

The City plans to purchase additional land for expansion of the airport services, estimated at \$28,000,000. Of this total amount, deductions have been made in the amount of \$7,280,000 to recognize growth in the post-2028 period and \$1,990,849 to recognize the balance in the reserve fund. Therefore, an amount of \$18,729,151 has been included in the current 10-year forecast period. After the 10% mandatory deduction, \$16,657,151 has been included in the D.C. calculation.

The residential/non-residential allocation for airport services is based on the relationship between population and employment resulting in an allocation of 63% to residential and 37% to non-residential.



5.2.3 Parking Services

The City currently provides parking services from a 32,071 sq.ft. facility adjacent to Hamilton Place and the Convention Centre parking garage. The City also provides 4,696 parking spaces and 2,539 parking meters, pay & display machines, coin sorter and wrapper machines, and electric vehicle charging stations throughout the City. This equates to \$353/capita in parking services which provides \$22,995,062 in D.C. eligible funding over the 10-year forecast period.

The City has identified two additional parking structures including a downtown parking structure and a parking structure as part of the West Harbour Development. These facilities are estimated to cost \$56,080,000. Of this total amount, \$4,930,000 is attributed to growth in the post 2028 period and \$25,358,000 million is attributable to existing benefit. A further deduction of \$3,703,772 was made to reflect the existing reserve fund balance. After the 10% mandatory deduction, \$19,509,028 has been included in the D.C. calculations.

The growth-related costs for parking have been allocated 63% residential and 37% non-residential based on the incremental growth in population to employment, for the 10-year forecast period.



5.2.4 Provincial Offences Administration (P.O.A.)

The City currently provides facility space totalling 57,915 sq.ft. for P.O.A. This space equates to 42.1 sq.ft. of space per 1,000 residents or \$22 per capita. This level of investment provides the City with \$1,462,234 for eligible future D.C. funding over the 10-year forecast period.

The City has not identified the need to expand their P.O.A. facilities. However, the recovery of the new P.O.A. facility debenture (principal and discounted interest) has been included for recovery. Therefore, the growth-related gross cost included is \$3,431,276. A deduction of \$1,605,386 was made to recognize the benefit to growth beyond the 2019 to 2028 forecast period. A reduction in the amount of \$233,372 to recognize the reserve fund balance was applied, resulting in a D.C. eligible amount of \$1,593,142.

The growth-related costs for P.O.A. have been allocated based on the incremental growth in population to employment, for the 10-year forecast period at 63% residential and 37% non-residential.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton

Service: Provincial Offences Administration Facilities

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
	2019-2028										63%	37%	
1	Growth related Debt Principal (Discounted) - New POA Facility	2019-2034	3,173,583	1,477,977		1,695,607			1,695,607		1,695,607	1,068,232	627,374
2	Growth related Debt Interest (Discounted) - New POA Facility	2019-2034	257,693	126,785		130,908			130,908		130,908	82,472	48,436
2	Reserve Fund Adjustment						233,372		(233,372)		(233,372)	(147,025)	(86,348)
	Total		3,431,276	1,604,761	-	1,826,515	233,372	-	1,593,142	-	1,593,142	1,003,680	589,463



5.2.5 Parkland Development

The City currently has 5,956 acres of parkland within its jurisdiction. This parkland consists of various sized parkettes, neighbourhood/community parks, heritage space, natural parks and open space area. The City has sustained the current level of service over the historic 10-year period (2009 to 2018), with an average of 11.5 acres of parkland per 1,000 population. When applied over the forecast period, this average level of service translates into a D.C.-eligible amount of \$29,136,705.

In addition, the City also provides various parkland amenities items (e.g. ball diamonds, playground equipment, soccer fields, etc.) and buildings (e.g. sun shelters, pavilions, etc.). The City provides for 33.4 parkland amenity items and 106.6 sq.ft. parkland amenity buildings per 1,000 population, or \$570 per capita. This translates into a D.C. eligible amount of \$37,109,393.

Further, the City has 63 linear kilometres of trails within its jurisdiction which translates into a \$21 per capita investment and a D.C.-eligible amount of \$1,348,404.

The City also owns and operates 27 park related vehicles and pieces of equipment, such as fertilizer spreaders, and rototillers. The City provides for 0.1 park related vehicles and equipment per 1,000 population, or \$0.26 per capita. The total D.C. eligible amount over the 10-year forecast period is \$16,912.

The total D.C.-eligible amount for Parkland Development is \$67,611,414.

Based on the projected growth over the 10-year forecast period, the City has identified \$155,116,800 in future growth capital costs for parkland development. These costs include the development of additional parks including the associated amenities and trails. As mentioned in section 4.7, growth-related financing costs (discounted) for Confederation Park for projects that require funding within the five-year by-law period have been identified at an amount of \$1,573,689, with an assumed 15-year term and 5% interest rate. An additional \$3,984,856 is included in the capital costs to recognize the reserve fund deficit. Allocations for a post period benefit of \$52,555,600 and existing development benefit of \$39,715,700 have been made. Therefore, the net growth capital cost after the mandatory 10% deduction and the allocation of the reserve balance of \$62,047,265 has been included in the D.C.



As the predominant users of outdoor recreation tend to be residents of the City, the forecast growth-related costs have been allocated 95% to residential and 5% to non-residential.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Parkland Development

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share	
2019-2028												95%	5%	
1	John St. N. & Rebecca St. Park - Master Plan Implementation	2019-2022	3,860,000	-		3,860,000	3,319,600		540,400	54,040	486,360	462,042	24,318	
2	Nash Orchard Park	2021-2022	832,000	-		832,000	-		832,000	83,200	748,800	711,360	37,440	
3	Highland Road Park	2020	776,000	-		776,000	-		776,000	77,600	698,400	663,480	34,920	
4	Highbury Meadows North Park	2020	703,000	-		703,000	-		703,000	70,300	632,700	601,065	31,635	
5	Cherry Beach Lakefront Park	2021	969,000	-		969,000	-		969,000	96,900	872,100	828,495	43,605	
6	The Crossings Park	2022	838,000	-		838,000	-		838,000	83,800	754,200	716,490	37,710	
7	Brooks at Rymal Park	2020	883,000	-		883,000	-		883,000	88,300	794,700	754,965	39,735	
8	Lancaster Heights Park	2020	675,000	-		675,000	-		675,000	67,500	607,500	577,125	30,375	
9	Fletcher Road Parkette	2022	191,000	-		191,000	-		191,000	19,100	171,900	163,305	8,595	
10	Ancaster Meadows Park	2019	641,000	-		641,000	-		641,000	64,100	576,900	548,055	28,845	
11	Parkside Hills Park	2022	607,000	-		607,000	-		607,000	60,700	546,300	518,985	27,315	
12	Clear Skies proposed park	2023-2024	978,000	-		978,000	-		978,000	97,800	880,200	836,190	44,010	
13	Gatesbury Park Upgrades - New fitness area, skateboard feature and basketball	2019-2021	498,000	-		498,000	498,000		-	-	-	-	-	
14	Meadowlands Community Park Spraypad	2019-2020	475,000	-		475,000	237,500		237,500	23,750	213,750	203,063	10,688	
15	Broughton West Park Upgrade for New Spray Pad	2021-2022	475,000	-		475,000	237,500		237,500	23,750	213,750	203,063	10,688	
16	Alexander Park - Upgrade for new skate park	2019	532,000	-		532,000	266,000		266,000	26,600	239,400	227,430	11,970	
17	Mcquesten Park - Additional Fitness Equipment	2020	270,000	-		270,000	135,000		135,000	13,500	121,500	115,425	6,075	
18	Waterfalls Viewing - Albion Falls New Access on South Side	2019	1,320,000	-		1,320,000	660,000		660,000	66,000	594,000	564,300	29,700	
19	Chedoke Falls - New Access to Upper and Lower Falls	2019-2022	4,528,000	-		4,528,000	2,264,000		2,264,000	226,400	2,037,600	1,935,720	101,880	
20	Skateboard Study Implementation at Various Locations Throughout the City	2019-2028	11,190,000	6,714,000		4,476,000	-		4,476,000	447,600	4,028,400	3,826,980	201,420	
21	Johnson Tew New Arboretum	2019-2021	150,000	-		150,000	75,000		75,000	7,500	67,500	64,125	3,375	
22	Billy Sherring - Class C Field Replace & Upgrade to Class A Artificial	2027	1,200,000	1,115,700		84,300	84,300		-	-	-	-	-	



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Parkland Development

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share 95%	Non-Residential Share 5%
	2019-2028												
23	Waterford Park	2019-2022	1,122,000	-		1,122,000	561,000		561,000	56,100	504,900	479,655	25,245
24	Summit Park Phase 10 Binbrook	2019	500,000	-		500,000	-		500,000	50,000	450,000	427,500	22,500
25	William Connell Toboggan Hill	2022	1,224,000	-		1,224,000	-		1,224,000	122,400	1,101,600	1,046,520	55,080
26	William Connell Play Structure, Parking Lot, Landscaping	2028	1,700,000	1,598,000		102,000	-		102,000	10,200	91,800	87,210	4,590
27	Roxborough Park	2019	765,000	-		765,000	765,000		-	-	-	-	-
28	Provision for Elfrida Park Developments (8 neighbourhood parks & 1 community park)	2023-2028	7,710,200	-		7,710,200	-		7,710,200	771,020	6,939,180	6,592,221	346,959
29	Waterdown South Skinner Park (Asset ID 1013)	2019	624,000	-		624,000	-		624,000	62,400	561,600	533,520	28,080
30	Waterdown South Parkette 2 Water Tower (Asset ID 30)	2023	174,000	-		174,000	-		174,000	17,400	156,600	148,770	7,830
31	Waterdown South Parkette 1 (Asset ID 54) Skinner Road and Burke Avenue	2021	157,000	-		157,000	-		157,000	15,700	141,300	134,235	7,065
32	Waterdown South Smoky Hollow Park (Asset ID 72)	2021	676,000	-		676,000	-		676,000	67,600	608,400	577,980	30,420
33	Waterdown South Parkette 3 (Asset ID 71)	2023	82,000	-		82,000	-		82,000	8,200	73,800	70,110	3,690
34	Bookjans West Park	2019	570,000	-		570,000	-		570,000	57,000	513,000	487,350	25,650
35	Heritage Green Community Sports Park - Future Phases	2021-2023	2,405,000	-		2,405,000	-		2,405,000	240,500	2,164,500	2,056,275	108,225
36	Brian Timmis Field Development - Stadium Precinct Park	2020-2021	8,657,000	-		8,657,000	4,946,900		3,710,100	371,010	3,339,090	3,172,136	166,955
37	Fruitland/Winona Parkland Development	2023	1,237,000	-		1,237,000	-		1,237,000	123,700	1,113,300	1,057,635	55,665
38	Red Hill Phase 3 & 4 Park	2019	650,000	-		650,000	-		650,000	65,000	585,000	555,750	29,250
39	Spencer Creek Estates	2020	340,000	-		340,000	-		340,000	34,000	306,000	290,700	15,300
40	Lewis Road Park (Winona)	2019-2021	700,000	-		700,000	-		700,000	70,000	630,000	598,500	31,500



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Parkland Development

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:		Potential D.C. Recoverable Cost	
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
	2019-2028											95%	5%
41	Confederation Park - Little Squirt Works & Area Redevelopment	2019-2020	1,530,000	-		1,530,000	765,000		765,000	76,500	688,500	654,075	34,425
42	Confederation Park - Sports Park Development - Phase 2 (Natural play area, tree planting)	2020	4,243,000	2,291,200		1,951,800	424,300		1,527,500	152,750	1,374,750	1,306,013	68,738
43	Confederation Park - Central Village - Pkg. Lot & Roadways, Phase 1	2029-2036	3,366,000	3,366,000		-	-		-	-	-	-	-
44	Confederation Park - Sports Park Development - Phase 3 (Picnic areas and shelter, parking lot lighting, tree planting, site furniture)	2020	803,000	433,600		369,400	80,300		289,100	28,910	260,190	247,181	13,010
45	Confederation Park - Central Village - Public Realm & Square	2029-2036	2,805,000	2,805,000		-	-		-	-	-	-	-
46	Confederation Park - West Entrance and Naturalizing the Go Karts Site	2021-2026	612,000	-		612,000	-		612,000	61,200	550,800	523,260	27,540
47	Confederation Park - Internal Trail Between Central Village and Beaches Grill	2029-2036	204,000	204,000		-	-		-	-	-	-	-
48	Confederation Park - Boardwalk to Beach	2021-2026	459,000	275,400		183,600	-		183,600	18,360	165,240	156,978	8,262
49	Confederation Park - General Trail Upgrades	2021-2026	204,000	61,200		142,800	102,000		40,800	4,080	36,720	34,884	1,836
50	Confederation Park - Group Picnic Area	2029-2036	561,000	280,500		280,500	280,500		-	-	-	-	-
51	Confederation Park - Central Parking Lot & Volleyball Centre Area	2029-2036	357,000	357,000		-	-		-	-	-	-	-
52	Confederation Park Soccer Field Area	2021-2026	51,000	36,700		14,300	5,100		9,200	920	8,280	7,866	414
53	Confederation Park - Wild Waterworks Property Upgrades	2021-2026	408,000	122,400		285,600	204,000		81,600	8,160	73,440	69,768	3,672
54	Confederation Park - Woodland Restoration - Phase 1	2021-2026	408,000	122,400		285,600	204,000		81,600	8,160	73,440	69,768	3,672
55	Confederation Park - Woodland Restoration - Phase 2	2029-2036	408,000	204,000		204,000	204,000		-	-	-	-	-



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Parkland Development

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:		Potential D.C. Recoverable Cost	
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
	2019-2028											95%	5%
56	Confederation Park - Van Wagners Marsh Upgrades Phase 1	2021-2026	408,000	122,400		285,600	204,000		81,600	8,160	73,440	69,768	3,672
57	Confederation Park - Van Wagners Marsh Upgrades Phase 2	2029-2036	408,000	204,000		204,000	204,000		-	-	-	-	-
58	Confederation Park - Signage - Phase 2	2021-2026	255,000	-		255,000	-		255,000	25,500	229,500	218,025	11,475
59	Confederation Park - Park Corridor Upgrades along Van Wagners Beach Road	2021-2026	612,000	-		612,000	-		612,000	61,200	550,800	523,260	27,540
60	Confederation Park - Lighting along Strip	2021-2026	561,000	-		561,000	-		561,000	56,100	504,900	479,655	25,245
61	Confederation Park - Pumping station, sanitary force-main, and electrical servicing for Lakeland area	2021-2026	918,000	-		918,000	-		918,000	91,800	826,200	784,890	41,310
62	Confederation Park - Public Art & Site Work - Centennial Pkwy Entrance	2029-2036	612,000	612,000		-	-		-	-	-	-	-
63	Confederation Park - Centennial Intersection & Entrance	2029-2036	4,998,000	4,998,000		-	-		-	-	-	-	-
64	Confederation Park - Primary infrastructure for servicing the central village and ice skating facility	2029-2036	2,193,000	2,193,000		-	-		-	-	-	-	-
65	Confederation Park - Services for Adventure Village Expansion	2029-2036	153,000	153,000		-	-		-	-	-	-	-
66	West Harbour Parkland Development - Gas Dock and Marina Services	2019	1,200,000	-		1,200,000	600,000		600,000	60,000	540,000	513,000	27,000
67	West Harbour Pier 5-7 Marina Shoreline Rehab (HWT) (Additional funds)	2019	810,000	-		810,000	202,500		607,500	60,750	546,750	519,413	27,338
68	West Harbour Pier 5-7 Boardwalk (HWT)	2019-2021	7,325,000	-		7,325,000	1,831,300		5,493,700	549,370	4,944,330	4,697,114	247,217
69	West Harbour Pier 6 Artisan Village (HWT)	2021-2021	4,170,000	-		4,170,000	2,085,000		2,085,000	208,500	1,876,500	1,782,675	93,825



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Parkland Development

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:		Potential D.C. Recoverable Cost	
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share 95%	Non-Residential Share 5%
	2019-2028												
70	West Harbour Pier 7 Commercial Village (HWT)	2019	3,050,000	-		3,050,000	1,525,000		1,525,000	152,500	1,372,500	1,303,875	68,625
71	West Harbour Pier 8 Shorewall Rehab	2019-2028	16,575,000	5,635,500		10,939,500	9,945,000		994,500	99,450	895,050	850,298	44,753
72	West Harbour Macassa Bay - Shoreline Improvements	2019-2028	5,305,000	3,381,900		1,923,100	1,326,300		596,800	59,680	537,120	510,264	26,856
73	West Harbour Macassa Bay Boardwalk and Trail	2019-2028	7,000,000	4,462,500		2,537,500	1,750,000		787,500	78,750	708,750	673,313	35,438
74	West Harbour Pier 8 Greenway	2021-2028	1,235,000	629,900		605,100	494,000		111,100	11,110	99,990	94,991	5,000
75	West Harbour Bayfront Park Upgrades Phase 3 (Entrance Fountain)	2021-2028	780,000	165,800		614,200	585,000		29,200	2,920	26,280	24,966	1,314
76	West Harbour - Bayview Park Remediation and Redevelopment	2021-2028	2,275,000	966,900		1,308,100	1,137,500		170,600	17,060	153,540	145,863	7,677
	Trails			-			-						
77	Ancaster Creek Trail	2023	920,500	-		920,500	-		920,500	92,050	828,450	787,028	41,423
78	Churchill Park Trail	2020-2022	381,000	-		381,000	-		381,000	38,100	342,900	325,755	17,145
79	Chedoke Rail Trail Extension	2029-2030	240,300	240,300		-	-		-	-	-	-	-
80	Chedoke Rail Trail, Claremont Link	2029-2030	245,200	245,200		-	-		-	-	-	-	-
81	Glenburn Court - Battlefield Creek Trail	2024	235,100	-		235,100	-		235,100	23,510	211,590	201,011	10,580
82	Sam Manson Park Trail	2020	104,200	-		104,200	-		104,200	10,420	93,780	89,091	4,689
83	Park Trail Connections - Upper James St. to Limeridge Mall Hydro Corridor Trail	2027-2031	969,600	436,300		533,300	484,800		48,500	4,850	43,650	41,468	2,183
84	First Road West Link	2021-2022	376,200	-		376,200	-		376,200	37,620	338,580	321,651	16,929
85	Heritage Green Sports Park Link	2022	200,000	-		200,000	-		200,000	20,000	180,000	171,000	9,000
86	Summerlea West Park - Fletcher Road Parkette Link	2027	687,000	618,300		68,700	-		68,700	6,870	61,830	58,739	3,092
87	Filman Road Link - North Segment	2022	275,900	-		275,900	-		275,900	27,590	248,310	235,895	12,416
88	Filman Road Link - South Segment	2022	539,700	-		539,700	-		539,700	53,970	485,730	461,444	24,287
89	Meadowlands Trail System Links	2020-2024	1,700,000	-		1,700,000	-		1,700,000	170,000	1,530,000	1,453,500	76,500
90	Tolgate Drive Link	2030	259,400	259,400		-	-		-	-	-	-	-



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
 Service: Parkland Development

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
	2019-2028											95%	5%
91	Spencer Creek, Main Street and Thorpe Street Link	2029-2031	3,731,000	3,731,000		-	-		-	-	-	-	-
92	Spencer Creek, Mercer Street and Governor's Road Lin	2029-2031	710,300	710,300		-	-		-	-	-	-	-
93	Cascade Trail Link	2029-2031	313,500	313,500		-	-		-	-	-	-	-
94	Dundas Valley Link	2029-2031	1,138,000	1,138,000		-	-		-	-	-	-	-
95	Borer's Creek Trail Link	2027	786,200	629,000		157,200	-	157,200	15,720	141,480	134,406	7,074	
96	Waterdown Pipeline Trail Link	2019-2020	422,000	-		422,000	211,000	211,000	21,100	189,900	180,405	9,495	
97	Parkside Drive - Robson Link	2019	181,500	-		181,500	-	181,500	18,150	163,350	155,183	8,168	
98	Highway 5 - Mountain Brow Road Link	2019	600,000	-		600,000	-	600,000	60,000	540,000	513,000	27,000	
99	East Mountain Trail Loop	2019-2020	854,000	-		854,000	811,300	42,700	4,270	38,430	36,509	1,922	
100	Joe Sam's New Trail Connection Through the Park	2019-2020	100,000	-		100,000	-	100,000	10,000	90,000	85,500	4,500	
101	Confederation Park - Growth Related Debt Interest (Discounted)	2019-2034	1,573,689	722,300		851,389	-	851,389		851,389	808,820	42,569	
102	Reserve Fund Adjustment		3,984,856	-		3,984,856	-	3,984,856		3,984,856	3,785,613	199,243	
	Total		160,675,345	52,555,600	-	108,119,745	39,715,700	-	68,404,045	6,356,780	62,047,265	58,944,902	3,102,363



5.2.6 Indoor Recreation Facilities

With respect to recreation facilities, there are currently many facilities provided by the City, located in Hamilton, Stoney Creek, Ancaster, Dundas, Glanbrook and Flamborough amounting to a total of 2,378,954 sq.ft. of space. The City also provides 242,417 sq.ft. of recreation related buildings within parks (washrooms, concessions, storage, facilities, etc.). The City has sustained the current level of service over the historical 10-year period (2009 to 2018), with an average of 4.40 sq.ft. per capita or an investment of \$1,975 per capita. Based on this service standard, the City would be eligible to collect \$128,521,139 from D.C.s for facility space.

The City currently has an inventory of 66 vehicles and equipment related to indoor recreation all of which have a total value of \$363,900. Over the past ten years, the average level of service was 1 item per 1,000 population or an investment of \$0.53 per capita. Based on this service standard, the City would be eligible to collect approximately \$34,474 from D.C.s for recreation vehicles and equipment (over the 10-year period). Therefore, the total D.C.-eligible amount for Indoor Recreation is \$128,555,613.

Based on the projected growth over the 10-year forecast period (2019 to 2028), the City has identified the need for new community centres, expansions to existing facilities, new washrooms, fieldhouses, and indoor recreation related equipment. The gross capital cost of these projects is \$177,020,000. The City has identified the need for growth-related financing for the Riverdale Community Hub & Domenic Agostino Riverdale Community Centre expansion and Sir Wilfred Laurier Gymnasium. The total amount (discounted) included in the D.C. calculations is \$2,924,660, which is based on a 15-year term at a rate of 5%. An attribution of \$36,025,000 was made to recognize the benefit to growth in the post period and \$6,620,000 will benefit existing developments. A deduction of \$1 million was made to recognize funding anticipated for the Ancaster Tennis Bubble. Further, a deduction in the amount of \$6,112,363 has been made to reflect the balance in the D.C. reserve fund. Therefore, the net growth capital cost after the mandatory 10% deduction of \$116,849,797 has been included in the D.C.

While indoor recreation service usage is predominately residential-based, there is some use of the facility by non-residential users. To acknowledge this use, the growth-related capital costs have been allocated 95% residential and 5% non-residential.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Indoor Recreation Facilities

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
2019-2028											95%	5%	
1	Valley Park Community Centre Expansion	2019-2021	1,800,000	-		1,800,000	180,000		1,620,000	162,000	1,458,000	1,385,100	72,900
2	Norman Pinky Lewis Recreation Centre Expansion	2023-2025	6,600,000	-		6,600,000	3,300,000		3,300,000	330,000	2,970,000	2,821,500	148,500
3	Winona Community Centre	2022-2024	26,500,000	-		26,500,000	-		26,500,000	2,650,000	23,850,000	22,657,500	1,192,500
4	Elfrida Community Centre	2027-2036	27,500,000	22,000,000		5,500,000	-		5,500,000	550,000	4,950,000	4,702,500	247,500
5	Binbrook Community Centre	2028	27,500,000	14,025,000		13,475,000	-		13,475,000	1,347,500	12,127,500	11,521,125	606,375
6	Sackville Expansion	2026	6,700,000	-		6,700,000	-		6,700,000	670,000	6,030,000	5,728,500	301,500
7	Waterdown Community Centre	2025-2027	27,000,000	-		27,000,000	-		27,000,000	2,700,000	24,300,000	23,085,000	1,215,000
8	Riverdale Community Hub & Domenic Agostino Riverdale Community Centre Expansion	2020-2022	11,000,000	-		11,000,000	-		11,000,000	1,100,000	9,900,000	9,405,000	495,000
9	Riverdale Community Hub & Domenic Agostino Riverdale Community Centre Expansion - Growth Related Debt Interest (Discounted)	2023-2038	1,436,413	-		1,436,413	-		1,436,413		1,436,413	1,364,592	71,821
10	William Connell Park Washroom and changeroom Facilities (under construction)	2019	3,700,000	-		3,700,000	-		3,700,000	370,000	3,330,000	3,163,500	166,500
11	Sir Wilfrid Laurier Gymnasium	2020-2021	8,650,000	-		8,650,000	-		8,650,000	865,000	7,785,000	7,395,750	389,250
12	Sir Wilfrid Laurier Gymnasium - Growth Related Debt Interest (Discounted)	2022-2037	1,488,247	-		1,488,247	-		1,488,247		1,488,247	1,413,835	74,412
13	Mt. Hope new Rec Centre	2025-2028	4,850,000	-		4,850,000	-		4,850,000	485,000	4,365,000	4,146,750	218,250
14	William Connell Ward 8 Ice Loop	2028	4,360,000	-		4,360,000	-		4,360,000	436,000	3,924,000	3,727,800	196,200
15	Ancaster Tennis Bubble	2019-2020	1,000,000	-		1,000,000	-	1,000,000	-	-	-	-	-
16	Parkdale Outdoor Pool Washroom & Changeroom	2019-2021	3,000,000	-		3,000,000	2,640,000		360,000	36,000	324,000	307,800	16,200
17	Dundas Valley Washroom	2019	565,000	-		565,000	-		565,000	56,500	508,500	483,075	25,425



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Indoor Recreation Facilities

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
2019-2028											95%	5%	
18	Durand Park Washroom Building	2019	325,000	-		325,000	-		325,000	32,500	292,500	277,875	14,625
19	Stadium Precinct Park Fieldhouses & Washrooms	2020	5,200,000	-		5,200,000	-		5,200,000	520,000	4,680,000	4,446,000	234,000
20	Confederation Park - Sports Park Buildings Phase 1: Gatehouse	2019	700,000	-		700,000	-		700,000	70,000	630,000	598,500	31,500
21	Confederation Park - Sports Park Buildings Phase 2: Fieldhouse and Staff Works Yard	2020-2024	5,500,000	-		5,500,000	-		5,500,000	550,000	4,950,000	4,702,500	247,500
22	Confederation Park - Ice skating rink/loop, field house & zamboni	2027-2036	3,570,000	-		3,570,000	-		3,570,000	357,000	3,213,000	3,052,350	160,650
23	West Harbour Washroom/Concession	2021-2022	1,000,000	-		1,000,000	500,000		500,000	50,000	450,000	427,500	22,500
24	Reserve Fund Adjustment						6,112,363		(6,112,363)		(6,112,363)	(5,806,745)	(305,618)
	Total		179,944,660	36,025,000	-	143,919,660	12,732,363	1,000,000	130,187,297	13,337,500	116,849,797	111,007,307	5,842,490



5.2.7 Library Services

The City currently provides twenty-two library facilities which total 396,038 sq.ft. in library space. Over the past ten years, the average level of service was 0.73 sq.ft. of space per capita or an investment of \$389 per capita. In addition, the Library has two bookmobiles, one truck, one Genie Boom, 1 Skyjack, and three additional vans used for library purposes. Based on the service standard over the past ten years, the City would be eligible to collect a total of \$25,457,053 from D.C.s for library services.

Library expansions, new and expanded furnishings, an additional bookmobile and new library facilities have been identified for inclusion in the D.C. for library facilities due to growth. The gross cost of the projects has been included at a total of \$68,965,000, with an additional \$189,220 to reflect the reserve fund deficit. In addition, the recovery of the South Mountain Complex and Binbrook expansion debentures (principal and discounted interest) have been included at an amount of \$3,483,344. The City has also identified the need for growth-related financing for the Valley Park expansion, which is anticipated to be \$1,215,970, assumed at a 15-year term and an interest rate of 5%. An attribution to recognize the population's benefit of these services beyond the 2019 to 2028 period has been identified in the amount of \$18,723,300. Further reductions of \$26,925,400 have been applied with respect to existing benefit and \$1,250,000 due to Valley Park Community Donations which are provided towards the renovations portion (benefit to existing) of the Valley Park Library expansion. The net growth capital cost after the mandatory 10% deduction is \$24,648,403.

The City has an inventory of library collection items (1,100,749 items currently). These collection items include various materials including books, periodicals, audio visual materials, electronic resources as well as subscriptions, all of which have a total value of \$38.55 million. Over the past ten years, the average level of service was 2.01 collection items per capita or an investment of \$71 per capita. Based on this service standard, the City would be eligible to collect approximately \$4,603,305 from D.C.s for library collection items (over the 10-year period).

Based on the projected growth over the 10-year forecast period (2019 to 2028), expansion to the collection has been identified for future capital. The gross cost of these materials has been included at a total of \$4,816,650. A deduction of \$1,560,000 has been made to reflect the benefit to growth beyond the 2019 to 2028 period. The net



growth-related capital cost after the 10% mandatory deduction to be included in the D.C. is \$2,930,985.

While library usage is predominately residential based, there is some use of the facilities by non-residential users, for the purpose of research. To acknowledge this use, the growth-related capital costs have been allocated 95% residential and 5% non-residential.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Library Facilities & Vehicles

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
	2019-2028										95%	5%	
1	South Mountain Complex - Turner Park - Debt Principal (Discounted)	2019-2023	1,129,104	-		1,129,104	-		1,129,104		1,129,104	1,072,648	56,455
2	South Mountain Complex - Turner Park - Debt Interest (Discounted)	2019-2023	94,210	-		94,210	-		94,210		94,210	89,500	4,711
3	Binbrook Expansion Growth Related Debt Principal	2020-2035	2,016,500	-		2,016,500	998,000		1,018,500		1,018,500	967,575	50,925
4	Binbrook Expansion Growth Related Debt Interest (Discounted)	2020-2035	243,530	-		243,530	-		243,530		243,530	231,353	12,176
5	Valley Park - Expansion & Renovation - Construction*	2020	6,452,000	-		6,452,000	262,000	1,250,000	4,940,000	494,000	4,446,000	4,223,700	222,300
6	Valley Park - Furnishings for Expansion	2020	1,347,000	-		1,347,000	-		1,347,000	134,700	1,212,300	1,151,685	60,615
7	Valley Park - Expansion - Growth Related Debt Interest (Discounted)	2020-2035	1,215,970	-		1,215,970	-		1,215,970		1,215,970	1,155,171	60,798
8	Winona/Stoney Creek - New - Furnishings for New Facility	2024-2025	1,000,000	-		1,000,000	-		1,000,000	100,000	900,000	855,000	45,000
9	Winona/Stoney Creek - New - Construction (Estimated 9,000 sq. ft.)	2024-2025	5,000,000	-		5,000,000	-		5,000,000	500,000	4,500,000	4,275,000	225,000
10	Mount Hope - Replacement & Expansion - Construction (Estimated 5,000 sq. ft.)	2022-2023	3,500,000	-		3,500,000	1,841,400		1,658,600	165,860	1,492,740	1,418,103	74,637
11	Mount Hope - New - Furnishings for Expansion	2022-2023	500,000	-		500,000	-		500,000	50,000	450,000	427,500	22,500

*Valley Park Community Donations is part of Benefit to Existing Development



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Library Facilities & Vehicles

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
	2019-2028										95%	5%	
12	Ancaster - Expansion - Construction (estimated 20,000 sq. ft.)	2024	8,500,000	-		8,500,000	5,590,000		2,910,000	291,000	2,619,000	2,488,050	130,950
13	Ancaster Furnishings for Expansion	2024	1,500,000	-		1,500,000	-		1,500,000	150,000	1,350,000	1,282,500	67,500
14	Bookmobile - Electronic	2020	550,000	-		550,000	-		550,000	55,000	495,000	470,250	24,750
15	Greenville - New Library	2019	2,434,000	-		2,434,000	1,789,700		644,300	64,430	579,870	550,877	28,994
16	Greenville - Furnishings	2019	441,000	-		441,000	-		441,000	44,100	396,900	377,055	19,845
17	Carlisle - Replacement/Renovation	2020	2,500,000	-		2,500,000	2,500,000		-	-	-	-	-
18	Lower City New/Expanded Library (Estimated 8,000 sq. ft.)	2025	5,241,000	4,297,600		943,400	-		943,400	94,340	849,060	806,607	42,453
19	Elfrida - New Branch (Estimated 12,000 sq. ft.)	2030	7,000,000	7,000,000		-	-		-	-	-	-	-
20	Central Library - Phase IV - Local History & Archives - Renovations	2022	1,500,000	-		1,500,000	1,500,000		-	-	-	-	-
21	New Permanent Location For Red Hill (Estimated 15,000 sq. ft.)	2025	8,000,000	1,417,000		6,583,000	6,272,000		311,000	31,100	279,900	265,905	13,995
22	Saltfleet Move to Stoney Creek (Estimated 15,000 sq. ft.)	2025	8,000,000	1,498,700		6,501,300	6,172,300		329,000	32,900	296,100	281,295	14,805
23	New North End Branch (Estimated 8,000 sq. ft.)	2025	5,500,000	4,510,000		990,000	-		990,000	99,000	891,000	846,450	44,550
24	Reserve Fund Adjustment		189,220	-		189,220	-		189,220		189,220	179,759	9,461
	Total		73,853,533	18,723,300	-	55,130,233	26,925,400	1,250,000	26,954,833	2,306,430	24,648,403	23,415,983	1,232,420

*Valley Park Community Donations is part of Benefit to Existing Development



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Library Collection Materials

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
2019-2028											95%	5%	
1	Valley Park - Expansion - Materials	2020	1,272,300	-		1,272,300	-		1,272,300	127,230	1,145,070	1,087,817	57,254
2	Winona/Stoney Creek - New - Materials	2024-2025	405,200	-		405,200	-		405,200	40,520	364,680	346,446	18,234
3	Mount Hope Materials	2022-2023	396,400	-		396,400	-		396,400	39,640	356,760	338,922	17,838
4	Ancaster Materials	2024	593,600	-		593,600	-		593,600	59,360	534,240	507,528	26,712
5	Greensville Materials	2019	121,700	-		121,700	-		121,700	12,170	109,530	104,054	5,477
6	Carlisle Materials	2020	125,000	-		125,000	-		125,000	12,500	112,500	106,875	5,625
7	Expanded Lower City Branch Materials	2025	262,050	214,900		47,150	-		47,150	4,715	42,435	40,313	2,122
8	Red Hill Permanent Location Materials	2025	620,000	508,400		111,600	-		111,600	11,160	100,440	95,418	5,022
9	Saltfleet - Expansion - Materials	2025	620,400	508,700		111,700	-		111,700	11,170	100,530	95,504	5,027
10	New North End Branch Materials	2025	400,000	328,000		72,000	-		72,000	7,200	64,800	61,560	3,240
	Total		4,816,650	1,560,000	-	3,256,650	-	-	3,256,650	325,665	2,930,985	2,784,436	146,549



5.2.8 Administrative Studies

The D.C.A. permits the inclusion of studies undertaken to facilitate the completion of the City's capital works program. The City has made provisions for the inclusion of new studies undertaken to facilitate this D.C. process, as well as other studies which benefit growth (in whole or in part). With the introduction of Bill 108, it proposes that a number of services may become ineligible for inclusion in the D.C., therefore, this category is further broken down into two categories and the list of studies included for each is as follows:

Engineering Studies:

- Water and wastewater studies;
- Transit studies;
- Future transit hubs and stations studies;
- Operations facilities studies;
- Police studies;
- Fire studies;
- Paramedics studies; and
- Development Charges studies.

The cost of these studies, including the reserve fund deficit of \$1,299,988, is \$9,508,288. Also included is the recovery of outstanding debt (principal and discounted interest) related to previous growth-related studies at an amount of \$235,434. A deduction for benefit to existing development of \$2,224,300 has been made. Further, a deduction in the amount of \$631,890 has been made in order to account for the ineligible landfill related portion of waste diversion studies. Under the current legislation, the D.C. studies and waste diversion studies require a 10% mandatory deduction, thus the net growth-related capital cost is \$6,592,701. This amount has been included in the D.C.

Community Based Studies:

- Community service studies;
- P.O.A. studies;
- Parks and recreation studies;



- Library studies;
- Official plans;
- Secondary plans; and
- Provision for other unidentified studies.

The gross cost of these studies included in the D.C. calculation is \$18,800,200. A deduction of \$4,199,300 has been made to account for the benefit to existing growth. The net growth-related capital cost, after the mandatory 10% deduction is \$13,140,810 and is being included in the D.C.

These costs have been allocated 63% residential and 37% non-residential based on the incremental growth in population to employment for the 10-year forecast period.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Administrative Studies - Engineering Services Studies

Prj.No	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions*	Net Capital Cost	Less:		Subtotal	Less:		Potential D.C. Recoverable Cost	
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
	2019-2028											63%	37%
1	Development Charge Study	2019	730,800	-		730,800	-		730,800	73,080	657,720	414,364	243,356
2	Development Charge Study (to 2041)	2021	730,800	-		730,800	-		730,800	73,080	657,720	414,364	243,356
3	Development Charge Study	2026	730,800	-		730,800	-		730,800	73,080	657,720	414,364	243,356
	Water & Wastewater Studies:												
4	Integrated Water and Wastewater Master Plan	2019-2028	1,500,000	-		1,500,000	-		1,500,000		1,500,000	945,000	555,000
5	Water and Sanitary Sewer Models	2019-2028	130,000	-		130,000	65,000		65,000		65,000	40,950	24,050
6	Centennial Secondary Plan - Servicing Study	2019	200,000	-		200,000	-		200,000		200,000	126,000	74,000
	Transit Studies:												
7	Hamilton West Interregional Transit Terminal Location Study	2019-2022	84,300	-		84,300	75,900		8,400		8,400	5,292	3,108
8	Rapid Ready & 10 Year Strategy Review	2019-2028	150,000	-		150,000	75,000		75,000		75,000	47,250	27,750
9	James Mountain Road - Transit only Roadway Feasibility Study	2020-2023	112,400	-		112,400	56,200		56,200		56,200	35,406	20,794
	Future Transit Hubs and Stations:												
10	SCUBE Transit Terminal Study	2019	242,400	-		242,400	-		242,400		242,400	152,712	89,688
	Operations Facilities:												
11	Yards Need Study	2025-2028	168,600	-		168,600	-		168,600		168,600	106,218	62,382
	Police:												
12	Police - Space Needs Study (GRIDS II)	2019	56,200	-		56,200	-		56,200		56,200	35,406	20,794
13	Police Business Plan	2019	32,000	-		32,000	24,000		8,000		8,000	5,040	2,960
14	Police Business Plan	2022	32,000	-		32,000	24,000		8,000		8,000	5,040	2,960
15	Police Business Plan	2025	32,000	-		32,000	24,000		8,000		8,000	5,040	2,960
16	Police Business Plan	2028	32,000	-		32,000	24,000		8,000		8,000	5,040	2,960
	Waste Diversion:												
17	Waste Management Research & Development Program	2019-2023	1,229,100	-	245,820	983,280	882,500		100,780	10,078	90,702	57,142	33,560
18	Waste Management Research & Development Program	2024-2028	1,229,100	-	245,820	983,280	882,500		100,780	10,078	90,702	57,142	33,560
19	Solid Waste Management Master Plan Approvals	2019-2021	561,000	-	140,250	420,750	63,100		357,650	35,765	321,885	202,788	119,097
	Paramedics:												
20	Paramedics - Space Needs Study	2023	112,400	-		112,400	28,100		84,300	8,430	75,870	47,798	28,072
21	Paramedics - Space Needs Study	2028	112,400	-		112,400	-		112,400	11,240	101,160	63,731	37,429
	Other:												
22	Outstanding Debt Principal	2019-2023	198,550	-		198,550	-		198,550		198,550	125,086	73,463
23	Outstanding Debt Interest (Discounted)	2019-2023	36,884	-		36,884	-		36,884		36,884	23,237	13,647
24	Reserve Fund Adjustment		1,299,988	-		1,299,988	-		1,299,988		1,299,988	818,993	480,996
	Total		9,743,722	-	631,890	9,111,832	2,224,300	-	6,887,532	294,831	6,592,701	4,153,402	2,439,299

*Other deductions are portions attributable to landfill



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Administrative Studies - Community Based Studies

Prj.No	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:		Potential D.C. Recoverable Cost	
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
	2019-2028											63%	37%
1	Official Plan (Urban and Rural) Review	2019-2021	2,000,000	-		2,000,000	1,000,000		1,000,000	100,000	900,000	567,000	333,000
2	Comprehensive Zoning By-Law 05-200 Update	2019-2021	57,000	-		57,000	28,500		28,500	2,850	25,650	16,160	9,491
3	GRIDS/MCR Update	2019-2020	2,195,000	-		2,195,000	-		2,195,000	219,500	1,975,500	1,244,565	730,935
4	Residential Intensification Strategy	2019	157,000	-		157,000	-		157,000	15,700	141,300	89,019	52,281
5	Site Plan Guidelines Update/Consolidation	2019-2022	200,000	-		200,000	-		200,000	20,000	180,000	113,400	66,600
6	Digital Planning Application Software/Hardware	2019-2022	150,000	-		150,000	-		150,000	15,000	135,000	85,050	49,950
7	Natural Areas Inventory Study	2019-2028	300,000	-		300,000	30,000		270,000	27,000	243,000	153,090	89,910
8	Woodland Protection Strategy	2019	325,000	-		325,000	32,500		292,500	29,250	263,250	165,848	97,403
9	3D Model Development for Development Review Process	2019	120,000	-		120,000	-		120,000	12,000	108,000	68,040	39,960
10	Planning and Zoning Growth Area	2019-2022	1,215,000	-		1,215,000	-		1,215,000	121,500	1,093,500	688,905	404,595
	Secondary Plans and Strategies - Nodes and Corridors:												
11	Sub-Regional Nodes												
12	- Eastgate/Centennial Node	2019-2020	320,400	-		320,400	192,200		128,200	12,820	115,380	72,689	42,691
13	- Limeridge Node	2019-2020	320,400	-		320,400	192,200		128,200	12,820	115,380	72,689	42,691
14	Corridors:												
15	- Main/King Corridor (B-Line)	2019-2022	304,700	-		304,700	182,800		121,900	12,190	109,710	69,117	40,593
16	- James/Upper James Corridor (A-Line)	2019-2022	320,400	-		320,400	192,200		128,200	12,820	115,380	72,689	42,691
17	Community Nodes:												
18	- Waterdown Node	2019-2021	282,200	-		282,200	211,700		70,500	7,050	63,450	39,974	23,477
19	- Centre Mall Node	2021-2022	282,200	-		282,200	197,500		84,700	8,470	76,230	48,025	28,205
20	- Dundas Node	2019-2020	282,200	-		282,200	169,300		112,900	11,290	101,610	64,014	37,596
21	- Stoney Creek Node	2020-2021	304,700	-		304,700	182,800		121,900	12,190	109,710	69,117	40,593
22	Community Planning Studies - Durand Neighbourhood	2019-2021	150,000	-		150,000	37,500		112,500	11,250	101,250	63,788	37,463
22	East of Downtown Secondary Plan	2024-2025	320,400	-		320,400	-		320,400	32,040	288,360	181,667	106,693
23	Elfrida Urban Boundary Expansion & Secondary Plan	2019-2021	1,577,500	-		1,577,500	-		1,577,500	157,750	1,419,750	894,443	525,308
24	City-wide Employment Survey	2019-2028	900,000	-		900,000	-		900,000	90,000	810,000	510,300	299,700
25	Community Energy Plan	2019-2021	100,000	-		100,000	50,000		50,000	5,000	45,000	28,350	16,650
	Community Services:												
26	Long Term Care Services Needs Study	2027	242,800	-		242,800	121,400		121,400	12,140	109,260	68,834	40,426
27	Child Care Service Plan	2020-2025	84,300	-		84,300	42,200		42,100	4,210	37,890	23,871	14,019
28	Human Services Study	2020-2025	224,900	-		224,900	112,500		112,400	11,240	101,160	63,731	37,429
29	Human Services Plan - Housing Affordability Study	2020-2025	45,000	-		45,000	11,300		33,700	3,370	30,330	19,108	11,222
30	Affordable Housing - Residential Pre-zoning & Underutilized Site Mapping	2020-2025	89,900	-		89,900	22,500		67,400	6,740	60,660	38,216	22,444
31	City Housing Hamilton Energy Investment Study	2020-2025	393,500	-		393,500	295,100		98,400	9,840	88,560	55,793	32,767
32	Ontario Works Review	2020-2025	112,400	-		112,400	84,300		28,100	2,810	25,290	15,933	9,357
33	Human Services Market Planning Study	2020-2025	224,900	-		224,900	56,200		168,700	16,870	151,830	95,653	56,177
34	Neighbourhood Community Needs Study	2020-2025	67,500	-		67,500	33,800		33,700	3,370	30,330	19,108	11,222



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
 Service: Administrative Studies - Community Based Studies

Prj.No	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
2019-2028											63%	37%	
	Parking:			-									
22	Parking Master Plan	2019	200,000	-		200,000	50,000		150,000	15,000	135,000	85,050	49,950
	Library Studies:			-									
23	Library Master Plan	2022	25,000	-		25,000	6,300		18,700	1,870	16,830	10,603	6,227
24	Service Model Master Plan	2020	25,000	-		25,000	6,300		18,700	1,870	16,830	10,603	6,227
	Parks:			-									
25	Trails Masterplan Update	2021	204,000	-		204,000	51,000		153,000	15,300	137,700	86,751	50,949
26	Parks Master Plans	2019-2023	1,214,200	-		1,214,200	303,600		910,600	91,060	819,540	516,310	303,230
27	Recreation Studies	2019-2023	607,100	-		607,100	151,800		455,300	45,530	409,770	258,155	151,615
28	Recreation Studies	2024-2028	607,100	-		607,100	151,800		455,300	45,530	409,770	258,155	151,615
	Other:			-									
29	Provision for Growth Component of Unidentified Studies	2019-2023	2,248,500	-		2,248,500	-		2,248,500	224,850	2,023,650	1,274,900	748,751
	Total		18,800,200	-	-	18,800,200	4,199,300	-	14,600,900	1,460,090	13,140,810	8,278,710	4,862,100



5.2.9 Long Term Care

With respect to Long Term Care homes, there are currently two facilities provided by the City: Wentworth Lodge and Macassa Lodge. In total the City has 340,760 sq.ft. of building space. The facilities provide residents with space equating to 0.64 sq.ft. or \$305 per capita. This level of investment provides the City with \$19,858,544 for eligible future D.C. funding over the 10-year forecast period.

Currently there are also plans to renovate and/or replace Macassa A Wing/S Wing at an additional estimated cost of \$22,143,000. At this time, there has been no growth-related expansion needs identified as part of the project therefore, the full cost of the project has been deducted as benefit to existing.

The City has identified an expansion to the D Wing at Macassa Lodge as a growth project. The total cost of this project is \$23,700,000, with a deduction of \$12,280,000 applied to recognize the benefit to existing development. A further deduction of \$5,280,000 was applied to this project to reflect a grant from the Ministry of Health and Long-Term Care. A deduction in the amount of \$2,052,370 to recognize the reserve fund balance was also applied. After the 10% mandatory deduction, \$3,473,630 has been included in the D.C. calculation.

An allocation of 90% residential and 10% non-residential has been attributed to services related to Long Term Care Homes.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
 Space: Long Term Care Facilities

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share 90%	Non-Residential Share 10%
	2019-2028												
1	Macassa-D Wing Expansion (52,500 sq ft)	2021-2026	23,700,000	-		23,700,000	12,280,000	5,280,000	6,140,000	614,000	5,526,000	4,973,400	552,600
2	Macassa-A Wing / S Wing Renovation/Replacement (69,136 sq ft)	2025-2030	22,143,000	-		22,143,000	22,143,000		-	-	-	-	-
3	Reserve Fund Adjustment		-	-		-	2,052,370		(2,052,370)		(2,052,370)	(1,847,133)	(205,237)
	Total		45,843,000	-	-	45,843,000	36,475,370	5,280,000	4,087,630	614,000	3,473,630	3,126,267	347,363



5.2.10 Health

Health services are provided from six facilities located throughout the City with a total of 97,411 sq.ft. of facility space. These facilities provide for 0.20 sq.ft./capita, equating to \$77 per capita. This level of service provides the City with \$4,994,232 for eligible future D.C. funding over the 10-year forecast period.

In addition to the facilities, the City also has one health bus which is used in the provision of health services throughout the City. Based on the 10-year average level of service, the City has \$48,134 eligible for future D.C. funding over the 10-year forecast period.

The total D.C.-eligible amount for Health Services is \$5,042,366 for the 2019 to 2028 period.

The City has identified the need for additional space over the forecast period, however a specific location has not yet been identified, therefore a provision totalling \$583,000 has been included. A deduction of \$500,402 has been made to reflect the balance of the D.C. reserve fund. After the mandatory 10% deduction, \$24,298 has been included in D.C. calculation.

While health services are predominately residential-based, there is some use of the service by non-residential users. To acknowledge this use, the growth-related capital costs have been allocated 90% residential and 10% non-residential.



5.2.11 Social and Child Services

Social and Child Care Services are currently provided in six leased spaces totalling 104,026 sq.ft. and two owned facilities totalling 40,982 sq.ft. of space. These facilities provide for 0.26 sq.ft. per capita, equating to \$95 per capita. This level of service provides the City with \$6,155,303 for eligible future D.C. funding over the 10-year forecast period.

The City has identified a new project for child care at the Riverdale Community Hub, but as this project will be 100% funded from grants, it is excluded from the D.C. calculations. The City has identified no other growth-related projects for this service. The D.C. recoverable amount of \$415,379 is for the recovery of the reserve fund deficit as a result of new social and child services space built in 2011.

While social and child care services are predominately residential-based, there is some use of the service by non-residential users. To acknowledge this use, the growth-related capital costs have been allocated 90% residential and 10% non-residential.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton

Service: Social and Child Services Facilities

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
	2019-2028											90%	10%
1	Riverdale Community Hub (Child Care Portion)	2019-2022	2,000,000	-		2,000,000	-	2,000,000	-	-	-	-	-
2	Reserve Fund Adjustment		415,379	-		415,379	-		415,379		415,379	373,841	41,538
	Total		2,415,379	-	-	2,415,379	-	2,000,000	415,379	-	415,379	373,841	41,538



5.2.12 Paramedics

The City currently provides 19 paramedics facilities and shares in a training facility with fire and police services. These facilities provide a total of 69,531 sq.ft. of space. Over the past ten years, the average level of service was 0.12 sq.ft. of space per capita or an investment of \$39 per capita. Based on this service standard, the City would be eligible to collect \$2,505,572 from D.C.s for paramedic facility space (over the 10-year period).

The City of Hamilton has identified the need for additional paramedic facility space over the ten-year forecast period (2019 to 2028) resulting in costs of \$4,400,000 with a post period benefit of \$3,040,000. In addition, the capital costs include recovery of outstanding debt and discounted interest related to the shared training facility in the amount of \$568,349. A reserve adjustment of \$401,884 has been included based on previous projects related to growth resulting in a D.C. recoverable amount of \$2,194,233 after the 10% mandatory deduction.

With respect to vehicles and equipment, the City has 41 ambulances, 3 transport vans and 306 items of equipment (defibrillators, stretchers, gear, paramedic gear, etc.). Over the past ten years, the average level of service was 0.5 items per 1,000 population or an investment of \$28 per capita. Based on this service standard, the City would be eligible to collect approximately \$1,795,270 from D.C.s for ambulance vehicles and equipment (over the 10-year period).

For additional ambulances and equipment on ambulances, \$3,482,500 has been identified for inclusion in the D.C. calculation based on the 10-year growth projections. A deduction of \$1,687,900 has been made to recognize post period benefit, resulting in a D.C. recoverable amount of \$1,615,140 after the mandatory 10% deduction.

While paramedics services are predominately residential-based, there is some use of the service by non-residential users. To acknowledge this use, the growth-related capital costs have been allocated 90% residential and 10% non-residential.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton

Service: Paramedics Vehicles & Equipment

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
											90%	10%	
	2019-2028												
1	Additional Ambulances (5)	2019-2023	1,340,000	-		1,340,000	-		1,340,000	134,000	1,206,000	1,085,400	120,600
2	Additional Ambulances (5)	2024-2028	1,340,000	1,279,700		60,300	-		60,300	6,030	54,270	48,843	5,427
3	Additional Defibrillators (6)	2019-2023	180,600	-		180,600	-		180,600	18,060	162,540	146,286	16,254
4	Additional Defibrillators (7)	2024-2028	210,700	201,200		9,500	-		9,500	950	8,550	7,695	855
5	Additional Stretchers (6)	2019-2023	134,400	-		134,400	-		134,400	13,440	120,960	108,864	12,096
6	Additional Stretchers (7)	2024-2028	156,800	149,700		7,100	-		7,100	710	6,390	5,751	639
7	Additional Gear (5)	2019-2023	60,000	-		60,000	-		60,000	6,000	54,000	48,600	5,400
8	Additional Gear (5)	2024-2028	60,000	57,300		2,700	-		2,700	270	2,430	2,187	243
	Total		3,482,500	1,687,900	-	1,794,600	-	-	1,794,600	179,460	1,615,140	1,453,626	161,514



5.2.13 Social Housing

Social Housing currently provides 197 locations which include over 7,000 residential units throughout the City for residents in need. In total these units provide approximately 5.70 million sq.ft. of facility space. These facilities provide for 10.71 sq.ft./capita or \$1,605 per capita. This level of service provides the City with \$104,387,772 million for eligible future D.C. funding over the 10-year forecast period.

The City has a current wait list for social housing units of 6,500 people. It is assumed that half of the needs will be accommodated through Federal and Provincial funding programs, leaving a need for the City to provide social housing with a gross cost of \$510,508,000. The City has identified seven specific projects over the forecast period, with the remaining need provided as a general provision over the ten-year period. It has been recognized that \$376,646,500 of the cost is a benefit to existing due to the current waiting list and an additional \$49,281,100 to recognize the costs for replacement of existing units. This results in a total deduction of \$425,927,600 to recognize benefit to existing. Further it is recognized that a portion of the units will benefit growth in the post 10-year forecast period therefore, a deduction of \$52,720,000 has been made. A deduction of \$7,125,251 has also been made to reflect the balance in the reserve fund. The net amount for inclusion in the D.C., after the mandatory 10% deduction, is \$16,239,109.

Social Housing is a residential-based service and therefore the growth-related capital costs have been allocated 100% residential and 0% non-residential.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Social Housing

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share	Non-Residential Share
2019-2028											100%	0%	
1	Provision for Additional Social Housing	2019-2023	193,750,000	13,562,500		180,187,500	160,270,000		19,917,500	1,991,750	17,925,750	17,925,750	-
2	Provision for Additional Social Housing	2024-2028	227,660,000	39,157,500		188,502,500	188,320,400		182,100	18,210	163,890	163,890	-
3	Bay-Cannon (Replace 45 units and expand by 10 units)	2019-2023	16,600,000	-		16,600,000	16,078,400		521,600	52,160	469,440	469,440	-
4	55 Queenston Phase 1 (41 Units Replacement of Units from other locations)	2019-2023	10,529,000	-		10,529,000	10,529,000		-	-	-	-	-
5	Wellington-King William (Replace 14 units and expand by 6 units)	2019-2023	5,743,000	-		5,743,000	5,445,300		297,700	29,770	267,930	267,930	-
6	Macassa (Replace 45 units and expand by 20 units)	2019-2023	15,554,000	-		15,554,000	14,727,100		826,900	82,690	744,210	744,210	-
7	MacNab (Rehab 146 units)	2019-2023	16,282,000	-		16,282,000	10,382,000	5,900,000	-	-	-	-	-
8	55 Queenston Phase 2 (52 Additional Units)	2019-2023	13,350,000	-		13,350,000	11,043,100		2,306,900	230,690	2,076,210	2,076,210	-
9	Riverdale Community Hub (44 units)	2019-2023	11,040,000	-		11,040,000	9,132,300		1,907,700	190,770	1,716,930	1,716,930	-
	Reserve Fund Adjustment						7,125,251		(7,125,251)		(7,125,251)	(7,125,251)	-
	Total		510,508,000	52,720,000	-	457,788,000	433,052,851	5,900,000	18,835,149	2,596,040	16,239,109	16,239,109	-



5.2.14 Waste Diversion

With respect to Waste Diversion, the City provides a total of 358,403 sq.ft. of eligible waste diversion space, with the ineligible space related to landfill and incineration being excluded. Over the past ten years, the average level of service was 0.69 sq.ft. of space per capita or an investment of \$271 per capita. Based on the service standard over the past ten years, the City would be eligible to collect a total of \$17,633,971.

The City has an eligible waste diversion inventory of vehicles and equipment (which excludes any items that are related to landfill) of 208 items. These items include forklifts, transfer trucks, freightliners, and other various equipment, all of which have a total value of \$41,594,019. Over the past ten years, the average level of service was 0.4 items per 1,000 capita or an investment of \$79 per capita. Based on this service standard, the City would be eligible to collect approximately \$5,164,002 from D.C.s for waste diversion equipment (over the 10-year period).

In addition to the facility and equipment, the City has other eligible waste diversion items such as carts, boxes, barrels, etc., totalling 1,016,743 items. Over the past ten years, the average level of service was 1.34 items per capita or an investment of \$20 per capita. Based on this service standard, the City would be eligible to collect approximately \$1,312,628 from D.C.s for other waste diversion equipment (over the 10-year period).

Therefore, the total D.C.-eligible amount for waste diversion is \$24,110,601.

Based on the projected growth over the 10-year forecast period (2019 to 2028), the City has identified the need for additional waste diversion facility space, additional carts, packers, bins and additional vehicles, with a gross cost of \$72,993,900. Of this amount, a deduction of \$17,844,390 has been made to account for the portion of the works that are ineligible due to being related to landfill and/or incineration. Further deductions for post period of \$6,372,000 and existing benefit of \$26,722,600 have been applied. After the mandatory 10% deduction, the net growth-related capital cost to be included in the D.C. is \$19,849,419.

The growth costs have been allocated 83% to residential development and 17% to non-residential development based on the allocation of residential versus non-residential properties collected from.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Waste Diversion Services

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Other Deductions*	Gross Capital Cost (2019\$) Waste Diversion	Post Period Benefit	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
								Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable		Other (e.g. 10% Statutory Deduction)	Total	Residential Share 83%	Non-Residential Share 17%
2019-2028														
1	CCF Air Handling Upgrades (to provide for capital improvements to the CCF to mitigate the impacts of the Ontario Compost Quality Standards)	2019	1,734,000	-	1,734,000	89,000	1,645,000	1,556,400		88,600	8,860	79,740	66,184	13,556
2	Diversion Container Replacement and Expansion Program	2019-2023	4,908,750	-	4,908,750	-	4,908,750	4,405,900		502,850	50,285	452,565	375,629	76,936
3	Diversion Container Replacement and Expansion Program	2024-2028	4,908,750	-	4,908,750	-	4,908,750	4,405,900		502,850	50,285	452,565	375,629	76,936
4	Public Space & Special Event Containers Replacement & Expansion	2019-2023	1,275,000	1,020,000	255,000	-	255,000	127,500		127,500	12,750	114,750	95,243	19,508
5	Public Space & Special Event Containers Replacement & Expansion	2024-2028	1,275,000	1,020,000	255,000	-	255,000	127,500		127,500	12,750	114,750	95,243	19,508
6	Glanbrook Landfill Capital Improvement Program	2019-2023	1,863,550	1,677,195	186,355	-	186,355	18,600		167,755	16,776	150,980	125,313	25,667
7	Glanbrook Landfill Capital Improvement Program	2024-2028	1,863,550	1,677,195	186,355	-	186,355	18,600		167,755	16,776	150,980	125,313	25,667
8	Maintenance & Capital Improvements to the Resource Recovery Centre (RRC) Program	2019-2023	1,537,150	-	1,537,150	-	1,537,150	999,100		538,050	53,805	484,245	401,923	82,322
9	Maintenance & Capital Improvements to the Resource Recovery Centre (RRC) Program	2024-2028	1,537,150	-	1,537,150	-	1,537,150	999,100		538,050	53,805	484,245	401,923	82,322
8	Leaf & Yard Waste Composting Facility Relocation	2019-2020	3,978,000	-	3,978,000	-	3,978,000	1,989,000		1,989,000	198,900	1,790,100	1,485,783	304,317
9	Transfer Station/Community Recycling Centre Expansion & Capital Replacement	2019-2023	10,375,000	6,225,000	4,150,000	-	4,150,000	-		4,150,000	415,000	3,735,000	3,100,050	634,950
10	Transfer Station/Community Recycling Centre Expansion & Capital Replacement	2024-2028	10,375,000	6,225,000	4,150,000	3,320,000	830,000	-		830,000	83,000	747,000	620,010	126,990
11	Material Recycling Facility Lifecycle Replacement & Upgrades	2020-2022	24,150,000	-	24,150,000	2,963,000	21,187,000	12,075,000		9,112,000	911,200	8,200,800	6,806,664	1,394,136
12	Provision for additional trucks (2.1 per 4,000 additional low and medium density units)	2019-2023	1,606,500	-	1,606,500	-	1,606,500	-		1,606,500	160,650	1,445,850	1,200,056	245,795
13	Provision for additional trucks (2.1 per 4,000 additional low and medium density units)	2024-2028	1,606,500	-	1,606,500	-	1,606,500	-		1,606,500	160,650	1,445,850	1,200,056	245,795
	Total		72,993,900	17,844,390	55,149,510	6,372,000	48,777,510	26,722,600	-	22,054,910	2,205,491	19,849,419	16,475,018	3,374,401

*Other deductions are portions attributable to landfill



5.3 Service Levels and 13-Year Capital Costs for Hamilton's D.C. Calculation

This section evaluates the development-related capital requirements for those services with 13-year capital costs.

5.3.1 Services Related to a Highway

Hamilton owns and maintains 4,785 km of expressway, arterial and collector roads, as well as sidewalks and 178 km of active transportation lanes and tracks. This provides an average level of investment of \$22,998 per capita, resulting in a D.C.-eligible recovery amount of \$1,982,019,397 over the 13-year forecast period.

The City also has 166 bridges, 117 culverts and 4 roundabouts throughout the City which equates to \$3,021 per capita and a D.C. recoverable amount of \$260,358,843 over the 13-year forecast period. Further, the City provides 622 traffic signals, which equate to an average level of investment of \$251 per capita, and a D.C. recoverable amount of \$21,588,842 over the 13-year forecast period.

The City operates two active transportation terminals and 1,112 active transportation shelters and pads, which, combined, equate to \$35 per capita and a D.C. recoverable amount of \$2,973,313.

The total D.C.-eligible amount over the 13-year forecast period for Services Related to a Highway is \$2,266,940,395.

With respect to future needs, the identified service related to highways program was reviewed with staff by Dillon Consulting Limited (see Appendix H) and totals \$1.356 billion. The capital projects include various works related to adding capacity to the highway system including road improvements/expansions, intersection improvements, additional active transportation corridors and complete street additions & modifications.

In addition to the capital costs identified, outstanding growth-related debt principal and interest (discounted) for the Red Hill Expressway and various growth-related roads projects totalling \$22,799,849 has been included in the D.C. calculation. The City has also identified anticipated future financing costs related to Waterdown Road – Mountain



Brow Road to Craven Avenue. This debenture has been assumed to have a term of fifteen years at an interest rate of 5%, resulting in the inclusion of (discounted) interest of \$4,782,128 in the D.C. calculation. A deduction for benefit to growth beyond the 13-year period of \$482,096,000 has been made along with \$219,893,000 to recognize the benefit to existing development. Finally, an adjustment of \$20,333,935 has been made to account for the reserve fund balance, resulting in a total D.C.-eligible cost of \$660,899,041 to be recovered over the current forecast period (2019 to 2031).

The residential/non-residential allocation for almost all Services Related to a Highway projects of 50%/50% is based on the use of the origins and destinations derived from trips for the a.m. peak hour. A few projects are shared differently between residential and non-residential growth including:

- a. The existing debt for the Expressway was maintained from the past D.C. studies at 73.3% residential and 26.7% non-residential;
- b. Existing debt for prior completed growth-related road projects, as identified in the previous D.C. study have been maintained at 14% residential and 86% non-residential in order to maintain consistency; and
- c. Waterdown Road is 90% residential/ 10% non-residential based on the requirements of O.P.A. 28 which is predominately residential in nature.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Services Related to a Highway

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Length	Capital Improvement	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost			
									Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 50%	Non-Residential Share 50%	
	2019-2031													
	AEGD Projects													
1	Airport Road - Upper James Street to East Cargo Road	2019-2022	1.07	2r-3i	4,437,000	-		4,437,000	1,775,000	-	2,662,000	1,331,000	1,331,000	
2	Airport Road - East Cargo Road to Terminal Access Road	2019-2022	0.32	2r-4u	2,423,000	-		2,423,000	969,000	-	1,454,000	727,000	727,000	
3	Airport Road - Terminal Access Road to Glancaster Road	2023-2031	1.68	2r-3i	7,325,000	-		7,325,000	2,930,000	-	4,395,000	2,197,500	2,197,500	
4	Airport Road* - Butter Road to Glancaster Road	2032-2041	0.86	2r-4u	7,470,000	7,470,000		-	-	-	-	-	-	
5	Book Road - Fiddler's Green Road to Highway 6	2032-2041	0.99	2r-4u	6,340,000	6,340,000		-	-	-	-	-	-	
6	Book Road* - Highway 6 to Southcote Road	2032-2041	1.11	2r-4u	6,158,000	6,158,000		-	-	-	-	-	-	
7	Book Road - Highway 6 to Southcote Road	2032-2041	1.11	4u-6u	6,421,000	6,421,000		-	-	-	-	-	-	
8	Book Road - Collector 2W to Glancaster Road	2032-2041	0.59	2r-2u	1,984,000	1,984,000		-	-	-	-	-	-	
9	Butter Road East - Airport Road to Glancaster Road	2023-2031	0.97	2r-2u	3,961,000	-		3,961,000	594,000	-	3,367,000	1,683,500	1,683,500	
10	Butter Road East* - Highway 6 to Airport Road	2023-2031	0.37	2r-4u	3,428,000	3,428,000		-	-	-	-	-	-	
11	Butter Road East - Fiddler's Green Road to Highway 6	2032-2041	0.94	2r-4u	8,708,000	8,708,000		-	-	-	-	-	-	
12	Carluke Road East - Fiddler's Green Road to Glancaster Road	2032-2041	1.05	2r-4u	6,291,000	6,291,000		-	-	-	-	-	-	
13	Collector Road 6N (oversizing) - Glancaster Road to Collector Road 6E	2032-2041	1.93	4u	2,896,000	2,896,000		-	-	-	-	-	-	
14	Collector Road 6N (oversizing) - Collector Road 6E to Collector Road 7E	2032-2041	2.56	4u	3,635,000	3,635,000		-	-	-	-	-	-	
15	Collector Road 7E (oversizing) - Collector 6N to Upper James Street	2032-2041	0.58	4u	1,312,000	1,312,000		-	-	-	-	-	-	
16	Dickenson Road - Glancaster Road to Upper James Street	2025	2.90	2r-4u	14,282,000	-		14,282,000	2,142,000	-	12,140,000	6,070,000	6,070,000	
17	Dickenson Road Extension - Southcote Road to Smith Road	2019-2022	0.42	4u	3,195,000	-		3,195,000	-	-	3,195,000	1,597,500	1,597,500	
18	Dickenson Road Extension - Southcote Road to Smith Road	2032-2041	0.42	4u-6u	2,435,000	2,435,000		-	-	-	-	-	-	
19	Dickenson Road Extension - Smith Road to Glancaster Road	2023-2031	0.80	4u	6,149,000	-		6,149,000	-	-	6,149,000	3,074,500	3,074,500	
20	Garner Road* - Fiddler's Green Road to Glancaster Road	2023-2031	4.44	2r-4u	19,920,000	-		19,920,000	2,988,000	-	16,932,000	8,466,000	8,466,000	
21	Garth Street extension (oversizing) - Twenty Road to Dickenson Road	2023-2031	1.50	5u	2,391,000	-		2,391,000	-	-	2,391,000	1,195,500	1,195,500	
22	Garth Street extension (oversizing) - Dickenson Road to Collector 2E	2023-2031	0.62	5u	1,359,000	-		1,359,000	-	-	1,359,000	679,500	679,500	
23	Glancaster Road - Collector 1N to Airport Boundary	2032-2041	0.49	2r-2u	2,019,000	2,019,000		-	-	-	-	-	-	
24	Glancaster Road - Dickenson Road Extension to Collector 1N	2032-2041	0.37	2r-4u	2,426,000	2,426,000		-	-	-	-	-	-	
25	Glancaster Road - Garner Road to Dickenson Road	2023-2031	2.46	2r-4u	16,844,000	-		16,844,000	2,527,000	-	14,317,000	7,158,500	7,158,500	
26	Smith Road* - Dickenson Road extension to Collector 1N	2032-2041	0.65	2r-4u	4,055,000	4,055,000		-	-	-	-	-	-	
27	Smith Road (except Hydro Corridor) - Garner Road to Dickenson Road extension	2032-2041	1.57	2u	9,919,000	9,919,000		-	-	-	-	-	-	
28	Smith Road - Collector 1N to Airport Boundary	2032-2041	0.35	2r-2u	1,919,000	1,919,000		-	-	-	-	-	-	
29	Smith Road extension - Hydro corridor north crossing	2032-2041	0.26	2u	1,037,000	1,037,000		-	-	-	-	-	-	
30	Southcote Road* - Garner to Twenty Road extension	2019-2022	0.97	2r-4u	9,306,000	-		9,306,000	1,396,000	-	7,910,000	3,955,000	3,955,000	
31	Southcote Road - Twenty Road extension to Book Road	2023-2031	0.97	2r-4u	8,541,000	-		8,541,000	1,281,000	-	7,260,000	3,630,000	3,630,000	
32	Twenty Road - Glancaster Road to Aldercrest Avenue	2023-2031	3.08	2r-4u	17,826,000	-		17,826,000	2,674,000	-	15,152,000	7,576,000	7,576,000	
33	Twenty Road extension - Southcote Road to Glancaster Road	2023-2031	1.86	4u	14,296,000	-		14,296,000	-	-	14,296,000	7,148,000	7,148,000	
34	Fiddler's Green Road - Garner Road to Carluke Road	2032-2041	6.07	2r-4u	38,881,000	38,881,000		-	-	-	-	-	-	
35	Glancaster Road* - Butter Road to Highway 6	2032-2041	1.40	2r-4u	13,210,000	13,210,000		-	-	-	-	-	-	
36	Glancaster Road - Highway 6 to White Church Road	2032-2041	0.89	2r-4u	7,911,000	7,911,000		-	-	-	-	-	-	
37	Southcote Road - Book Road to Collector 1N	2023-2031	0.65	2r-4u	4,210,000	4,210,000		-	-	-	-	-	-	



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Services Related to a Highway

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Length	Capital Improvement	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
									Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share	Non-Residential Share
												50%	50%
2019-2031													
38	Southcote Road - Airport Boundary to Butter Road	2032-2041	0.81	2r-2u	3,855,000	3,855,000		-	-	-	-	-	-
39	Upper James Street - Alderlea Avenue to Homestead Drive	2023-2031	3.67	4u-6u	30,929,000	-		30,929,000	4,639,000	-	26,290,000	13,145,000	13,145,000
40	White Church Road - Glancaster Road to Highway 6	2032-2041	2.31	2r-4u	19,651,000	19,651,000		-	-	-	-	-	-
41	Upper James Street* - Homestead to Highway 6	2023-2031	2.78	4r-5u_NBR	12,395,000	-		12,395,000	1,859,000	-	10,536,000	5,268,000	5,268,000
South Mountain Area Transportation Study Projects													
42	West 5th Street - Rymal Road to Stone Church Road	2025	1.00	2r-3u	3,096,000	-		3,096,000	1,238,000	-	1,858,000	929,000	929,000
43	Rymal Road - Glancaster Road to Garth Street	2019-2022	1.30	2r-5u	7,993,000	-		7,993,000	1,199,000	-	6,794,000	3,397,000	3,397,000
44	Rymal Road - Fletcher Road to Upper Centennial	2020	2.49	2r-5u	15,717,000	-		15,717,000	2,358,000	-	13,359,000	6,679,500	6,679,500
45	Rymal Road* - Upper Wentworth to West of Darthall	2019-2022	3.29	2r-5u	22,520,000	-		22,520,000	3,378,000	-	19,142,000	9,571,000	9,571,000
46	Rymal Road - Upper James Street to Upper Wellington Street	2026	0.87	2r-5u	4,624,000	-		4,624,000	694,000	-	3,930,000	1,965,000	1,965,000
47	Rymal Road - Upper Wellington Street to Upper Wentworth Street	2030	0.86	2r-5u	4,664,000	-		4,664,000	700,000	-	3,964,000	1,982,000	1,982,000
Stoney Creek Urban Boundary Expansion Projects													
48	Arvin Avenue - McNeilly to Lewis Road	2023-2031	0.80	2i	3,652,000	-		3,652,000	-	-	3,652,000	1,826,000	1,826,000
49	Arvin Avenue - Jones Road to Existing east end	2023-2031	0.50	2i	2,564,000	-		2,564,000	-	-	2,564,000	1,282,000	1,282,000
50	Arvin Avenue - McNeilly to Existing west end	2019-2022	0.40	2i	2,201,000	-		2,201,000	-	-	2,201,000	1,100,500	1,100,500
51	Fruitland Road - Highway 8 to Barton Street	2023-2031	1.05	2r-4u	8,207,000	-		8,207,000	1,231,000	-	6,976,000	3,488,000	3,488,000
52	McNeilly Road* - Highway 8 to Barton Street	2023-2031	0.89	2r-4u	6,797,000	-		6,797,000	1,020,000	-	5,777,000	2,888,500	2,888,500
53	Lewis Road* - Highway 8 to Barton Street	2023-2031	0.52	2r-4u	4,290,000	-		4,290,000	644,000	-	3,646,000	1,823,000	1,823,000
54	Glover Road* - Highway 8 to Barton Street	2023-2031	0.82	2r-4u	6,323,000	-		6,323,000	948,000	-	5,375,000	2,687,500	2,687,500
55	Jones Road* - Highway 8 to Barton Street	2023-2031	0.93	2r-4u	7,068,000	-		7,068,000	1,060,000	-	6,008,000	3,004,000	3,004,000
Ancaster Industrial Park and Transportation Master Plan Projects													
56	Garner Road - Fiddler's Green Road to Highway 2/Wilson Street	2019-2022	3.50	2r-4u	20,208,000	-		20,208,000	3,031,000	-	17,177,000	8,588,500	8,588,500
57	Golf Links Road - McNiven Road to Kitty Murray Lane	2023-2031	0.80	2r-3u	4,646,000	-		4,646,000	697,000	-	3,949,000	1,974,500	1,974,500
58	Jerseyville Road - Shaver Road to Wilson Street	2023-2031	3.10	2r-3u	16,438,000	-		16,438,000	6,575,000	-	9,863,000	4,931,500	4,931,500
59	Springbrook Avenue - Regan Drive to Garner Road	2020	0.69	2r-2u	3,096,000	-		3,096,000	464,000	-	2,632,000	1,316,000	1,316,000
60	Trinity Road - 1km south of Wilson to Highway 403	2019-2022	2.20	2r-4u	12,985,000	-		12,985,000	1,948,000	-	11,037,000	5,518,500	5,518,500
61	Shaver Road - Trustwood to Garner Road	2023-2031	1.00	2r-2i	4,840,000	-		4,840,000	726,000	-	4,114,000	2,057,000	2,057,000
62	Shaver Road - Highway 403 to Wilson Street	2019-2022	1.50	2r-2u	6,189,000	-		6,189,000	928,000	-	5,261,000	2,630,500	2,630,500
63	Southcote Road - Calder Street to Garner Road	2022	1.26	2r-3u	5,871,000	-		5,871,000	2,348,000	-	3,523,000	1,761,500	1,761,500
64	McNiven Road - Rousseaux Street to Golf Links Road	2028	0.63	2r-3u	3,218,000	-		3,218,000	2,574,000	-	644,000	322,000	322,000
65	Mohawk Road - McNiven Road to Highway 403	2019-2022	1.30	2r-3u	7,656,000	-		7,656,000	3,062,000	-	4,594,000	2,297,000	2,297,000
66	Stone Church Road - Harrogate Drive to Stonehenge Drive	2023-2031	0.34	2r-4u	3,114,000	-		3,114,000	467,000	-	2,647,000	1,323,500	1,323,500
Red Hill Business Park Projects													
67	Dartrhall Road Extension - Twenty Road to Dickenson Road	2022	1.65	2i	4,988,000	-		4,988,000	-	-	4,988,000	2,494,000	2,494,000
68	Dickenson Road - west of Nebo to west of Glover	2023-2031	1.10	2r-2i	5,585,000	-		5,585,000	2,234,000	-	3,351,000	1,675,500	1,675,500
69	Dickenson Road East* - Upper James Street to west of Nebo Road	2023-2031	4.60	2r-2u	18,170,000	-		18,170,000	7,268,000	-	10,902,000	5,451,000	5,451,000
70	Nebo Road - Rymal Road to Twenty Road	2020	1.30	2r-2i	5,870,000	-		5,870,000	881,000	-	4,989,000	2,494,500	2,494,500
71	Nebo Road* - 800m South of Twenty Road to Dickenson Road	2019-2022	0.60	2r-2i	3,649,000	-		3,649,000	547,000	-	3,102,000	1,551,000	1,551,000



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Services Related to a Highway

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Length	Capital Improvement	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
									Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share	Non-Residential Share
												50%	50%
2019-2031													
72	Regional Road 56 - Rymal Road to ROPA 9 Boundary	2019	1.20	2r-5u	8,587,000	-		8,587,000	1,288,000	-	7,299,000	3,649,500	3,649,500
73	Regional Road 56* - Cemetery Road to South Limits of ROPA 9	2023-2031	4.56	2r-5u	11,867,000	-		11,867,000	1,780,000	-	10,087,000	5,043,500	5,043,500
74	Twenty Road extension - Glover Road to Upper Red Hill Valley Parkway	2023-2031	0.60	3i	3,077,000	-		3,077,000	-	-	3,077,000	1,538,500	1,538,500
75	Glover Road - Twenty Road to Rymal Road	2023-2031	2.60	2r-2i	9,400,000	-		9,400,000	1,410,000	-	7,990,000	3,995,000	3,995,000
76	Upper Red Hill Valley Parkway - Rymal Road to Twenty Road	2023-2031	1.23	5u	10,375,000	-		10,375,000	-	-	10,375,000	5,187,500	5,187,500
Waterdown Projects													
77	Burke Street - Skinner Road to Mountain Brow	2023-2031	0.47	4u	3,948,000	-		3,948,000	197,000	-	3,751,000	1,875,500	1,875,500
78	Parkside Drive - Highway 6 to Hollybush Drive	2023-2031	1.10	2r-4u	6,297,000	-		6,297,000	2,519,000	-	3,778,000	1,889,000	1,889,000
79	Parkside Drive - Main Street to Churchill (500 m east)	2023-2031	0.61	2r-4u	4,749,000	-		4,749,000	1,900,000	-	2,849,000	1,424,500	1,424,500
80	E-W Road Corridor (Waterdown By-Pass) - Dundas Street to Highway 6	2019-2022	6.29	4u	52,207,000	-		52,207,000	2,610,000	-	49,597,000	24,798,500	24,798,500
81	Waterdown Road (Burlington portion) - Mountain Brow Road to Craven Avenue ³	2019	1.90	2r-4u	24,720,000	-		24,720,000	-	-	24,720,000	22,248,000	2,472,000
82	Mountain Brow Road - Waterdown Road to New N-S Link (Burke Street)	2019-2022	0.91	2r-4u	7,654,000	-		7,654,000	1,148,000	-	6,506,000	3,253,000	3,253,000
83	Dundas Street - New north-south link to Hamilton Boundary	2023-2031	0.87	4u-6u	8,039,000	-		8,039,000	1,206,000	-	6,833,000	3,416,500	3,416,500
84	Centre Road - Northlawn to Parkside Drive	2019-2022	0.40	2r-3u	2,434,000	-		2,434,000	974,000	-	1,460,000	730,000	730,000
Fruitland Winona Projects													
85	Barton Street - Fruitland Road to Fifty Road	2026	5.00	2r-3u	24,938,000	-		24,938,000	9,975,000	-	14,963,000	7,481,500	7,481,500
86	Fifty Road - Q.E.W (South Service Road) to Highway 8	2023-2031	0.80	2r-4u	5,277,000	-		5,277,000	792,000	-	4,485,000	2,242,500	2,242,500
87	Fruitland Road By-pass - Barton Street to Highway 8	2019	1.10	4u	8,761,000	-		8,761,000	1,314,000	-	7,447,000	3,723,500	3,723,500
88	Fruitland Road - Arvin Avenue to Barton Street	2023-2031	0.30	2u-4u	3,010,000	-		3,010,000	452,000	-	2,558,000	1,279,000	1,279,000
89	Highway 8 (Stoney Creek)* - Dewitt Road to Fruitland Road	2023-2031	0.80	2r-5u	6,534,000	-		6,534,000	2,614,000	-	3,920,000	1,960,000	1,960,000
90	Highway 8 (Stoney Creek) - Fruitland Road to East City Limit	2023-2031	6.18	2r-4r NBR	20,674,000	-		20,674,000	8,270,000	-	12,404,000	6,202,000	6,202,000
Elfrida Boundary Expansion Projects													
91	First Road East - Highway 20 to Mud Street	2023-2031	2.10	2r-3u	12,229,000	8,071,000		4,158,000	624,000	-	3,534,000	1,767,000	1,767,000
92	First Road East (oversizing) - Highway 20 to Golf Club Road	2023-2031	2.21	3u	3,225,000	2,129,000		1,096,000	-	-	1,096,000	548,000	548,000
93	Fletcher Road* - 500m South of Rymal to Golf Club Road	2023-2031	1.60	2r-3u	10,124,000	6,682,000		3,442,000	516,000	-	2,926,000	1,463,000	1,463,000
94	Golf Club Road - Trinity Church Road to Hendershot Road	2023-2031	7.00	2r-2u	29,795,000	19,665,000		10,130,000	1,520,000	-	8,610,000	4,305,000	4,305,000
95	Hendershot Road - Highway 20 to Golf Club Road	2023-2031	2.10	2r-3u	10,729,000	7,081,000		3,648,000	547,000	-	3,101,000	1,550,500	1,550,500
96	Highland Road - Upper Centennial Parkway to Second Road East	2023-2031	2.00	2r-3u	10,308,000	6,803,000		3,505,000	526,000	-	2,979,000	1,489,500	1,489,500
97	Mud Street - Upper Centennial Parkway to Second Road East	2023-2031	2.00	2r-2u	9,166,000	6,049,000		3,117,000	468,000	-	2,649,000	1,324,500	1,324,500
98	Second Road East - Highway 20 to Mud Street	2023-2031	3.00	2r-3u	15,267,000	10,076,000		5,191,000	779,000	-	4,412,000	2,206,000	2,206,000
99	Trinity Church Road* - Hydro corridor to Golf Club Road	2023-2031	2.00	2r-2u	9,541,000	6,297,000		3,244,000	487,000	-	2,757,000	1,378,500	1,378,500
100	Upper Centennial Parkway - Green Mountain Road to Highway 20	2023-2031	2.90	4r-5u	20,111,000	13,273,000		6,838,000	1,026,000	-	5,812,000	2,906,000	2,906,000
Other Road Projects													
101	Binbrook Road - Royal Winter Dr/Binhaven Rd to Fletcher Road	2019	0.70	2r-3u	6,840,000	-		6,840,000	1,026,000	-	5,814,000	2,907,000	2,907,000
102	Highway 8 (Dundas) - Bond Street to Dundas Limits	2023-2031	0.40	2r-3u	3,199,000	-		3,199,000	1,280,000	-	1,919,000	959,500	959,500
103	Highway 8 (Dundas) - Hillcrest to Park Ave	2020	0.60	2r-3u	2,566,000	-		2,566,000	1,026,000	-	1,540,000	770,000	770,000
104	Jones Road - Barton Street to South Service Road	2023-2031	0.90	2r-2i	3,739,000	-		3,739,000	1,870,000	-	1,869,000	934,500	934,500
105	Lewis Road - Barton Street to South Service Road	2023-2031	0.80	2r-2i	3,402,000	-		3,402,000	1,701,000	-	1,701,000	850,500	850,500



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									Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share	Non-Residential Share
												50%	50%
2019-2031													
106	Longwood Road - Aberdeen Avenue to Main Street	2023-2031	0.65	various/ESR	5,561,000	-	-	5,561,000	2,781,000	-	2,780,000	1,390,000	1,390,000
107	Miles Road - Rymal Road to Hydro Corridor	2023-2031	2.00	2r-3i	10,769,000	-	-	10,769,000	1,615,000	-	9,154,000	4,577,000	4,577,000
108	Millen Road - Barton Street to South Service Road	2023-2031	1.00	2r-3i	6,118,000	-	-	6,118,000	2,447,000	-	3,671,000	1,835,500	1,835,500
109	Fletcher Road - Binbrook Road to Golf Club Road	2023-2031	4.20	2r-2u	17,568,000	-	-	17,568,000	7,027,000	-	10,541,000	5,270,500	5,270,500
110	South Service Road - Millen Road to Gray	2023-2031	1.70	2r-2u	8,019,000	-	-	8,019,000	1,203,000	-	6,816,000	3,408,000	3,408,000
111	Trinity Church Road - Binbrook Road to Golf Club Road	2023-2031	5.20	2r-2u	9,032,000	-	-	9,032,000	3,613,000	-	5,419,000	2,709,500	2,709,500
112	Twenty Road - Aldercrest Avenue to 600m west of Nebo Road	2023-2031	4.10	2r-2u	16,290,000	-	-	16,290,000	6,516,000	-	9,774,000	4,887,000	4,887,000
113	Upper Gage Street - Mohawk Road to Thorley	2023-2031	0.60	4u-5u	5,281,000	-	-	5,281,000	2,641,000	-	2,640,000	1,320,000	1,320,000
114	Upper Wellington Street - Limeridge Street to Stone Church Road	2019-2022	1.20	2r-5u	9,350,000	-	-	9,350,000	3,740,000	-	5,610,000	2,805,000	2,805,000
115	Shaver Road - Highway 403 to Wilson Street	2019-2022	1.50	2r-2u	6,189,000	-	-	6,189,000	928,000	-	5,261,000	2,630,500	2,630,500
116	Scenic Drive - Lavender Drive (south leg) to Old City Limits	2019-2022	1.40	2r-2u	6,571,000	-	-	6,571,000	2,628,000	-	3,943,000	1,971,500	1,971,500
117	North Service Road - Green Road to East City Limits	2019-2022	-	Intersection	3,013,000	-	-	3,013,000	-	-	3,013,000	1,506,500	1,506,500
118	Victoria Avenue - Ferrie Street to Burlington Street	2019	0.46	2-way conversion	1,224,000	-	-	1,224,000	184,000	-	1,040,000	520,000	520,000
119	Hwy 5/6 municipal roads (City portion)	2019-2022	-	Service Roads	22,981,000	-	-	22,981,000	-	-	22,981,000	11,490,500	11,490,500
120	Post Period Benefit Deduction	2019-2031	-	-	-	175,000,000	-	(175,000,000)	-	-	(175,000,000)	(87,500,000)	(87,500,000)
Major Structures													
121	Highway 5/6 interchange	2019-2022	-	Structure	18,299,000	-	-	18,299,000	-	-	18,299,000	9,149,500	9,149,500
122	Strathcona Pedestrian Bridge	2027	-	Structure	7,601,000	-	-	7,601,000	1,140,000	-	6,461,000	3,230,500	3,230,500
123	Fifty Road - Grade Separation	2029	-	Structure	25,765,000	12,882,000	-	12,883,000	3,221,000	-	9,662,000	4,831,000	4,831,000
124	Other Grade Separation - Grade Separation	2024	-	Structure	25,765,000	12,882,000	-	12,883,000	3,221,000	-	9,662,000	4,831,000	4,831,000
125	Mohawk Road	2019-2022	-	Hwy 403 VWB on-ramp	3,934,000	-	-	3,934,000	1,967,000	-	1,967,000	983,500	983,500
Programs													
126	Intersection Pedestrian Signal	2019-2031	-	City-Wide Program	11,700,000	-	-	11,700,000	585,000	-	11,115,000	5,557,500	5,557,500
127	Traffic Count Program	2019-2031	-	City-Wide Program	2,000,000	-	-	2,000,000	100,000	-	1,900,000	950,000	950,000
128	Geotechnical Investigation Program	2019-2031	-	City-Wide Program	9,100,000	-	-	9,100,000	7,735,000	-	1,365,000	682,500	682,500
129	Mapping Update Program	2019-2031	-	City-Wide Program	305,000	-	-	305,000	15,000	-	290,000	145,000	145,000
130	Active Transportation Benchmarking	2019-2031	-	City-Wide Program	390,000	-	-	390,000	20,000	-	370,000	185,000	185,000
131	Development Road Urbanization	2019-2031	-	City-Wide Program	6,500,000	-	-	6,500,000	325,000	-	6,175,000	3,087,500	3,087,500
132	Street Lighting Enhancement Program	2019-2031	-	City-Wide Program	3,250,000	-	-	3,250,000	163,000	-	3,087,000	1,543,500	1,543,500
133	Pedestrian Crossovers	2019-2031	-	City-Wide Program	900,000	-	-	900,000	45,000	-	855,000	427,500	427,500
134	Advanced Traffic Management Systems	2019-2031	-	City-Wide Program	14,390,000	-	-	14,390,000	10,793,000	-	3,597,000	1,798,500	1,798,500
135	Express Bus (L.A.S.T. Line) Enhanced Passenger Amenities	2019-2031	-	City-Wide Program	8,010,000	-	-	8,010,000	4,005,000	-	4,005,000	2,002,500	2,002,500
136	Miscellaneous Land Acquisitions	2019-2031	-	City-Wide Program	5,000,000	-	-	5,000,000	250,000	-	4,750,000	2,375,000	2,375,000
137	Transit Shelter Expansion Program	2019-2031	-	City-Wide Program	1,950,000	-	-	1,950,000	975,000	-	975,000	487,500	487,500
138	Bus Stop Shelter Rehabilitation Program	2019-2031	-	City-Wide Program	1,625,000	-	-	1,625,000	1,381,000	-	244,000	122,000	122,000
139	Cordon Count Program	2019-2031	-	City-Wide Program	330,000	-	-	330,000	17,000	-	313,000	156,500	156,500
140	New Sidewalk Program	2019-2031	-	City-Wide Program	6,500,000	-	-	6,500,000	325,000	-	6,175,000	3,087,500	3,087,500
141	New Traffic Signals	2020-2031	-	City-Wide Program	12,000,000	-	-	12,000,000	600,000	-	11,400,000	5,700,000	5,700,000
142	New Traffic Signal - Waterdown Road/Mill St at Mountain Brow	2019	-	Traffic Signal	250,000	-	-	250,000	13,000	-	237,000	118,500	118,500
143	New Traffic Signal - Rymal Road west of Walmart Access	2019	-	Traffic Signal	100,000	-	-	100,000	5,000	-	95,000	47,500	47,500
144	New Traffic Signal - Regional Road 56 at Dalgleish Road	2019	-	Traffic Signal	250,000	-	-	250,000	13,000	-	237,000	118,500	118,500



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									Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share	Non-Residential Share		
											50%	50%			
2019-2031															
145	New Traffic Signal - Rymal at Canadian Tire Access	2019	-	Traffic Signal	200,000	-	-	200,000	10,000	-	190,000	95,000	95,000		
146	New Traffic Signal - Rymal (opposite Celestial Crescent)	2019	-	Traffic Signal	100,000	-	-	100,000	5,000	-	95,000	47,500	47,500		
147	New Traffic Signal - Drakes at North Service Road	2019	-	Traffic Signal	350,000	-	-	350,000	18,000	-	332,000	166,000	166,000		
148	New Traffic Signal - Fifty at North Service Road	2019	-	Traffic Signal	350,000	-	-	350,000	18,000	-	332,000	166,000	166,000		
149	Unidentified intersection improvements (excluding Traffic Signals)	2019-2031	-	City-Wide Program	3,250,000	-	-	3,250,000	163,000	-	3,087,000	1,543,500	1,543,500		
150	Annual A and B Line Enhanced Bus Stops & Shelters	2019-2031	-	City-Wide Program	919,000	-	-	919,000	460,000	-	459,000	229,500	229,500		
151	Annual Express Bus/Rapid Transit Enhanced Bus Stops & Shelters	2019-2031	-	City-Wide Program	5,054,000	-	-	5,054,000	2,527,000	-	2,527,000	1,263,500	1,263,500		
152	Annual Transit Priority Measures	2019-2031	-	City-Wide Program	17,472,000	-	-	17,472,000	8,736,000	-	8,736,000	4,368,000	4,368,000		
153	Annual Bike Parking at B/A Line Stops	2019-2031	-	City-Wide Program	46,000	-	-	46,000	23,000	-	23,000	11,500	11,500		
154	Annual Enhanced Bike Parking at Express Bus/Rapid Transit Stops	2019-2031	-	City-Wide Program	275,000	-	-	275,000	138,000	-	137,000	68,500	68,500		
155	Transportation Demand Management	2019-2031	-	City-Wide Program	2,000,000	-	-	2,000,000	1,000,000	-	1,000,000	500,000	500,000		
Studies/Environmental Assessments															
156	Complete and Liveable Streets Guidelines	2019-2022	-	Study	250,000	-	-	250,000	-	-	250,000	125,000	125,000		
157	Cycling Master Plan Review	2023-2031	-	Study	200,000	-	-	200,000	-	-	200,000	100,000	100,000		
158	E.M.M.E Model Management	2019-2031	-	Monitoring	1,040,000	-	-	1,040,000	-	-	1,040,000	520,000	520,000		
159	Goods Movement Study Review and Update	2019-2022	-	Study	150,000	-	-	150,000	-	-	150,000	75,000	75,000		
160	Intelligent Transportation System Strategy	2019-2022	-	Study	250,000	-	-	250,000	-	-	250,000	125,000	125,000		
161	Lincoln Alexander and Red Hill Valley Parkway Widening Feasibility Study	2019-2022	-	Study	500,000	-	-	500,000	-	-	500,000	250,000	250,000		
162	Multi-modal Level of Service Guidelines	2019-2022	-	Study	250,000	-	-	250,000	-	-	250,000	125,000	125,000		
163	Pedestrian Mobility Plan Review	2023-2031	-	Study	200,000	-	-	200,000	-	-	200,000	100,000	100,000		
164	Revenue Tools Study	2019-2022	-	Study	250,000	-	-	250,000	-	-	250,000	125,000	125,000		
165	Transportation Master Plan Review	2023-2031	-	Study	250,000	-	-	250,000	-	-	250,000	125,000	125,000		
166	Truck Route Master Plan Review	2019-2022	-	Study	250,000	-	-	250,000	-	-	250,000	125,000	125,000		
167	Escarpment Crossing People Mover Study	2023-2031	-	Study	200,000	-	-	200,000	-	-	200,000	100,000	100,000		
Active Transportation Projects															
168	Red Hill Pedestrian Crossing - Eugene Street to Glengrove Avenue	2019-2031	-	Pedestrian Crossing	1,750,000	525,000	-	1,225,000	184,000	-	1,041,000	520,500	520,500		
169	Heritage Green Trail Link	2019-2031	-	Commuter Trail	525,000	157,000	-	368,000	55,000	-	313,000	156,500	156,500		
170	Flamborough Y.M.C.A Trail Link	2019-2031	-	Commuter Trail	565,000	169,000	-	396,000	59,000	-	337,000	168,500	168,500		
171	Centre Road Link	2019-2031	-	Commuter Trail	640,000	192,000	-	448,000	67,000	-	381,000	190,500	190,500		
172	Kerns Road/Waterdown South Link	2019-2031	-	Multi-Use Trail	957,000	287,000	-	670,000	101,000	-	569,000	284,500	284,500		
173	Hunter - MacNab to Catharine	2019-2031	0.47	Bike Lane	78,000	23,000	-	55,000	8,000	-	47,000	23,500	23,500		
174	Hunter - Liberty to Claremont Access	2019-2031	0.23	Bike Lane	31,000	9,000	-	22,000	3,000	-	19,000	9,500	9,500		
175	Wilson - James to Sherman	2019-2031	2.55	Bike Lane	81,000	24,000	-	57,000	9,000	-	48,000	24,000	24,000		
176	Ferguson - Hunter to Charlton	2019-2031	0.20	Bike Lane	2,000	-	-	2,000	-	-	2,000	1,000	1,000		
177	King over Red Hill Valley Parkway - Lawrence to Pottruff	2019-2031	0.50	Bike Lane	27,000	8,000	-	19,000	3,000	-	16,000	8,000	8,000		
178	Locke - King to Hunter	2019-2031	1.28	Bike Lane	8,000	2,000	-	6,000	1,000	-	5,000	2,500	2,500		
179	Barton - Red Hill Valley to Lake	2019-2031	1.61	Bike Lane	234,000	70,000	-	164,000	25,000	-	139,000	69,500	69,500		
180	Wilson in Ancaster - Rousseaux to Halson	2019-2031	0.85	Bike Lane	20,000	6,000	-	14,000	2,000	-	12,000	6,000	6,000		
181	Barton - Brockley to Fruitland	2019-2031	3.95	Bike Lane	123,000	37,000	-	86,000	13,000	-	73,000	36,500	36,500		
182	Gage - Industrial to Lawrence	2019-2031	2.96	Bike Lane	115,000	34,000	-	81,000	12,000	-	69,000	34,500	34,500		
183	Hunter Street - Escarpment Rail Trail Link - Hunter to West 5th at Fennell	2019-2031	3.50	Multi-Use Trail	3,275,000	982,000	-	2,293,000	344,000	-	1,949,000	974,500	974,500		
184	Cannon - Sherman to Lottridge	2019-2031	0.42	Bike Lane	16,000	4,000	-	12,000	2,000	-	10,000	5,000	5,000		
185	First Rd W/Whitedeer/Terryberry & Picardy/ Highbury - Glover Mtn Road/ Ridgeview Dr to Rymal/ Belagio	2019-2031	4.08	Bike Lane	48,000	15,000	-	33,000	5,000	-	28,000	14,000	14,000		



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									Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 50%	Non-Residential Share 50%
2019-2031													
186	Olympic Park Twin Pad Arena Link - Chedoke Rail Trail to Old Mohawk Road	2019-2031	1.50	Multi-Use Trail	831,000	249,000		582,000	87,000	-	495,000	247,500	247,500
187	Dundas St - Main to Cootes	2019-2031	0.68	Bike Lane	16,000	5,000		11,000	2,000	-	9,000	4,500	4,500
188	Mohawk - Old Mohawk to Upper Paradise	2019-2031	1.83	Bike Lane	47,000	14,000		33,000	5,000	-	28,000	14,000	14,000
189	Hatt - Peel to Main	2019-2031	0.93	Bike Lane	29,000	9,000		20,000	3,000	-	17,000	8,500	8,500
190	Eastport Drive Lift Bridge Link	2019-2031	-	Multi-Use Trail	1,750,000	525,000		1,225,000	184,000	-	1,041,000	520,500	520,500
191	Beach Bike Lane - under QEW	2019-2031	0.24	Bike Lane	7,000	2,000		5,000	1,000	-	4,000	2,000	2,000
192	Beach Boulevard - lift bridge to Van Wagner's	2019-2031	4.25	Bike Lane	94,000	28,000		66,000	10,000	-	56,000	28,000	28,000
193	Van Wagner's - Beach Bike Lane to Centennial Parkway	2019-2031	2.50	Bike Lane	78,000	23,000		55,000	8,000	-	47,000	23,500	23,500
194	Montclair/ Central/ Graham/ Frederick	2019-2031	3.80	Bike Lane	19,000	6,000		13,000	2,000	-	11,000	5,500	5,500
195	Melvin - Strathhearn/ Shelby to Red Hill Valley Trail	2019-2031	1.90	Bike Lane	59,000	18,000		41,000	6,000	-	35,000	17,500	17,500
196	Britania - Cannon to Walter	2019-2031	0.84	Bike Lane	22,000	6,000		16,000	2,000	-	14,000	7,000	7,000
197	Creighton/ Market - Hatt/ King to Governor's	2019-2031	0.95	Bike Lane	25,000	8,000		17,000	3,000	-	14,000	7,000	7,000
198	Ogilvie/ Old Ancaster - Hatt/ King to Hamilton-Brantford Rail Trail	2019-2031	0.80	Bike Lane	14,000	5,000		9,000	1,000	-	8,000	4,000	4,000
199	Longwood - Franklin to King	2019-2031	0.73	Bike Lane	17,000	5,000		12,000	2,000	-	10,000	5,000	5,000
200	Mountain Brow in Waterdown - Mill to Burke to King Road	2019-2031	1.20	Multi-Use Trail	660,000	198,000		462,000	69,000	-	393,000	196,500	196,500
201	Golf Links/ Halson - Wilson to Southcote	2019-2031	1.19	Bike Lane	28,000	9,000		19,000	3,000	-	16,000	8,000	8,000
202	Meadowbrook	2019-2031	1.00	Bike Lane	16,000	5,000		11,000	2,000	-	9,000	4,500	4,500
203	West 5th - Mohawk College Access to Marlowe	2019-2031	1.13	Bike Lane	70,000	21,000		49,000	7,000	-	42,000	21,000	21,000
204	Limeridge - Garth/ Bonaventure to West 5th/ Hawkridge	2019-2031	1.37	Bike Lane	53,000	16,000		37,000	6,000	-	31,000	15,500	15,500
205	Scenic - Chedoke Rail Trail to Upper Paradise	2019-2031	2.27	Bike Lane	27,000	8,000		19,000	3,000	-	16,000	8,000	8,000
206	Green Mountain - First Road W to First Road E	2019-2031	1.50	Bike Lane	292,000	87,000		205,000	31,000	-	174,000	87,000	87,000
207	Walnut Grove & Sanctuary Park - Walnut Grove/ Ogilvie to Highland Park Dr	2019-2031	0.40	Multi-Use Trail	366,000	110,000		256,000	38,000	-	218,000	109,000	109,000
208	Scenic/ Dentlow - Upper Paradise to Garth	2019-2031	0.95	Bike Lane	11,000	3,000		8,000	1,000	-	7,000	3,500	3,500
209	Waterdown local streets	2019-2031	-	Bike Lane	78,000	23,000		55,000	8,000	-	47,000	23,500	23,500
210	Frid/Chatham - Longwood to Dundurn	2019-2031	1.00	Bike Lane	6,000	2,000		4,000	1,000	-	3,000	1,500	1,500
211	Fidler's Green - Jerseyville to Wilson	2019-2031	0.25	Bike Lane	6,000	2,000		4,000	1,000	-	3,000	1,500	1,500
212	Upper Wentworth - Fennell to East 24th	2019-2031	1.03	Bike Lane	40,000	12,000		28,000	4,000	-	24,000	12,000	12,000
213	Barton - Fruitland to Fifty	2019-2031	5.00	Multi-Use Trail	2,647,000	794,000		1,853,000	278,000	-	1,575,000	787,500	787,500
214	Queensdale - Upper Sherman to Upper Ottawa	2019-2031	1.56	Bike Lane	36,000	10,000		26,000	4,000	-	22,000	11,000	11,000
215	Old Mud - Mt Albion to Winterberry	2019-2031	0.40	Bike Lane	9,000	2,000		7,000	1,000	-	6,000	3,000	3,000
216	Charlton/ John - James to Ferguson & St Joseph's Dr	2019-2031	0.80	Bike Lane	84,000	25,000		59,000	9,000	-	50,000	25,000	25,000
217	Upper Wentworth - Concession to Fennell	2019-2031	1.03	Bike Lane	40,000	12,000		28,000	4,000	-	24,000	12,000	12,000
218	West Ave - Hunter/ Claremont to Young	2019-2031	0.36	Bike Lane	3,000	1,000		2,000	-	-	2,000	1,000	1,000
219	Frances - Grays to east of Green Road	2019-2031	1.15	Bike Lane	156,000	47,000		109,000	16,000	-	93,000	46,500	46,500
220	Nash - Bancroft to King	2019-2031	2.58	Bike Lane	101,000	31,000		70,000	11,000	-	59,000	29,500	29,500
221	Kitty Murray	2019-2031	2.26	Bike Lane	53,000	16,000		37,000	6,000	-	31,000	15,500	15,500
222	Stonehenge	2019-2031	2.46	Bike Lane	58,000	18,000		40,000	6,000	-	34,000	17,000	17,000
223	Highway 8 - Bond to Hillcrest	2019-2031	1.10	Paved Shoulder	1,014,000	304,000		710,000	107,000	-	603,000	301,500	301,500
224	Queensdale - Upper Wellington to Upper Sherman	2019-2031	1.68	Bike Lane	39,000	11,000		28,000	4,000	-	24,000	12,000	12,000
225	Meadowlands/ Raymond - Golf Links to Garner	2019-2031	2.10	Bike Lane	49,000	15,000		34,000	5,000	-	29,000	14,500	14,500
226	Delawana - Kenora to Lake	2019-2031	1.02	Bike Lane	9,000	3,000		6,000	1,000	-	5,000	2,500	2,500



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									Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share	Non-Residential Share
2019-2031											50%	50%	
227	Highway 8 - Brock to Hillcrest	2019-2031	0.60	Paved Shoulder	108,000	32,000		76,000	11,000	-	65,000	32,500	32,500
228	Upper Paradise - Stone Church to Rymal	2019-2031	1.07	Bike Lane	42,000	13,000		29,000	4,000	-	25,000	12,500	12,500
229	Binbrook Road - Regional Road 56 to Southbrook	2019-2031	0.28	Bike Lane	7,000	2,000		5,000	1,000	-	4,000	2,000	2,000
230	Lovers Lane - Sulphur Springs to Jerseyville	2019-2031	0.90	Bike Lane	21,000	6,000		15,000	2,000	-	13,000	6,500	6,500
231	Governor's - Binkley to Creighton	2019-2031	4.92	Bike Lane	652,000	195,000		457,000	69,000	-	388,000	194,000	194,000
232	Stuart Street Rail Link	2019-2031	-	Multi-Use Trail	254,000	76,000		178,000	27,000	-	151,000	75,500	75,500
233	Mud Street - Mountain Brow Boulevard	2019-2031	0.50	Multi-Use Trail	136,000	41,000		95,000	14,000	-	81,000	40,500	40,500
234	William Connell Park Link - Stone Church Road to Rymal	2019-2031	0.70	Multi-Use Trail	689,000	206,000		483,000	72,000	-	411,000	205,500	205,500
235	Upper James - William Connell Park	2019-2031	0.38	Multi-Use Trail	225,000	67,000		158,000	24,000	-	134,000	67,000	67,000
236	Grays/ Gray - Confederation Park gate to King	2019-2031	3.00	Bike Lane	117,000	35,000		82,000	12,000	-	70,000	35,000	35,000
237	King in Dundas - Bond to Peel	2019-2031	0.80	Bike Lane	31,000	9,000		22,000	3,000	-	19,000	9,500	9,500
238	Warrington/ South Service/ Lake - Centennial Parkway to Delawana	2019-2031	2.05	Bike Lane	78,000	23,000		55,000	8,000	-	47,000	23,500	23,500
239	Marston - Paramount to Gordon Drummond	2019-2031	0.40	Bike Lane	14,000	5,000		9,000	1,000	-	8,000	4,000	4,000
240	Kenora/ Greenford/ Owen - Bancroft to King	2019-2031	2.60	Bike Lane	172,000	52,000		120,000	18,000	-	102,000	51,000	51,000
241	Centennial Parkway - North Service to GO station/ Kenora	2019-2031	1.20	Multi-Use Trail	156,000	47,000		109,000	16,000	-	93,000	46,500	46,500
242	Victoria - Barton to Main	2019-2031	1.04	Bike Lane	40,000	12,000		28,000	4,000	-	24,000	12,000	12,000
243	Kentley - Eugene to Kenora	2019-2031	0.40	Bike Lane	4,000	1,000		3,000	-	-	3,000	1,500	1,500
244	Whitney - Main to Emerson	2019-2031	1.50	Bike Lane	47,000	14,000		33,000	5,000	-	28,000	14,000	14,000
245	West 5th - Fennell to Mohawk Coll. Access	2019-2031	0.33	Multi-Use Trail	28,000	8,000		20,000	3,000	-	17,000	8,500	8,500
246	Millen - Shoreview to Miller/ Seaman	2019-2031	0.50	Bike Lane	31,000	9,000		22,000	3,000	-	19,000	9,500	9,500
247	King in Stoney Creek - Battlefield/ Elm to Gray	2019-2031	0.74	Bike Lane	16,000	5,000		11,000	2,000	-	9,000	4,500	4,500
248	Limeridge - Birchview to Mtn Brow	2019-2031	1.98	Bike Lane	70,000	21,000		49,000	7,000	-	42,000	21,000	21,000
249	Dewitt - Dundee to Ridge	2019-2031	0.50	Bike Lane	750,000	225,000		525,000	79,000	-	446,000	223,000	223,000
250	Claremont Access - Inverness to Main	2019-2031	1.60	Bike Lane	50,000	15,000		35,000	5,000	-	30,000	15,000	15,000
251	Inverness - Upper James to Belvidere	2019-2031	0.44	Bike Lane	11,000	3,000		8,000	1,000	-	7,000	3,500	3,500
252	Burlington Street Link - Ferguson/ Dock Service Road to Sherman	2019-2031	1.88	Bike Lane	104,000	31,000		73,000	11,000	-	62,000	31,000	31,000
253	Dundas St in Waterdown - Highway 6 to Hamilton St	2019-2031	2.75	Bike Lane	129,000	39,000		90,000	14,000	-	76,000	38,000	38,000
254	Hollybush - Parkside to Dundas St	2019-2031	1.10	Bike Lane	16,000	5,000		11,000	2,000	-	9,000	4,500	4,500
255	Greenhill - Summercrest to King	2019-2031	1.20	Bike Lane	47,000	14,000		33,000	5,000	-	28,000	14,000	14,000
256	Governor's - Ogilvie to Main	2019-2031	0.24	Bike Lane	43,000	13,000		30,000	5,000	-	25,000	12,500	12,500
257	Queenston/ Highway 8 - Glover to Winona/ Niagara border	2019-2031	3.80	Bike Lane	682,000	205,000		477,000	72,000	-	405,000	202,500	202,500
258	Burlington Street East Boulevard Trail - Ottawa to Parkdale to Glow	2019-2031	2.30	Multi-Use Trail	1,050,000	315,000		735,000	110,000	-	625,000	312,500	312,500
259	Queenston/ Highway 8 - King to Dewitt	2019-2031	1.37	Bike Lane	246,000	74,000		172,000	26,000	-	146,000	73,000	73,000
260	Greenhill - Harrisford to Summercrest	2019-2031	1.94	Bike Lane	76,000	23,000		53,000	8,000	-	45,000	22,500	22,500
261	Mill in Waterdown - Parkside to Dundas St	2019-2031	0.95	Bike Lane	22,000	6,000		16,000	2,000	-	14,000	7,000	7,000
262	King in Stoney Creek - Gray to Queenston/ Highway 8	2019-2031	1.51	Bike Lane	78,000	23,000		55,000	8,000	-	47,000	23,500	23,500
263	Rousseaux/ Mohawk - Wilson to Filman	2019-2031	1.60	Bike Lane	225,000	68,000		157,000	24,000	-	133,000	66,500	66,500
264	Baseline/ Lockport - Winona Road to Niagara border	2019-2031	1.15	Bike Lane	23,000	7,000		16,000	2,000	-	14,000	7,000	7,000
265	Winona - Lido/ shore to Peachtree	2019-2031	1.97	Bike Lane	46,000	14,000		32,000	5,000	-	27,000	13,500	13,500
266	Cherry Beach Road Link - Millen to Dewitt	2019-2031	0.91	Multi-Use Trail	234,000	70,000		164,000	25,000	-	139,000	69,500	69,500
267	North Service Road - Dewitt to Lakeview	2019-2031	0.73	Bike Lane	16,000	5,000		11,000	2,000	-	9,000	4,500	4,500



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									Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 50%	Non-Residential Share 50%	
2019-2031														
268	North Service Road - Bellavista to Baseline	2019-2031	0.98	Bike Lane	23,000	7,000		16,000	2,000	-	14,000	7,000	7,000	
269	Upper Sherman - Stone Church to Rymal to Miles	2019-2031	1.00	Bike Lane	179,000	53,000		126,000	19,000	-	107,000	53,500	53,500	
270	Emperor - Brigade to Acadia	2019-2031	0.44	Bike Lane	16,000	5,000		11,000	2,000	-	9,000	4,500	4,500	
271	Burlington/ Industrial - Sherman to Gage	2019-2031	0.86	Bike Lane	99,000	30,000		69,000	10,000	-	59,000	29,500	29,500	
272	Birch/ Holton - Burlington St to Cannon/ King/ Delaware	2019-2031	1.40	Bike Lane	31,000	9,000		22,000	3,000	-	19,000	9,500	9,500	
273	Dewitt - Barton to Dundee	2019-2031	0.90	Bike Lane	21,000	6,000		15,000	2,000	-	13,000	6,500	6,500	
274	Chedmac - Southridge to Rice	2019-2031	0.53	Bike Lane	23,000	7,000		16,000	2,000	-	14,000	7,000	7,000	
275	Kilbride - Upper Ottawa to Nebo	2019-2031	0.38	Bike Lane	9,000	3,000		6,000	1,000	-	5,000	2,500	2,500	
276	Hamilton in Waterdown - Centre/Main to Highway 5/Dundas	2019-2031	1.00	Bike Lane	62,000	18,000		44,000	7,000	-	37,000	18,500	18,500	
277	Osler/ Main - Hatt/ King to Main + 125m of Main	2019-2031	2.00	Bike Lane	88,000	26,000		62,000	9,000	-	53,000	26,500	26,500	
278	Fiddler's Green - Amberly to Garner	2019-2031	0.68	Bike Lane	21,000	6,000		15,000	2,000	-	13,000	6,500	6,500	
279	Shaver - Wilson to Garner	2019-2031	0.52	Bike Lane	12,000	3,000		9,000	1,000	-	8,000	4,000	4,000	
280	Upper James - Twenty to Airport/ Mt Hope	2019-2031	4.05	Multi-Use Trail	1,153,000	346,000		807,000	121,000	-	686,000	343,000	343,000	
281	Christie-Tews - Christie C.A. to Harvest	2019-2031	2.75	Multi-Use Trail	1,124,000	337,000		787,000	118,000	-	669,000	334,500	334,500	
282	Fennell Avenue Boulevard Trail - Garth/ West 18th to West 5th	2019-2031	1.20	Multi-Use Trail	412,000	124,000		288,000	43,000	-	245,000	122,500	122,500	
283	Jones Road Link	2019-2031	-	Multi-Use Trail	222,000	222,000		-	-	-	-	-	-	
284	Mountain Brow Boulevard Trail - Mohawk to Arbour	2019-2031	1.81	Multi-Use Trail	374,000	112,000		262,000	39,000	-	223,000	111,500	111,500	
285	Mountain Brow East Path - Rendell to Oakcrest	2019-2031	0.81	Multi-Use Trail	1,560,000	468,000		1,092,000	164,000	-	928,000	464,000	464,000	
286	Upper James/ Christie - Rymal to Twenty	2019-2031	0.80	Multi-Use Trail	197,000	59,000		138,000	21,000	-	117,000	58,500	58,500	
287	Proposed Pipeline Trail - Museum of Steam and Technology to Mahoney	2019-2031	2.40	Multi-Use Trail	517,000	155,000		362,000	54,000	-	308,000	154,000	154,000	
288	Existing Pipeline Trail - Main to Strathearne	2019-2031	2.20	Multi-Use Trail	4,679,000	1,404,000		3,275,000	491,000	-	2,784,000	1,392,000	1,392,000	
289	Hydro Corridor - Barton to Lawrence	2019-2031	1.90	Multi-Use Trail	1,251,000	375,000		876,000	131,000	-	745,000	372,500	372,500	
290	Hydro Corridor - Lawrence Avenue to Greenhill Avenue	2019-2031	1.15	Multi-Use Trail	430,000	129,000		301,000	45,000	-	256,000	128,000	128,000	
291	Strachan Street Trail - James to Ferguson	2019-2031	0.66	Multi-Use Trail	337,000	101,000		236,000	35,000	-	201,000	100,500	100,500	
292	Karst Escarpment Loop - Pritchard to Mount Albion/Winterberry	2019-2031	0.70	Multi-Use Trail	390,000	117,000		273,000	41,000	-	232,000	116,000	116,000	
293	Chedoke Rail Trail - Highway 403 to Dundurn	2019-2031	4.68	Multi-Use Trail	1,487,000	446,000		1,041,000	156,000	-	885,000	442,500	442,500	
294	Hamilton-Brantford Rail Trail - Bridlewood Dr to Ewen	2019-2031	4.00	Multi-Use Trail	406,000	122,000		284,000	43,000	-	241,000	120,500	120,500	
295	Battlefield Park - Bruce Trail Link - Greenhill to Bruce Trail to Glover Mtn	2019-2031	0.75	Multi-Use Trail	533,000	160,000		373,000	56,000	-	317,000	158,500	158,500	
296	Devil's Punchbowl Link - Mountain Ave/ Lake Ave to Ridge Road/ Devil's	2019-2031	0.42	Multi-Use Trail	150,000	150,000		-	-	-	-	-	-	
297	Gage Park - Cumberland to Montclair/ Maple	2019-2031	0.59	Multi-Use Trail	331,000	99,000		232,000	35,000	-	197,000	98,500	98,500	
298	Iroquois Heights to Old Mohawk - Chedoke Rail Trail to Old Mohawk Road	2019-2031	0.85	Multi-Use Trail	318,000	95,000		223,000	33,000	-	190,000	95,000	95,000	
299	Museum of Steam and Tech Link - Woodward to Red Hill Valley Trail	2019-2031	0.75	Multi-Use Trail	607,000	182,000		425,000	64,000	-	361,000	180,500	180,500	
300	Ottawa Street South - Bruce Trail Link	2019-2031	0.39	Multi-Use Trail	686,000	206,000		480,000	72,000	-	408,000	204,000	204,000	
301	Limeridge Mall Hydro Corridor Trail - Mohawk Road to South of Rymal	2019-2031	3.80	Multi-Use Trail	1,404,000	421,000		983,000	147,000	-	836,000	418,000	418,000	
302	Fallsview - Sydenham to Rock Chapel Road	2019-2031	1.40	Multi-Use Trail	350,000	105,000		245,000	37,000	-	208,000	104,000	104,000	
303	Hydro Corridor - Wilson/Highway 52 to Regional Road 56	2019-2031	12.70	Multi-Use Trail	7,617,000	2,285,000		5,332,000	800,000	-	4,532,000	2,266,000	2,266,000	
304	Beddoe Drive Link	2019-2031	0.91	Multi-Use Trail	519,000	156,000		363,000	54,000	-	309,000	154,500	154,500	
305	Hydro Corridor - Glanaster Road to Chippewa Rail Trail	2019-2031	7.70	Multi-Use Trail	5,763,000	1,729,000		4,034,000	605,000	-	3,429,000	1,714,500	1,714,500	
306	Hydro Corridor - Chippewa Rail Trail to Fletcher Road	2019-2031	2.35	Multi-Use Trail	3,685,000	1,105,000		2,580,000	387,000	-	2,193,000	1,096,500	1,096,500	
307	Hydro Corridor - Trinity Church to Glanaster Road	2019-2031	10.00	Multi-Use Trail	7,617,000	2,285,000		5,332,000	800,000	-	4,532,000	2,266,000	2,266,000	
308	Hydro Corridor - White Church Road	2019-2031	6.60	Multi-Use Trail	3,731,000	1,866,000		1,865,000	280,000	-	1,585,000	792,500	792,500	
309	White Church Road West Airport Link	2019-2031	-	Multi-Use Trail	673,000	336,000		337,000	51,000	-	286,000	143,000	143,000	
310	White Church Road West Link	2019-2031	-	Multi-Use Trail	1,315,000	657,000		658,000	99,000	-	559,000	279,500	279,500	



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									Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share	Non-Residential Share
2019-2031											50%	50%	
311	Chippewa Road at Highway 6	2019-2031	0.02	Multi-Use Trail	125,000	38,000		87,000	13,000	-	74,000	37,000	37,000
312	Glancaester Road Link	2019-2031	-	Multi-Use Trail	495,000	248,000		247,000	37,000	-	210,000	105,000	105,000
313	Centre - Concession 8 E to Concession 7 E	2019-2031	1.80	Paved Shoulder	351,000	105,000		246,000	37,000	-	209,000	104,500	104,500
314	East Townline - Mud to Highland	2019-2031	1.10	Bike Lane	13,000	4,000		9,000	1,000	-	8,000	4,000	4,000
315	Centre - Warren/ Carlisle Road to Progreston	2019-2031	0.78	Paved Shoulder	151,000	45,000		106,000	16,000	-	90,000	45,000	45,000
316	Centre - Grinstone Creek to Concession 5 E	2019-2031	0.45	Paved Shoulder	88,000	27,000		61,000	9,000	-	52,000	26,000	26,000
317	Edgewood - Safari to Highway 6	2019-2031	0.90	Bike Lane	11,000	4,000		7,000	1,000	-	6,000	3,000	3,000
318	Binbrook Road - Trinity Church to Fletcher	2019-2031	1.26	Paved Shoulder	246,000	74,000		172,000	26,000	-	146,000	73,000	73,000
319	Ridge Road - Devil Punch Bowl to Dewitt	2019-2031	2.91	Multi-Use Trail	780,000	234,000		546,000	82,000	-	464,000	232,000	232,000
320	York Road - Olympic to Valley Road	2019-2031	1.70	Paved Shoulder	437,000	131,000		306,000	46,000	-	260,000	130,000	130,000
321	York Road & York Road at Old Guelph - Valley Road to Highway 6	2019-2031	2.50	Multi-Use Trail	1,433,000	430,000		1,003,000	150,000	-	853,000	426,500	426,500
322	Northlawn Avenue Link	2019-2031	1.10	Multi-Use Trail	400,000	120,000		280,000	42,000	-	238,000	119,000	119,000
323	Mosaic Drive - Parkside Drive to Highway 6	2019-2031	1.90	Multi-Use Trail	886,000	266,000		620,000	93,000	-	527,000	263,500	263,500
324	Valley Road - Rock Chapel to York Road	2019-2031	1.40	Paved Shoulder	312,000	94,000		218,000	33,000	-	185,000	92,500	92,500
325	Regional Road 56 south of Kirk - Southbrook to Binbrook Cons Area	2019-2031	3.00	Multi-Use Trail	780,000	234,000		546,000	82,000	-	464,000	232,000	232,000
326	Regional Road 56 - Swayze Road to Cemetery	2019-2031	4.60	Multi-Use Trail	3,119,000	936,000		2,183,000	327,000	-	1,856,000	928,000	928,000
327	Old Guelph Road - Paterson to York Bike Lane	2019-2031	3.53	Paved Shoulder	907,000	272,000		635,000	95,000	-	540,000	270,000	270,000
328	Hamilton Drive Link	2019-2031	-	Multi-Use Trail	1,980,000	1,980,000		-	-	-	-	-	-
Existing Debt:													
329	Debt on Expressway - Principal (discounted) ¹	2019-2025			17,811,239	-		17,811,239	-	-	17,811,239	13,002,194	4,809,045
330	Debt on Expressway - Interest (discounted) ¹	2019-2025			2,778,869	-		2,778,869	-	-	2,778,869	2,028,573	750,296
331	Debt on Various Growth Related Road Projects - Principal (discounted) ²	2019-2023			2,033,756	-		2,033,756	-	-	2,033,756	278,625	1,755,131
332	Debt on Various Growth Related Road Projects - Interest (discounted) ²	2019-2023			175,985	-		175,985	-	-	175,985	24,110	151,875
Future Financing:													
333	Waterdown Road (Burlington portion) - Mountain Brow Road to Craven Avenue - Growth Related Debt Interest (Discounted)	2020-2035			4,782,128	-		4,782,128	-	-	4,782,128	4,303,916	478,213
334	Reserve Fund Adjustment					-		-	20,333,935	-	(20,333,935)	(10,166,968)	(10,166,968)
Total					1,383,221,977	482,096,000	-	901,125,977	240,226,935	-	660,899,041	346,183,949	314,715,092

¹ Debt on Expressway Issued for 73% Residential portion and 27% Non-Residential portion

² Debt on Various Growth Related Road Projects Issued for 13.7% Residential portion and 86.3% Non-Residential portion

³ Residential/Non-Residential Split based on 90%/10%



5.3.2 Public Works Facilities, Fleet & Equipment

The Public Works Department has a variety of vehicles and major equipment totalling approximately \$105,179,620. The inventory provides for a per capita standard of \$184. Over the forecast period, the D.C.-eligible amount for vehicles and equipment is \$15,888,698.

Additional vehicle and equipment items have been identified for the forecast period, amounting to a gross cost of \$14,695,337 of growth-related capital. Deductions to the gross amount include benefit to existing of \$21,350, 10% mandatory deduction of \$463,102 on vehicles & equipment related to soft services resulting in an amount of \$14,210,885 which has been included in the D.C. calculation.

The City operates their Public Works service out of a number of facilities and shipping containers. The facilities provide 853,574 sq.ft. of building area, as well as 4.06 acres of land for the Old Rheem Property Snow Dump, providing for an average level of service of 1.67 sq.ft. per capita or \$946 per capita. This level of service provides the City with a maximum D.C.-eligible amount for recovery over the 13-year forecast period of \$81,505,849.

There have been twelve facility-related projects identified for inclusion from public works with the total cost of the projects identified as \$43,765,500. The Parks Work Yards in Binbrook, the Confederation Park yard & field house, and the Public Works Depot will assist in servicing both services related to a highway and outdoor parks services therefore a mandatory 10% deduction has been made on these projects. As well, deductions in the amount of \$12,911,900 to reflect benefit to existing development and \$3,763,222 to reflect the reserve fund balance have been made to the gross capital cost. The net amount included in the D.C. is \$26,461,649.

The residential/non-residential capital cost allocation for facilities and fleet is based on a 62%/38% split which is based on the incremental growth in population to employment for the 13-year forecast period.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton

Service: Services Related to a Highway - Vehicles and Equipment

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New		Other (e.g. 10% Statutory Deduction)	Total	Residential Share 62%	Non-Residential Share 38%
Operations:													
1	Aluminum Sander Prewelded (1)	2019-2031	225,000	-		225,000	-		225,000		225,000	139,500	85,500
2	1 1/2 Ton Pickup (9)	2019-2031	233,000	-		233,000	-		233,000		233,000	144,460	88,540
3	Large Front End Loader (2)	2019-2031	404,667	-		404,667	-		404,667		404,667	250,893	153,773
4	Grader (1)	2019-2031	281,000	-		281,000	-		281,000		281,000	174,220	106,780
5	Large Mobile Sweeper (4)	2019-2031	1,304,000	-		1,304,000	-		1,304,000		1,304,000	808,480	495,520
6	Snow Blower Attachment (1)	2019-2031	202,000	-		202,000	-		202,000		202,000	125,240	76,760
7	Street Flusher (1)	2019-2031	225,000	-		225,000	-		225,000		225,000	139,500	85,500
8	Hotspot Transporter (2)	2019-2031	63,000	-		63,000	-		63,000		63,000	39,060	23,940
9	Tandem Trailer - 12 Ton(1)	2019-2031	22,500	-		22,500	-		22,500		22,500	13,950	8,550
10	Large Hopper/Spreader Attachment (1)	2019-2031	18,000	-		18,000	-		18,000		18,000	11,160	6,840
11	Aluminum Dump/Crew/Crane/Plow (1)	2019-2031	84,500	-		84,500	-		84,500		84,500	52,390	32,110
12	Aluminum Dump/Crew/Plow (1)	2019-2031	78,500	-		78,500	-		78,500		78,500	48,670	29,830
13	Arrow Boards (3)	2019-2031	30,900	-		30,900	-		30,900		30,900	19,158	11,742
14	Steel Dump/Crew/Crane/Plow (1)	2019-2031	59,600	-		59,600	-		59,600		59,600	36,952	22,648
15	Steel Dump/Crew (1)	2019-2031	56,200	-		56,200	-		56,200		56,200	34,844	21,356
16	Sander Radius Dump with 2 Way Front (1)	2019-2031	259,000	-		259,000	-		259,000		259,000	160,580	98,420
17	Sander Pre-Wel 2 Way with Wing (2)	2019-2031	562,000	-		562,000	-		562,000		562,000	348,440	213,560
18	Trackless (1)	2019-2031	235,000	-		235,000	-		235,000		235,000	145,700	89,300
19	Gradal (1)	2019-2031	362,000	-		362,000	-		362,000		362,000	224,440	137,560
20	Alum Sander Prew Front & Wing Plow (4)	2019-2031	876,800	-		876,800	-		876,800		876,800	543,616	333,184
21	Sander Tandem Prew Plow (1)	2019-2031	253,000	-		253,000	-		253,000		253,000	156,860	96,140
Parks:													
22	1 1/2 Ton Pick-up Truck (3)	2019-2023	77,600	-		77,600	-		77,600	7,760	69,840	43,301	26,539
23	Small Tractor (2)	2019-2023	78,700	-		78,700	-		78,700	7,870	70,830	43,915	26,915
24	Medium Tractor (1)	2019-2023	50,600	-		50,600	-		50,600	5,060	45,540	28,235	17,305
25	Large Tractor (3)	2019-2023	186,000	-		186,000	-		186,000	18,600	167,400	103,788	63,612
26	Service Body - Utility (2)	2019-2023	101,000	-		101,000	-		101,000	10,100	90,900	56,358	34,542
27	1 Ton Pick-up with Plow (1)	2019-2023	56,200	-		56,200	-		56,200	5,620	50,580	31,360	19,220
28	Tow behind rotary mower (1)	2019-2023	2,900	-		2,900	-		2,900	290	2,610	1,618	992
29	Utility Turf Vehicle (3)	2019-2023	57,300	-		57,300	-		57,300	5,730	51,570	31,973	19,597
30	Mower Front Mount Riding (10)	2019-2023	211,500	-		211,500	-		211,500	21,150	190,350	118,017	72,333



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton

Service: Services Related to a Highway - Vehicles and Equipment

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New		Other (e.g. 10% Statutory Deduction)	Total	Residential Share 62%	Non-Residential Share 38%
31	Tandem Axle Trailer (5)	2019-2023	42,700	-		42,700	-		42,700	4,270	38,430	23,827	14,603
32	Overseeder (1)	2019-2023	21,400	-		21,400	-		21,400	2,140	19,260	11,941	7,319
33	Top Dresser (1)	2019-2023	18,000	-		18,000	-		18,000	1,800	16,200	10,044	6,156
34	Small Aerifier (1)	2019-2023	10,400	-		10,400	-		10,400	1,040	9,360	5,803	3,557
35	Aerifier (1)	2019-2023	16,900	-		16,900	-		16,900	1,690	15,210	9,430	5,780
36	Drop in Sander (3)	2019-2023	30,400	-		30,400	-		30,400	3,040	27,360	16,963	10,397
37	Aluminum Dump/Crew (1)	2019-2023	73,100	-		73,100	-		73,100	7,310	65,790	40,790	25,000
38	Aluminum Dump/Crew & Plow (1)	2019-2023	78,500	-		78,500	-		78,500	7,850	70,650	43,803	26,847
39	Packer Truck (1)	2019-2023	187,000	-		187,000	-		187,000	18,700	168,300	104,346	63,954
40	Riding Mower (1)	2019-2023	73,100	-		73,100	-		73,100	7,310	65,790	40,790	25,000
41	Rotary Riding Mower (1)	2019-2023	337,000	-		337,000	-		337,000	33,700	303,300	188,046	115,254
42	Steel Dump Crew - 1 Ton	2019-2023	56,200	-		56,200	-		56,200	5,620	50,580	31,360	19,220
43	Aerifier (2)	2019-2028	20,400	-		20,400	-		20,400	2,040	18,360	11,383	6,977
44	Ball Diamond Groomer (1)	2019-2028	10,200	-		10,200	-		10,200	1,020	9,180	5,692	3,488
45	Blower (1)	2019-2028	10,200	-		10,200	-		10,200	1,020	9,180	5,692	3,488
46	Miscellaneous (1)	2019-2028	10,200	-		10,200	-		10,200	1,020	9,180	5,692	3,488
47	Mower (1)	2019-2028	20,400	-		20,400	-		20,400	2,040	18,360	11,383	6,977
48	Over Seeder (1)	2019-2028	20,400	-		20,400	-		20,400	2,040	18,360	11,383	6,977
49	Top Dresser (1)	2019-2028	20,400	-		20,400	-		20,400	2,040	18,360	11,383	6,977
50	Beach Rake (1)	2019-2028	93,600	-		93,600	-		93,600	9,360	84,240	52,229	32,011
51	Golf Cart (4)	2019-2028	10,200	-		10,200	-		10,200	1,020	9,180	5,692	3,488
52	Leaf Blower (1)	2019-2028	520	-		520	-		520	52	468	290	178
53	Pressure Washer (1)	2019-2028	10,400	-		10,400	-		10,400	1,040	9,360	5,803	3,557
54	Wood Chipper (1)	2019-2028	33,700	-		33,700	-		33,700	3,370	30,330	18,805	11,525
55	Mower Outfront (3)	2019-2028	25,500	-		25,500	-		25,500	2,550	22,950	14,229	8,721
56	Mower Riding (3)	2019-2028	140,000	-		140,000	-		140,000	14,000	126,000	78,120	47,880
57	Mower Walk Behind (1)	2019-2028	7,300	-		7,300	-		7,300	730	6,570	4,073	2,497
58	Pickup 1 ton Crew Cab (3)	2019-2028	134,000	-		134,000	-		134,000	13,400	120,600	74,772	45,828
59	Pickup 1 ton Snow Plow (1)	2019-2028	52,000	-		52,000	-		52,000	5,200	46,800	29,016	17,784
60	Refuse Rear Load Mini Packer (1)	2019-2028	169,300	-		169,300	-		169,300	16,930	152,370	94,469	57,901



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton

Service: Services Related to a Highway - Vehicles and Equipment

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New		Other (e.g. 10% Statutory Deduction)	Total	Residential Share 62%	Non-Residential Share 38%
	2019-2031												
61	Refuse Side Loader (1)	2019-2028	169,300	-		169,300	-		169,300	16,930	152,370	94,469	57,901
62	Service Body Truck (3/4 ton) (3)	2019-2028	66,300	-		66,300	-		66,300	6,630	59,670	36,995	22,675
63	Sidewalk Sweeper (1)	2019-2028	59,200	-		59,200	-		59,200	5,920	53,280	33,034	20,246
64	Tractor Loader/Backhoe Small (97-182 HP 6.5 cu yards) (1)	2019-2028	114,200	-		114,200	-		114,200	11,420	102,780	63,724	39,056
65	Trailer Float (1)	2019-2028	20,400	-		20,400	-		20,400	2,040	18,360	11,383	6,977
66	Utility Vehicle (5)	2019-2028	20,400	-		20,400	-		20,400	2,040	18,360	11,383	6,977
67	Utility Vehicle - Toolcat (2)	2019-2028	102,000	-		102,000	-		102,000	10,200	91,800	56,916	34,884
	Forestry (Roads & Parks):												
68	Pickup 3/4 Ton	2019-2031	42,700	-		42,700	21,350		21,350	2,135	19,215	11,913	7,302
69	Wood Chipper (2)	2019-2031	188,000	-		188,000	-		188,000	18,800	169,200	104,904	64,296
70	Aerial Truck (1)	2019-2031	291,000	-		291,000	-		291,000	29,100	261,900	162,378	99,522
71	Dump Truck Tandem Axle Chipper Body (1)	2019-2023	202,000	-		202,000	-		202,000	20,200	181,800	112,716	69,084
	Horticulture:												
72	Tandem Axle Trailer (1)	2019-2031	12,500	-		12,500	-		12,500	1,250	11,250	6,975	4,275
73	Aluminum Dump/Crew (2)	2019-2023	145,600	-		145,600	-		145,600	14,560	131,040	81,245	49,795
	Traffic												
74	Signal Bucket Trucks (2)	2019-2023	573,000	-		573,000	-		573,000		573,000	355,260	217,740
75	Signal Tech Van	2019-2024	80,700	-		80,700	-		80,700		80,700	50,034	30,666
76	Foreman's Pickup Truck	2019-2026	54,600	-		54,600	-		54,600		54,600	33,852	20,748
77	Investigator Pickup Truck	2019-2027	57,300	-		57,300	-		57,300		57,300	35,526	21,774
78	Aerial Truck (2)	2019-2031	630,000	-		630,000	-		630,000		630,000	390,600	239,400
79	Line Painter - Walk Behind (2)	2019-2031	10,200	-		10,200	-		10,200		10,200	6,324	3,876
80	Sign Trucks (2)	2019-2031	1,275,000	-		1,275,000	-		1,275,000		1,275,000	790,500	484,500
	Recreation												
81	Ice Resurfacer (2)	2024-2028	191,000	-		191,000	-		191,000	19,100	171,900	106,578	65,322
82	Compact Car (3)	2024-2028	84,300	-		84,300	-		84,300	8,430	75,870	47,039	28,831
	Building & By-law Enforcement												
83	Hybrid Vehicles (6)	2019-2023	239,000	-		239,000	-		239,000	23,900	215,100	133,362	81,738
84	Compact Pick-up (1)	2019-2023	25,850	-		25,850	-		25,850	2,585	23,265	14,424	8,841
	Parks & Roads:												
85	Refuse Rear Load (11)	2019-2028	246,800	-		246,800	-		246,800	12,340	234,460	145,365	89,095



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton

Service: Services Related to a Highway - Vehicles and Equipment

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New		Other (e.g. 10% Statutory Deduction)	Total	Residential Share 62%	Non-Residential Share 38%
	Roads:												
86	SUV 2 Wheel Drive (15)	2019-2031	468,000	-		468,000	-		468,000		468,000	290,160	177,840
87	SUV 4 Wheel Drive (5)	2019-2031	208,000	-		208,000	-		208,000		208,000	128,960	79,040
88	Pickup 1/2 ton (5)	2019-2031	146,000	-		146,000	-		146,000		146,000	90,520	55,480
89	SUV 4 Wheel Drive (11)	2019-2031	458,000	-		458,000	-		458,000		458,000	283,960	174,040
90	SUV 2 Wheel Drive (3)	2019-2031	94,000	-		94,000	-		94,000		94,000	58,280	35,720
91	Pickup 1/2 ton (1)	2019-2031	29,100	-		29,100	-		29,100		29,100	18,042	11,058
	Total		14,695,337	-	-	14,695,337	21,350	-	14,673,987	463,102	14,210,885	8,810,748	5,400,136



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Public Works - Facilities

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Subtotal	Less:	Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development		Other (e.g. 10% Statutory Deduction)	Total	Residential Share 62%	Non-Residential Share 38%
1	Dundas Expansion	2019-2031	1,650,000	-		1,650,000	-		1,650,000		1,650,000	1,023,000	627,000
2	Lower Stoney Creek Expansion	2019-2031	1,960,000	-		1,960,000	-		1,960,000		1,960,000	1,215,200	744,800
3	North District Expansion	2019-2031	1,020,000	-		1,020,000	-		1,020,000		1,020,000	632,400	387,600
4	South Mountain Expansion	2019-2031	2,860,000	-		2,860,000	-		2,860,000		2,860,000	1,773,200	1,086,800
5	Upper Stoney Creek/Binbrook Expansion	2019-2031	1,640,000	-		1,640,000	-		1,640,000		1,640,000	1,016,800	623,200
6	Waterdown/Carlisle Expansion	2019-2031	1,780,000	-		1,780,000	-		1,780,000		1,780,000	1,103,600	676,400
7	Provision for Expansion of Parks Works Yards - Binbrook*	2019-2031	573,500	-		573,500	-		573,500	57,350	516,150	320,013	196,137
8	Streetlighting Facility Expansion (Storage)	2019-2023	1,200,000	-		1,200,000	318,200		881,800		881,800	546,716	335,084
9	Additional Snow Dump (Land)	2025-2028	5,750,000	-		5,750,000	-		5,750,000		5,750,000	3,565,000	2,185,000
10	Water & Wastewater Office/Storage Expansion	2019-2024	17,250,000	-		17,250,000	10,225,500		7,024,500		7,024,500	4,355,190	2,669,310
11	Confederation Park - Sports Park Development - Phase 2 (Maintenance Yard & Field House)*	2020	4,182,000	-		4,182,000	418,200		3,763,800	376,380	3,387,420	2,100,200	1,287,220
12	Public Works Depot - Bayfront Park (Design & Construction)*	2019	3,900,000	-		3,900,000	1,950,000		1,950,000	195,000	1,755,000	1,088,100	666,900
13	Reserve Fund Adjustment					-	3,763,222		(3,763,222)		(3,763,222)	(2,333,197)	(1,430,024)
	Total		43,765,500	-	-	43,765,500	16,675,122	-	27,090,379	628,730	26,461,649	16,406,222	10,055,426

*Related to Parks Department therefore a 10% mandatory deduction has been attributed



5.3.3 Police Services

The Hamilton Police Service operates from several facilities, some of which are owned while others are leased. These facilities combined provide 327,302 sq.ft. of building area, providing for an average level of service of 0.58 sq.ft. per capita or \$262 per capita. This level of service provides the City with a maximum D.C.-eligible amount for recovery over the 13-year forecast period of \$22,554,091.

The police service has a fleet of 219 vehicles with a useful life of more than six years currently in use. The average level of service for the 10-year period is \$16 per capita, providing for a D.C.-eligible amount over the forecast period of \$1,404,783.

The police service currently has 1,001 members that are outfitted, including 807 sworn officers; 18 senior officers; 88 special constables; 76 auxiliary officers; and 12 cadets. The police service provides equipment and gear for these members, along with equipment for vehicles which are changed out when vehicles are replaced and therefore, often have a life longer than the vehicles themselves. This equipment and gear provide a calculated average level of service for the historic 10-year period of \$22 per capita, providing for a D.C.-eligible amount over the forecast period of \$1,870,171.

The total D.C.-eligible amount over the 13-year forecast period for Police services is \$25,829,045.

To service growth over the 13-year forecast period, a number of projects have been identified for inclusion in the D.C.; they include an Investigative Services Division (I.S.D.) forensics facility, the replacement and expansion of the marine facility, an additional station, as well as additional space for communications, and a backup data/disaster recovery facility. These projects have a gross capital cost of \$57,654,900. Existing Debt for the Divisional 30 Headquarters including principal and interest (discounted) of \$310,378 and existing debt for the Shared Training Facility of \$2,950,561 (including discounted principal and interest) have been included in the D.C. calculations for recovery. The City has identified the need for debenture financing on the I.S.D. Forensics Headquarters which has been estimated using a 15-year term and 5% interest rate, resulting in the inclusion of \$469,698 of (discounted) interest in the D.C. calculation. A deduction of \$22,223,200 has been made to reflect the benefit to growth beyond the 2019 to 2031 period for these facilities as well as a benefit to existing



development deduction of \$15,981,800. A D.C.-eligible amount of \$23,180,536 has been included with respect to Police facilities.

In addition to these facility-related projects, additional vehicles and equipment have been identified to service growth. The total capital cost of these projects has been identified as \$5,852,300. A deduction of \$435,300 has been made to recognize benefit to growth beyond the 13-year forecast, as well as an attribution of \$275,600 to recognize the benefit to existing. This results in a D.C.-eligible amount of \$5,141,000 to be included in the calculation for vehicles and equipment.

A deduction of \$1,146,703 in order to recognize the reserve fund balance has been made resulting in a total D.C.-eligible amount of \$27,175,233 for Police services including \$1,365,647 of debt interest (discounted) which is in addition to the service standard.

The costs for the Hamilton Police Service are shared 62%/38% between residential and non-residential based on the population to employment ratio over the 13-year forecast period.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Police Services

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 62%	Non-Residential Share 38%
Facilities											
1	Marine Facility Expansion & Replacement	2019	5,148,000	-		5,148,000	2,059,200		3,088,800	1,915,056	1,173,744
2	Additional Police Facility Requirements - Station 40	2025	25,500,000	21,981,000		3,519,000	-		3,519,000	2,181,780	1,337,220
3	Investigative Services Division (I.S.D.) Forensics Headquarters	2019	25,824,000	-		25,824,000	13,471,600		12,352,400	7,658,488	4,693,912
4	Growth Related Component of I.S.D. Forensics Headquarters Debt Interest (Discounted)	2019-2033	469,698	-		469,698	-		469,698	291,213	178,485
5	Backup Data Centre/Disaster Recovery Facility Space Expansion	2020	281,000	242,200		38,800	-		38,800	24,056	14,744
6	Debt Principal on Divisional 30 Headquarters	2019	302,808	-		302,808	-		302,808	187,741	115,067
7	Debt Interest (Discounted) on Divisional 30 Headquarters	2019	7,570	-		7,570	-		7,570	4,694	2,877
8	Debt Principal (Discounted) - Shared Training Facility	2019-2027	2,062,182	-		2,062,182	-		2,062,182	1,278,553	783,629
9	Debt Interest (Discounted) - Shared Training Facility	2019-2027	888,379	-		888,379	-		888,379	550,795	337,584
10	Communication/9-1-1 Centre Expansion	2020	500,000	-		500,000	250,000		250,000	155,000	95,000
11	Communications Centre Facility Expansion	2019	401,900	-		401,900	201,000		200,900	124,558	76,342
Vehicles & Equipment											
12	Station 40 Equipment	2025	213,000	183,600		29,400	-		29,400	18,228	11,172
13	Command Van	2020	750,000	-		750,000	275,600		474,400	294,128	180,272
14	Marine Vessel (Hike)	2019	800,000	-		800,000	-		800,000	496,000	304,000
15	Ice Rescue	2020	82,000	-		82,000	-		82,000	50,840	31,160
16	Additional Cruisers (46)	2019-2031	1,490,400	-		1,490,400	-		1,490,400	924,048	566,352
17	Equipment for Officers (200)	2019-2031	680,000	68,000		612,000	-		612,000	379,440	232,560
18	Equipment for Senior Officers (2)	2019-2031	7,200	700		6,500	-		6,500	4,030	2,470



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Police Services

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 62%	Non-Residential Share 38%
19	Equipment for Special Constables (21)	2019-2031	46,200	4,600		41,600	-		41,600	25,792	15,808
20	Equipment for Cadets (2)	2019-2031	5,400	500		4,900	-		4,900	3,038	1,862
21	Equipment for Auxiliary Officers (12)	2019-2031	30,600	3,100		27,500	-		27,500	17,050	10,450
22	Portable Radios (200)	2019-2031	1,177,100	117,700		1,059,400	-		1,059,400	656,828	402,572
23	Vehicle Equipment (46)	2019-2031	142,600	14,300		128,300	-		128,300	79,546	48,754
24	In-Car Mobile Radios / Electronics (46)	2019-2031	427,800	42,800		385,000	-		385,000	238,700	146,300
25	Reserve Fund Adjustment						1,146,703		(1,146,703)	(710,956)	(435,747)
	Total		67,237,836	22,658,500	-	44,579,336	17,404,103	-	27,175,233	16,848,644	10,326,588



5.3.4 Fire Protection Services

Hamilton currently operates its fire services from 255,838 sq.ft. of facility space, providing for a per capita average level of service of 0.48 sq.ft. per capita or \$195 per capita. This level of service provides the City with a maximum D.C.-eligible amount for recovery over the 13-year forecast period of \$16,766,041.

The fire department has a current inventory of 118 vehicles. The total D.C.-eligible amount calculated for fire vehicles over the forecast period is \$10,525,530, based on a standard of \$122 per capita.

The fire department provides 5,206 items of equipment and gear for the use in fire services. This results in a calculated average level of service for the historic 10-year period of \$37 per capita, providing for a D.C.-eligible amount over the forecast period of \$3,224,968 for small equipment and gear.

The total D.C.-eligible amount over the 13-year forecast period for Fire Protection services is \$30,516,538.

Four facilities related projects have been identified to service growth over the forecast period at a cost of \$30,547,000. A deduction of \$5,565,100 has been made to recognize the benefit to growth beyond the 13-year forecast period, in addition to a deduction of \$5,633,900 to reflect the benefit to existing development. Further, outstanding discounted debt, related to Station 20 and the Shared Training Facility, in the amount of \$4,620,316 (including \$140,135 of discounted interest payments) has been included in the D.C. As mentioned in section 4.7, the City has identified the need for growth-related financing for the new Waterdown station. This debenture has been assumed to have a 15-year term at a rate of 5%, resulting in the inclusion of \$838,420 (discounted) interest in the D.C. calculation.

Additional vehicles and equipment have also been identified at a gross capital cost of \$4,105,000. The recovery of outstanding debt (principal and discounted interest) related to a Station 20 vehicle has been included in the D.C. calculation at an amount of \$88,079. Deductions were then made of \$785,000 attributable to growth in the post 2031 period and \$66,900 is attributable to existing benefit. These deductions result in a net D.C.-eligible cost of \$3,341,179 to be included in the calculation for Fire vehicles and equipment.



In order to reflect the existing reserve fund balance, a deduction to recognize the surplus of \$4,217,369 has been made. Therefore, the net amount to be included in the D.C. for the 13-year forecast period for all Fire Services related capital costs is \$23,930,547

These costs are shared between residential and non-residential based on the population to employment ratio over the forecast period, resulting in 62% being allocated to residential development and 38% being allocated to non-residential development.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Fire Services

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 62%	Non-Residential Share 38%
	Fire Facilities										
1	New Station Waterdown Growth Area	2019-2021	7,500,000	-		7,500,000	-		7,500,000	4,650,000	2,850,000
2	Growth Related Debt Interest (Discounted) - New Station Waterdown Growth Area	2022-2037	838,420	-		838,420	-		838,420	519,820	318,600
3	New Station Elfrida/Upper Stoney Creek Growth Area	2025-2027	8,432,000	5,565,100		2,866,900	-		2,866,900	1,777,478	1,089,422
4	Provision for Station Expansion/Renovation - Upper Stoney Creek	2027-2028	2,473,000	-		2,473,000	1,237,000		1,236,000	766,320	469,680
5	Mechanical/Stores Relocation/Expansion	2021-2024	12,142,000	-		12,142,000	4,396,900		7,745,100	4,801,962	2,943,138
6	Outstanding Debt - Station 20 - Principal	2019-2023	859,624	-		859,624	-		859,624	532,967	326,657
7	Outstanding Debt - Station 20 - Interest (Discounted)	2019-2023	71,725	-		71,725	-		71,725	44,470	27,256
8	Outstanding Debt- Shared Training Facility - Principal	2019-2027	3,620,557	-		3,620,557	-		3,620,557	2,244,745	1,375,812
9	Outstanding Debt- Shared Training Facility - Interest (Discounted)	2019-2027	68,410	-		68,410	-		68,410	42,414	25,996
	Fire Vehicles										
10	Rural Pumper for Elfrida Growth Area (New Station)	2026-2027	755,000	-		755,000	-		755,000	468,100	286,900
11	Engine for Elfrida Growth Area (New Station)	2026-2027	814,000	537,200		276,800	-		276,800	171,616	105,184
12	Rural Tanker for Waterdown Growth Area - New Station	2021-2022	705,000	-		705,000	-		705,000	437,100	267,900
13	Urban Pumper for Waterdown Growth Area - New Station	2021-2022	814,000	-		814,000	-		814,000	504,680	309,320



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Fire Services

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 62%	Non-Residential Share 38%
14	Outstanding Debt on Stn 20 Vehicle - Principal	2019-2023	81,295	-		81,295	-		81,295	50,403	30,892
15	Outstanding Debt on Stn 20 Vehicle - Interest (Discounted)	2019-2023	6,783	-		6,783	-		6,783	4,206	2,578
	Fire Equipment			-			-				
	Station #31 Waterdown			-			-				
16	Air compressor	2020-2021	3,000	-		3,000	-		3,000	1,860	1,140
17	Washer Extractor	2020-2021	17,000	-		17,000	-		17,000	10,540	6,460
18	Portable Radios, Chargers & Batteries	2020-2021	25,000	-		25,000	-		25,000	15,500	9,500
19	S.C.B.A.'s	2020-2021	31,000	-		31,000	-		31,000	19,220	11,780
20	Portable Pumps	2020-2021	18,000	-		18,000	-		18,000	11,160	6,840
21	Multi Gas Detectors	2020-2021	6,000	-		6,000	-		6,000	3,720	2,280
22	Defibrillators	2020-2021	6,000	-		6,000	-		6,000	3,720	2,280
23	Thermal Imaging Camera	2020-2021	13,000	-		13,000	-		13,000	8,060	4,940
24	Auto Extrication Equipment	2020-2021	57,000	-		57,000	-		57,000	35,340	21,660
25	Air Bags	2020-2021	11,000	-		11,000	-		11,000	6,820	4,180
26	Fire Hose	2020-2021	43,000	-		43,000	-		43,000	26,660	16,340
27	Bunker Gear	2020-2021	41,000	-		41,000	-		41,000	25,420	15,580
28	Station Exhaust System	2020-2021	56,000	-		56,000	-		56,000	34,720	21,280
29	Protective Gear & Uniform Clothing	2020-2021	48,000	-		48,000	-		48,000	29,760	18,240
	New Station Elfrida Growth Area		-	-			-				
30	Air Compressor	2026-2027	3,000	2,000		1,000	-		1,000	620	380
31	Washer Extractor	2026-2027	17,000	11,200		5,800	-		5,800	3,596	2,204
32	Portable Radios, Chargers & Batteries	2026-2027	25,000	16,500		8,500	-		8,500	5,270	3,230
33	S.C.B.A.'s	2026-2027	31,000	20,500		10,500	-		10,500	6,510	3,990



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Fire Services

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 62%	Non-Residential Share 38%
34	Portable Pumps	2026-2027	18,000	11,900		6,100	-		6,100	3,782	2,318
35	Multi Gas Detectors	2026-2027	6,000	4,000		2,000	-		2,000	1,240	760
36	Defibrillators	2026-2027	6,000	4,000		2,000	-		2,000	1,240	760
37	Thermal Imaging Camera	2026-2027	13,000	8,600		4,400	-		4,400	2,728	1,672
38	Auto Extrication Equipment	2026-2027	57,000	37,600		19,400	-		19,400	12,028	7,372
39	Air Bags	2026-2027	11,000	7,300		3,700	-		3,700	2,294	1,406
40	Fire Hose	2026-2027	43,000	28,400		14,600	-		14,600	9,052	5,548
41	Bunker Gear	2026-2027	41,000	27,100		13,900	-		13,900	8,618	5,282
42	Station Exhaust System	2026-2027	56,000	37,000		19,000	-		19,000	11,780	7,220
43	Protective Gear & Uniform Clothing	2026-2027	48,000	31,700		16,300	-		16,300	10,106	6,194
	Glanbrook Growth Area Station Expansion/Renovation										
44	Additional Firefighting Equipment at Glanbrook Growth Area	2021-2022	89,000	-		89,000	22,300		66,700	41,354	25,346
	Winona Growth Area										
45	Additional Firefighting Equipment at Winona Growth Area	2021-2022	89,000	-		89,000	22,300		66,700	41,354	25,346
	Upper Stoney Creek Growth Area										
46	Additional Firefighting Equipment at Upper Stoney Creek Station	2026-2027	89,000	-		89,000	22,300		66,700	41,354	25,346
47	Reserve Fund Adjustment			-		-	4,217,369		(4,217,369)	(2,614,769)	(1,602,600)
	Total		40,198,816	6,350,100	-	33,848,716	9,918,169	-	23,930,547	14,836,939	9,093,608



5.3.5 Stormwater Drainage and Control Services

Wood Environment & Infrastructure Solutions (Wood) undertook an assessment of the needs for stormwater management within the serviced areas of the City. Appendix G provides the detailed assessment and allocation of works between existing benefit and growth. Historically, the Stormwater D.C. calculation has been undertaken on a City-wide basis, but under Bill 73, Council is required to consider the use of area-specific charges when completing a D.C. background study. Based on staff recommendations, Council has directed as per report FCS18034, the use of an area-specific D.C. calculation for Stormwater services on the basis of the combined sewer system versus the separated sewer system for the 2019 D.C. background study. It was identified that some of the stormwater works, including channels, drainage and studies, benefit both the combined and the separated systems. These works were proportioned between the combined and separated systems based on the anticipated growth in population and employment in each. Other works, such as on-site controls, are required in the combined system, as the development of stormwater management ponds is not possible; whereas, ponds are required for development in the separated system. As such, Wood has identified the works required in each system and costs have been allocated to these respective areas.

Within the separated sewer system Wood has identified \$681,578,067 in works required. In addition, the City has identified \$26,713,318 in stormwater studies, provisions for Best Efforts Agreements in the amount of \$952,693 and outstanding stormwater credits in the amount of \$18,626,355 to be included in the calculations. Outstanding debt owed to the Ontario Land Corporation is included in the D.C. at an amount of \$1,404,656 (apportioned between the combined and separated sewer systems). An amount of \$6,211,845 has been included in the D.C. calculation to recognize the reserve fund deficit, as well as \$274,463 of existing debt. The resulting gross cost in the separated sewer system is \$735,761,398. Of this amount, \$26,629,917 has been identified as benefiting existing development and \$134,109,622 is a benefit to growth beyond the 13-year forecast period. A further deduction of \$226,174,652 has been made to recognize the non-residential portion of the residential ponds. These deductions result in a net amount of \$348,847,708 attributable to growth over the 13-year forecast period.



Within the combined sewer system area, Wood has identified \$9,000,000 in future capital works. Staff have also identified \$7,876,682 of stormwater studies within the combined sewer system area. \$1,902,094 of debt owed to the Ontario Land Corporation has also been identified in the D.C. recoverable costs. \$114,198 has been included in the D.C. calculation in order to reflect the reserve fund deficit, resulting in a gross cost of \$18,892,974. A deduction of \$107,336 has been made to reflect the benefit to existing in addition to \$79,264, which reflects the benefit to growth beyond the 13-year forecast period. This results in a D.C. eligible amount of \$18,706,374 for the combined sewer system area.

The existing reserve fund deficit has been allocated amongst the separated versus combined systems based on the proportion of D.C. eligible costs identified in each respective system in the 2014 D.C. background study. As discussed in section 7.4.1, it is recommended that the City split out the reserve fund to reflect the area-specific charges.

Although the D.C. charge will be lower in the combined sewer system for the stormwater component, landowners are required to pay for additional on-site works, and the relative reduction would assist in providing a more equitable cost for development in this area.

The following is a summary of the gross and net recoverable costs for the separated versus combined system based on Wood's assessment and all other adjustments:



Separated Sewer System	Gross Cost	Net D.C. Recoverable Cost
Future Capital Works	\$681,578,067	\$295,607,777
Stormwater Studies	\$26,713,318	\$25,769,918
Reserve Fund Adjustment	\$6,211,845	\$6,211,845
Provision for Stormwater Credits	\$18,626,355	\$18,626,355
Provision for Best Efforts Agreements	\$952,693	\$952,693
Outstanding Debt to Ontario Land Corp.	\$1,404,656	\$1,404,656
Existing Debt	\$274,463	\$274,463
Total	\$735,761,398	\$348,847,708

Combined Sewer System	Gross Cost	Net D.C. Recoverable Cost
Future Capital Works	\$9,000,000	\$9,000,000
Stormwater Studies	\$7,876,682	\$7,690,082
Outstanding Debt to Ontario Land Corp.	\$1,902,094	\$1,902,094
Reserve Fund Adjustment	\$114,198	\$114,198
Total	\$18,892,974	\$18,706,374

The costs for all stormwater services except facilities are shared 44%/56% between residential and non-residential based on the benefiting lands associated with the stormwater management works over the 13-year forecast period.

For stormwater facilities within the separated system, the costs identified are attributable 100% to residential development. Non-residential development is required to provide facilities as part of the local service policy.

The costs for stormwater in the combined system are attributable 100% to residential.



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton

Service: Stormwater Works & Studies (excluding Facilities) - Within Separated Sewer System

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 44%	Non-Residential Share 56%
1	Open Watercourses - Channel System Improvements - Residential (Category A)	2019-2023	2,913,000	-		2,913,000	-		2,913,000	1,281,720	1,631,280
2	Open Watercourses - Channel System Improvements - Residential (Category A)	2024-2028	1,410,000	-		1,410,000	-		1,410,000	620,400	789,600
3	Open Watercourses - Channel System Improvements - Residential (Category A)	2029-2031	16,600,000	3,793,333		12,806,667	-		12,806,667	5,634,933	7,171,734
4	Open Watercourses - Channel System Improvements - Non-Residential (Category A)	2019-2023	1,590,000	-		1,590,000	795,000		795,000	349,800	445,200
5	Open Watercourses - Channel System Improvements - Non-Residential (Category A)	2029-2031	21,497,000	-		21,497,000	2,667,500		18,829,500	8,284,980	10,544,520
6	Off Site Erosion Works (Category B)	2019-2031	25,804,837	-		25,804,837	12,339,935		13,464,902	5,924,557	7,540,345
7	Oversizing of trunk sewers and culverts (Category D)	2019-2023	14,118,070	-		14,118,070	-		14,118,070	6,211,951	7,906,119
8	Oversizing of trunk sewers and culverts (Category D)	2024-2028	2,784,639	-		2,784,639	-		2,784,639	1,225,241	1,559,398
8	Culverts and Bridges not previously identified (Category E)	2019-2023	2,529,000	-		2,529,000	337,200		2,191,800	964,392	1,227,408
9	Culverts and Bridges not previously identified (Category E)	2024-2031	6,912,600	334,390		6,578,210	1,331,940		5,246,270	2,308,359	2,937,911
10	GRIDS Related Open Watercourses	2019-2031	19,497,638	4,716,709		14,780,929	-		14,780,929	6,503,609	8,277,320
11	Existing Debt on Growth Related Projects - Principal (Discounted)	2019-2031	212,923	-		212,923	-		212,923	93,686	119,237
12	Existing Debt on Growth Related Projects - Interest (Discounted)	2019-2031	61,539	-		61,539	-		61,539	27,077	34,462
13	Outstanding Debt to Ontario Land Corporation	2019-2031	1,404,656	-		1,404,656	-		1,404,656	618,049	786,607
14	Reserve Fund Adjustment		1,845,614			1,845,614	-		1,845,614	812,070	1,033,544
	Stormwater Studies:					-	-		-	-	-
15	Stormwater Management Monitoring (Separated System)	2019-2031	8,000,000	-		8,000,000	-		8,000,000	3,520,000	4,480,000



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton

Service: Stormwater Works & Studies (excluding Facilities) - Within Separated Sewer System

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 44%	Non-Residential Share 56%
16	Specific Area Water Shed Master Plans for Separated System Area	2019-2031	3,750,000	-		3,750,000	-		3,750,000	1,650,000	2,100,000
17	Airport Block Servicing Studies (Separated System)	2019-2028	6,000,000	-		6,000,000	-		6,000,000	2,640,000	3,360,000
18	Cherry Beach EA & Preliminary Design Study (Lower Stoney Creek) (Separated System)	2022	500,000	-		500,000	-		500,000	220,000	280,000
19	Falkirk East Storm Drainage Study (Separated System)	2025	500,000	-		500,000	-		500,000	220,000	280,000
20	Stoney Creek Watercourse 6 Drainage Improvements Hwy. 8 to Lake Ontario (Separated System)	2019	1,500,000	-		1,500,000	-		1,500,000	660,000	840,000
21	Stoney Creek Watercourse 7 Drainage Improvements Upstream of Barton to Hwy. 8 (Separated System)	2020	750,000	-		750,000	-		750,000	330,000	420,000
22	Watercourse 10 - S.C.U.B.E. Drainage Improvement Study (Separated System)	2020	500,000	-		500,000	-		500,000	220,000	280,000
23	Stormwater Master Plan Update - City Wide (Proportion for Separated Sewer System)	2019	208,717	-		208,717	41,743		166,973	73,468	93,505
24	Stormwater Master Plan Update - City Wide (Proportion for Separated Sewer System)	2024	1,252,301	-		1,252,301	250,460		1,001,840	440,810	561,031
25	Stormwater Master Plan Update - City Wide (Proportion for Separated Sewer System)	2029	1,252,301	400,736		851,564	250,460		601,104	264,486	336,618
26	Unidentified Studies (Separated System)	2019-2031	2,500,000	-		2,500,000	-		2,500,000	1,100,000	1,400,000
	Total		145,894,835	9,245,168	-	136,649,667	18,014,239	-	118,635,428	52,199,588	66,435,840



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton

Service: Stormwater Facilities - Within Separated Sewer System

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 100%	Non-Residential Share 0%
1	Stormwater Management Quality/Quantity Facilities - Residential	2019-2023	89,997,369	-		89,997,369	-		89,997,000	89,997,000	-
2	Stormwater Management Quality/Quantity Facilities - Residential	2024-2031	89,686,075	-		89,686,075	5,922,300		83,764,000	83,764,000	-
3	Provision for Non-Residential Portion of Residential Ponds	2019-2031	(1,022,108)	-		(1,022,108)	-		(1,022,000)	(1,022,000)	-
4	Stormwater Management Quality/Quantity Facilities - Non-Residential	2019-2023	4,122,067	-		4,122,067	2,018,178	2,103,889	-	-	-
5	Stormwater Management Quality/Quantity Facilities - Non-Residential	2024-2031	103,879,110	-		103,879,110	675,200	103,203,910	-	-	-
6	Provision for Residential Portion of Non-Residential Ponds	2024-2031	651,896	-		651,896	-		652,000	652,000	-
7	GRIDS Related SWM Projects - Residential Portion	2019-2031	98,626,698	65,751,132		32,875,566	-		32,876,000	32,876,000	-
8	GRIDS Related SWM Projects - Non-Residential Portion	2019-2031	179,980,176	59,113,322		120,866,854	-	120,866,853	-	-	-
9	Provision for Stormwater Credits	2019-2031	18,626,355	-		18,626,355	-		18,626,355	18,626,355	-
10	Provision for Best Efforts Agreements	2019-2031	952,693	-		952,693	-		952,693	952,693	-
11	Reserve Fund Adjustment		4,366,231	-		4,366,231	-		4,366,231	4,366,231	-
	Total		589,866,563	124,864,454	-	465,002,109	8,615,678	226,174,652	230,212,280	230,212,280	-



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton

Service: Stormwater Facilities - Within Combined Sewer System

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 100%	Non-Residential Share 0%
1	Stormwater Management Quality/Quantity Facilities (Combined)	2024-2031	6,000,000	-		6,000,000	-		6,000,000	6,000,000	-
2	Oversizing of trunk sewers and culverts (Category D)	2019-2023	2,000,000	-		2,000,000	-		2,000,000	2,000,000	-
3	Oversizing of trunk sewers and culverts (Category D)	2024-2031	1,000,000	-		1,000,000	-		1,000,000	1,000,000	-
4	Outstanding Debt to Ontario Land Corporation	2019-2031	1,902,094	-		1,902,094	-		1,902,094	1,902,094	-
	Stormwater Studies:										
5	Specific Area Water Shed Master Plans for Combined Sewer Area	2019-2031	3,750,000	-		3,750,000	-		3,750,000	3,750,000	-
6	Ainslie Wood Westdale Stormwater Drainage Master Plan (Combined System)	2019	750,000	-		750,000	-		750,000	750,000	-
7	Ainslie Wood Westdale Neighbourhoods Class EA (Combined System)	2023	340,000	-		340,000	-		340,000	340,000	-
8	Unidentified Studies (Combined System)	2019-2031	2,500,000	-		2,500,000	-		2,500,000	2,500,000	-
9	Stormwater Master Plan Update - City Wide (Proportion for Combined Sewer System)	2019	41,283	-		41,283	8,257		33,027	33,027	-
10	Stormwater Master Plan Update - City Wide (Proportion for Combined Sewer System)	2024	247,699	-		247,699	49,540		198,160	198,160	-
11	Stormwater Master Plan Update - City Wide (Proportion for Combined Sewer System)	2029	247,699	79,264		168,436	49,540		118,896	118,896	-
12	Reserve Fund Adjustment		114,198	-		114,198	-		114,198	114,198	-
	Total		18,892,974	79,264	-	18,813,711	107,336	-	18,706,374	18,706,374	-



5.3.6 Water and Wastewater Services

GM BluePlan undertook a detailed review of the water and wastewater linear services required to service growth over the forecast period to 2031, details of their work is provided in Appendix F. Table 5-A provides a high-level summary of GM BluePlan's assessment by area throughout the City. In addition to the capital costs they provided, debt obligations and the balance in the City's D.C. reserve funds for water and wastewater services have been included in the summary.

For water services, a total gross cost of \$353,669,700 has been identified for capital projects. Existing debt (discounted) on growth-related projects has been included in the D.C. calculation at an amount of \$106,836. A provision of \$626,489 for Best Efforts has also been included in the D.C. calculation. Future financing requirements have been identified by the City and is based on projects anticipated to be completed within the five-year period of the by-law at a term of 15 years and a rate of 5%. This results in the inclusion of \$32,135,051 in the D.C. for discounted interest. Deductions to the gross cost include a post period benefit of \$78,772,420, a benefit to existing development of \$31,590,500 and \$9,870,000 has been identified as costs that are the direct responsibility of developers as per the City's local service policy. The surplus in the water D.C. reserve fund of \$26,181,280 has also been deducted from the D.C. calculations. The result of these deductions is a net growth-related cost of \$240,123,876 eligible for D.C. funding.

The total program for linear wastewater services, provides for a gross capital cost of \$266,383,000. An additional \$400,431 has been included to reflect the existing debt on growth related wastewater projects. Similar to water services, the need for future financing has been identified at an amount of \$36,844,849 for projects that are anticipated to be completed within the five-year period of the by-law, at an interest rate of 5% and a 15-year term. A Best Efforts provision of \$332,308 has also been included in the D.C. calculation. From the gross amount, deductions have been made to recognize works that will benefit growth in the post 2031 period at an amount of \$40,170,200, works that provide a benefit to existing totaling \$26,169,750 and direct developer contributions totalling \$9,466,000. With a deduction to recognize the D.C. reserve fund deficit of \$44,582,713, the net growth-related costs for inclusion in the D.C. calculations is \$272,737,351.



The upgrades and expansion to the Woodward Wastewater Treatment Plant include works related to water quality, a plant expansion and a Biosolids management facility (summarized in Table 5-B). The cost of these works totals \$927,653,374. The City has been successful in receiving \$274,326,078 of grant funding from both the Provincial and Federal governments. The water quality and Biosolids Management facility will also benefit existing development and therefore, a deduction of \$295,267,624 has been made. Updated projections based on recent flow measurement at the W.W.T.P. identified there would be some post period benefit beyond the 2031 forecast period. A 25% post period benefit was applied to these projects resulting in a \$89,514,918 deduction. The City's wastewater treatment D.C. reserve fund, of \$64,665,961 has also been deducted from the gross cost of the projects. The net growth-related costs for inclusion in the D.C. calculations is therefore \$203,878,794.

The growth-related costs have been allocated between residential and non-residential development based on flow requirements which results in a 63% allocation to residential and a 37% allocation to non-residential.



Table 5-A

Linear Water and Wastewater Programs	Gross Estimated Cost	Post Period Benefit	Existing Benefit	Direct Developer Contribution	Reserve Fund Balance	Net Growth Related Cost
Water:						-
Ancaster Water Distribution System	31,804,000	672,500	7,402,000	-		23,729,500
Waterdown Water Distribution System	20,414,000	811,000	3,554,000	408,000		15,641,000
Binbrook Water Distribution System	11,465,000	-	-	729,000		10,736,000
A.E.G.D./Mount Hope Water Distribution System	15,941,000	-	-	3,636,000		12,305,000
Hamilton Mountain Water Distribution System	50,778,700	6,636,970	-	1,492,000		42,649,730
Stoney Creek Upper Water Distribution System	102,855,000	30,015,250	5,217,500	3,605,000		64,017,250
Stoney Creek Lower Water Distribution System	8,670,000	-	-	-		8,670,000
City Wide Water Distribution System	111,742,000	5,636,700	15,417,000	-		90,688,300
Existing Debt (Discounted)	106,836	-	-	-		106,836
New Growth Related Financing (Discounted)	32,135,051	-	-	-		32,135,051
Best Efforts Provision	626,489	-	-	-		626,489
Provisional Post Period Benefit Deduction	-	35,000,000	-	-		(35,000,000)
Reserve Fund Balance					26,181,280	(26,181,280)
Total Water	386,538,076	78,772,420	31,590,500	9,870,000	26,181,280	240,123,876
Wastewater:						-
Ancaster Sanitary Sewage System	3,090,000	741,000	-	838,000		1,511,000
Waterdown Sanitary Sewage System	11,719,000	300,800	7,322,000	714,000		3,382,200
Binbrook Sanitary Sewage System	2,406,000	-	-	619,000		1,787,000
A.E.G.D./Mount Hope Sanitary Sewage System	31,659,000	-	-	3,294,000		28,365,000
Hamilton Mountain Sanitary Sewage System	90,365,000	8,840,000	-	532,000		80,993,000
Stoney Creek Upper Sanitary Sewage System	30,084,000	18,279,000	-	3,107,000		8,698,000
Stoney Creek Lower Sanitary Sewage System	27,298,000	2,009,400	184,000	362,000		24,742,600
City Wide Sanitary Sewage System	69,762,000	-	18,663,750	-		51,098,250
Existing Debt (Discounted)	400,431	-	-	-		400,431
New Growth Related Financing (Discounted)	36,844,849	-	-	-		36,844,849
Best Efforts Provision	332,308	-	-	-		332,308
Provisional Post Period Benefit Deduction	-	10,000,000	-	-		(10,000,000)
Reserve Fund Balance					(44,582,713)	44,582,713
Total Wastewater	303,960,588	40,170,200	26,169,750	9,466,000	(44,582,713)	272,737,351
Total Water & Wastewater	690,498,664	118,942,620	57,760,250	19,336,000	(18,401,433)	512,861,227



Table 5-B

Wastewater Facilities	Gross Capital Cost	Grants	Post Period Benefit	Existing Benefit	Reserve Fund Balance	Net Growth Related Cost
Water Quaility	531,839,374	260,026,078	11,411,201	226,168,493		34,233,602
Plant Expansion	296,374,000	-	74,093,500	-		222,280,500
Biosolids Management Facility	99,440,000	14,300,000	4,010,217	69,099,130		12,030,652
Reserve Fund Balance					64,665,961	(64,665,961)
Total Capital Costs	927,653,374	274,326,078	89,514,918	295,267,624	64,665,961	203,878,794



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Water Services

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 63%	Non-Residential Share 37%
1	Ancaster Water Distribution System	2019-2023	31,804,000	672,500		31,131,500	7,402,000		23,729,500	14,949,585	8,779,915
2	Waterdown Water Distribution System	2019-2023	20,414,000	811,000		19,603,000	3,554,000	408,000	15,641,000	9,853,830	5,787,170
3	Binbrook Water Distribution System	2019-2023	11,465,000	-		11,465,000	-	729,000	10,736,000	6,763,680	3,972,320
4	AEGD/Mount Hope Water Distribution System	2019-2023	761,000	-		761,000	-		761,000	479,430	281,570
5	AEGD/Mount Hope Water Distribution System	2024-2031	15,180,000	-		15,180,000	-	3,636,000	11,544,000	7,272,720	4,271,280
6	Hamilton Mountain Water Distribution System	2019-2023	48,495,700	6,636,970		41,858,730	-	1,277,000	40,581,730	25,566,490	15,015,240
7	Hamilton Mountain Water Distribution System	2024-2031	2,283,000	-		2,283,000	-	215,000	2,068,000	1,302,840	765,160
8	Stoney Creek Upper Water Distribution System	2019-2023	39,036,000	2,705,250		36,330,750	5,217,500	498,000	30,615,250	19,287,608	11,327,643
9	Stoney Creek Upper Water Distribution System	2024-2031	63,819,000	27,310,000		36,509,000	-	3,107,000	33,402,000	21,043,260	12,358,740
10	Stoney Creek Lower Water Distribution System	2019-2023	1,353,000	-		1,353,000	-		1,353,000	852,390	500,610
11	Stoney Creek Lower Water Distribution System	2024-2031	7,317,000	-		7,317,000	-		7,317,000	4,609,710	2,707,290
12	City Wide Water Distribution System	2019-2023	92,448,000	5,636,700		86,811,300	7,917,000		78,894,300	49,703,409	29,190,891
13	City Wide Water Distribution System	2024-2031	19,294,000	-		19,294,000	7,500,000		11,794,000	7,430,220	4,363,780
14	Existing Debt Principal (Discounted)	2019-2023	98,608	-		98,608	-		98,608	62,123	36,485
15	Existing Debt Interest (Discounted)	2019-2023	8,228	-		8,228	-		8,228	5,183	3,044
16	Growth Related Financing Costs (Discounted)	2019-2034	32,135,051	-		32,135,051	-		32,135,051	20,245,082	11,889,969
17	Best Effort Provision	2019-2031	626,489	-		626,489	-		626,489	394,688	231,801
18	Provisional Post Period Benefit Deduction	2019-2031		35,000,000		(35,000,000)	-		(35,000,000)	(22,050,000)	(12,950,000)
19	Reserve Fund Adjustment		-	-		-	26,181,280		(26,181,280)	(16,494,206)	(9,687,073)
	Total		386,538,076	78,772,420	-	307,765,656	57,771,780	9,870,000	240,123,876	151,278,042	88,845,834



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Wastewater - Sewers

Project Number	Increased Service Needs Attributable to Anticipated Development	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 63%	Non-Residential Share 37%
	2019-2031										
1	Ancaster Sanitary Sewage System	2019-2023	3,090,000	741,000		2,349,000	-	838,000	1,511,000	951,930	559,070
2	Waterdown Sanitary Sewage System	2019-2023	11,719,000	300,800		11,418,200	7,322,000	714,000	3,382,200	2,130,786	1,251,414
3	Binbrook Sanitary Sewage System	2019-2023	2,406,000	-		2,406,000	-	619,000	1,787,000	1,125,810	661,190
4	AEGD/Mount Hope Sanitary Sewage System	2019-2023	18,910,000	-		18,910,000	-	-	18,910,000	11,913,300	6,996,700
5	AEGD/Mount Hope Sanitary Sewage System	2024-2031	12,749,000	-		12,749,000	-	3,294,000	9,455,000	5,956,650	3,498,350
6	Hamilton Mountain Sanitary Sewage System	2019-2023	90,297,000	8,840,000		81,457,000	-	532,000	80,925,000	50,982,750	29,942,250
7	Hamilton Mountain Sanitary Sewage System	2024-2031	68,000	-		68,000	-	-	68,000	42,840	25,160
8	Stoney Creek Upper Sanitary Sewage System	2019-2023	2,389,000	-		2,389,000	-	-	2,389,000	1,505,070	883,930
9	Stoney Creek Upper Sanitary Sewage System	2024-2031	27,695,000	18,279,000		9,416,000	-	3,107,000	6,309,000	3,974,670	2,334,330
10	Stoney Creek Lower Sanitary Sewage System	2019-2023	27,298,000	2,009,400		25,288,600	184,000	362,000	24,742,600	15,587,838	9,154,762
11	City Wide Sanitary System	2019-2023	47,106,000	-		47,106,000	11,163,750	-	35,942,250	22,643,618	13,298,633
12	City Wide Sanitary System	2024-2031	22,656,000	-		22,656,000	7,500,000	-	15,156,000	9,548,280	5,607,720
13	Existing Debt Principal	2019-2023	369,593	-		369,593	-	-	369,593	232,844	136,749
14	Existing Debt Interest (Discounted)	2019-2023	30,838	-		30,838	-	-	30,838	19,428	11,410
15	Financing (Linear) (Interest Discounted)	2019-2034	36,844,849	-		36,844,849	-	-	36,844,849	23,212,255	13,632,594
16	Best Effort Provision	2019-2031	332,308	-		332,308	-	-	332,308	209,354	122,954
17	Provisional Post Period Benefit Deduction	2019-2031		10,000,000		(10,000,000)	-	-	(10,000,000)	(6,300,000)	(3,700,000)
18	Reserve Fund Adjustment		44,582,713			44,582,713	-	-	44,582,713	28,087,109	16,495,604
	Total		348,543,301	40,170,200	-	308,373,101	26,169,750	9,466,000	272,737,351	171,824,531	100,912,820



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Wastewater Facilities

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 63%	Non-Residential Share 37%
	Water Quality:										
1	Wastewater Pumping Station	2019-2021	95,974,275	1,836,314		94,137,961	31,641,096	56,987,925	5,508,941	3,470,633	2,038,308
2a	Primary Clarifier - Primary Treatment (Phase 1 - CEPT) - Engineering Included	2019-2021	16,255,669	520,971		15,734,698	8,976,738	5,195,046	1,562,914	984,636	578,278
2b	Primary Clarifier - Primary Treatment (Phase 2 - Tanks) - Engineering Included	2019-2021	52,246,549	820,296		51,426,253	14,134,332	34,831,033	2,460,888	1,550,360	910,529
2c	Primary Clarifier - Other Costs (includes New/Expanded Laboratory/Admin Building)	2019-2021	11,857,782	1,568,785		10,288,997	5,582,644		4,706,354	2,965,003	1,741,351
4a	Tertiary Upgrades - New Secondary/Tertiary Treatment Plant (Phase 1)	2019-2021	134,908,478	1,375,990		133,532,488	52,072,583	77,331,936	4,127,969	2,600,621	1,527,349
5b	Chlorine Contact Tank and Outfall - Secondary/Tertiary Chlorine contact Tank, Outfall and Red Hill Creek Upgrades	2019-2021	43,246,869	997,717		42,249,152	16,081,115	23,174,887	2,993,150	1,885,684	1,107,465
8a	Plant Expansion - Engineering (Projects 1, 4a, 4b, 5, 13) Phase 1	2019-2021	24,810,804	913,658		23,897,146	21,156,173		2,740,974	1,726,813	1,014,160
8b	Plant Expansion - Engineering (Projects 1, 4a, 4b, 5, 13) Phase 2	2019-2021	25,573,521	941,745		24,631,776	21,806,541		2,825,235	1,779,898	1,045,337
8d	Plant Expansion - Engineering - Other Costs (includes WWE Modular Office Building)	2019-2021	8,428,089	310,364		8,117,725	7,186,631		931,093	586,589	344,504
11a	Biogas Digester - Biogas Upgrades	2019-2021	45,005,784	805,742		44,200,042	21,782,816	20,000,000	2,417,226	1,522,852	894,374
13a	Electrical System Upgrades - New Electrical and power systems - Phase 1	2019-2021	63,202,719	1,319,620		61,883,099	22,202,990	35,721,251	3,958,859	2,494,081	1,464,778
14	Collection System Upgrades	2019-2021	10,328,835	-		10,328,835	3,544,835	6,784,000	-	-	-



Infrastructure Costs Covered in the D.C. Calculation

City of Hamilton
Service: Wastewater Facilities

Project Number	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019\$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 63%	Non-Residential Share 37%
	Plant Expansion:		-	-							
4b	Tertiary Upgrades - New Secondary/Tertiary Treatment Plant (Phase 2)	2025-2031	224,800,000	56,200,000		168,600,000	-		168,600,000	106,218,000	62,382,000
8c	Plant Expansion - Engineering (Projects 1, 4a, 4b, 5, 13) Phase 3	2025-2031	28,300,000	7,075,000		21,225,000	-		21,225,000	13,371,750	7,853,250
11b	Biogas Digester - Digesters Upgrades	2025-2031	8,430,000	2,107,500		6,322,500	-		6,322,500	3,983,175	2,339,325
13b	Electrical System Upgrades - New Electrical and power systems - Phase 2	2025-2031	34,844,000	8,711,000		26,133,000	-		26,133,000	16,463,790	9,669,210
	Biosolids Management Facility:										
12	Biosolids Management Facility - Biosolids Thermal Reduction Disposal Facility	2019-2021	99,440,000	4,010,217		95,429,783	69,099,130	14,300,000	12,030,652	7,579,311	4,451,341
	Reserve Fund Adjustment		-	-		-	64,665,961		(64,665,961)	(40,739,555)	(23,926,405)
	Total		927,653,374	89,514,918	-	838,138,456	359,933,584	274,326,078	203,878,794	128,443,640	75,435,154



5.4 Special Area Charges

At present, there are two special area charges in effect which provide for the specific recovery of works which were built by the landowners and would require recovery from development within those areas. Both of these agreements provide for interest to be calculated and recovered in conjunction with the original principal amount. The provisions of these agreements, along with the recalculation of the charges are provided herein.

5.4.1 Dundas/Waterdown Special Area Charge

A financial agreement was entered into with landowners for the construction of wastewater services (Equalization Tank, diversion forcemain and sanitary sewers) which would benefit both Waterdown and Dundas (map of area is provided in Figure 5-1). The total recoverable cost of the work was \$8,150,147. The interest rate calculation as provided for in the agreement was based on prime commercial plus one percent (7.65% at the time of signing). The term on which the calculation was based was a fifteen-year term. In 2018, the City paid off the outstanding balance and has been cash-flowing this amount internally at a rate of 4%. It is anticipated the developments related to this charge will not be fully complete until 2031. As such, the calculations have been updated to include the outstanding balance and interest anticipated over the five-year term of this by-law.



Figure 5-1
Dundas/Waterdown Special Area Charge Map



The original calculation split the total recoverable cost of the work between residential and non-residential development on a 64/36 basis. The residential/non-residential split remains the same for the 2019 D.C. study.

The original calculation was based on 6,100 single detached equivalent (S.D.E.) units, of which 3,245.91 S.D.E. have been collected on. Therefore, the remaining balance to be recovered will be spread over the remaining 2,854.09 S.D.E. units. Further, the non-



residential portion will be spread over the same basis as the original charge, based on the projected non-residential growth in square feet remaining of 3,049,992.

Based on information and calculations provided by City staff, the recalculated interest owing is \$1,145,747. Based on these current figures the special area charge is as follows:

Current Outstanding Balance	\$7,642,871
Interest over the 13 year term	\$1,145,747
Total	\$8,788,618
Residential Share (64%)	\$5,624,716
Remaining SDE	2,854.09
Residential Special Area Charge (as of 2019)	\$1,971
Non-Residential Share (36%)	\$3,163,903
Non-Residential sq.ft. Growth Projection (Remaining)	3,049,992
Special Area Charge per sq.ft. (as of 2019)	\$1.04

As the residential charge is based on a single detached unit, the following charges for all unit types are provided based upon the person per unit relationship discussed in Appendix A:

	Single Detached Equivalent based on P.P.U.	D.C.
Single/Semi-detached units	1.00	\$1,971
Apartments - 2 bedrooms or more	0.59	\$1,154
Apartments - less than 2 bedrooms	0.40	\$789
Other Multiples	0.72	\$1,410
Residential Facility Dwelling Units	0.32	\$637

5.4.2 Binbrook Special Area Charge

The Binbrook special area charge provided for the recovery of water and wastewater projects, but as all of the anticipated development in this area has occurred, this charge will no longer be calculated and included in the D.C.



Chapter 6

D.C. Calculation



6. D.C. Calculation

Table 6-1 calculates the proposed area specific D.C.s to be imposed for stormwater within the combined sewer system area, and Table 6-2 calculates the area specific stormwater charge within the separated sewer system area, both based on an urban 13-year horizon. Table 6-3 calculates the proposed D.C. to be imposed for infrastructure services based upon an urban 13-year horizon (wastewater and water). Table 6-4 calculates the proposed uniform D.C. to be imposed on anticipated development in the City for City-wide services over a 13-year planning horizon. Table 6-5 calculates the proposed uniform D.C. to be imposed on anticipated development in the City for City-wide services over a 10-year planning horizon

The calculation for residential development is generated on a per capita basis and is based upon five forms of housing types (single and semi-detached, apartments 2-bedrooms+, apartments bachelor and 1-bedroom, residential facilities and all other multiples). The non-residential D.C. has been calculated on a per sq.ft. of gross floor area basis for all types of non-residential development (industrial, commercial and institutional).

The D.C.-eligible costs for each service component were developed in Chapter 5 for all City services, based on their proposed capital programs.

For the residential calculations, the total cost is divided by the “gross” (new resident) population to determine the per capita amount. The eligible D.C. cost calculations set out in Chapter 5 are based on the net anticipated population increase (the forecast new unit population less the anticipated decline in existing units). The cost per capita is then multiplied by the average occupancy of the new units (Appendix A, Schedule 5) to calculate the charge in Tables 6-1 through 6-5.

With respect to non-residential development, the total costs in the uniform charge allocated to non-residential development (based on need for service) have been divided by the anticipated development over the planning period to calculate a cost per sq.ft. of gross floor area.

Table 6-6 summarizes the total D.C. that is applicable for all municipal services and Table 6-7 summarizes the gross capital expenditures and sources of revenue for works to be undertaken during the 5-year life of the by-law.



The area specific D.C. calculations for Waterdown/Dundas have been provided for in Chapter 5, section 5.4.1.



Table 6-1
Development Charge Calculation
Area-Specific Services – Combined Sewer System
2019 to 2031

SERVICE	2019\$ D.C.-Eligible Cost		2019\$ D.C.-Eligible Cost	
	Residential	Non-Residential	SDU	per ft ²
	\$	\$	\$	\$
1. <u>Stormwater Drainage and Control Services</u>				
1.1 Stormwater Facilities	18,706,374	-	3,948	-
	18,706,374	-	3,948	-
TOTAL	\$18,706,374	\$0	\$3,948	\$0.00
D.C.-Eligible Capital Cost	\$18,706,374	\$0		
Urban (13 Year) Gross Population/GFA Growth (sq.ft.)	16,132	8,031,700		
Cost Per Capita/Non-Residential GFA (sq.ft.)	\$1,159.58	\$0.00		
<u>By Residential Unit Type</u>	<u>P.P.U.</u>			
Single and Semi-Detached Dwelling	3.41	\$3,948		
Apartments - 2 Bedrooms +	1.99	\$2,312		
Apartments - Bachelor and 1 Bedroom	1.36	\$1,582		
Other Multiples	2.44	\$2,826		
Residential Facility	1.10	\$1,276		



Table 6-2
Development Charge Calculation
Area Specific Services – Separated Sewer System (Other Built Boundary & Greenfield)
2019 to 2031

SERVICE	2019\$ D.C.-Eligible Cost		2019\$ D.C.-Eligible Cost	
	Residential	Non-Residential	SDU	per ft ²
	\$	\$	\$	\$
1. <u>Stormwater Drainage and Control Services</u>				
1.1 Channels, drainage and studies	52,199,588	66,435,840	1,934	2.16
1.2 Residential Ponds	230,212,280	-	8,528	-
	282,411,868	66,435,840	10,462	2.16
TOTAL	282,411,868	\$66,435,840	10,462	2.16
D.C.-Eligible Capital Cost	282,411,868	\$66,435,840		
Urban (13 Year) Gross Population/GFA Growth (sq.ft.)	91,917	30,726,700		
Cost Per Capita/Non-Residential GFA (sq.ft.)	\$3,072.47	\$2.16		
<u>By Residential Unit Type</u>	<u>P.P.U.</u>			
Single and Semi-Detached Dwelling	3.41	\$10,462		
Apartments - 2 Bedrooms +	1.99	\$6,126		
Apartments - Bachelor and 1 Bedroom	1.36	\$4,191		
Other Multiples	2.44	\$7,488		
Residential Facility	1.10	\$3,380		



Table 6-3
Development Charge Calculation
Area-Specific Services – Water & Wastewater Services (Urban)
2019 to 2031

SERVICE	2019\$ D.C.-Eligible Cost		2019\$ D.C.-Eligible Cost	
	Residential	Non-Residential	SDU	per ft ²
	\$	\$	\$	\$
2. <u>Wastewater Services</u>				
2.1 Wastewater Facilities	128,443,640	75,435,154	4,048	1.95
2.2 Wastewater Linear Services	171,824,531	100,912,820	5,415	2.60
	300,268,171	176,347,974	9,463	4.55
3. <u>Water Services</u>				
3.1 Facilities, Storage and Distribution systems	151,278,042	88,845,834	4,767	2.29
	151,278,042	88,845,834	4,767	2.29
TOTAL	451,546,213	265,193,808	\$14,230	6.84
D.C.-Eligible Capital Cost	\$451,546,213	\$265,193,808		
Urban (13 Year) Gross Population/GFA Growth (sq.ft.)	108,049	38,758,400		
Cost Per Capita/Non-Residential GFA (sq.ft.)	\$4,179.09	\$6.84		
By Residential Unit Type	P.P.U.			
Single and Semi-Detached Dwelling	3.41	\$14,230		
Apartments - 2 Bedrooms +	1.99	\$8,333		
Apartments - Bachelor and 1 Bedroom	1.36	\$5,700		
Other Multiples	2.44	\$10,184		
Residential Facility	1.10	\$4,597		



Table 6-4
Development Charge Calculation
City-Wide Services
2019 to 2031

SERVICE	2019\$ D.C.-Eligible Cost		2019\$ D.C.-Eligible Cost	
	Residential	Non-Residential	SDU	per ft ²
	\$	\$	\$	\$
4. <u>Services Related to a Highway</u>				
4.1 Services Related to a Highway	346,183,949	314,715,092	10,769	8.05
5. <u>Public Works Facilities, Vehicles & Equipment</u>				
5.1 Facilities	16,406,222	10,055,426	510	0.26
5.2 Vehicles & Equipment	8,810,748	5,400,136	274	0.15
	25,216,971	15,455,563	784	0.41
6. <u>Fire Protection Services</u>				
6.1 Fire facilities, vehicles & equipment	14,836,939	9,093,608	462	0.23
	14,836,939	9,093,608	462	0.23
7. <u>Police Services</u>				
7.1 Police facilities, vehicles & equipment	16,848,644	10,326,588	524	0.26
	16,848,644	10,326,588	524	0.26
TOTAL	\$403,086,503	\$349,590,851	\$12,539	\$8.95
D.C.-Eligible Capital Cost	\$403,086,503	\$349,590,851		
13-Year Gross Population/GFA Growth (sq.ft.)	109,455	39,111,300		
Cost Per Capita/Non-Residential GFA (sq.ft.)	\$3,682.67	\$8.94		
<u>By Residential Unit Type</u>	<u>P.P.U.</u>			
Single and Semi-Detached Dwelling	3.41	\$12,539		
Apartments - 2 Bedrooms +	1.99	\$7,343		
Apartments - Bachelor and 1 Bedroom	1.36	\$5,023		
Other Multiples	2.44	\$8,975		
Residential Facility	1.10	\$4,051		



Table 6-5
Development Charge Calculation
City-Wide Services
2019 to 2028

SERVICE	2019\$ D.C.-Eligible Cost		2019\$ D.C.-Eligible Cost	
	Residential	Non-Residential	SDU	per ft ²
	\$	\$	\$	\$
8. <u>Transit Services</u>				
8.1 Transit facilities, vehicles and other infrastructure	48,046,855	28,217,994	1,917	0.98
	48,046,855	28,217,994	1,917	0.98
9. <u>Other Transportation Services</u>				
9.1 Parking services	12,290,688	7,218,340	490	0.25
9.2 Airport lands	10,494,005	6,163,146	419	0.21
	22,784,693	13,381,486	909	0.46
10. <u>Parkland Development</u>				
10.1 Parkland development, amenities, trails, vehicles & equipment	58,944,902	3,102,363	2,352	0.11
	58,944,902	3,102,363	2,352	0.11
11. <u>Indoor Recreation Services</u>				
11.1 Recreation facilities, vehicles & equipment	111,007,307	5,842,490	4,430	0.20
	111,007,307	5,842,490	4,430	0.20
12. <u>Library Services</u>				
12.1 Library facilities and vehicles	23,415,983	1,232,420	934	0.04
12.2 Library materials	2,784,436	146,549	111	0.01
	26,200,419	1,378,969	1,045	0.05
13. <u>Administrative Studies</u>				
13.1 Administrative Studies - Community Based Studies	8,278,710	4,862,100	330	0.17
13.2 Administrative Studies - Engineering Services Studies	4,153,402	2,439,299	166	0.08
	12,432,112	7,301,399	496	0.25
14. <u>Long Term Care</u>				
14.1 Long Term Care Facilities	3,126,267	347,363	125	0.01
	3,126,267	347,363	125	0.01
15. <u>Social & Child Services</u>				
15.1 Social and Child Services Facilities	373,841	41,538	15	-
	373,841	41,538	15	-
16. <u>Health Services</u>				
16.1 Health department space	21,868	2,430	1	-
17. <u>Provincial Offences Administration</u>				
17.1 P.O.A. facilities	1,003,680	589,463	40	0.02
18. <u>Social Housing</u>				
18.1 Social housing facilities	16,239,109	-	648	-
19. <u>Paramedics</u>				
19.1 Paramedics facilities	1,974,810	219,423	79	0.02
19.2 Vehicles & Equipment	1,453,626	161,514	58	0.01
	3,428,436	380,937	137	0.03



Table 6-5 Continued
 Development Charge Calculation
 City-Wide Services
 2019 to 2028

SERVICE	2019\$ D.C.-Eligible Cost		2019\$ D.C.-Eligible Cost	
	Residential	Non-Residential	SDU	per ft ²
20. <u>Waste Diversion</u>				
20.1 Waste diversion facilities, vehicles, equipment and other	16,475,018	3,374,401	657	0.13
	16,475,018	3,374,401	657	0.13
TOTAL	320,084,505	63,960,834	\$12,772	\$2.23
D.C.-Eligible Capital Cost	\$320,084,505	\$63,960,834		
10-Year Gross Population/GFA Growth (sq.ft.)	85,329	28,791,900		
Cost Per Capita/Non-Residential GFA (sq.ft.)	\$3,751.18	\$2.23		
<u>By Residential Unit Type</u>	<u>P.P.U.</u>			
Single and Semi-Detached Dwelling	3.41	\$12,772		
Apartments - 2 Bedrooms +	1.99	\$7,480		
Apartments - Bachelor and 1 Bedroom	1.36	\$5,117		
Other Multiples	2.44	\$9,142		
Residential Facility	1.10	\$4,126		



Table 6-6
Development Charge Calculation
Total Cost for All Services

	2019\$ D.C.-Eligible Cost		2019\$ D.C.-Eligible Cost	
	Residential	Non-Residential	SDU	per ft ²
	\$	\$	\$	\$
Urban-wide Services 13 Year (Within Combined Sewer System)	470,252,587	265,193,808	18,178	\$6.85
Urban-wide Services 13 Year (Within Separated Sewer System)	733,958,081	331,629,648	24,692	9.01
City-Wide Services 13 Year	403,086,503	349,590,851	12,539	8.95
City-wide Services 10 Year	320,084,505	63,960,834	12,772	2.23
TOTAL COMBINED SEWER SYSTEM	\$1,193,423,596	\$678,745,492	\$43,489	\$18.02
TOTAL SEPARATED SEWER SYSTEM	\$1,457,129,089	\$745,181,332	\$50,003	20.18



Table 6-7
Cost to be Incurred Over the Life of the D.C. By-law

Service	Total Gross Cost	Sources of Financing						
		Tax Base or Other Non-D.C. Source		Legislated Reduction	Post D.C. Period Benefit	D.C. Reserve Fund		
		Other Deductions	Benefit to Existing			Other Funding	Residential	Non-Residential
1. Stormwater Drainage and Control Services (Combined Sewer System) 1.1 Stormwater Facilities	5,535,129	0	8,257	0	0	0	5,526,873	0
1. Stormwater Drainage and Control Services (Separated Sewer System) 1.1 Channels, drainage and studies 1.2 Residential Ponds	50,513,585 201,275,926	0 0	5,920,072 2,018,178	0 48,591,140	0 0	1,814,119 48,024,790	18,822,933 102,641,615	23,956,460 0
2. Wastewater Services 2.1 Wastewater Facilities 2.2 Wastewater Linear Services	631,279,374 203,215,000	0 0	295,267,624 18,669,750	274,326,078 3,065,000	0 0	15,421,418 11,891,200	29,146,480 106,841,102	17,117,774 62,747,949
3. Water Services 3.1 Facilities, Storage and Distribution systems	245,776,700	0	24,090,500	2,912,000	0	16,462,420	127,456,421	74,855,359
4. Services Related to a Highway 4.1 Services Related to a Highway	466,160,359	0	73,493,504	0	0	21,585,530	195,428,662	175,652,662
5. Public Works Facilities, Vehicles & Equipment 5.1 Facilities 5.2 Vehicles & Equipment	27,498,731 7,430,738	0 0	10,866,800 8,212	0 0	593,438 313,925	0 0	9,943,866 4,407,333	6,094,627 2,701,269
6. Fire Protection Services 6.1 Fire facilities, vehicles & equipment	18,678,500	0	3,342,275	0	0	0	9,508,460	5,827,766
7. Police Services 7.1 Police facilities, vehicles & equipment	35,328,169	0	16,257,400	0	0	339,008	11,613,692	7,118,069
8. Transit Services 8.1 Transit facilities, vehicles and other infrastructure	380,013,550	22,270,000	183,095,900	108,800,000	0	12,225,050	33,782,238	19,840,362
9. Other Transportation Services 9.1 Parking services 9.2 Airport lands	6,475,000 14,000,000	0 0	883,500 0	0 0	559,150 1,400,000	0 0	3,170,381 7,938,000	1,861,970 4,662,000
10. Parkland Development 10.1 Parkland development, amenities, trails, vehicles & equipment	97,856,033	0	31,144,600	0	5,051,135	16,200,080	43,187,207	2,273,011
11. Indoor Recreation Services 11.1 Recreation facilities, vehicles & equipment	64,781,667	0	4,420,000	0	6,036,167	0	51,609,225	2,716,275
12. Library Services 12.1 Library facilities and vehicles 12.2 Library materials	19,224,000 1,915,400	0 0	7,893,100 0	1,250,000 0	1,008,090 191,540	0 0	8,619,170 1,637,667	453,641 86,193
13. Administrative Studies 13.1 Administrative Studies - Community Based Studies 13.2 Administrative Studies - Engineering Services Studies	14,629,667 5,594,833	0 0	3,734,900 250,100	0 0	1,089,477 371,010	0 0	6,177,333 3,133,446	3,627,957 1,840,278



Table 6-7
Cost to be Incurred Over the Life of the D.C. By-law

Service	Total Gross Cost	Sources of Financing						D.C. Reserve Fund	
		Other Deductions	Tax Base or Other Non-D.C. Source			Legislated Reduction	Post D.C. Period Benefit	Residential	Non-Residential
			Benefit to Existing	Other Funding					
14. Long Term Care 14.1 Long Term Care Facilities	11,850,000	0	6,140,000	2,640,000	307,000	0	2,486,700	276,300	
15. Social and Child Services 15.1 Social and Child Services Facilities	2,000,000	0	0	2,000,000	0	0	0	0	
16. Health Services 16.1 Health department space	0	0	0	0	0	0	0	0	
17. Provincial Offences Administration 17.1 P.O.A. facilities	0	0	0	0	0	0	0	0	
18. Social Housing 18.1 Social housing facilities	282,848,000	0	237,607,200	5,900,000	2,577,830	13,562,500	23,200,470	0	
19. Paramedics 19.1 Paramedics facilities	2,200,000	0	0	0	68,000	1,520,000	550,800	61,200	
19.2 Vehicles & Equipment	1,715,000	0	0	0	171,500	0	1,389,150	154,350	
20. Waste Diversion 20.1 Waste diversion facilities, vehicles, equipment and other	51,427,950	8,922,195	21,171,500	0	1,828,226	3,052,000	13,656,844	2,797,185	
Total Expenditures & Revenues	\$2,849,223,312	\$31,192,195	\$946,283,371	\$449,484,218	\$21,566,486	\$162,098,114	\$821,876,068	\$416,722,656	



Chapter 7

D.C. Policy

Recommendations

and D.C. By-law

Rules



7. D.C. Policy Recommendations and D.C. By-law Rules

7.1 Introduction

Subsection 5 (1) 9 states that rules must be developed:

“...to determine if a development charge is payable in any particular case and to determine the amount of the charge, subject to the limitations set out in subsection 6.”

Paragraph 10 of the section goes on to state that the rules may provide for exemptions, phasing in and/or indexing of D.C.s.

Subsection 5 (6) establishes the following restrictions on the rules:

- the total of all D.C.s that would be imposed on anticipated development must not exceed the capital costs determined under 5(1) 2-8 for all services involved;
- if the rules expressly identify a type of development, they must not provide for it to pay D.C.s that exceed the capital costs that arise from the increase in the need for service for that type of development; however, this requirement does not relate to any particular development; and
- if the rules provide for a type of development to have a lower D.C. than is allowed, the rules for determining D.C.s may not provide for any resulting shortfall to be made up via other development.

With respect to “the rules,” Section 6 states that a D.C. by-law must expressly address the matters referred to above re s. 5 (1) paragraphs 9 and 10, as well as how the rules apply to the redevelopment of land.

The rules provided are based on the City’s existing policies; however, there are items under consideration at this time and these may be refined prior to adoption of the by-law.



7.2 D.C. By-law Structure

It is recommended that:

- the City uses a uniform City-wide D.C. calculation for all Municipal services except water, wastewater and stormwater services and the works included in the Dundas/Waterdown area-specific charges;
- water and wastewater services, be imposed on the urban service areas of the City;
- stormwater services be imposed on an area-specific basis for the combined sewer system versus the separated sewer system area;
- Dundas/Waterdown area-specific D.C.s continue; and
- one Municipal D.C. by-law be used for all services, except GO Transit;

7.3 D.C. By-law Rules

The following subsections set out the recommended rules governing the calculation, payment and collection of D.C.s in accordance with Section 6 of the D.C.A.

It is recommended that the following sections provide the basis for the D.C.s:

7.3.1 Payment in any Particular Case

In accordance with the D.C.A., s.2(2), a D.C. be calculated, payable and collected where the development requires one or more of the following:

- a) the passing of a zoning by-law or of an amendment to a zoning by-law under section 34 of the Planning Act;
- b) the approval of a minor variance under section 45 of the Planning Act;
- c) a conveyance of land to which a by-law passed under section 50(7) of the Planning Act applies;
- d) the approval of a plan of subdivision under section 51 of the Planning Act;
- e) a consent under section 53 of the Planning Act;



- f) the approval of a description under section 50 of the Condominium Act; or
- g) the issuing of a building permit under the Building Code Act in relation to a building or structure.

7.3.2 Determination of the Amount of the Charge

The following conventions be adopted:

- 1) Costs allocated to residential uses will be assigned to different types of residential units based on the average occupancy for each housing type constructed during the previous decade. Costs allocated to non-residential uses will be assigned based on the amount of square feet of gross floor area constructed for eligible uses (i.e. industrial, commercial and institutional).
- 2) Costs allocated to residential and non-residential uses are based upon a number of conventions, as may be suited to each municipal circumstance, e.g.
 - for Administrative Studies – Engineering Services Studies, Administrative Studies – Community Based Studies, Transit, Parking, Airport, P.O.A., the costs have been based on a population vs. employment growth ratio (63%/37%) for residential and non-residential, respectively) over the 10-year forecast period;
 - for Fire, Police and Public Works facilities, fleet and equipment the costs have been based on a population vs. employment growth ratio (62%/38%) for residential and non-residential, respectively) over the 13-year forecast period;
 - for Indoor Recreation, Parkland Development and Library services, a 5% non-residential attribution has been made to recognize use by the non-residential sector;
 - for Health, Social & Child Services, and Paramedics a 10% non-residential attribution has been made to recognize use by the non-residential sector;
 - for Social Housing, a 100% residential attribution has been made to recognize use by the residential sector only;
 - for Services Related to a Highway, a 50% residential/50% non-residential attribution has been made based on the use of the origins and destinations derived from trips for the a.m. peak hour;



- for Waste Diversion an 83% residential/17% non-residential attribution has been made based on the allocation of residential versus non-residential properties collected from;
- for Stormwater within the separated sewer system a 44% residential/56% non-residential allocation has been made based on benefiting lands associated with the stormwater management works over the 13-year forecast period;
- for Stormwater Facilities within the Separated and Combined Sewer Systems the costs identified are attributable 100% to residential development since non-residential development is required to provide facilities as part of the local service policy; and
- for Water, Wastewater Linear and W.W.T.P. services a 63% residential/37% non-residential allocation has been made based on population vs. employment growth over the 13-forecast period.

7.3.3 Application to Redevelopment of Land (Demolition and Conversion)

If a development involves the demolition of and replacement of a building or structure on the same site, or the conversion from one principal use to another, the developer shall be allowed a credit equivalent to:

- 1) the number of dwelling units demolished/converted multiplied by the applicable residential D.C. in place at the time the D.C. is payable; and/or
- 2) the gross floor area of the building demolished/converted multiplied by the current non-residential D.C. in place at the time the D.C. is payable.

7.3.4 Exemptions (full or partial)

A full review of the City's exemption policies was undertaken under a separate cover (FCS18062(b)). On February 19, 2019, the D.C. Stakeholders Sub-Committee directed the following exemptions to be included in this D.C. by-law.

a) Statutory exemptions

- industrial building additions of up to and including 50% of the existing gross floor area (defined in O.Reg. 82/98, s.1) of the building; for industrial



building additions which exceed 50% of the existing gross floor area, only the portion of the addition in excess of 50% is subject to D.C.s (s.4(3)) of the D.C.A.;

- buildings or structures owned by and used for the purposes of any municipality, local board or Board of Education (s.3); and
- residential development that results only in the enlargement of an existing dwelling unit, or that results only in the creation of up to two additional dwelling units (based on prescribed limits set out in s.2 of O.Reg. 82/98).

b) Non-statutory exemptions

- A building, or part thereof, used for parking but excluding a building or part thereof used for commercial parking;
- An agricultural use;
- A place of worship;
- A laneway house; and
- A temporary building or structure.

c) Partial non-statutory exemptions

- Class A Office development within the Downtown C.I.P.A. shall be 70% exempted from D.C.s otherwise payable;
- All development other than Class A office development within Downtown Hamilton C.I.P.A. will be subject to reductions based on the following amounts dependent on the date applicable D.C.s are payable:

Date	Percentage of Exemption (%)	Percentage of development charge payable (%)
July 6, 2019 to July 5, 2020	60	40
July 6, 2020 to July 5, 2021	50	50
July 6, 2021 to July 5, 2022	40	60
July 6, 2022 to July 5, 2023	40	60
July 6, 2023 to July 5, 2024	40	60



- Non-industrial development within a C.I.P.A. or B.I.A. will be partially exempt from D.C.s as follows:
 - Fifty percent (50%) reduction on the first 5,000 sq.ft.
 - Seventy-five percent (75%) on development between 5,001 – 10,000 sq.ft.
 - One hundred percent (100%) on the amount of development exceeding 10,000 sq.ft.;
- A student residence developed by a university, college of applied arts and technology or other accredited post-secondary institution is exempt from 50% of the applicable D.C. This partial reduction will only be applicable until June 30, 2020;
- Redevelopment of an existing residential development for the purpose of creating more residential facilities within the existing building envelope is exempt from 50% of the D.C. otherwise payable; and
- Adaptive Reuse of Protected Heritage Properties is exempted from D.C.s but excludes any sections of the existing building that are not covered by the Heritage designation.

7.3.5 Phasing in

No provisions for phased in the D.C. are provided in the D.C. by-law.

7.3.6 Timing of Collection

D.C.s are payable at the time a building permit is issued with respect to a development.

7.3.7 Indexing

Indexing of the D.C.s shall be implemented on a mandatory basis annually commencing on the first anniversary date of this by-law and each anniversary date thereafter, in accordance with the Statistics Canada Quarterly, Non-Residential Building Construction Price Index (Table 18-10-0135-01)¹ for the most recent year-over-year period.

¹ O.Reg. 82/98 referenced “The Statistics Canada Quarterly, Construction Price Statistics, catalogue number 62-007” as the index source. Since implementation, Statistics Canada has modified this index twice and the above-noted index is the most current. The draft by-law provided herein refers to O.Reg. 82/98 to ensure traceability should this index continue to be modified over time.



7.3.8 The Applicable Areas

The charges developed herein provide for varying charges within the City, as follows:

- All Municipal-wide Services – the full residential and non-residential charge will be imposed on all lands within the City; and
- Water and Wastewater – the full residential and non-residential charge will be imposed on the urban service areas of the City.
- Stormwater – Urban area specific charges will be imposed based on the combined sewer system and the separated sewer system.
- Dundas/Waterdown – area specific charges are applicable in addition to City-wide and urban services.

7.4 Other D.C. By-law Provisions

It is recommended that:

7.4.1 Categories of Services for Reserve Fund and Credit Purposes

The City's D.C. collections are currently allocated to the following reserve funds:

- Services Related to a Highway;
- Public Works Facilities, Fleet & Equipment;
- Transit Services;
- Parking Services;
- Airport Land;
- Fire Protection Services;
- Police Services;
- Parkland Development;
- Indoor Recreation Services;
- Library Services;
- Administrative Studies;
- Long Term Care;
- Social & Child Services;
- Provincial Offences Administration;
- Health Services;



- Social Housing;
- Paramedics;
- Stormwater Drainage and Control Services;
- Water;
- Wastewater Treatment Plant;
- Wastewater Linear;
- Dundas/Waterdown Special Area Charge; and
- Binbrook Special Area Charge.

It is recommended that the City create a reserve fund for waste diversion as it will commence collection for this previously ineligible service. It is also recommended to rename the Administrative Studies reserve fund to Administrative Studies – Engineering Services Studies and add a new reserve fund for Administrative Studies – Community Based Studies. Further, the stormwater reserve fund should now be split out into combined and separated system reserves to reflect the area specific charge.

Further, it is recommended that the existing balance in the stormwater development charge reserve fund be split between the two new reserve funds based on the adjustments identified in Chapter 4, section 4.8.

Appendix D outlines the reserve fund policies that the City is required to follow as per the D.C.A.

7.4.2 By-law In-force Date

A by-law under the D.C.A. comes into force on the day after which the by-law is passed by Council, or a later date as specified in the by-law. The recommended date is July 6, 2019 to align with the expiration of the existing City D.C. by-law.

7.4.3 Minimum Interest Rate Paid on Refunds and Charged for Inter-Reserve Fund Borrowing

The minimum interest rate is the Bank of Canada rate on the day on which the by-law comes into force (as per s. 11 of O.Reg. 82/98).



7.4.4 Area Rating

As noted earlier, Bill 73 has introduced two new sections where Council must consider the use of area specific charges:

1. Section 2 (9) of the Act now requires a municipality to implement area-specific D.C.s for either specific services which are prescribed and/or for specific municipalities which are to be regulated (note that at this time, no municipalities or services are prescribed by the Regulations).
2. Section 10 (2) c. 1 of the D.C.A. requires that “the development charges background study shall include consideration of the use of more than one development charge by-law to reflect different needs for services in different areas.”

In regard to the first item, there are no services or specific municipalities identified in the regulations which must be area-rated. The second item requires Council to consider the use of area-rating.

At present, the City’s by-law does provide for water, wastewater and stormwater services on an urban-wide basis. All other services are provided on a City-wide basis. In regards to non-water/wastewater/stormwater services there have been several reasons why these rates have not been imposed on an area specific basis:

1. All City services, with the exception of water, wastewater and stormwater, require that the average 10-year service standard be calculated. This average service standard multiplied by growth in the City, establishes an upper ceiling on the amount of funds which can be collected from all developing landowners. Section 4(4) of O. Reg. 82/98 provides that “...if a development charge by-law applies to a part of the municipality, the level of service and average level of service cannot exceed that which would be determined if the by-law applied to the whole municipality.” Put in layman terms, the average service standard multiplied by the growth within the specific area, would establish an area specific ceiling which would significantly reduce the total revenue recoverable for the City hence potentially resulting in D.C. revenue shortfalls and impacts on property taxes.



2. Extending on item 1, attempting to impose an area charge potentially causes equity issues in transitioning from a City-wide approach to an area specific approach. For example, if all services were now built (and funded) within area A (which is 75% built out) and this was funded with some revenues from areas B and C, moving to an area rating approach would see Area A contribute no funds to the costs of services in Areas B & C. The development charges would be lower in Area A (as all services are now funded) and higher in B and C. As well, funding shortfalls may then potentially encourage the municipality to provide less services to B and C due to reduced revenue.
3. Many services which are provided (roads, parks, recreation facilities, library) are not restricted to one specific area and are often used by all residents. For example, arenas located in different parts of the City will be used by residents from all areas depending on the programming of the facility (i.e. a public skate is available each night, but at a different arena; hence usage of any one facility at any given time is based on programming availability).
4. It is noted that both water and wastewater services are provided on systems that deliver a consistent level of service across the City, and many projects, including linear projects, have the potential to provide benefits to both the greenfield and built boundary areas. This makes it difficult to calculate proportionate shares of many projects.

For the reasons noted above, it is recommended that the City continue the current D.C. approach to calculate the charges on a uniform City-wide basis for non- stormwater services.

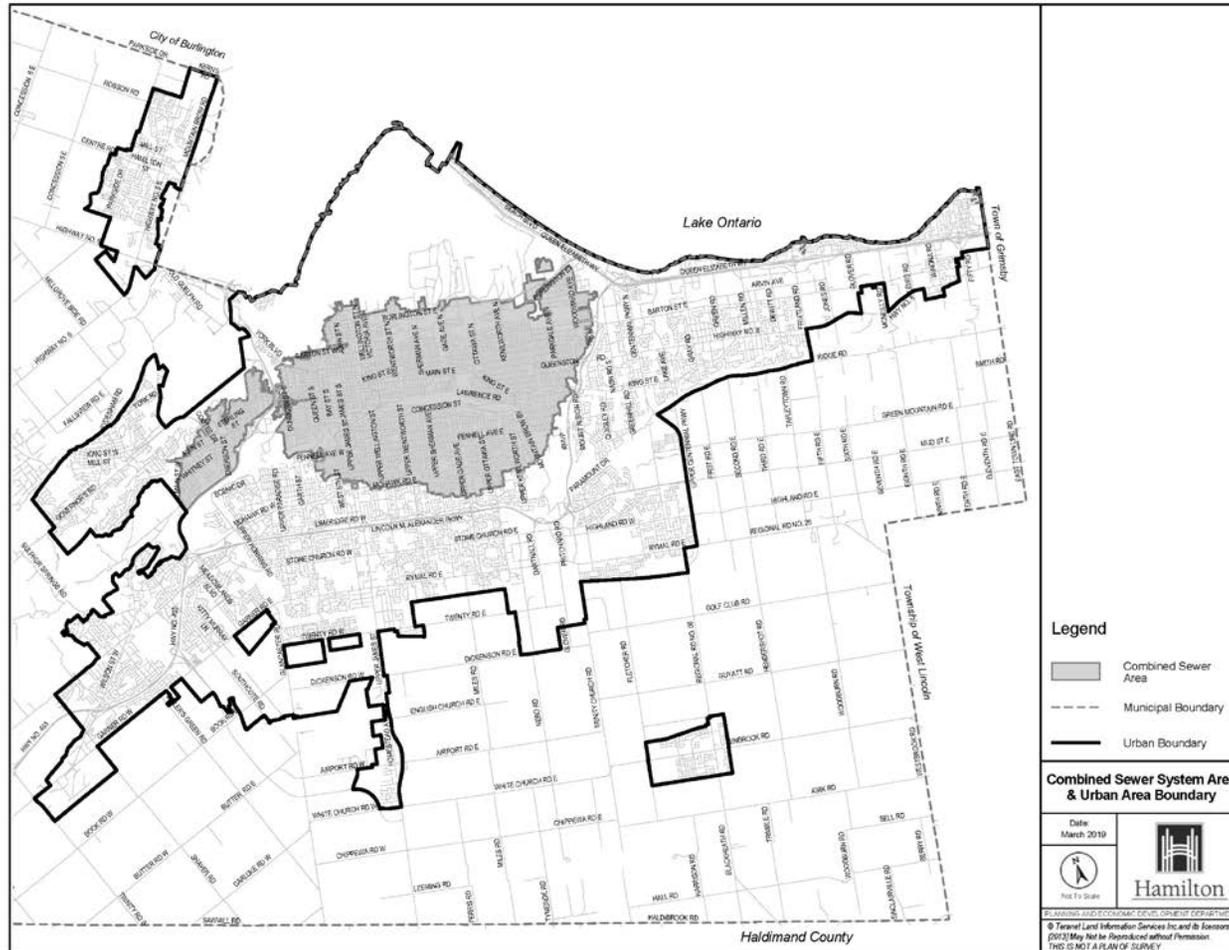
On the other hand, it is recommended that Stormwater services be applied on an area-specific basis between the combined sewer system and the separated sewer system. The combined sewer system area is delineated in Figure 7-1. All other areas within the urban area boundary are part of the separated sewer system. Stormwater services have a strong connection between capital works and those who benefit from the capital works, a clear service boundary, a different level of service between the boundaries and an ability to support the infrastructure costs/debt charges without pooling of funds. Given that Stormwater services within the City meet these requirements, area-specific calculations have been set out in this report for this service.



It is recommended that the City continue the special area charge for the Dundas/Waterdown area that has been in effect since amalgamation. The Binbrook area specific charge is no longer required as all growth-related revenues have been recovered for the works that were originally identified.



Figure 7-1
Map of Combined Sewer System Area and Urban Boundary Area
City of Hamilton





7.4.5 Other Recommendations

It is recommended that Council:

“Whenever appropriate, request that grants, subsidies and other contributions be clearly designated by the donor as being to the benefit of existing development or new development, as applicable”;

“Adopt the assumptions contained herein as an ‘anticipation’ with respect to capital grants, subsidies and other contributions”;

“Approve the capital project listing set out in Chapter 5 of the D.C. Background Study dated March 13, 2019, subject to further annual review during the capital budget process”;

“Approve the D.C. Background Study dated March 13, 2019, as amended (if applicable”;

“Determine that no further public meeting is required”; and

“Approve the D.C. By-law as set out in Appendix K”.



Chapter 8

By-law

Implementation



8. By-law Implementation

8.1 Public Consultation Process

8.1.1 Introduction

This chapter addresses the mandatory, formal public consultation process (section 8.1.2), as well as the optional, informal consultation process (section 8.1.3). The latter is designed to seek the co-operation and participation of those involved, in order to produce the most suitable policy. Section 8.1.4 addresses the anticipated impact of the D.C. on development from a generic viewpoint.

8.1.2 Public Meeting of Council

Section 12 of the D.C.A. indicates that before passing a D.C. by-law, Council must hold at least one public meeting, giving at least 20 clear days' notice thereof, in accordance with the Regulation. Council must also ensure that the proposed by-law and background report are made available to the public at least two weeks prior to the (first) meeting.

Any person who attends such a meeting may make representations related to the proposed by-law.

If a proposed by-law is changed following such a meeting, Council must determine whether a further meeting (under this section) is necessary (i.e. if the proposed by-law which is proposed for adoption has been changed in any respect, Council should formally consider whether an additional public meeting is required, incorporating this determination as part of the final by-law or associated resolution. It is noted that Council's decision, once made, is final and not subject to review by a Court or the Local Planning Appeal Tribunal (L.P.A.T.) (formerly the Ontario Municipal Board (O.M.B.)).

8.1.3 Other Consultation Activity

There are three broad groupings of the public who are generally the most concerned with City D.C. policy:



1. The first grouping is the residential development community, consisting of land developers and builders, who are typically responsible for generating the majority of the D.C. revenues. Others, such as realtors, are directly impacted by D.C. policy. They are, therefore, potentially interested in all aspects of the charge, particularly the quantum by unit type, projects to be funded by the D.C. and the timing thereof, and City policy with respect to development agreements, D.C. credits and front-ending requirements.
2. The second public grouping embraces the public at large and includes taxpayer coalition groups and others interested in public policy.
3. The third grouping is the industrial/commercial/institutional development sector, consisting of land developers and major owners or organizations with significant construction plans, such as hotels, entertainment complexes, shopping centres, offices, industrial buildings and institutions. Also involved are organizations such as Industry Associations, the Chamber of Commerce, the Board of Trade and the Economic Development Agencies, who are all potentially interested in City D.C. policy. Their primary concern is frequently with the quantum of the charge, gross floor area exclusions such as basements, mechanical or indoor parking areas, or exemptions and phase-in or capping provisions in order to moderate the impact.

8.2 Anticipated Impact of the Charge on Development

The establishment of sound D.C. policy often requires the achievement of an acceptable balance between two competing realities. The first is that high non-residential D.C.s can, to some degree, represent a barrier to increased economic activity and sustained industrial/commercial growth, particularly for capital intensive uses.

On the other hand, D.C.s or other City capital funding sources need to be obtained in order to help ensure that the necessary infrastructure and amenities are installed. The timely installation of such works is a key initiative in providing adequate service levels and in facilitating strong economic growth, investment and wealth generation.



8.3 Implementation Requirements

8.3.1 Introduction

Once the City has calculated the charge, prepared the complete background study, carried out the public process and passed a new by-law, the emphasis shifts to implementation matters.

These include notices, potential appeals and complaints, credits, front-ending agreements, subdivision agreement conditions and finally the collection of revenues and funding of projects.

The sections which follow overview the requirements in each case.

8.3.2 Notice of Passage

In accordance with s.13 of the D.C.A., when a D.C. by-law is passed, the City clerk shall give written notice of the passing and of the last day for appealing the by-law (the day that is 40 days after the day it was passed). Such notice must be given no later than 20 days after the day the by-law is passed (i.e. as of the day of newspaper publication or the mailing of the notice).

Section 10 of O.Reg. 82/98 further defines the notice requirements which are summarized as follows:

- notice may be given by publication in a newspaper which is (in the Clerk's opinion) of sufficient circulation to give the public reasonable notice, or by personal service, fax or mail to every owner of land in the area to which the by-law relates;
- s.10 (4) lists the persons/organizations who must be given notice; and
- s.10 (5) lists the eight items which the notice must cover.

8.3.3 By-law Pamphlet

In addition to the "notice" information, the City must prepare a "pamphlet" explaining each D.C. by-law in force, setting out:



- a description of the general purpose of the D.C.s;
- the “rules” for determining if a charge is payable in a particular case and for determining the amount of the charge;
- the services to which the D.C.s relate; and
- a general description of the general purpose of the Treasurer’s statement and where it may be received by the public.

Where a by-law is not appealed to the L.P.A.T., the pamphlet must be readied within 60 days after the by-law comes into force. Later dates apply to appealed by-laws.

The City must give one copy of the most recent pamphlet without charge, to any person who requests one.

8.3.4 Appeals

Sections 13 to 19 of the D.C.A. set out the requirements relative to making and processing a D.C. by-law appeal and L.P.A.T. Hearing in response to an appeal. Any person or organization may appeal a D.C. by-law to the L.P.A.T. by filing a notice of appeal with the City clerk, setting out the objection to the by-law and the reasons supporting the objection. This must be done by the last day for appealing the by-law, which is 40 days after the by-law is passed.

The City is carrying out a public consultation process, in order to address the issues that come forward as part of that process, thereby avoiding or reducing the need for an appeal to be made.

8.3.5 Complaints

A person required to pay a D.C., or his agent, may complain to the City Council imposing the charge that:

- the amount of the charge was incorrectly determined;
- the reduction to be used against the D.C. was incorrectly determined; or
- there was an error in the application of the D.C.



Sections 20 to 25 of the D.C.A. set out the requirements that exist, including the fact that a complaint may not be made later than 90 days after a D.C. (or any part of it) is payable. A complainant may appeal the decision of City Council to the L.P.A.T.

8.3.6 Credits

Sections 38 to 41 of the D.C.A. set out a number of credit requirements, which apply where a City agrees to allow a person to perform work in the future that relates to a service in the D.C. by-law.

These credits would be used to reduce the amount of D.C.s to be paid. The value of the credit is limited to the reasonable cost of the work which does not exceed the average level of service. The credit applies only to the service to which the work relates, unless the City agrees to expand the credit to other services for which a D.C. is payable.

8.3.7 Front-Ending Agreements

The City and one or more landowners may enter into a front-ending agreement which provides for the costs of a project which will benefit an area in the City to which the D.C. by-law applies. Such an agreement can provide for the costs to be borne by one or more parties to the agreement who are, in turn, reimbursed in future by persons who develop land defined in the agreement.

Part III of the D.C.A. (sections 44 to 58) addresses front-ending agreements and removes some of the obstacles to their use which were contained in the D.C.A., 1989. Accordingly, the City assesses whether this mechanism is appropriate for its use, as part of funding projects prior to City funds being available.

8.3.8 Severance and Subdivision Agreement Conditions

Section 59 of the D.C.A. prevents a municipality from imposing directly or indirectly, a charge related to development or a requirement to construct a service related to development, by way of a condition or agreement under s.51 or s.53 of the Planning Act, except for:



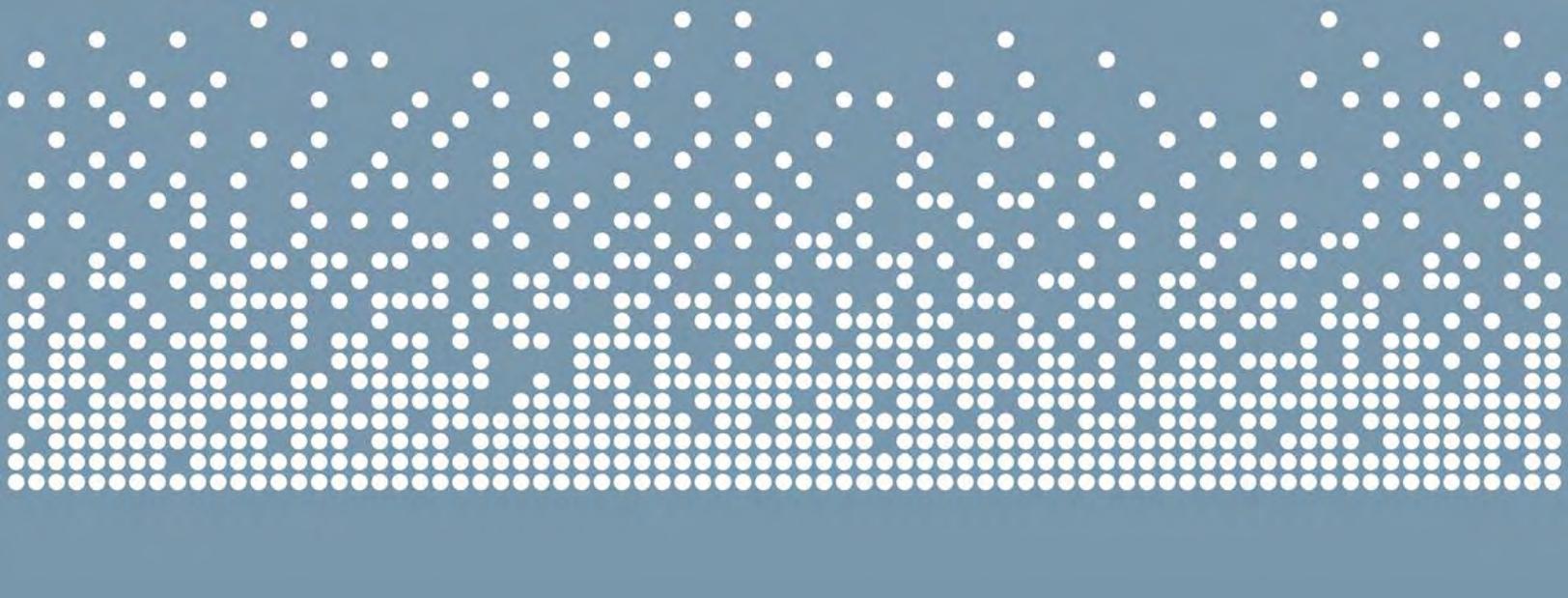
- “local services, related to a plan of subdivision or within the area to which the plan relates, to be installed or paid for by the owner as a condition of approval under section 51 of the Planning Act;” and
- “local services to be installed or paid for by the owner as a condition of approval under section 53 of the Planning Act.”

It is also noted that s. 59 (4) of the D.C.A. requires that the municipal approval authority for a draft plan of subdivision under s. 51 (31) of the Planning Act, use its power to impose conditions to ensure that the first purchaser of newly subdivided land is informed of all the D.C.s related to the development, at the time the land is transferred.

In this regard, if the City in question is a commenting agency, in order to comply with subsection 59 (4) of the D.C.A. it would need to provide to the approval authority, information regarding the applicable City D.C.s related to the site.

If the City is an approval authority for the purposes of section 51 of the Planning Act, it would be responsible to ensure that it collects information from all entities which can impose a D.C.

The most effective way to ensure that purchasers are aware of this condition would be to require it as a provision in a registered subdivision agreement, so that any purchaser of the property would be aware of the charges at the time the title was searched prior to closing a transaction conveying the lands.



Appendices



Appendix A: Background Information on Residential and Non- Residential Growth Forecast



**Schedule 1
City of Hamilton
Residential Growth Forecast Summary**

	Year	Population (Including Census Undercount) ¹	Excluding Census Undercount			Housing Units						Person Per Unit (P.P.U.): Total Population/ Total Households	Persons in Private Households/ Total Households
			Population	Institutional Population	Population Excluding Institutional Population	Singles & Semi- Detached	Multiple Dwellings ²	Apartments ³	Other	Total Households	Equivalent Institutional Households		
Historical	<i>Mid-2006</i>	523,530	504,559	8,929	495,630	118,410	25,095	50,155	795	194,455	8,117	2.595	2.549
	<i>Mid-2011</i>	539,500	519,949	10,314	509,635	124,435	27,765	50,805	810	203,815	9,376	2.551	2.500
	<i>Mid-2016</i>	557,110	536,917	8,987	527,930	127,705	31,405	51,675	815	211,600	8,170	2.537	2.495
Forecast	<i>Early-2019</i>	570,570	549,897	9,058	540,839	129,668	33,693	53,605	815	217,781	8,235	2.525	2.483
	<i>Early-2029</i>	638,060	614,943	9,460	605,483	142,660	43,993	63,222	815	250,690	8,600	2.453	2.415
	<i>Mid-2031</i>	660,000	636,080	9,541	626,539	146,175	46,843	66,357	815	260,190	8,674	2.445	2.408
Incremental	Mid-2006 to Mid-2011	15,970	15,390	1,385	14,005	6,025	2,670	650	15	9,360	1,259		
	Mid-2011 to Mid-2016	17,610	16,968	-1,327	18,295	3,270	3,640	870	5	7,785	-1,206		
	Mid-2016 to Early-2019	13,460	12,980	71	12,909	1,963	2,288	1,930	0	6,181	65		
	Early-2019 to Early-2029	67,490	65,046	402	64,644	12,992	10,300	9,617	0	32,909	365		
	Early-2019 to Mid-2031	89,430	86,183	483	85,700	16,507	13,150	12,752	0	42,409	439		

Source: Watson & Associates Economists Ltd., 2018.

¹ Census undercount estimated at approximately 3.7%. Note: Population including the undercount has been rounded.

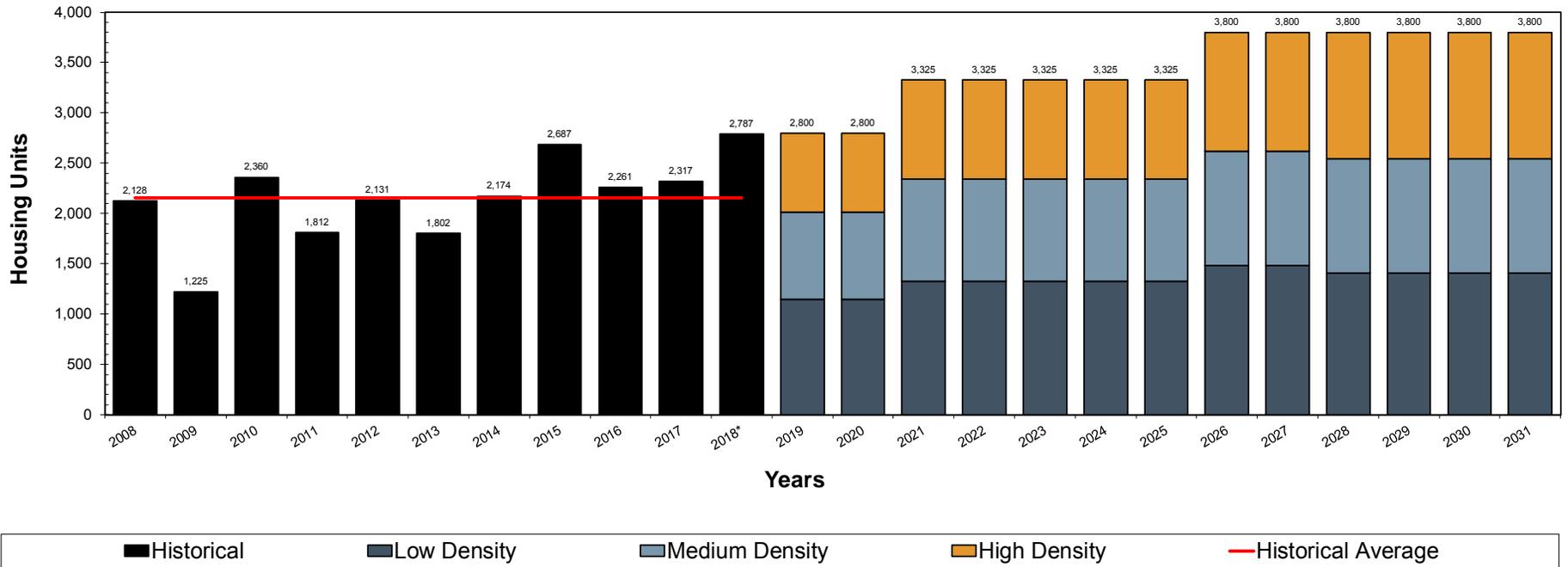
² Includes townhouses and apartments in duplexes.

³ Includes bachelor, 1 bedroom and 2 bedroom+ apartments.



Figure A-1

Annual Housing Forecast¹



Source: Historical housing activity (2008-2016) based on Statistics Canada building permits, Catalogue 64-001-XIB. 2016-2017 based on City of Hamilton building permit data.

Note: 2018 is an estimate based on City of Hamilton building permit data (January-May, 2018).

¹ Growth forecast represents calendar year.



Schedule 2
City of Hamilton 2019 DC - Area Specific Analysis (Residential Component)
Estimate of the Anticipated Amount, Type and Location of
Development for which Development Charges can be imposed

Development Location	Timing	Singles & Semi-Detached	Multiples ¹	Apartments ²	Total Residential Units	Equivalent Institutional Households	Gross Population in New Units	Existing Unit Population Change	Net Population Increase, Excluding Institutional	Institutional Population	Net Population Increase
Combined Sewer System	2019-2029	-	824	6,059	6,883	53	12,082	(7,137)	4,945	58	5,003
	2019-2031	-	1,052	8,161	9,213	65	16,132	(8,197)	7,935	72	8,007
Separate Sewer System - Other Built Boundary ³	2019-2029	1,949	2,163	1,250	5,362	61	13,986	(9,850)	4,136	67	4,203
	2019-2031	2,030	3,025	1,722	6,777	70	17,148	(11,312)	5,836	77	5,913
Separate Sewer System - Greenfield ³	2019-2029	10,713	7,313	2,308	20,334	252	58,137	(2,509)	55,628	278	55,906
	2019-2031	14,064	9,073	2,869	26,006	304	74,769	(2,881)	71,888	334	72,222
Urban Total	2019-2029	12,662	10,300	9,617	32,579	365	84,205	(19,496)	64,709	403	65,112
	2019-2031	16,094	13,150	12,752	41,996	439	108,049	(22,390)	85,659	483	86,142
Rural Total	2019-2029	360	-	-	360	-	1,226	(1,189)	37	-	37
	2019-2031	413	-	-	413	-	1,406	(1,365)	41	-	41
City of Hamilton Total	2019-2029	12,992	10,300	9,617	32,909	365	85,329	(20,685)	64,644	402	65,046
	2019-2031	16,507	13,150	12,752	42,409	439	109,455	(23,755)	85,700	483	86,183

Source: Watson & Associates Economists Ltd., 2018.

¹ Includes townhouses and apartments in duplexes.

² Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

³ Other Built Boundary and Greenfield are used in calculations for the separate sewer system stormwater.

Note: Numbers may not add up precisely due to rounding.



**Schedule 3
City of Hamilton
Current Year Growth Forecast
Mid-2016 to Early-2019**

		Population
Mid-2016 Population (1)		536,917
Occupants of New Housing Units, Mid-2016 to Early-2019	<i>Units (2)</i>	6,181
	<i>multiplied by P.P.U. (3)</i>	2.530
	<i>gross population increase</i>	15,637
Occupants of New Equivalent Institutional Units, Mid-2016 to Early-2019	<i>Units</i>	65
	<i>multiplied by P.P.U. (3)</i>	1.100
	<i>gross population increase</i>	72
Decline in Housing Unit Occupancy, Mid-2016 to Early-2019	<i>Units (4)</i>	211,600
	<i>multiplied by P.P.U. decline rate (5)</i>	-0.013
	<i>total decline in population</i>	-2,729
Population Estimate to Early-2019		549,897
<i>Net Population Increase, Mid-2016 to Early-2019</i>		12,980

- (1) 2016 population based on Statistics Canada Census unadjusted for Census undercount.
 (2) Estimated residential units constructed, Mid 2016 to the beginning of the growth period, assuming a six month lag between construction and occupancy.
 (3) Average number of persons per unit (P.P.U.) is assumed to be:

Structural Type	Persons Per Unit ¹ (P.P.U.)	% Distribution of Estimated Units ²	Weighted Persons Per Unit Average
<i>Singles & Semi Detached</i>	3.455	32%	1.097
<i>Multiples (6)</i>	2.518	37%	0.932
<i>Apartments (7)</i>	1.604	31%	0.501
Total		100%	2.530
<i>Institutional (8)</i>	1.10	100%	1.100

¹ Based on 2016 Census custom database

² Based on Building permit/completion activity

- (4) 2016 households taken from Statistics Canada Census.
 (5) Decline occurs due to aging of the population and family life cycle changes, lower fertility rates and changing economic conditions.
 (6) Includes townhouses and apartments in duplexes.
 (7) Includes bachelor, 1-bedroom and 2-bedroom+ apartments.
 (8) Includes 1-bedroom and 2-bedroom+ apartments in special care facilities.



**Schedule 4
City of Hamilton
Ten Year Growth Forecast
Early-2019 to Early-2029**

		Population
Early-2019 Population (1)		549,897
Occupants of New Housing Units, Early-2019 to Early-2029	<i>Units (2)</i>	32,909
	<i>multiplied by P.P.U. (3)</i>	2.593
<i>gross population increase</i>		85,329
Occupants of New Equivalent Institutional Units, Early-2019 to Early-2029	<i>Units</i>	365
	<i>multiplied by P.P.U. (3)</i>	1.100
<i>gross population increase</i>		402
Decline in Housing Unit Occupancy, Early-2019 to Early-2029	<i>Units (4)</i>	217,781
	<i>multiplied by P.P.U. decline rate (5)</i>	-0.095
<i>total decline in population</i>		-20,685
Population Estimate to Early-2029		614,943
<i>Net Population Increase, Early-2019 to Early-2029</i>		<i>65,046</i>

(1) Early-2019 Population based on:

2016 population (536,917) + mid-2016 to early-2019 estimated housing units to beginning of forecast period (6,181 x 2.53 = 15,637) + (65 x 1.1 = 72) + (211,600 x -.013 = -2,729) = 549,897

(2) Based upon forecast building permits/completions assuming a lag between construction and occupancy.

(3) Average number of persons per unit (P.P.U.) is assumed to be:

Structural Type	Persons Per Unit ¹ (P.P.U.)	% Distribution of Estimated Units ²	Weighted Persons Per Unit Average
<i>Singles & Semi Detached</i>	3.405	39%	1.344
<i>Multiples (6)</i>	2.437	31%	0.763
<i>Apartments (7)</i>	1.663	29%	0.486
<i>one bedroom or less</i>	1.364		
<i>two bedrooms or more</i>	1.994		
Total		100%	2.593
<i>Institutional (8)</i>	1.10	100%	1.100

¹ Persons per unit based on adjusted Statistics Canada Custom 2016 Census database.

² Forecast unit mix based upon historical trends and housing units in the development process.

(4) Early-2019 households based upon 211,600 (2016 Census) + 6,181 (mid-2016 to early-2019 unit estimate) = 217,781

(5) Decline occurs due to aging of the population and family life cycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhouses and apartments in duplexes.

(7) Includes bachelor, 1-bedroom and 2-bedroom+ apartments.

(8) Includes 1-bedroom and 2-bedroom+ apartments in special care facilities.



**Schedule 5
City of Hamilton
Early-2019 to Mid-2031**

		Population
Early-2019 Population (1)		549,897
Occupants of New Housing Units, Early-2019 to Mid-2031	<i>Units (2)</i>	42,409
	<i>multiplied by P.P.U. (3)</i>	2,581
	<i>gross population increase</i>	109,455
		109,455
Occupants of New Equivalent Institutional Units, Early-2019 to Mid-2031	<i>Units</i>	439
	<i>multiplied by P.P.U. (3)</i>	1,100
	<i>gross population increase</i>	483
		483
Decline in Housing Unit Occupancy, Early-2019 to Mid-2031	<i>Units (4)</i>	217,781
	<i>multiplied by P.P.U. decline rate (5)</i>	-0.109
	<i>total decline in population</i>	-23,755
		-23,755
Population Estimate to Mid-2031		636,080
<i>Net Population Increase, Early-2019 to Mid-2031</i>		86,183

(1) Early-2019 Population based on:

2016 population (536,917) + mid-2016 to early-2019 estimated housing units to beginning of forecast period (6,181 x 2.53 = 15,637) + (65 x 1.1 = 72) + (211,600 x -.013 = -2,729) = 549,897

(2) Based upon forecast building permits/completions assuming a lag between construction and occupancy.

(3) Average number of persons per unit (P.P.U.) is assumed to be:

Structural Type	Persons Per Unit ¹ (P.P.U.)	% Distribution of Estimated Units ²	Weighted Persons Per Unit Average
<i>Singles & Semi Detached</i>	3.405	39%	1.325
<i>Multiples (6)</i>	2.437	31%	0.756
<i>Apartments (7)</i>	1.663	30%	0.500
<i>one bedroom or less</i>	1.364		
<i>two bedrooms or more</i>	1.994		
Total		100%	2.581
<i>Institutional (8)</i>	1.10	100%	1.100

¹ Persons per unit based on adjusted Statistics Canada Custom 2016 Census database.

² Forecast unit mix based upon historical trends and housing units in the development process.

(4) Early-2019 households based upon 211,600 (2016 Census) + 6,181 (mid-2016 to early-2019 unit estimate) = 217,781

(5) Decline occurs due to aging of the population and family life cycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhouses and apartments in duplexes.

(7) Includes bachelor, 1-bedroom and 2-bedroom+ apartments.

(8) Includes 1-bedroom and 2-bedroom+ apartments in special care facilities.



Schedule 6
City of Hamilton
Historical Residential Building Permits
Years 2008 - 2017

Year	Residential Building Permits			
	Singles & Semi Detached	Multiples ¹	Apartments ²	Total
2008	1,099	868	161	2,128
2009	723	359	143	1,225
2010	1,503	730	127	2,360
2011	918	463	431	1,812
2012	1,313	692	126	2,131
Sub-total	5,556	3,112	988	9,656
Average (2008 - 2012)	1,111	622	198	1,931
% Breakdown	57.5%	32.2%	10.2%	100.0%
2013	1,081	522	199	1,802
2014	1,016	812	346	2,174
2015	1,071	558	1,058	2,687
2016	921	946	394	2,261
2017	658	963	696	2,317
Sub-total	4,747	3,801	2,693	11,241
Average (2013 - 2017)	949	760	539	2,248
% Breakdown	42.2%	33.8%	24.0%	100.0%
2008 - 2017				
Total	10,303	6,913	3,681	20,897
Average	1,030	691	368	2,090
% Breakdown	49.3%	33.1%	17.6%	100.0%

Source: Building permits from 2008 to 2016 from Statistics Canada Publication, 64-001XIB.

2017 based on the City of Hamilton building permit data.

¹ Includes townhouses and apartments in duplexes.

² Includes bachelor, 1 bedroom and 2 bedroom+ apartments.



Schedule 7
City of Hamilton
Persons Per Unit by Age and Type of Dwelling
(2016 Census)

Age of Dwelling	Singles and Semi-Detached						20 Year Average
	< 1 BR	1 BR	2 BR	3/4 BR	5+ BR	Total	
1-5	-	-	1.980	3.439	5.103	3.455	
6-10	-	-	1.973	3.424	4.983	3.474	
11-15	-	-	1.800	3.345	4.601	3.403	
16-20	-	-	1.833	3.247	4.695	3.288	3.405
20-25	-	-	2.017	3.275	4.426	3.328	
25-35	-	1.571	1.907	2.939	4.087	3.009	
35+	-	1.508	1.874	2.663	3.724	2.572	
Total	2.000	1.549	1.878	2.876	4.082	2.821	

Age of Dwelling	Multiples ¹						20 Year Average
	< 1 BR	1 BR	2 BR	3/4 BR	5+ BR	Total	
1-5	-	1.459	1.954	2.682	-	2.518	
6-10	-	1.364	1.818	2.682	-	2.497	
11-15	-	1.870	1.841	2.615	-	2.366	
16-20	-	1.500	1.808	2.723	-	2.370	2.437
20-25	-	1.647	1.779	2.908	-	2.648	
25-35	-	1.314	1.874	2.916	4.529	2.686	
35+	-	1.288	2.020	2.847	4.045	2.527	
Total	1.000	1.361	1.921	2.795	4.113	2.526	

Age of Dwelling	Apartments ²						20 Year Average
	< 1 BR	1 BR	2 BR	3/4 BR	5+ BR	Total	
1-5	-	1.244	1.725	-	-	1.604	
6-10	-	1.210	1.710	-	-	1.512	
11-15	-	1.406	1.837	-	-	1.744	
16-20	-	1.350	1.964	3.037	-	1.790	1.663
20-25	-	1.401	2.052	3.960	-	1.838	
25-35	1.056	1.268	1.962	2.793	-	1.688	
35+	1.068	1.234	1.982	2.927	3.000	1.672	
Total	1.143	1.249	1.969	2.952	2.816	1.681	

Age of Dwelling	All Density Types					
	< 1 BR	1 BR	2 BR	3/4 BR	5+ BR	Total
1-5	-	1.288	1.907	3.177	4.951	2.951
6-10	-	1.274	1.824	3.187	4.857	3.017
11-15	-	1.535	1.837	3.171	4.619	2.988
16-20	-	1.403	1.880	3.127	4.678	2.844
20-25	-	1.438	1.970	3.179	4.370	2.881
25-35	1.333	1.280	1.932	2.931	4.082	2.680
35+	1.113	1.259	1.939	2.696	3.733	2.297
Total	1.254	1.278	1.929	2.864	4.056	2.495

¹ Includes townhouses and apartments in duplexes.

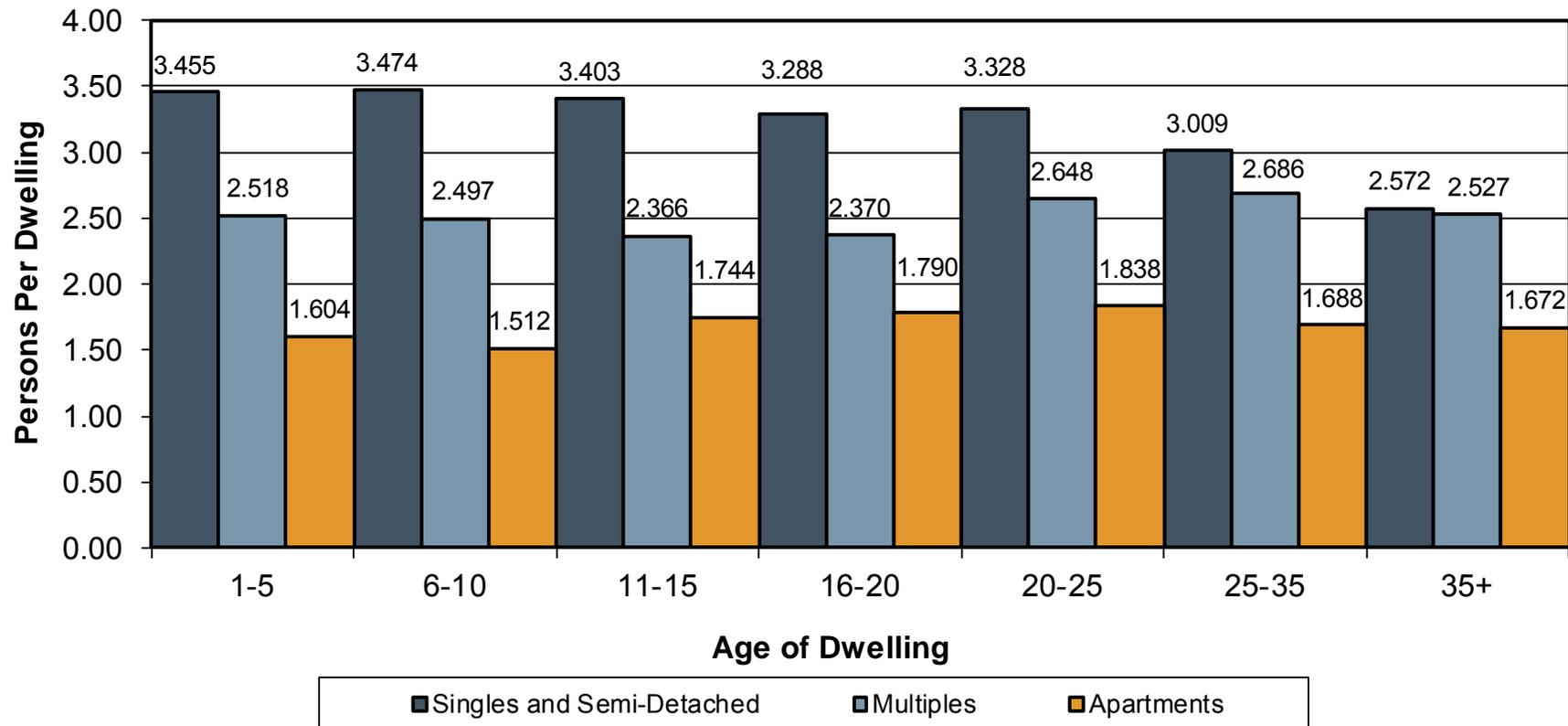
² Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Note: Does not include Statistics Canada data classified as 'Other'

P.P.U. Not calculated for samples less than or equal to 50 dwelling units, and does not include institutional population



**Schedule 8
City of Hamilton
Persons Per Unit by Structural Type and Age of Dwelling
(2016 Census)**





**Schedule 9a
City of Hamilton
Employment Forecast, 2019 to 2031**

Period	Population	Activity Rate								Employment								Employment Total (Excluding NFPOW and Work at Home)
		Primary	Work at Home	Industrial	Commercial/ Population Related	Institutional	Total	N.F.P.O.W. ¹	Total Including N.F.P.O.W.	Primary	Work at Home	Industrial	Commercial/ Population Related	Institutional	Total	N.F.P.O.W. ¹	Total Employment (Including N.F.P.O.W.)	
Mid 2006	504,559	0.004	0.027	0.111	0.139	0.110	0.391	0.048	0.439	2,050	13,580	55,950	70,305	55,300	197,185	24,395	221,580	183,605
Mid 2011	519,949	0.003	0.027	0.085	0.135	0.120	0.371	0.051	0.422	1,770	14,065	44,383	70,243	62,390	192,851	26,345	219,196	178,786
Mid 2016	536,917	0.003	0.029	0.089	0.138	0.119	0.379	0.054	0.433	1,855	15,785	47,758	74,273	63,665	203,336	29,165	232,501	187,551
Early-2019	549,897	0.003	0.030	0.089	0.139	0.120	0.380	0.054	0.435	1,845	16,443	48,702	76,379	65,778	209,147	29,870	239,017	192,704
Early-2029	614,943	0.003	0.032	0.099	0.152	0.122	0.408	0.056	0.464	2,045	19,411	60,786	93,301	75,315	250,858	34,272	285,130	231,447
Mid-2031	636,080	0.003	0.031	0.103	0.156	0.123	0.416	0.056	0.472	2,080	19,717	65,649	99,149	77,961	264,556	35,444	300,000	244,839
Incremental Change																		
Mid 2006 - Mid 2011	15,390	-0.001	0.000	-0.026	-0.004	0.010	-0.020	0.002	-0.018	-280	485	-11,567	-62	7,090	-4,334	1,950	-2,384	-4,819
Mid 2011 - Mid 2016	16,968	0.0001	0.0023	0.0036	0.0032	-0.0014	0.0078	0.0037	0.0115	85	1,720	3,375	4,030	1,275	10,485	2,820	13,305	8,765
Mid 2016 - Early-2019	12,980	0.0000	0.0005	-0.0004	0.0006	0.0010	0.0017	0.0000	0.0017	-10	658	944	2,106	2,113	5,811	705	6,516	5,153
Early-2019 - Early-2029	65,046	-0.0001	0.0017	0.0103	0.0128	0.0029	0.0275	0.0014	0.0289	200	2,968	12,084	16,922	9,537	41,712	4,402	46,114	38,744
Early-2019 - Mid-2031	86,183	-0.0002	0.0011	0.0146	0.0170	0.0029	0.0355	0.0014	0.0369	235	3,274	16,947	22,770	12,183	55,410	5,574	60,984	52,136
Annual Average																		
Mid 2006 - Mid 2011	3,078	-0.00013	0.00003	-0.00511	-0.00085	0.00208	-0.00398	0.00046	-0.00352	-56	97	-2,313	-12	1,418	-867	390	-477	-964
Mid 2011 - Mid 2016	3,394	0.0000	0.0005	0.0007	0.0006	-0.0003	0.0016	0.0007	0.0023	17	344	675	806	255	2,097	564	2,661	1,753
Mid 2016 - Early-2019	5,192	0.00000	0.00020	-0.00015	0.00023	0.00042	0.00069	0.00000	0.00069	-4	263	378	842	845	2,324	282	2,606	2,061
Early-2019 - Early-2029	6,505	-0.00001	0.00017	0.00103	0.00128	0.00029	0.00275	0.00014	0.00289	20	297	1,208	1,692	954	4,171	440	4,611	3,874
Early-2019 - Mid-2031	6,895	-0.00001	0.00009	0.00117	0.00136	0.00024	0.00284	0.00011	0.00295	19	262	1,356	1,822	975	4,433	446	4,879	4,171

Source: Watson & Associates Economists Ltd., 2018.

¹ Statistics Canada defines no fixed place of work (N.F.P.O.W.) employees as "persons who do not go from home to the same work place location at the beginning of each shift". Such persons include building and landscape contractors, travelling salespersons, independent truck drivers, etc.



**Schedule 9b
City of Hamilton
Employment & Gross Floor Area (G.F.A.) Forecast, 2019 to 2031**

Period	Population	Employment					Gross Floor Area in Square Feet (Estimated) ¹			
		Primary	Industrial	Commercial/ Population Related	Institutional	Total	Industrial	Commercial/ Population Related	Institutional	Total
Mid 2006	504,559	2,050	55,950	70,305	55,300	183,605				
Mid 2011	519,949	1,770	44,383	70,243	62,390	178,786				
Mid 2016	536,917	1,855	47,758	74,273	63,665	187,551				
Early-2019	549,897	1,845	48,702	76,379	65,778	192,704	58,442,400	34,370,400	46,044,500	138,857,300
Early-2029	614,943	2,045	60,786	93,301	75,315	231,447	72,943,200	41,985,500	52,720,500	167,649,200
Mid-2031	636,080	2,080	65,649	99,149	77,961	244,839	78,778,800	44,617,100	54,572,700	177,968,600
Incremental Change										
Mid 2006 - Mid 2011	15,390	-280	-11,567	-62	7,090	-4,819				
Mid 2011 - Mid 2016	16,968	85	3,375	4,030	1,275	8,765				
Mid 2016 - Early-2019	12,980	-10	944	2,106	2,113	5,153	1,132,800	947,500	1,479,000	3,559,300
Early-2019 - Early-2029	65,046	200	12,084	16,922	9,537	38,744	14,500,800	7,615,100	6,676,000	28,791,900
Early-2019 - Mid-2031	57,903	235	16,947	22,770	12,183	52,136	20,336,400	10,246,700	8,528,200	39,111,300
Annual Average										
Mid 2006 - Mid 2011	3,078	-56	-2,313	-12	1,418	-964				
Mid 2011 - Mid 2016	3,394	17	675	806	255	1,753				
Mid 2016 - Early-2019	5,192	-4	378	842	845	2,061	453,120	379,000	591,600	1,423,720
Early-2019 - Early-2029	6,505	20	1,208	1,692	954	3,874	1,450,080	761,510	667,600	2,879,190
Early-2019 - Mid-2031	4,632	19	1,356	1,822	975	4,171	1,626,912	819,736	682,256	3,128,904

Source: Watson & Associates Economists Ltd., 2018.

¹ Square Foot Per Employee Assumptions

Industrial	1,200
Commercial/ Population Related	450
Institutional	700



Schedule 9c
City of Hamilton - Area Specific Analysis (Non-Residential Component)
Estimate of the Anticipated Amount, Type and Location of
Development for which Development Charges can be imposed

Development Location	Timing	Industrial G.F.A. S.F. ¹	Commercial G.F.A. S.F. ¹	Institutional G.F.A. S.F. ¹	Total Non-Residential G.F.A. S.F.	Employment Increase ²
Combined Sewer System	2019-2029	130,800	3,046,100	3,004,400	6,181,300	11,170
	2019-2031	163,200	4,201,200	3,667,300	8,031,700	14,711
Separate Sewer System - Other Built Boundary ³	2019-2029	2,175,600	837,500	667,800	3,680,900	4,628
	2019-2031	2,440,800	922,100	767,200	4,130,100	5,179
Separate Sewer System - Greenfield ³	2019-2029	12,049,200	3,655,400	2,937,300	18,641,900	22,360
	2019-2031	17,548,800	5,031,100	4,016,700	26,596,600	31,542
Urban Total	2019-2029	14,355,600	7,539,000	6,609,500	28,504,100	38,158
	2019-2031	20,152,800	10,154,400	8,451,200	38,758,400	51,432
Rural Total	2019-2029	145,200	76,100	66,500	287,800	585
	2019-2031	183,600	92,300	77,000	352,900	703
City of Hamilton Total	2019-2029	14,500,800	7,615,100	6,676,000	28,791,900	38,744
	2019-2031	20,336,400	10,246,700	8,528,200	39,111,300	52,136

Source: Watson & Associates Economists Ltd., 2018.

¹ Square Foot Per Employee Assumptions

Industrial	1,200
Commercial/ Population Related	450
Institutional	700

² Employment increase does not include No Fixed Place of Work

³ Other Built Boundary and Greenfield are used in calculations for the separate sewer system stormwater.



**Schedule 10
City of Hamilton
Non-Residential Construction Value
Years 2007 - 2016
(000's 2018 \$)**

YEAR	Industrial				Commercial				Institutional				Total			
	New	Improve	Additions	Total	New	Improve	Additions	Total	New	Improve	Additions	Total	New	Improve	Additions	Total
2007	5,872	2,268	18,938	27,078	68,728	67,899	1,578	138,205	55,355	43,984	148,010	247,349	129,955	114,151	168,526	412,633
2008	25,096	1,369	0	26,465	103,215	54,377	2,367	159,960	20,151	36,788	188,829	245,768	148,462	92,535	191,197	432,194
2009	19,970	6,100	1,948	28,019	158,982	63,086	7,829	229,896	45,082	123,170	30,368	198,620	224,034	192,356	40,146	456,536
2010	122,587	18,941	6,681	148,209	159,334	70,553	39,008	268,895	110,527	50,840	46,482	207,849	392,449	140,334	92,171	624,953
2011	19,164	5,622	1,842	26,628	88,603	63,998	5,153	157,754	63,190	85,226	22,763	171,179	170,957	154,847	29,758	355,561
2012	171,708	27,961	4,196	203,865	181,788	120,666	17,272	319,725	449,305	32,108	47,191	528,604	802,801	180,734	68,658	1,052,193
2013	59,562	11,739	0	71,302	161,120	108,433	21,870	291,423	119,484	61,279	7,448	188,211	340,166	181,452	29,318	550,936
2014	24,835	9,107	6,230	40,172	234,404	69,080	9,591	313,075	124,866	40,119	32,984	197,969	384,105	118,307	48,805	551,217
2015	11,198	7,222	34,396	52,816	4,883	62,191	72,881	139,955	13,865	59,158	46,662	119,685	29,946	128,571	153,939	312,456
2016	2,420	6,355	6,808	15,584	24,930	89,609	77,756	192,296	21,213	62,865	30,773	114,851	48,563	158,829	115,338	322,730
Sub-total	462,413	96,685	81,040	640,138	1,185,986	769,892	255,306	2,211,185	1,023,039	595,538	601,509	2,220,085	2,671,438	1,462,115	937,855	5,071,408
Percent of Total	72%	15%	13%	100%	54%	35%	12%	100%	46%	27%	27%	100%	53%	29%	18%	100%
Average	46,241	9,669	8,104	64,014	118,599	76,989	25,531	221,118	102,304	59,554	60,151	222,009	267,144	146,212	93,785	507,141
2007 - 2011 Period Total				256,399				954,711				1,070,765				2,281,876
2007 - 2011 Average				51,280				190,942				214,153				456,375
% Breakdown				11.2%				41.8%				46.9%				100.0%
2012 - 2016 Period Total				383,739				1,256,473				1,149,320				2,789,532
2012 - 2016 Average				76,748				251,295				229,864				557,906
% Breakdown				13.8%				45.0%				41.2%				100.0%
2007 - 2016 Period Total				640,138				2,211,185				2,220,085				5,071,408
2007 - 2016 Average				64,014				221,118				222,009				507,141
% Breakdown				12.6%				43.6%				43.8%				100.0%

Source: Statistics Canada Publication, 64-001-XIB.

Note: Inflated to year-end 2017 (January, 2018) dollars using Reed Construction Cost Index.



**Schedule 11
City of Hamilton**

Employment to Population Ratio by Major Employment Sector, 2006 to 2016

NAICS		Year			Change		Comments
		2006	2011	2016	06-11	11-16	
Employment by industry							
Primary Industry Employment							
11	Agriculture, forestry, fishing and hunting	3,010	2,605	2,445	-405	-160	Categories which relate to local land-based resources.
21	Mining and oil and gas extraction	185	105	155	-80	50	
Sub-total		3,195	2,710	2,600	-485	-110	
Industrial and Other Employment							
22	Utilities	940	950	775	10	-175	Categories which relate primarily to industrial land supply and demand.
23	Construction	6,800	7,440	7,760	640	320	
31-33	Manufacturing	32,900	22,325	24,930	-10,575	2,605	
41	Wholesale trade	7,645	7,100	7,120	-545	20	
48-49	Transportation and warehousing	7,605	6,580	6,640	-1,025	60	
56	Waste management and remediation services	3,355	3,478	3,863	123	385	
Sub-total		59,245	47,873	51,088	-11,372	3,215	
Population Related Employment							
44-45	Retail trade	23,885	23,815	25,655	-70	1,840	Categories which relate primarily to population growth within the municipality.
51	Information and cultural industries	3,445	3,440	3,745	-5	305	
52	Finance and insurance	6,500	7,225	7,410	725	185	
53	Real estate and rental and leasing	3,770	4,000	3,915	230	-85	
54	Professional, scientific and technical services	8,970	10,365	10,895	1,395	530	
55	Management of companies and enterprises	110	125	185	15	60	
56	Administrative and support	3,355	3,478	3,863	123	385	
71	Arts, entertainment and recreation	3,680	3,500	3,670	-180	170	
72	Accommodation and food services	13,340	12,090	14,800	-1,250	2,710	
81	Other services (except public administration)	10,375	9,790	9,445	-585	-345	
Sub-total		77,430	77,828	83,583	398	5,755	
Institutional							
61	Educational services	18,890	21,605	21,040	2,715	-565	
62	Health care and social assistance	29,620	31,670	34,300	2,050	2,630	
91	Public administration	8,805	11,165	10,725	2,360	-440	
Sub-total		57,315	64,440	66,065	7,125	1,625	
Total Employment		197,185	192,851	203,336	-4,334	10,485	
Population		504,559	519,949	536,917	15,390	16,968	
Employment to Population Ratio							
Industrial and Other Employment		0.12	0.09	0.10	-0.03	0.00	
Population Related Employment		0.15	0.15	0.16	0.00	0.01	
Institutional Employment		0.11	0.12	0.12	0.01	0.00	
Primary Industry Employment		0.01	0.01	0.00	0.00	0.00	
Total		0.39	0.37	0.38	-0.02	0.01	

Source: Statistics Canada Employment by Place of Work.

Note: 2006-2016 employment figures are classified by North American Industry Classification System (NAICS) Code.



Appendix B: Level of Service



LEVEL OF SERVICE CEILING

CITY OF HAMILTON

SUMMARY OF SERVICE STANDARDS AS PER DEVELOPMENT CHARGES ACT, 1997, AS AMENDED

Service Category	Sub-Component	10 Year Average Service Standard				Maximum Ceiling LOS	
		Cost (per capita)		Quantity (per capita)	Quality (per capita)		
Services Related to a Highway	Roads	\$22,997.80	0.0092	lane km of roadways	2,499,761	per lane km	1,982,019,397
	Bridges, Culverts & Structures	\$3,021.00	0.0007	Number of Bridges, Culverts & Structures	4,315,714	per item	260,358,843
	Traffic Signals	\$250.50	0.0010	No. of Traffic Signals	250,500	per signal	21,588,842
	Active Transportation - Terminals	\$17.80	0.0563	sq.ft. of terminal space	316	per sq.ft.	1,534,057
	Active Transportation - Shelters	\$16.70	0.0021	No. of Shelters/Pads	7,952	per item	1,439,256
Public Works Facilities, Fleet & Equipment	Facilities	\$945.73	1.6712	sq.ft. of building area	566	per sq.ft.	81,505,849
	Vehicles and Equipment	\$184.36	0.0023	No. of vehicles and equipment	80,157	per vehicle	15,888,698
Fire Protection Services	Fire Facilities	\$194.54	0.4755	sq.ft. of building area	409	per sq.ft.	16,766,041
	Fire Vehicles	\$122.13	0.0002	No. of vehicles	610,650	per vehicle	10,525,530
	Fire Small Equipment and Gear	\$37.42	0.0086	No. of equipment and gear	4,351	per Firefighter	3,224,968
Police Services	Police Facilities	\$261.70	0.5821	sq.ft. of building area	450	per sq.ft.	22,554,091
	Police Vehicles	\$16.30	0.0004	No. of vehicles and equipment	40,750	per vehicle	1,404,783
	Police Small Equipment and Gear	\$21.70	0.0045	No. of equipment and gear	4,822	per Officer	1,870,171
Parking Services	Parking Spaces	\$263.81	0.0090	No. of spaces	29,312	per space	17,159,785
	Parking Meters	\$4.37	0.0051	No. of Meters	857	per meter	284,251
	Parking Facilities	\$85.34	0.0599	sq.ft. of building area	1,425	per sq.ft.	5,551,026
Airport	Airport Lands	\$291.51	0.0029	acres of land	100,521	per sq.ft.	18,961,559
Parkland Development	Parkland Development	\$447.94	0.0115	Acres of Parkland	38,951	per acre	29,136,705
	Parkland Amenities	\$560.40	0.0334	No. of parkland amenities	16,778	per amenity	36,451,778
	Parkland Amenities - Buildings	\$10.11	0.1066	sq.ft. of building area	95	per sq.ft.	657,615
	Parkland Trails	\$20.73	0.0001	Linear Kilometres of Paths and Trails	207,300	per lin m.	1,348,404
	Parks Vehicles and Equipment	\$0.26	0.0001	No. of vehicles and equipment	2,600	per vehicle	16,912
Indoor Recreation Services	Indoor Recreation Facilities	\$1,796.90	3.9848	sq.ft. of building area	451	per sq.ft.	116,881,157
	Indoor Recreation Facilities - Buildings Within Parks	\$178.95	0.4181	sq.ft. of building area	428	per sq.ft.	11,639,982
	Recreation Vehicles and Equipment	\$0.53	0.0001	No. of vehicles and equipment	5,300	per vehicle	34,474



LEVEL OF SERVICE CEILING

CITY OF HAMILTON

SUMMARY OF SERVICE STANDARDS AS PER DEVELOPMENT CHARGES ACT, 1997, AS AMENDED

Service Category	Sub-Component	10 Year Average Service Standard				Maximum Ceiling LOS
		Cost (per capita)		Quantity (per capita)	Quality (per capita)	
Library Services	Library Facilities	\$389.01	0.7264	sq.ft. of building area	536 per sq.ft.	25,303,544
	Library Vehicles	\$2.36	0.00001	No. of vehicles and equipment	214,545 per vehicle	153,509
	Library Collection Materials	\$70.77	2.0094	No. of library collection items	35 per collection item	4,603,305
Paramedics	Paramedics Facilities	\$38.52	0.1225	sq.ft. of building area	314 per sq.ft.	2,505,572
	Paramedics Vehicles	\$27.60	0.0005	No. of vehicles and equipment	55,200 per vehicle	1,795,270
Long Term Care	Long Term Care Facilities	\$305.30	0.6387	sq.ft. of building area	478 per sq.ft.	19,858,544
Social Housing	Social Housing	\$1,604.83	10.71	sq.ft. of building area	149.84 per sq.ft.	104,387,772
Provincial Offences Administration	Provincial Offences Administration Facilities	\$22.48	0.0421	sq.ft. of building area	533.97 per sq.ft.	1,462,234
Health Services	Health Facilities	\$76.78	0.1975	sq.ft. of building area	389 per sq.ft.	4,994,232
	Health Vehicles	\$0.74	0.000002	No. of vehicles	390,898 per vehicle	48,134
Social & Child Services	Social and Child Services Facilities	\$94.63	0.2647	sq.ft. of building area	357 per sq.ft.	6,155,303
Waste Diversion	Waste Diversion - Facilities - Stations/Depots	\$271.10	0.6940	sq.ft. of building area	391 per sq.ft.	17,633,971
	Waste Diversion - Vehicles & Equipment	\$79.39	0.0004	No. of vehicles and equipment	198,475 per vehicle	5,164,002
	Waste Diversion - Carts & Containers	\$20.18	1.3441	No. of items	15 per Item	1,312,628

*Transit is now based on a forward looking service standard based on the amendments to the DCA



**City of Hamilton
Service Standard Calculation Sheet**

Service: Services Related to a Highway - Roads
Unit Measure: lane km of roadways

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/lane km Including Land)
Roads (lane km):											
Rural Arterial	166	165	164	173	183	180	180	180	190	190	\$2,193,000
Rural Collector	1,575	1,575	1,575	1,575	1,575	1,575	1,575	1,575	1,606	1,606	\$2,291,000
Urban Collector	800	814	829	819	810	816	819	826	855	855	\$2,876,000
Industrial Collector	135	135	135	135	135	135	135	135	135	135	\$1,553,000
Urban Arterial Minor	412	403	395	393	392	393	392	391	394	394	\$2,508,000
Urban Arterial Major	958	962	965	976	987	952	961	963	974	974	\$2,094,000
Expressway	133	133	133	133	133	133	133	133	133	133	\$10,972,000
Provision for Sidewalks/Signalization/Boulevards/ etc. 20% of Urban and Industrial	488	489	491	491	491	486	488	490	498	498	\$1,806,000
Active Transportation:											
Bicycle Lanes (on road)	55	63	65	70	76	82	85	98	104	104	\$1,810,000
Cycle Track (Barrier)	-	-	-	-	1	5	5	5	6	6	\$1,047,000
Bike Paths (in Boulevard)	-	-	-	-	-	-	-	1	2	2	\$565,000
Multi-use Trails (Commuter)	43	43	45	47	50	51	52	54	55	55	\$565,000
Expanded Paved Shoulders on Rural Roads for Cycling	10	11	11	11	11	11	11	11	11	11	\$1,626,000
Total	4,776	4,794	4,809	4,824	4,845	4,820	4,836	4,863	4,963	4,963	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009

10 Year Average	2009-2018
Quantity Standard	0.0092
Quality Standard	\$2,499,761
Service Standard	\$22,998

D.C. Amount (before deductions)	13 Year
Forecast Population	86,183
\$ per Capita	\$22,998
Eligible Amount	\$1,982,019,397



**City of Hamilton
Service Standard Calculation Sheet**

Service: Services Related to a Highway - Active Transportation - Terminals
Unit Measure: sq.ft. of terminal space

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/sq.ft.)
Active Transportation (sq.ft.):											
Downtown Transit Terminal	-	-	2,221	2,221	2,221	2,221	2,221	2,221	2,221	2,221	\$600
McNab Street Terminal	27,990	27,990	27,990	27,990	27,990	27,990	27,990	27,990	27,990	27,990	\$300
Total	27,990	27,990	30,211								

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.054	0.054	0.058	0.058	0.057	0.057	0.057	0.056	0.056	0.056

10 Year Average	2009-2018
Quantity Standard	0.0563
Quality Standard	\$316
Service Standard	\$18

D.C. Amount (before deductions)	13 Year
Forecast Population	86,183
\$ per Capita	\$18
Eligible Amount	\$1,534,057



**City of Hamilton
Service Standard Calculation Sheet**

Service: Services Related to a Highway - Active Transportation - Shelters & pads
Unit Measure: No. of Shelters/Pads

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Active Transportation (items):											
Transit Shelters	559	559	565	565	565	565	565	565	565	565	\$13,500
Transit Landing Pads	510	519	525	525	547	547	547	547	547	547	\$2,200
Total	1,069	1,078	1,090	1,090	1,112	1,112	1,112	1,112	1,112	1,112	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002

10 Year Average	2009-2018
Quantity Standard	0.0021
Quality Standard	\$7,952
Service Standard	\$17

D.C. Amount (before deductions)	13 Year
Forecast Population	86,183
\$ per Capita	\$17
Eligible Amount	\$1,439,256



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Stoney Creek												
Operations Centre (349 Jones Rd.)	44,185	44,185	44,185	44,185	44,185	44,185	44,185	44,185	44,185	44,185	\$401	\$587
Operations Centre (345 Jones Rd.)	2,773	2,773	2,773	2,773	2,773	2,773	2,773	2,773	2,773	2,773	\$401	\$932
Animal Control Facility (247 Dartnall Rd.)	24,468	24,468	24,468	24,468	24,468	24,468	24,468	24,468	24,468	24,468	\$401	\$628
Stoney Creek Operations Centre - Salt Building (349 Jones Rd.)	5,549	5,549	5,549	5,549	5,549	5,549	5,549	5,549	5,549	5,549	\$401	\$546
Stoney Creek Operations Centre - Sand Building (349 Jones Rd.)	12,600	12,600	12,600	12,600	12,600	12,600	12,600	12,600	12,600	12,600	\$277	\$385
Tapleystown, Storage (119 Tapleystown Rd.)	12,366	12,366	12,366	12,366	12,366	12,366	12,366	12,366	12,366	12,366	\$277	\$387
Tapleystown, Sand Hut (119 Tapleystown Rd.)	1,027	1,027	1,027	1,027	1,027	1,027	1,027	1,027	1,027	1,027	\$277	\$387
Tapleystown, Salt Dome (119 Tapleystown Rd.)	6,913	6,913	6,913	6,913	6,913	6,913	6,913	6,913	6,913	6,913	\$277	\$387
Stoney Creek Storage Building & Workshop (77 King St. W.)	5,829	5,829	5,829	5,829	5,829	5,829	5,829	5,829	5,829	-	\$401	\$581
Heritage Green Equipment Storage (355 First Rd. W.)	-	-	-	-	-	-	-	-	5,167	5,167	\$77	\$111
Ancaster												
Vehicle Storage Garage (334 Wilson St. E)	5,432	5,432	5,432	5,432	5,432	-	-	-	-	-	\$362	\$513
Operations New Garage (501 Shaver Rd.)	21,861	21,861	21,861	21,861	21,861	21,861	21,861	21,861	21,861	21,861	\$400	\$570
Operations Old Garage (501 Shaver Rd.)	8,092	8,092	8,092	8,092	8,092	8,092	8,092	8,092	8,092	8,092	\$400	\$586
Operations New Offices (501 Shaver Rd.)	3,634	3,634	3,634	3,634	3,634	3,634	3,634	3,634	3,634	3,634	\$311	\$775
Ancaster Operations - Sand Hut (501 Shaver Rd.)	4,880	4,880	4,880	4,880	4,880	4,880	4,880	4,880	4,880	4,880	\$277	\$385
Fiddler's Green Maintenance Yard, Shop/ Garage (1104 Fiddler's Green Rd.)	12,128	12,128	12,128	12,128	12,128	12,128	12,128	12,128	12,128	-	\$400	\$646
Fiddler's Green Maintenance Yard, Sand Hut (1104 Fiddler's Green Rd.)	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	-	\$277	\$466
Fiddler's Green Maintenance Yard, Salt Dome (1104 Fiddler's Green Rd.)	5,806	5,806	5,806	5,806	5,806	5,806	-	-	-	-	\$127	\$251
Dundas												
King St. Public Works Facility (189 King St. E.)	16,320	16,320	16,320	16,320	16,320	16,320	16,320	16,320	16,320	16,320	\$401	\$621
Dundas Physical Services - Storage Building - A (135 King St. E.)	900	900	900	900	900	900	900	900	900	900	\$277	\$2,283
Dundas Physical Services - Storage Building - B (135 King St. E.)	260	260	260	260	260	260	260	260	260	260	\$277	\$2,296
Sand Hut (189 King St. E.)	2,546	2,546	2,546	2,546	2,546	2,546	-	-	-	-	\$104	\$777



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Salt Dome (189 King St. E.)	1,661	1,661	1,661	1,661	1,661	1,661	-	-	-	-	\$127	\$802
Paint Shop - Dundas Driving Park (Cross St.)	2,808	2,808	2,808	2,808	2,808	2,808	2,808	2,808	2,808	2,808	\$401	\$2,373
Works Bldg - Dundas Driving Park (Cross St.)	3,053	3,053	3,053	3,053	3,053	3,053	3,053	3,053	3,053	3,053	\$277	\$403
New Salt/Salt Quonset, (189 King St. E.)	-	-	-	-	-	9,600	9,600	9,600	9,600	9,600	\$47	\$340
Glanbrook												
Airport Road (Building), Yard #2 (7098 Airport Rd.)	5,539	5,539	5,539	5,539	5,539	5,539	5,539	5,539	5,539	5,539	\$401	\$568
Airport Road, Mount Hope Rd. Shed, Yard #2 (7098 Airport Rd.)	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580	\$277	\$387
Glanbrook Yard #1 (Maintenance Shop/Garage), 2111 Binbrook Dr.	5,509	5,509	5,509	5,509	5,509	5,509	5,509	5,509	5,509	5,509	\$277	\$405
Glanbrook Yard #1 (Sand/Salt) (2111 Binbrook Dr.)	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	2,620	\$96	\$156
Glanbrook Yard #1 (Storage Bldg.) (2111 Binbrook Dr.)	2,539	2,539	2,539	2,539	2,539	2,539	2,539	2,539	2,539	2,539	\$117	\$183
Flamborough												
Centre Road Block (Building) (1255 Centre Rd.)	5,538	5,538	5,538	5,538	-	-	-	-	-	-	\$401	\$572
Centre Road Steel (Building) (1255 Centre Rd.)	1,579	1,579	1,579	1,579	-	-	-	-	-	-	\$277	\$405
Brock Road Shed (Building) (867 4th Concession Rd. W.)	10,925	10,925	10,925	10,925	10,925	10,925	10,925	10,925	10,925	10,925	\$277	\$516
Brock Road Steel (Building) (867 4th Concession Rd. W.)	1,549	1,549	1,549	1,549	1,549	1,549	1,549	1,549	1,549	1,549	\$277	\$516
Millgrove Yard #1, Maintenance Shop/Garage (594 5th Concession Rd., W.)	11,158	11,158	11,158	11,158	11,158	11,158	-	-	-	-	\$347	\$502
Millgrove Yard #1, Salt Dome (594 5th Concession Rd., W.)	6,361	6,361	6,361	6,361	6,361	6,361	-	-	-	-	\$127	\$176
Rockton Yard #2, Maint. Shop/Garage (810 Woodhill Rd.)	7,176	7,176	7,176	7,176	7,176	7,176	7,176	7,176	7,176	7,176	\$401	\$677
Rockton Yard #2, Salt Dome (810 Woodhill Rd.)	6,324	6,324	6,324	6,324	6,324	6,324	6,324	6,324	6,324	6,324	\$277	\$348
Joe Sam's Works Yard - Pole Barn Storage for Public Works	14,406	14,406	14,406	14,406	14,406	14,406	14,406	14,406	14,406	14,406	\$270	\$473
Joe Sam's Works Yard - Storage Building	14,836	14,836	14,836	14,836	14,836	14,836	14,836	14,836	14,836	14,836	\$218	\$267
Hamilton												
CN Building (Storage) (241 Stuart St.)	75,390	-	-	-	-	-	-	-	-	-	\$162	\$205



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Arvin Yard (Water) (911 Arvin Ave.)	7,355	7,355	7,355	7,355	7,355	7,355	7,355	7,355	7,355	7,355	\$401	\$644
Arvin Yard Cold Storage (911 Arvin Ave.)	-	-	-	-	4,523	4,523	4,523	4,523	4,523	4,523	\$277	\$482
Bernie Court Yard, Maintenance Shop/Garage (308 Rymal Rd.)	20,720	20,720	20,720	20,720	20,720	20,720	20,720	20,720	20,720	20,720	\$400	\$705
Bernie Court Yard Garage	665	665	665	665	665	665	665	665	665	665	\$277	\$399
Bernie Court Yard Sand Hut	588	588	588	588	588	588	588	588	588	588	\$277	\$385
Bernie Court Yard, Salt Dome (308 Rymal Rd.)	5,328	5,328	5,328	5,328	5,328	5,328	5,328	5,328	5,328	5,328	\$277	\$1,108
Bernie Court Yard, Large Garage (308 Rymal Rd.)	10,576	10,576	10,576	10,576	10,576	10,576	10,576	10,576	10,576	10,576	\$400	\$760
Bernie Court Yard, Storage Barn (308 Rymal Rd.)	8,866	8,866	8,866	8,866	8,866	8,866	8,866	8,866	8,866	8,866	\$277	\$1,279
Birch St. Yard, Salt Storage Bldg. (281 Birch St.)	11,263	11,263	11,263	11,263	11,263	11,263	11,263	11,263	11,263	11,263	\$277	\$389
Brampton Yard, Office (2200 Brampton St.)	3,464	3,464	3,464	3,464	3,464	3,464	3,464	3,464	3,464	3,464	\$311	\$1,028
Brampton Yard, Quonset (2200 Brampton St.)	2,753	2,753	2,753	2,753	2,753	2,753	2,753	2,753	2,753	2,753	\$277	\$968
Brampton Yard, Salt Dome (2200 Brampton St.)	4,138	4,138	4,138	4,138	4,138	4,138	4,138	4,138	4,138	4,138	\$277	\$968
Brampton Yard, Storage Building (2200 Brampton St.)	3,464	3,464	3,464	3,464	3,464	3,464	3,464	3,464	3,464	3,464	\$277	\$968
Barton Yard, Storage/Office/Shop (125 Barton St. W.)	60,632	60,632	60,632	60,632	60,632	60,632	60,632	60,632	60,632	60,632	\$401	\$545
Barton Yard, Carpenter's Shop (125 Barton St. W.)	13,453	13,453	13,453	13,453	13,453	13,453	13,453	13,453	13,453	13,453	\$401	\$599
Chedoke Yard, Salt Dome (161 Studholme Rd.)	3,116	3,116	3,116	3,116	3,116	3,116	3,116	3,116	3,116	3,116	\$277	\$517
Chedoke Yard, Operations Centre (161 Studholme Rd.)	9,947	9,947	9,947	9,947	9,947	9,947	9,947	9,947	9,947	9,947	\$190	\$270
Chedoke Yard, Garage/Fuel Building (161 Studholme Rd.)	15,216	15,216	15,216	15,216	15,216	15,216	15,216	15,216	15,216	15,216	\$190	\$236
Forestry Depot, Maintenance Shop/Garage (1301 Upper Ottawa)	7,185	7,185	7,185	7,185	7,185	7,185	7,185	15,382	15,382	15,382	\$400	\$723
Forestry Depot, Quonset (1301 Upper Ottawa)	3,129	3,129	3,129	3,129	3,129	3,129	3,129	3,129	3,129	3,129	\$277	\$543
Forestry Depot, Storage Bldg. (1301 Upper Ottawa)	4,219	4,219	4,219	4,219	4,219	4,219	4,219	4,219	4,219	4,219	\$401	\$704
Gage Park Greenhouse #8/Production (1000 Main St. E.)	6,090	6,090	6,090	6,090	6,090	6,090	6,090	6,090	6,090	6,090	\$118	\$148
Gage Park Potting Shed (1000 Main St. E.)	3,120	3,120	3,120	3,120	3,120	3,120	3,120	3,120	3,120	3,120	\$137	\$214
Gage Park Boilerhouse (1000 Main St. E.)	575	575	575	575	575	575	575	575	575	575	\$100	\$137
Traffic Operations Centre (1375 Upper Ottawa)	52,017	52,017	52,017	52,017	52,017	52,017	52,017	52,017	52,017	52,017	\$401	\$724
Upper Ottawa Salt Shed (1199 Upper Ottawa)	6,640	6,640	6,640	6,640	6,640	6,640	6,640	6,640	6,640	6,640	\$277	\$1,586



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
WSOC - Wentworth Street Operation Centre (330 Wentworth St. N)	263,488	263,488	263,488	263,488	263,488	263,488	263,488	263,488	263,488	263,488	\$401	\$570
330 Wentworth St. Dome	11,263	11,263	11,263	11,263	11,263	11,263	11,263	11,263	11,263	11,263	\$114	\$156
Hamilton City Centre (77 James St. N., Suite 400)	37,603	37,603	37,603	37,603	37,603	37,603	37,603	37,603	37,603	37,603	\$299	\$366
Shipping Containers:												
Hamilton - Mohawk Sports Park (Bernie Arbour Stadium) (685 Upper Kenilworth Avenue)	-	160	160	160	320	320	320	320	320	320	\$40	\$65
Heritage Green Sports Park, Stoney Creek (341 First Road W.)	160	160	160	160	160	160	160	160	160	160	\$40	\$65
Jones Road Yard, Stoney Creek (345 Jones Rd.)	-	-	-	-	-	-	-	160	160	160	\$40	\$65
Gage Park, Hamilton (1000 Main St. E.)	-	-	160	160	320	320	320	320	320	320	\$40	\$65
Wentworth Street Operations Centre, Hamilton (330 Wentworth St. N.)	160	160	160	160	160	160	160	480	480	480	\$40	\$65
Bernie Court Yard, Hamilton (308 Rymal Road East)	-	-	-	-	-	-	-	320	320	320	\$40	\$65
Chedoke Yard, Hamilton (161 Studholme Road)	640	640	640	800	800	800	800	800	800	800	\$40	\$65
Dundas Yard, Dundas (189 King St E)	-	-	-	-	-	-	-	640	640	640	\$40	\$65
Shaver Yard, Ancaster (501 Shaver Rd.)	-	-	-	-	-	-	-	320	320	320	\$40	\$65
Land Only:												
Old Rheem Property Snow Dump (128 Barton St.) (land only, 4.06 acres)	-	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06		\$365,000
Total	958,111	882,881	883,041	883,201	880,927	885,095	857,563	867,520	872,687	853,574		

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	1.8607	1.7122	1.6983	1.6905	1.6739	1.6730	1.6104	1.6157	1.6106	1.5670

10 Year Average	2009-2018
Quantity Standard	1.6712
Quality Standard	\$566
Service Standard	\$946

D.C. Amount (before deductions)	13 Year
Forecast Population	86,183
\$ per Capita	\$946
Eligible Amount	\$81,505,849



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
Community Services											
Indoor Rec:											
140X-EXT. USE ICE RESURFACER	-	-	-	-	-	-	-	-	3	3	\$98,000
140-ICE RESURFACER	23	23	24	24	24	24	23	23	24	24	\$98,800
161B-MOWER RIDING	2	2	2	2	-	-	-	1	1	1	\$104,000
124C-2WD SUV	-	-	-	-	1	1	1	1	1	1	\$31,200
073B-3/4TPU PLOW TGATE DUMP	-	1	1	1	1	1	1	1	1	1	\$52,000
074A-1 T PICKUP W/PLOW	3	3	3	3	2	2	2	2	2	2	\$52,000
124-SUV 4X4	-	-	-	-	-	-	-	1	1	1	\$41,600
073-PICKUP TRUCK 3/4 T	-	-	-	-	-	-	1	1	2	2	\$42,700
150-ATT MISCELLANEOUS	2	2	1	1	-	-	-	-	-	-	\$10,400
Outdoor Rec:											
007C-MOWER WALK BEHIND GREENS	3	2	2	2	-	-	-	-	-	-	\$7,300
020A-COMPACT PICK UP WITH PLOW	1	1	-	-	-	-	-	-	-	-	\$37,100
021-1/2 T PICK UP	4	6	5	5	4	4	4	3	3	3	\$29,100
022X-EXT. USE VAN 1/2 T	-	-	-	1	-	-	-	-	-	-	\$32,000
025-TRUCK W/HYD TAILGATE	1	1	1	1	1	1	1	1	-	-	\$52,000
026-VAN 1 T	-	-	-	1	-	-	-	-	-	-	\$65,500
026X-EXT. USE VAN 1 T	1	1	1	1	-	-	-	-	-	-	\$34,900
043A-TRACTOR FARM TYPE-SMALL	-	-	-	2	-	-	-	-	-	-	\$57,200
043C-TRACTOR FARM TYPE - LRG	4	4	4	2	-	-	-	-	-	-	\$57,200
066-MOWER RIDING FAIRWAY	10	10	10	11	-	-	-	-	-	-	\$46,800
073X-EXT. USE PICKUP 3/4 T	1	1	1	1	-	-	-	-	-	-	\$36,000
074-PICKUP TRUCK 1 T	3	2	2	2	2	2	1	1	1	1	\$52,000
076-VACUUM LEAF	2	3	3	3	-	-	-	-	-	-	\$10,400
079-MOWER TRIPLEX	6	8	8	7	-	-	-	-	-	-	\$46,800
083-TURF UTILITY VEH OVER \$20K	6	6	6	6	-	-	-	-	-	-	\$20,800
098-MOWER FRONT MNT RIDING ROT	1	1	1	1	-	-	-	-	-	-	\$46,800
102G-RIDE-ON WEED SPRAYER	2	2	2	2	-	-	-	-	-	-	\$41,600
103-TRAILER TANDEM AXLE	1	1	1	-	-	-	-	-	-	-	\$12,500
105-TOP DRESSER	2	2	2	2	-	-	-	-	-	-	\$20,800



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
106-AERIFIER	3	3	3	3	-	-	-	-	-	-	\$20,800
106B-AERIFIER LARGE	1	1	1	1	-	-	-	-	-	-	\$41,600
135-BLOWER LEAF LG PTO	1	-	-	-	-	-	-	-	-	-	\$10,400
137-TRAILER DUMP BOX	1	1	1	1	-	-	-	-	-	-	\$6,200
152-ALUMINUM DUMP/REG CAB	1	1	1	1	-	-	-	-	-	-	\$72,800
160-RAKE POWER RIDING SAND TRA	2	2	2	2	-	-	-	-	-	-	\$41,600
152PP-ALUM.DUMP CREW&PLOW - PARKS	-	-	-	-	-	-	-	-	1	1	\$72,800
Public Health:											
022-VAN 1/2 T	2	3	2	4	1	1	1	1	1	1	\$32,300
153-VAN MINI	2	1	2	2	1	1	1	1	1	1	\$46,800
Planning & Economic Development:											
017-HYBRID VEHICLES	41	53	60	61	60	61	61	57	45	45	\$36,400
018-CARS COMPACT	16	15	12	9	6	6	6	4	-	-	\$28,100
020X-EXT. USE PICKUP COMPACT	-	-	-	-	-	-	-	-	1	1	\$23,900
020-PICKUP TRUCK COMPACT	15	15	14	13	12	13	13	4	3	3	\$27,100
021-1/2 T PICK UP	3	3	5	5	3	3	3	3	4	4	\$29,100
022-VAN 1/2 T	4	4	4	4	4	5	5	3	3	3	\$32,300
073-PICKUP TRUCK 3/4 T	-	-	-	-	-	-	1	1	2	2	\$42,700
073B-3/4TPU PLOW TGATE DUMP	2	3	3	3	3	3	3	3	3	3	\$52,000
074A-1 T PICKUP W/PLOW	1	1	1	1	1	1	1	1	-	-	\$52,000
124-SUV 4X4	-	-	-	-	-	-	-	16	31	31	\$41,600
124A-SUV 4X4 SMALL	1	1	-	-	-	-	-	-	-	-	\$45,000
124C-2WD SUV	-	-	-	-	10	10	15	18	21	21	\$31,200
125-SWEEPER SIDEWALK	1	1	1	1	1	1	1	1	1	1	\$60,300
153-VAN MINI	4	3	2	3	2	3	3	3	5	5	\$46,800
202-FORKLIFTS-SKID STEERS	1	1	1	1	1	1	1	1	1	1	\$70,700
Animal Control:											
020B-COMPACT 4X4 PICKUP	2	2	2	2	1	1	1	-	-	-	\$27,100
124C-2WD SUV	-	-	-	-	-	-	-	1	1	1	\$31,200
124-SUV 4X4	-	-	-	-	-	-	-	1	1	1	\$41,600
153-VAN MINI	1	1	1	1	1	1	1	1	1	1	\$46,800
21-1/2 T PICK UP	1	1	1	1	1	1	1	1	1	1	\$29,100
Public Works:											
007C-MOWER WALK BEHIND GREENS	4	4	4	4	6	5	5	5	8	8	\$7,300



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
012-TRAILER SINGLE AXLE	2	1	-	-	-	-	-	-	-	-	\$7,300
015C-POST HOLE DIGGER - 3 PT	1	1	1	1	1	1	1	1	1	1	\$10,400
017-HYBRID VEHICLES	32	52	52	41	52	52	52	49	36	36	\$36,400
018-CARS COMPACT	2	2	2	1	2	1	1	1	1	1	\$26,000
018X-EXT USE CAR COMPACT	-	-	2	2	2	-	-	-	-	-	\$28,100
019-CARS FULL SIZE	1	1	-	-	-	-	1	-	1	1	\$33,300
020B-COMPACT 4X4 PICKUP	-	-	1	2	-	-	-	-	-	-	\$27,100
020-PICKUP TRUCK COMPACT	6	10	11	11	10	7	6	2	2	2	\$27,100
020X-EXT. USE PICKUP COMPACT	1	-	1	1	1	1	1	1	4	4	\$25,900
021-1/2 T PICK UP	16	18	20	24	30	16	17	16	16	16	\$29,100
021X-EXT. USE PICKUP 1/2 T	1	-	1	2	2	2	2	2	-	-	\$25,900
022-VAN 1/2 T	9	9	9	9	12	11	11	8	14	14	\$32,300
023-VAN 3/4 T	1	1	1	2	2	2	1	1	1	1	\$33,300
025-TRUCK W/HYD TAILGATE	5	2	3	3	2	2	2	2	2	2	\$52,000
026B-VAN 1TON WITH SHELIVING	1	1	1	1	1	1	1	1	1	1	\$65,500
026C-CUBE VAN 1T	1	1	-	-	1	1	1	1	2	2	\$65,500
026D-VAN SPRINTER 1 T	3	3	4	4	4	4	4	4	4	4	\$65,500
026-VAN 1 T	14	14	14	9	16	16	16	16	16	16	\$65,500
026X-EXT. USE VAN 1 T	-	-	-	-	1	1	1	1	1	1	\$40,500
030-DUMP MEDIUM DUTY	5	5	4	3	2	2	1	1	1	1	\$116,500
032-BEACH RAKE	1	1	1	1	1	1	1	1	1	1	\$93,600
033-MINI EXCAVATOR	1	1	1	1	1	1	1	1	1	1	\$41,600
034-LOADER FRONT END 1 CU YD	3	3	3	3	2	1	1	2	1	1	\$96,800
043A-TRACTOR FARM TYPE-SMALL	7	7	11	7	9	9	9	9	9	9	\$57,200
043B-TRACTOR FARM TYPE - MED	8	7	7	5	5	4	3	3	3	3	\$57,200
043C-TRACTOR FARM TYPE - LRG	18	17	9	15	17	17	17	17	17	17	\$57,200
043D-TRACTOR FARM TYPE - XLRG	1	-	-	-	-	-	-	-	-	-	\$73,100
048-PRESSURE WASHER	-	-	1	1	1	1	1	1	1	1	\$10,400
049-STEAM GENERATORS	1	1	1	1	1	1	1	1	1	1	\$10,400
056-SPREADER FERTILIZER	1	-	-	-	-	-	-	-	-	-	\$5,800
066-MOWER RIDING FAIRWAY	2	2	2	3	14	14	14	14	15	15	\$46,800
073A-SERVICE BODY-UTILITY	5	7	7	7	9	8	8	8	8	8	\$67,600
073-PICKUP TRUCK 3/4 T	2	2	2	2	2	2	2	1	2	2	\$42,700
073X-EXT. USE PICKUP 3/4 T	1	1	1	1	1	-	-	-	-	-	\$46,100
074A-1 T PICKUP W/PLOW	2	2	2	2	4	4	4	4	4	4	\$52,000



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
074-PICKUP TRUCK 1 T	1	1	1	1	1	1	1	1	1	1	\$52,000
074X-EXT. USE PICK UP 1 T	1	1	1	1	1	-	-	-	2	2	\$42,700
076-VACUUM LEAF	-	-	-	-	3	3	3	3	3	3	\$10,400
079-MOWER TRIPLEX	-	-	-	-	7	7	7	7	7	7	\$46,800
080-TRACTOR/LOADER/BACKHOE	5	5	5	5	5	-	-	-	2	2	\$116,500
081A-LAWNMOWER SM ROT TOW BEH	7	7	7	7	5	5	5	5	5	5	\$10,400
081-MOWER TOW BEHIND ROTARY	2	2	2	1	1	1	1	1	1	1	\$20,800
083A-UTILITY VEH LARGE	-	-	1	1	1	1	1	1	-	-	\$104,000
083-TURF UTILITY VEH OVER \$20K VALUE	3	4	4	4	10	8	8	8	8	8	\$20,800
084-TURF UTILITY VEH LESS \$20K VALUE	9	23	24	24	24	23	23	23	23	23	\$20,800
090X-EXT. USE AERIAL TRUCK	2	2	-	-	-	-	-	-	-	-	\$202,400
098A-FRNT MNT ROTARY W/ATTCH	2	2	-	2	2	2	2	2	2	2	\$46,800
098-MOWER FRONT MNT RIDING ROT	42	46	46	48	48	42	42	42	42	42	\$46,800
098X-EXT. USE MOWER FRONT MNT	3	2	1	2	1	-	-	-	2	2	\$21,400
102G-RIDE-ON WEED SPRAYER	-	-	-	-	2	2	2	2	2	2	\$41,600
103B-TRAILER TANDEM ENCLOSED	1	2	2	2	2	2	2	2	4	4	\$12,500
103-TRAILER TANDEM AXLE	27	25	29	28	26	24	22	22	23	23	\$12,500
104-OVERSEEDER/RENOVATOR	4	4	4	4	4	4	4	4	4	4	\$20,800
105A-TOP DRESSER-LARGE	1	1	1	1	1	1	1	1	1	1	\$41,600
105-TOP DRESSER	3	3	3	3	5	5	5	5	5	5	\$20,800
106A-AERIFIER, SMALL	7	7	7	7	7	6	7	7	8	8	\$10,400
106-AERIFIER	4	4	4	4	7	7	7	7	7	7	\$20,800
106B-AERIFIER LARGE	1	1	1	1	2	2	2	2	2	2	\$41,600
109-TRAILER TRI-AXLE	3	3	1	2	2	2	2	2	2	2	\$12,500
110-MOWER 7 GANG	1	1	1	1	1	-	-	-	1	1	\$41,600
118S-SUR SKID LOADER BOBCAT	1	-	-	-	-	-	-	-	-	-	\$97,800
121A-DMP 1T STD CAB W PLOW	1	1	1	1	1	1	-	-	-	-	\$57,300
121-DUMP STAKE 1 T STD CAB	1	1	1	1	1	-	-	-	-	-	\$72,800
124C-2WD SUV	-	-	-	-	4	4	3	1	1	1	\$31,200
125-SWEEPER SIDEWALK	2	2	2	2	2	3	3	3	3	3	\$60,300
135-BLOWER LEAF LG PTO	1	1	1	1	1	1	1	1	1	1	\$10,400
137-TRAILER DUMP BOX	2	2	1	-	1	1	1	1	2	2	\$6,200
150G-ATT RAM HOW	2	2	2	1	-	-	-	-	-	-	\$10,400
151A-ALU.DUMP PLOW&TCSIGN 1.5T	2	2	2	2	2	1	1	1	1	1	\$78,000
151-ALUM. DUMP W/ PLOW 1.5 T	2	2	3	2	2	-	-	-	-	-	\$78,000



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
152A-ALUMINUM DUMP/CREW	7	10	9	9	8	3	1	2	6	6	\$72,800
152-ALUMINUM DUMP/REG CAB	-	-	-	-	1	1	1	1	1	1	\$72,800
152B-ALUM DUMP CREW/CRANE	2	-	-	2	1	1	1	1	1	1	\$72,800
152C-ALUM.DUMP CREW&PLOW&CRANE	-	1	2	1	1	1	1	1	1	1	\$72,800
152H-ALUM. DUMP-HIGH MILEAGE	-	-	1	1	1	1	1	1	1	1	\$72,800
152P-ALUM.DUMP CREW&PLOW	2	3	3	6	6	6	6	6	6	6	\$72,800
153-VAN MINI	6	7	6	3	5	4	4	4	4	4	\$46,800
153X-EXT. USE MINI VAN	1	-	-	-	2	-	-	-	-	-	\$31,500
155A-DUMP STAKE CREW 1T W/PLOW	4	4	3	3	1	-	-	-	-	-	\$72,800
155-DUMP STAKE CREW 1 T	21	20	19	19	15	8	7	7	10	10	\$72,800
155X-EXT. USE DUMP STAKE CREW	-	1	1	2	1	-	-	-	1	1	\$52,800
157A-TRUCK, PACKER 3500 CHAS	4	4	4	4	4	4	5	5	3	3	\$172,700
160-RAKE POWER RIDING SAND TRA	-	-	-	-	2	2	2	2	2	2	\$41,600
161B-MOWER RIDING	5	5	5	5	7	7	7	6	5	5	\$104,000
161-MOWER ROTARY GANG RIDING	12	12	11	12	14	12	13	12	14	14	\$104,000
162-DUMP STEEL CREW 1T	2	2	1	1	4	3	3	3	3	3	\$72,800
174-TRACKLESS	1	1	1	1	-	-	-	-	-	-	\$218,500
202-FORKLIFTS-SKID STEERS	5	6	7	7	7	6	6	6	6	6	\$70,700
203-SCISSOR MANLIFT	3	3	3	4	4	3	3	2	3	3	\$20,800
Public Works - Shared											
Forestry & Horticulture:											
005-ANTI-ICE TANDEM TRUCK	-	-	1	1	1	1	1	1	1	1	\$187,300
012A-TRAILER,SINGLE AXLE,SMALL	2	2	1	1	1	1	1	1	1	1	\$7,300
017-HYBRID VEHICLES	-	-	-	-	-	2	3	3	3	3	\$36,400
018-CARS COMPACT	-	-	-	-	-	1	1	-	-	-	\$26,000
020-PICKUP TRUCK COMPACT	-	-	-	-	-	-	1	4	4	4	\$27,100
021-1/2 T PICK UP	-	-	-	-	-	13	13	13	14	14	\$29,100
021X-EXT. USE PICKUP 1/2 T	-	-	-	-	-	-	-	-	2	2	\$23,900
023-VAN 3/4 T	-	-	-	-	-	-	1	1	1	1	\$33,300
023X-EXT.USE VAN 3/4 T	-	-	-	-	-	-	-	-	1	1	\$55,100
034-LOADER FRONT END 1 CU YD	-	-	-	-	-	1	1	-	1	1	\$96,800
034A-LOADER FRNT END 1YD 4WD	1	1	1	1	1	1	1	1	1	1	\$96,800
035-LOADER FRNT END LG ARTIC	1	1	1	1	1	1	1	1	1	1	\$213,300
043B-TRACTOR FARM TYPE - MED	-	-	-	-	-	-	1	-	1	1	\$57,200
072-AERIAL TRUCK TRAFFIC	-	-	-	-	-	-	-	-	1	1	\$291,000



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
073-PICKUP TRUCK 3/4 T	-	-	-	-	-	-	-	1	-	-	\$42,700
084-TURF UTILTY VEH LESS \$20K VALUE	-	-	-	-	-	1	1	1	1	1	\$20,800
088-CHIPPER WOOD	12	13	15	15	15	15	15	15	14	14	\$93,600
089-STUMPER TREE	2	2	1	1	1	1	1	2	3	3	\$41,600
090A-AERIAL TRUCK FORESTRY	1	1	1	1	1	1	1	1	1	1	\$291,300
090-AERIAL TRUCK FORESTRY	-	-	-	-	-	1	1	1	1	1	\$291,300
090B-AERIAL TRUCK CHIPPER BOD	-	-	2	2	2	1	1	1	1	1	\$291,300
098-MOWER FRONT MNT RIDING ROT	-	-	-	-	-	1	1	1	1	1	\$46,800
103-TRAILER TANDEM AXLE	1	1	1	1	1	5	5	5	5	5	\$12,500
122-HOIST TRUCK FORESTRY	2	2	2	2	2	2	2	5	5	5	\$223,700
124C-2WD SUV	-	-	-	-	-	-	-	1	2	2	\$31,200
137-TRAILER DUMP BOX	-	-	-	-	-	-	-	1	-	-	\$6,200
151A-ALU.DUMP PLOW&TCSIGN 1.5T	-	-	-	-	-	1	1	1	1	1	\$78,000
152A-ALUMINUM DUMP/CREW	-	-	-	-	-	5	7	6	2	2	\$72,800
152AR-ALUMINUM DUMP/CREW	-	-	-	-	-	-	-	-	3	3	\$72,800
152ARA-ALU.DUMP PLOW&TCSIGN 1.5T - ROADS	-	-	-	-	-	-	-	-	1	1	\$72,800
152ARR-ALUMINUM DUMP/CREW	-	-	-	-	-	-	-	-	2	2	\$72,800
155-DUMP STAKE CREW 1 T	-	-	-	-	-	4	8	8	3	3	\$72,800
155P-DUMP STAKE CREW 1 T	-	-	-	-	-	-	-	-	3	3	\$72,800
158-ARROW BOARDS	1	1	1	1	1	1	1	1	1	1	\$246,600
159A-CHIPPER TRUCK TANDEM	-	1	1	1	1	1	1	1	1	1	\$10,400
159C-CHIPPER TRUCK COMPACT	-	1	1	1	1	1	1	1	1	1	\$187,300
159-CHIPPER TRUCK	6	5	5	5	5	5	5	5	5	5	\$78,000
164-LOADER FRONT END 3/4 CU YD	1	1	1	1	1	1	1	1	1	1	\$116,500
202-FORKLIFTS-SKID STEERS	-	-	-	-	-	1	1	1	1	1	\$70,700
202R-RECYCLE FORKLIFT RENTAL	-	-	-	-	-	-	-	-	1	1	\$70,700
Public Works - Non-Discounted											
Traffic Operations:											
041-STRIPER PAINT LG CENTRE	1	1	1	1	1	1	1	1	1	1	\$499,000
012C-TRAILER CABLE	-	-	-	-	-	-	-	-	1	1	\$7,300
103WWW-TRAILER TANDEM AXLE (WATER)	-	-	-	-	-	-	-	-	1	1	\$12,500



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
127TT-TRUCK WITH AUGER - TRAFFIC	-	-	-	-	-	-	-	-	2	2	\$173,000
072T-AERIAL TRUCK TRAFFIC (BOOM)	-	-	-	-	-	-	-	-	1	1	\$291,000
123-PLATFORM W/PORT. CEMENT MI	1	1	1	1	1	1	1	1	1	1	\$224,000
153R-VAN MINI - ROADS	-	-	-	-	-	-	-	-	1	1	\$46,800
026BT-VAN 1TON WITH SHELIVING (TRAFFIC)	-	-	-	-	-	-	-	-	1	1	\$65,500
119-STRIPER PAINT CROSSWALK/BE	4	4	4	4	4	3	4	4	4	4	\$10,400
156-SIGN TRUCK TRAFFIC	4	6	6	6	6	6	6	6	4	4	\$99,900
156TT-SIGN TRUCK TRAFFIC	-	-	-	-	-	-	-	-	2	2	\$99,900
156T-SIGN TRUCK TRAFFIC	-	-	-	-	-	-	-	-	1	1	\$99,900
127T-TRUCK WITH AUGER	-	-	-	-	-	-	-	-	1	1	\$173,000
202B-FORKLIFT WALK BEHIND	1	1	1	1	1	1	1	1	1	1	\$70,700
025-TRUCK W/HYD TAILGATE	3	3	3	3	3	3	3	3	3	3	\$52,000
072-AERIAL TRUCK TRAFFIC	1	1	1	1	1	1	1	1	1	1	\$291,000
090-AERIAL TRUCK FORESTRY	4	4	4	4	4	4	4	4	4	4	\$291,300
023-VAN 3/4 T	1	1	1	1	1	1	1	1	1	1	\$33,300
021-1/2 T PICK UP	9	9	9	9	9	9	9	9	9	9	\$29,100
Construction Services:											
017X-EXT.USE HYBRID VEHICLES	-	-	1	1	1	-	-	1	1	1	\$39,900
020X-EXT. USE PICKUP COMPACT	2	1	1	2	1	-	-	-	1	1	\$25,900
017-HYBRID VEHICLES	8	8	8	8	8	8	8	8	8	8	\$36,400
124C-2WD SUV	-	-	-	-	3	3	3	3	3	3	\$31,200
021W-1/2 T PICK UP (WATER)	-	-	-	-	-	-	-	-	1	1	\$35,400
Other Non-Discounted:											
090-AERIAL TRUCK FORESTRY	2	1	1	1	1	-	1	1	1	1	\$291,300
072-AERIAL TRUCK TRAFFIC	5	5	5	5	5	5	5	5	3	3	\$291,000
025-TRUCK W/HYD TAILGATE	2	3	2	2	4	5	5	3	1	1	\$52,000
023-VAN 3/4 T	2	5	5	5	5	4	5	5	7	7	\$33,300
021-1/2 T PICK UP	43	46	52	47	49	55	52	55	65	65	\$29,100
048R-PRESSURE WASHER - ROADS	-	-	-	-	-	-	-	-	1	1	\$10,400
049R-STEAM GENERATORS (ROADS)	-	-	-	-	-	-	-	-	1	1	\$10,400
083AR-UTILITY VEH LARGE - ROADS	-	-	-	-	-	-	-	-	1	1	\$104,000
103R-TRAILER TANDEM AXLE - ROADS	-	-	-	-	-	-	-	-	1	1	\$12,500
150-ATT MISCELLANEOUS	4	3	3	3	4	2	2	2	5	5	\$10,400
001-SANDER W/WING & FRNT 5.5	7	7	7	7	7	6	3	3	-	-	\$229,000
001X-EXT.USE SANDER	5	3	3	3	1	-	-	-	-	-	\$247,300



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
002A-ALUM.SANDER PREW BEL PLOW	5	5	5	5	5	5	5	5	5	5	\$229,000
003X-EXT.USE SANDER W/WING	1	1	-	-	-	-	-	-	-	-	\$224,900
005-ANTI-ICE TANDEM TRUCK	2	2	1	-	-	-	-	-	1	1	\$187,300
012A-TRAILER,SINGLE AXLE,SMALL	3	4	6	5	5	5	5	7	8	8	\$7,300
012-TRAILER SINGLE AXLE	5	5	5	5	5	5	5	4	-	-	\$7,300
013A-LARGE GENERATOR	4	4	4	5	5	-	-	-	5	5	\$6,200
015A-POST PULLER	5	5	-	-	-	-	-	-	-	-	\$2,800
015B-POST PULLER/POUNDER POWER	6	6	-	-	-	-	-	-	-	-	\$6,700
015-POST POUNDERS	3	3	-	-	-	-	-	-	1	1	\$8,400
020B-COMPACT 4X4 PICKUP	-	-	1	2	3	2	2	2	1	1	\$27,100
020-PICKUP TRUCK COMPACT	5	1	1	1	2	4	4	13	10	10	\$27,100
021X-EXT. USE PICKUP 1/2 T	6	5	3	7	2	-	-	-	3	3	\$25,900
024-PICKUP TRUCK CREW CAB	2	1	1	1	1	1	1	1	1	1	\$44,700
026A-CUBE VANS	8	8	8	8	8	8	8	8	-	-	\$74,900
026B-VAN 1TON WITH SHELIVING	5	5	5	4	1	-	-	-	-	-	\$65,500
026-VAN 1 T	18	18	18	16	19	13	19	19	2	2	\$65,500
026X-EXT. USE VAN 1 T	2	2	2	2	2	-	-	-	-	-	\$40,500
029-1.5T DUMP W/SPRAYER	1	1	1	1	1	1	-	-	-	-	\$74,200
030A-TANDEM DUMP	4	4	4	4	4	4	4	4	-	-	\$187,000
030B-DUMP MEDIUM DUTY w/PLOW	-	-	1	1	1	1	1	1	1	1	\$229,000
030C-TRIAXLE DUMP	-	-	-	-	-	2	2	2	-	-	\$198,000
030-DUMP MEDIUM DUTY	-	-	-	-	2	4	4	3	-	-	\$117,000
031-DUMP MEDIUM W WATER TANK	3	3	3	3	-	-	-	2	-	-	\$101,200
034-LOADER FRONT END 1 CU YD	1	1	1	1	1	1	1	-	1	1	\$96,800
035-LOADER FRNT END LG ARTIC	15	15	14	14	14	14	14	14	14	14	\$213,000
037-GRADER	5	5	5	5	5	5	5	5	5	5	\$260,000
040-VALVE MAINTENANCE TRAILER	-	-	-	-	-	-	-	2	-	-	\$104,000
043A-TRACTOR FARM TYPE-SMALL	1	-	-	1	1	-	-	-	-	-	\$57,200
043B-TRACTOR FARM TYPE - MED	1	1	1	1	1	2	1	3	8	8	\$57,200
043C-TRACTOR FARM TYPE - LRG	1	-	-	-	-	-	-	-	3	3	\$57,200
043D-TRACTOR FARM TYPE - XLRG	1	1	2	-	-	-	-	1	-	-	\$73,100
045A-SWEEPER LRG MOBILE PM10	17	18	18	18	18	18	17	17	18	18	\$333,000
048-PRESSURE WASHER	2	2	1	-	-	-	-	-	-	-	\$10,400
049-STEAM GENERATORS	10	10	10	8	8	8	8	5	4	4	\$10,400



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
055-SAW CONCRETE HAND HELD	1	-	-	-	-	-	-	-	-	-	\$1,300
058-VACTOR TRUCK	2	2	2	2	2	2	2	2	2	2	\$479,000
060-BLOWER SNOW ATTACHMENT	6	6	5	5	5	5	5	5	5	5	\$187,000
061-BLOW SNOW -SELF PROP	1	1	-	-	-	-	-	-	-	-	\$348,500
062-COMPRESSOR	8	7	6	5	5	5	5	5	1	1	\$20,800
063-VAC ALL CATCH BASIN CLEANR	1	1	-	-	-	-	-	-	-	-	\$258,600
064-FLUSHER STREET	3	4	4	4	4	4	4	4	4	4	\$260,000
064X-EXT.USE FLUSHER	1	1	1	1	1	-	-	-	1	1	\$224,900
065-RODDING MACHINE SEWER	1	1	1	1	1	-	-	-	-	-	\$11,200
067-WELDERS	1	1	1	1	1	1	-	-	-	-	\$16,900
073A-SERVICE BODY-UTILITY	3	3	2	2	5	3	6	5	5	5	\$67,600
073B-3/4TPU PLOW TGATE DUMP	1	1	1	1	1	1	1	1	1	1	\$52,000
073C-SERVICE BODY-VALVE TRUCK	2	2	2	2	2	2	2	5	4	4	\$67,600
073-PICKUP TRUCK 3/4 T	4	4	4	4	5	6	5	6	7	7	\$42,700
080L-Large Tractor/Backhoe/	1	1	1	1	1	1	1	1	3	3	\$191,000
080-TRACTOR/LOADER/BACKHOE	7	8	7	7	8	12	12	12	8	8	\$117,000
081-MOWER TOW BEHIND ROTARY	3	1	-	-	-	-	-	-	-	-	\$20,800
083-TURF UTILITY VEH OVER \$20K	5	5	5	5	5	7	7	7	7	7	\$20,800
093A-ASPHALT RECYCLER	1	1	1	1	1	1	1	1	1	1	\$187,000
094-HOTPOT TRANSPORTER	9	9	9	8	18	14	10	11	10	10	\$41,600
095A-ROLLER ASPHALT-SMALL	2	2	2	2	2	2	2	2	2	2	\$20,800
095-ROLLER ASPHALT	4	4	4	5	5	5	5	5	4	4	\$20,800
098-MOWER FRONT MNT RIDING ROT	4	4	5	2	2	7	6	12	12	12	\$46,800
103A-TRAILER TANDEM 12T FLOAT	5	5	7	8	8	8	8	6	4	4	\$20,800
103-TRAILER TANDEM AXLE	22	22	19	18	18	16	17	22	18	18	\$12,500
109-TRAILER TRI-AXLE	3	2	3	1	1	1	-	1	-	-	\$12,500
121-DUMP STAKE 1 T STD CAB	-	-	-	-	-	1	1	1	1	1	\$72,800
124A-SUV 4X4 SMALL	2	2	2	1	1	-	-	-	-	-	\$45,000
124X-EXT.USE SUV 4X4	1	1	1	1	1	-	-	-	-	-	\$45,000
126-WATER TANK TRUCK MTD	2	2	2	2	2	2	2	2	4	4	\$93,600
127-TRUCK WITH AUGER	3	3	3	3	3	3	3	3	-	-	\$172,700
128A-ROLLER ASPHALT LG STEEL	1	1	1	1	1	1	-	-	-	-	\$134,900
128-ROLLER ASPHALT LARGE	1	-	-	-	-	-	-	-	-	-	\$61,800
148-SERVICE BODY W/PLATFORM	2	-	-	-	-	-	-	-	-	-	\$163,000



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
150-ATT MISCELLANEOUS	1	-	-	-	-	2	2	2	5	5	\$10,400
150G-ATT RAM HOE	8	8	8	9	9	6	6	7	9	9	\$10,400
150H-ATT FLAIL MOWER	-	-	-	-	-	-	-	1	-	-	\$10,400
151A-ALU.DUMP PLOW&TCSIGN 1.5T	1	1	1	1	1	1	1	1	-	-	\$78,000
151-ALUM. DUMP W/ PLOW 1.5 T	1	1	-	1	1	3	3	3	3	3	\$78,000
152A-ALUMINUM DUMP/CREW	6	5	7	7	8	8	14	14	-	-	\$72,800
152B-ALUM DUMP CREW/CRANE	6	8	8	6	7	7	10	10	-	-	\$72,800
152C-ALUM.DUMP CREW&PLOW&CRANE	7	6	5	6	6	6	9	9	12	12	\$72,800
152D-ALUM.DUMP CAB OVER	2	2	2	2	2	2	2	2	1	1	\$67,600
152H-ALUM. DUMP-HIGH MILEAGE	7	7	6	6	6	6	6	6	6	6	\$72,800
152P-ALUM.DUMP CREW&PLOW	9	9	9	6	6	6	8	8	-	-	\$72,800
153E-VAN MINI ELECTRIC	-	-	-	1	1	1	1	1	-	-	\$84,700
153-VAN MINI	6	5	6	5	5	5	5	8	5	5	\$46,800
155A-DUMP STAKE CREW 1T W/PLOW	-	-	1	1	1	2	7	7	4	4	\$72,800
155-DUMP STAKE CREW 1 T	-	1	2	1	4	8	5	5	4	4	\$72,800
022X-EXT.USE VAN 1/2 T	-	-	-	-	-	-	-	-	1	1	\$42,700
158-ARROW BOARDS	13	14	14	14	14	11	13	12	14	14	\$10,400
162A-DMP STL CREW CRANE/PLOW	5	5	5	4	4	4	-	-	-	-	\$59,600
162-DUMP STEEL CREW 1T	7	7	8	8	5	6	-	-	-	-	\$72,800
171X-EXT USESNDRSIDETILT/WING	3	2	1	-	-	-	-	-	-	-	\$258,600
172-SNDRRADIUSDUMPW/2WAYFRONT&	5	5	5	4	4	4	1	-	-	-	\$258,600
172X-SNDRRADIUSDUMPW/2WAY	7	7	7	5	5	-	-	-	-	-	\$258,600
173-SANDER PRE-WET 2WAY W/WING	10	10	10	10	10	10	4	7	3	3	\$281,000
174-TRACKLESS	5	5	5	5	5	5	5	5	5	5	\$218,000
185-GRADAL	3	3	3	3	3	3	3	3	3	3	\$335,000
187A-ALUM.SAND PREW FR&WG PLOW	12	12	12	12	12	12	12	12	12	12	\$229,000
187-SANDER 1 AXL PREWET PL/WG	9	9	9	9	9	9	9	9	14	14	\$229,000
188A-ALUM.SAND PREW FR&WG PLOW	15	22	32	32	32	32	41	32	33	33	\$281,000
188-SANDER TAND PREWET PL/WG	10	10	10	10	10	10	10	22	26	26	\$281,000
189-SANDER 1 AXL PREWET PLOW	8	8	8	8	8	8	8	8	4	4	\$229,000
193-SANDER TAND PREWET PLOW	4	4	4	4	4	4	4	4	1	1	\$281,000
200A-CRASH ATTENUATORS TRUCK	2	-	-	-	-	-	-	-	-	-	\$39,300
200-CRASH ATTENUATORS	3	3	4	4	4	4	4	4	3	3	\$52,000
202-FORKLIFTS-SKID STEERS	5	5	4	4	4	4	3	3	2	2	\$70,700



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
021W-1/2 T PICK UP (WATER)	-	-	-	-	-	-	-	-	1	1	\$35,400
024X-EXT.USE P/U CREW CAB	-	-	-	-	-	-	-	-	1	1	\$44,700
093-PAVER ASPHALT	1	1	1	-	-	-	-	1	1	1	\$391,520
025X-EXT. USE TRUCK W/HYD TAIL	-	-	-	-	-	-	-	-	2	2	\$59,300
080X-EXT.USE TRACTOR/LOAD/BHOE	-	-	-	-	-	-	-	-	1	1	\$117,000
080W-TRACTOR/LOADER/BACKHOE	-	-	-	-	-	-	-	-	4	4	\$156,000
084X-EXT.USE TURF LESS \$20K	-	-	-	-	-	-	-	-	2	2	\$20,800
088X-EXT.USE CHIPPER WOOD	-	-	-	-	-	-	-	-	1	1	\$106,000
095R-ROLLER ASPHALT	-	-	-	-	-	-	-	-	1	1	\$20,800
095XR-EXT.USE ROLLER ASPHALT	-	-	-	-	-	-	-	-	1	1	\$20,800
124-SUV 4X4	-	-	-	-	-	-	-	-	1	1	\$36,400
12-TRAILER SINGLE AXLE	-	-	-	-	-	-	-	-	3	3	\$7,300
13-GENERATORS	-	-	-	-	-	-	-	-	1	1	\$20,800
150C-ATT SNOW BLW SKID STEER	-	-	-	-	-	-	-	-	1	1	\$10,400
151ARA-ALU.DUMP PLOW&TCSIGN 1.5T - ROADS	-	-	-	-	-	-	-	-	1	1	\$78,000
152ARA-ALU.DUMP PLOW&TCSIGN 1.5T - ROADS	-	-	-	-	-	-	-	-	11	11	\$72,800
152AR-ALUMINUM DUMP/CREW	-	-	-	-	-	-	-	-	7	7	\$72,800
152ARR-ALUMINUM DUMP/CREW	-	-	-	-	-	-	-	-	4	4	\$72,800
152CR-ALUM.DUMP CREW&PLOW&CRANE	-	-	-	-	-	-	-	-	3	3	\$72,800
152DW-ALUM.DUMP CAB OVER	-	-	-	-	-	-	-	-	1	1	\$67,600
152PR-ALUM.DUMP CREW&PLOW	-	-	-	-	-	-	-	-	1	1	\$72,800
155AA-DUMP STAKE CREW 1T W/PLOW	-	-	-	-	-	-	-	-	3	3	\$72,800
157AR-TRUCK, PACKER 3500 CHAS	-	-	-	-	-	-	-	-	1	1	\$173,000
173X-SANDER PRE-WET 2WAY W/WING	-	-	-	-	-	-	-	-	1	1	\$281,000
187X-Ext use Sander 1AXL prewet PL/WG	-	-	-	-	-	-	-	-	2	2	\$229,000
188R-SANDER TAND PREWET PL/WG	-	-	-	-	-	-	-	-	1	1	\$286,000
188X-Ext use Sander Tand Prewet PL/WG	-	-	-	-	-	-	-	-	6	6	\$286,000
189X-Ext use Sander 1axl prewet plow	-	-	-	-	-	-	-	-	2	2	\$229,000
193X-Ext use Sander Tand prewet plow	-	-	-	-	-	-	-	-	3	3	\$281,000
1-SANDER W/WING & FRNT 5.5	-	-	-	-	-	-	-	-	2	2	\$229,000
200R-CRASH ATTENUATORS	-	-	-	-	-	-	-	-	1	1	\$52,000



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
202R-RECYCLE FORKLIFT RENTAL	-	-	-	-	-	-	-	-	1	1	\$70,700
205-PLATFORM LADDER	-	-	-	-	-	-	-	-	2	2	\$20,800
097-MOWER ROTARY TRIM	-	-	-	-	-	-	-	-	1	1	\$46,800
Water:											
012S-TRAILER SHORING (WATER)	-	-	-	-	-	-	-	-	1	1	\$7,300
017SUV-HYBRID VEHICLES (WATER - SUV)	-	-	-	-	-	-	-	-	4	4	\$36,400
017W-HYBRID VEHICLES (WATER)	-	-	-	-	-	-	-	-	9	9	\$36,400
020W-PICKUP TRUCK COMPACT (WATER)	-	-	-	-	-	-	-	-	1	1	\$31,200
020WW-PICKUP TRUCK COMPACT (WATER MAINT)	-	-	-	-	-	-	-	-	1	1	\$31,200
022W-VAN 1/2 T (WATER)	-	-	-	-	-	-	-	-	3	3	\$42,700
023W-VAN 3/4 T (WATER)	-	-	-	-	-	-	-	-	2	2	\$55,100
026AW-VAN 1 T (WATER)	-	-	-	-	-	-	-	-	7	7	\$74,900
026AWW-VAN 1 T (WATER)	-	-	-	-	-	-	-	-	1	1	\$74,900
026WW-VAN 1 T - WATER	-	-	-	-	-	-	-	-	8	8	\$65,500
030AW-TANDEM DUMP (WATER)	-	-	-	-	-	-	-	-	1	1	\$187,000
030WT-DUMP MEDIUM DUTY (WATER TNDM)	-	-	-	-	-	-	-	-	1	1	\$117,000
030WW-DUMP MEDIUM DUTY (WATER)	-	-	-	-	-	-	-	-	7	7	\$117,000
035W-LOADER FRNT END LG ARTIC - WATER	-	-	-	-	-	-	-	-	1	1	\$260,000
049W-STEAM GENERATORS (WATER)	-	-	-	-	-	-	-	-	1	1	\$10,400
062W-COMPRESSOR (WATER)	-	-	-	-	-	-	-	-	2	2	\$20,800
073AW-SERVICE BODY-UTILITY (WATER)	-	-	-	-	-	-	-	-	1	1	\$67,600
103W-TRAILER TANDEM AXLE (WATER)	-	-	-	-	-	-	-	-	7	7	\$12,500
103WW-TRAILER TANDEM AXLE (WATER)	-	-	-	-	-	-	-	-	2	2	\$12,500



**City of Hamilton
Service Standard Calculation Sheet**

Service: Public Works - Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
202W-FORKLIFTS-SKID STEERS - WATER	-	-	-	-	-	-	-	-	1	1	\$70,700
Total	1,135	1,185	1,185	1,158	1,191	1,145	1,156	1,188	1,305	1,305	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0022	0.0023	0.0023	0.0022	0.0023	0.0022	0.0022	0.0022	0.0024	0.0024

10 Year Average	2009-2018
Quantity Standard	0.0023
Quality Standard	\$80,157
Service Standard	\$184

D.C. Amount (before deductions)	13 Year
Forecast Population	86,183
\$ per Capita	\$184
Eligible Amount	\$15,888,698



**City of Hamilton
Service Standard Calculation Sheet**

Service: Fire Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Station 1 - 35 - 43 John Street North	20,929	20,929	20,929	20,929	20,929	20,929	15,680	15,680	15,680	15,680	\$342	\$406
Station 2 - 1400 Upper Wellington Street	7,503	7,503	7,503	7,503	7,503	7,503	7,503	7,503	7,503	7,503	\$342	\$498
Station 3 - 965 Garth Street	5,615	5,615	5,615	5,615	5,615	5,615	5,615	5,615	5,615	5,615	\$342	\$442
Station 4 - 729 Upper Sherman Avenue	18,140	18,140	18,140	18,140	18,140	18,140	18,140	18,140	18,140	18,140	\$342	\$435
Station 5 - 1000 Limeridge Road East (EMS as of 2011)	7,060	7,060	-	-	-	-	-	-	-	-	\$342	\$461
Station 5 - 1227 Stone Church Road Building A	-	-	9,494	9,494	9,494	9,494	9,494	9,494	9,494	9,494	\$316	\$391
Station 6 - 246 Wentworth Street North	12,864	12,864	12,864	12,864	12,864	12,864	12,864	12,864	12,864	12,864	\$342	\$582
Station 7 - 225 Quigley Road	6,022	6,022	6,022	6,022	6,022	6,022	6,022	6,022	6,022	6,022	\$342	\$452
Station 8 - 400 Melvin Avenue	5,674	5,674	5,674	5,674	5,674	5,674	5,674	5,674	5,674	5,674	\$342	\$420
Station 9 - 125 Kenilworth Avenue North	7,098	7,098	7,098	7,098	7,098	7,098	7,098	7,098	7,098	7,098	\$342	\$413
Station 10 - 1455 Main Street West	7,504	7,504	7,504	7,504	7,504	7,504	7,504	7,504	7,504	7,504	\$342	\$413
Station 11 - 24 Ray Street South	3,685	3,685	3,685	3,685	3,484	3,484	3,484	3,484	3,484	3,484	\$342	\$413
Station 12 - 199 Highway #8, Stoney Creek	8,973	8,973	8,973	8,973	8,973	8,973	8,973	8,973	8,973	8,973	\$304	\$387
Station 13 - 177 Bay Street North (Mechanical Division)	9,516	9,516	9,516	9,516	9,516	9,516	9,516	9,516	9,516	9,516	\$342	\$436
Station 14 - 595 Chapel Hill Road, Elfrida	3,977	3,977	3,977	3,977	3,977	3,977	3,977	3,977	3,977	3,977	\$342	\$403
Station 15 - 415 Arvin Avenue, Stoney Creek	4,152	4,152	4,152	4,152	4,152	4,152	4,152	4,152	4,152	4,152	\$278	\$395
Station 16 - 939 Barton Street, Stoney Creek	6,671	6,671	6,671	6,671	6,671	6,671	6,671	6,671	6,671	6,671	\$278	\$485
Station 17 - 363 Isaac Brock Drive, Stoney Creek	5,435	5,435	5,435	5,435	5,435	5,435	5,435	5,435	5,435	5,435	\$274	\$357
Station 18 - 2636 Highway #56, Binbrook	8,231	8,231	8,231	8,231	8,231	8,231	8,231	8,231	8,231	8,231	\$247	\$302
Station 19 - 3303 Homestead Drive, Mount Hope	5,740	5,740	5,740	5,740	5,740	5,740	5,740	5,740	5,740	5,740	\$307	\$366
Station 20 - Garner and Kitty Murray	5,484	5,484	5,484	5,484	5,484	5,484	5,484	5,484	5,484	5,484	\$344	\$424
Station 21 - 365 Wilson Street, Ancaster	9,396	9,396	9,396	9,396	9,396	9,396	9,396	9,396	9,396	9,396	\$354	\$517
Station 22 - 1227 Stone Church Road East (Training)	6,396	-	-	-	-	-	-	-	-	-	\$341	\$420
Station 23 - Memorial Square, Dundas	7,189	7,189	7,189	7,189	7,189	7,189	7,189	7,189	7,189	7,189	\$241	\$303
Station 24 - 256 Parkside Drive, Waterdown	7,808	7,808	7,808	7,808	7,808	7,808	7,808	7,808	7,808	7,808	\$256	\$348
Station 25 - 361 Old Brock Road, Greensville	2,641	2,641	2,641	2,641	2,641	2,641	2,641	2,641	2,641	2,641	\$256	\$334
Station 26 - 119 Lynden Road, Lynden	3,620	3,620	3,620	3,620	3,620	3,620	3,620	3,620	3,620	3,620	\$256	\$315
Station 27 - 795 Old Highway #8, Rockton	5,186	5,186	5,186	5,186	5,186	5,186	5,186	5,186	5,186	5,186	\$256	\$328
Station 28 - 1801 Brock Road, Freelon	4,402	4,402	4,402	4,402	4,402	4,402	4,402	4,402	4,402	4,402	\$256	\$316
Station 29 - 189 King Street East, Dundas (Fire Prevention)	4,035	4,035	4,035	-	-	-	-	-	-	-	\$342	\$549
55 King William Street (includes Fire Prevention)	6,874	6,874	6,874	6,874	6,874	6,874	6,874	6,874	6,874	6,874	\$239	\$302
Station 30 - 489 Victoria Avenue North (Stores)	5,874	5,874	5,874	5,874	5,874	5,874	5,874	5,874	5,874	5,874	\$342	\$443



**City of Hamilton
Service Standard Calculation Sheet**

Service: Fire Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Building 'B' Administration - 1227 Stone Church Road East (MATC)	-	-	15,135	15,135	15,135	15,135	15,135	15,135	15,135	15,135	\$316	\$383
Building 'C' Training - 1227 Stone Church Road East (MATC)	-	-	22,363	22,363	22,363	22,363	22,363	22,363	22,363	22,363	\$316	\$377
Building 'D' Training - 1227 Stone Church Road East (MATC)	-	-	8,091	8,091	8,091	8,091	8,091	8,091	8,091	8,091	\$316	\$391
Total	223,696	217,300	265,323	261,288	261,087	261,087	255,838	255,838	255,838	255,838		

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.4344	0.4214	0.5103	0.5001	0.4961	0.4935	0.4804	0.4765	0.4722	0.4697

10 Year Average	2009-2018
Quantity Standard	0.4755
Quality Standard	\$409
Service Standard	\$195

D.C. Amount (before deductions)	13 Year
Forecast Population	86,183
\$ per Capita	\$195
Eligible Amount	\$16,766,041



**City of Hamilton
Service Standard Calculation Sheet**

Service: Fire Vehicles
Unit Measure: No. of vehicles

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
Urban Rescue Pumps/Engine	20	20	20	20	20	20	20	20	20	16	\$940,000
Urban Pumper	-	-	-	-	-	-	-	-	-	4	\$830,000
Urban Rescue	3	3	3	3	3	3	3	3	3	3	\$681,000
Urban Heavy Rescue	3	3	3	4	4	4	4	4	4	4	\$739,000
Fire Prevention Trailer	1	1	1	1	1	1	1	1	1	1	\$102,000
Hazmat Decon Trailer	1	-	-	-	-	-	-	-	-	-	\$171,000
Decon Truck	-	1	1	1	1	1	1	1	1	1	\$114,000
Hazmat Support	-	-	1	1	1	1	1	1	1	1	\$1,300,000
RIT Training Trailer	1	1	1	1	1	1	1	1	1	1	\$199,000
Towers	1	1	1	1	1	1	1	1	1	1	\$1,420,000
Command Staff - SUV	8	8	9	9	9	9	8	8	8	8	\$70,000
Support Units	7	7	7	7	7	5	5	5	5	5	\$100,000
Sedans (Command + Support Division)	7	7	7	7	7	9	9	9	9	9	\$57,300
Rural Heavy Rescue	2	2	2	2	2	2	2	2	2	2	\$739,000
Rural Tanker/Pumper	12	12	12	12	12	12	12	12	12	7	\$965,000
Rural Rescue Pumpers	9	9	9	9	9	9	9	9	9	8	\$770,000
Rural Tankers	-	-	-	-	-	-	-	-	-	6	\$719,000
Quints	8	9	9	9	9	9	9	9	9	9	\$1,420,000
Platform Ladder	-	-	-	1	1	1	1	1	1	1	\$1,490,000
Pumper/Tankers (Bush Truck)	1	1	1	1	-	-	-	-	-	-	\$795,000
Brush Truck (Small)	-	-	-	-	1	1	1	1	1	1	\$398,000
Urban Interface Truck	-	-	-	-	1	1	1	1	1	1	\$739,000
Mobil Command Van	1	1	1	1	1	1	1	1	1	1	\$554,000
Light Trucks and Vans	8	8	8	11	11	12	12	12	12	12	\$66,300
Hybrid Fuel Cars/SUV	8	8	8	8	8	7	1	1	1	1	\$49,500



**City of Hamilton
Service Standard Calculation Sheet**

Service: Fire Vehicles
Unit Measure: No. of vehicles

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
Compact Cars	12	12	12	6	6	6	13	13	13	13	\$35,000
Logistic Trailer	-	-	-	-	-	-	1	1	1	1	\$9,400
Portable Pump Test Trailer	-	-	-	-	-	1	1	1	1	1	\$101,200
Total	113	114	116	115	116	117	118	118	118	118	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

10 Year Average	2009-2018
Quantity Standard	0.0002
Quality Standard	\$610,650
Service Standard	\$122

D.C. Amount (before deductions)	13 Year
Forecast Population	86,183
\$ per Capita	\$122
Eligible Amount	\$10,525,530



**City of Hamilton
Service Standard Calculation Sheet**

Service: Fire Small Equipment and Gear
Unit Measure: No. of equipment and gear

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Hurst Auto Extractors	51	51	57	57	57	57	57	57	57	57	\$14,300
Station Air Compressors	28	28	28	28	28	28	28	28	28	28	\$2,900
Cascade Systems	5	5	5	5	5	5	5	5	5	5	\$120,300
S.C.B.A.'s packs	363	363	363	363	363	363	363	363	363	363	\$11,000
Washer Extractors	16	16	18	21	21	23	23	23	23	23	\$17,000
Defibrillators-Fire	45	53	53	53	57	57	57	57	57	57	\$5,700
Defibrillators-Fire Training Units	8	8	8	8	9	9	9	9	9	9	\$5,700
Bunker Gear & Protective Clothing	825	825	825	825	825	825	825	1,650	1,650	1,650	\$3,900
Portable Trunk Radios	470	470	470	470	470	470	525	525	525	525	\$6,700
Portable Pumps	15	15	15	15	16	16	16	16	16	16	\$10,000
Ram Kits	38	38	40	40	40	40	40	40	40	40	\$11,000
AirBags	62	62	64	64	64	64	64	64	64	64	\$11,000
TMX Gas Detectors	32	32	32	32	-	-	-	-	-	-	\$6,700
Ventis MX4 Gas Detectors	-	-	-	-	47	47	47	47	47	47	\$3,800
Ventis MX6 Gas Detectors	-	-	-	-	2	2	2	2	2	2	\$6,000
Thermal Imaging Cameras	13	13	13	13	19	19	19	30	30	35	\$12,200
Highrise Packs (parachute kits)	22	22	22	22	22	22	22	22	22	22	\$2,200
Hazmat Detection Equipment	2	2	2	2	2	2	2	2	2	4	\$60,000
S.C.B.A.'s face pieces	825	825	825	825	825	825	825	825	825	825	\$400
S.C.B.A. Cylinders	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	\$1,400
Station Exhaust Systems	27	27	27	27	27	27	27	27	27	27	\$51,000
Confined Space	1	1	1	1	1	1	1	1	1	1	\$25,500
Hazmat P.P.E. & Response Equipment	1	1	1	1	1	1	1	1	1	1	\$367,200



**City of Hamilton
Service Standard Calculation Sheet**

Service: Fire Small Equipment and Gear
Unit Measure: No. of equipment and gear

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
High Angle Rope Rescue	5	5	5	5	5	5	5	5	5	5	\$30,600
Total	4,254	4,262	4,274	4,277	4,306	4,308	4,363	5,199	5,199	5,206	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0083	0.0083	0.0082	0.0082	0.0082	0.0081	0.0082	0.0097	0.0096	0.0096

10 Year Average	2009-2018
Quantity Standard	0.0086
Quality Standard	\$4,351
Service Standard	\$37

D.C. Amount (before deductions)	13 Year
Forecast Population	86,183
\$ per Capita	\$37
Eligible Amount	\$3,224,968



**City of Hamilton
Service Standard Calculation Sheet**

Service: Police Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
City Owned												
Central Station (155 King William)	144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000	\$392	\$458
East End Station (2825 King St E)	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	\$392	\$481
Mountain Station (488 Upper Wellington)	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	\$392	\$446
Marine Facility (Guise St)	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	\$98	\$126
Divisional 30 Headquarters (Rymal Rd)	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	\$392	\$488
Station #19, Police, 3302 Homestead Rd.	285	285	285	285	285	-	-	-	-	-	\$205	\$238
Station #18, Police, 2636 Hwy 56, Binbrook	334	334	334	334	334	-	-	-	-	-	\$205	\$239
City Leased												
Dundas Station (2 King St W)	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	\$392	\$447
601 Burlington Street	2,852	2,852	2,852	2,852	2,852	2,852	2,852	-	-	-	\$164	\$207
Community Policing Centres and Other												
Professional Standards Branch	1,400	1,400	-	-	-	-	-	-	-	-	\$164	\$207
Landsdale-Stinson	800	800	800	800	800	-	-	-	-	-	\$164	\$207
Centre Mall	850	850	850	850	-	-	-	-	-	-	\$164	\$207
Ancaster Municipal Office	400	400	400	-	-	-	-	-	-	-	\$164	\$207
Concession Street	850	850	850	850	850	850	-	-	-	-	\$164	\$207
Flamborough Municipal Office	750	750	750	-	-	-	-	-	-	-	\$336	\$397
Innovation Drive-Flamborough	-	-	-	984	984	984	984	278	278	278	\$164	\$207
Tisdale House 312 Wilson Street Ancaster	-	-	-	940	940	940	940	940	940	940	\$164	\$207
460 Barton Street	-	-	-	-	3,072	3,072	3,072	3,072	3,072	3,072	\$164	\$207
Blacks Stables	-	4,800	4,800	4,800	-	-	-	-	-	-	\$67	\$100
Ancaster Fairgrounds Stables	-	-	-	-	5,000	5,000	5,000	5,000	5,000	5,000	\$67	\$82
John Sopinka Courthouse (45 Main St. E.)	12,570	12,570	12,570	12,570	12,570	12,570	12,570	12,570	12,570	12,570	\$392	\$479



**City of Hamilton
Service Standard Calculation Sheet**

Service: Police Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Superior Courthouse (55 Main St. W.)	1,599	1,599	1,599	1,599	1,599	1,599	1,599	1,599	1,599	1,599	\$392	\$479
POA Courthouse (50 Main St. E.)	-	-	-	-	-	-	-	-	-	16,736	\$460	\$558
Centre Road Block (Building), 1255 Centre Rd.					2,147	2,147	2,147	2,147	2,147	2,147	\$290	\$443
Building 'B' Administration - 1227 Stone Church Road East (MATC)	-	-	13,286	13,286	13,286	13,286	13,286	13,286	13,286	13,286	\$392	\$467
Building 'C' Training - 1227 Stone Church Road East (MATC)	-	-	16,625	16,625	16,625	16,625	16,625	16,625	16,625	16,625	\$392	\$467
Total	277,739	282,539	311,050	311,824	316,393	314,974	314,124	310,566	310,566	327,302		

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.5394	0.5479	0.5982	0.5968	0.6012	0.5954	0.5899	0.5784	0.5732	0.6009

10 Year Average	2009-2018
Quantity Standard	0.5821
Quality Standard	450
Service Standard	\$262

D.C. Amount (before deductions)	13 Year
Forecast Population	86,183
\$ per Capita	\$262
Eligible Amount	\$22,554,091



**City of Hamilton
Service Standard Calculation Sheet**

Service: Police Vehicles
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
Command Vehicles 999	1	1	1	1	1	1	1	1	1	1	\$275,600
Marine Vessel - Trailer 640	1	1	1	1	1	1	1	1	1	1	\$9,200
Marine Vessel - Trailer 643	-	-	-	-	-	-	-	1	1	1	\$1,500
Marine Vessel - Trailer 644	-	-	-	-	-	-	1	1	1	2	\$9,100
Marine Vessel - Trailer 645	-	-	-	-	-	-	-	-	1	2	\$9,800
Marine Vessel - Hike 941	1	1	1	1	1	1	1	1	1	1	\$798,000
Marine Vessel - RHIB 942	1	-	-	-	-	-	-	-	-	-	\$263,000
Marine Vessel - Argo 944	1	1	1	1	1	1	1	1	1	1	\$23,500
Marine Vessel - Zodiac 943	1	1	1	1	1	1	1	1	1	1	\$17,300
Marine Vehicle - Chev 940	1	1	1	1	1	1	1	1	1	1	\$49,000
Explosive Disposal Unit - Bomb Truck 962	1	1	1	1	1	1	1	1	1	1	\$209,700
Court Security - Prisoner Van 197,198	2	2	2	2	2	2	2	2	2	2	\$103,000
Courier Vehicle 20	1	1	1	1	1	1	1	1	1	1	\$22,800
Property Vehicle 70	1	1	1	1	1	1	1	1	1	1	\$28,500
Maintenance Vehicle 80	-	-	1	1	1	1	1	1	1	1	\$28,500
Public Order Unit 991	1	1	1	1	1	1	1	1	1	1	\$33,000
Fleet Pick-up 82	1	1	1	1	1	1	1	1	1	1	\$28,500
Collision Reconstruction Vehicle 144	1	1	1	1	1	1	1	1	1	1	\$33,000
ATV Team 920	1	1	1	1	1	1	1	1	1	1	\$22,800
ATVs 828,829	-	-	-	-	2	2	2	2	2	2	\$13,700
ATV Trailer 615										1	\$7,600
Mounted Patrol Trailers 630	1	1	1	1	1	1	1	1	1	1	\$34,200
Mounted Patrol Trailers 631	1	1	1	1	1	1	1	1	1	1	\$55,000
Mounted Patrol Vehicles 930,931	1	2	2	2	2	2	2	2	2	2	\$49,000
Emergency Response Unit - Unit 901	1	1	1	1	1	1	1	1	1	1	\$36,200
Emergency Response Unit - Utility Rescue 960	1	1	1	1	1	1	1	1	1	1	\$315,500
Specialties Unit - Traditional Organized Crime 961	1	1	1	1	1	1	1	1	1	1	\$210,000



**City of Hamilton
Service Standard Calculation Sheet**

Service: Police Vehicles
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
Emergency Response Unit Vehicle 964	1	1	1	1	1	1	1	1	1	1	\$318,000
Emergency Response Unit Vehicle 965	1	1	1	1	1	1	1	1	1	1	\$41,600
Emergency Response Unit Vehicle 963	1	1	1	1	1	1	1	1	1	1	\$43,000
Emergency Response Unit Trailer 662	1	1	1	1	1	1	1	1	1	1	\$27,000
Investigative Service Division - Forensics/Ident Vehicle 995	1	1	1	1	1	1	1	1	1	1	\$57,000
Investigative Service Division - Forensics/Ident Vehicle 996	1	1	1	1	1	1	1	1	1	1	\$57,000
Investigative Service Division - Forensics/Ident Vehicle 997	1	1	1	1	1	1	1	1	1	1	\$39,900
Public Order Unit 998	1	1	1	1	1	1	1	1	1	1	\$39,900
Surveillance Vehicles	6	6	6	6	6	6	6	6	6	6	\$39,900
Multi Passenger 96	1	1	1	1	1	1	1	1	1	1	\$39,900
Sedans Investigative Services Division	56	56	56	56	56	56	56	56	56	56	\$22,800
Cruisers 4x4	15	15	15	15	15	15	15	15	15	15	\$36,600



**City of Hamilton
Service Standard Calculation Sheet**

Service: Police Vehicles
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
Cruisers Sedan	102	102	102	102	102	102	102	102	102	102	\$32,400
Total	210	210	211	211	213	213	214	215	216	219	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004

10 Year Average	2009-2018
Quantity Standard	0.0004
Quality Standard	\$40,750
Service Standard	\$16

D.C. Amount (before deductions)	13 Year
Forecast Population	86,183
\$ per Capita	\$16
Eligible Amount	\$1,404,783



**City of Hamilton
Service Standard Calculation Sheet**

Service: Police Small Equipment and Gear
Unit Measure: No. of equipment and gear

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Equipped Officers	770	776	780	780	795	795	795	795	795	807	\$3,400
Equipped Senior Officers	17	17	17	17	17	17	17	17	18	18	\$3,600
Special Constables	95	104	103	109	85	85	85	85	88	88	\$2,200
Auxiliary	50	63	70	82	78	78	78	78	76	76	\$2,550
Cadets	-	-	-	-	4	4	4	4	4	12	\$2,700
Portable Radios	400	400	400	797	812	812	812	812	812	812	\$5,600
Emergency Response - Chemical, Biological, Radiological, and Nuclear Defence equipment	4	4	4	4	4	4	4	4	4	4	\$121,400
Vehicle Lights and Sirens	141	152	147	143	143	143	143	143	143	144	\$4,700
In-Car Mobile Radios	185	185	185	185	185	185	185	185	185	185	\$7,900
Vehicle Cages	114	125	130	126	126	126	126	126	126	106	\$2,200
In-Car Electronics	135	135	135	135	135	135	135	135	135	135	\$8,100
Canine Inserts	5	5	5	5	5	5	5	5	5	5	\$7,700
Prisoner Compartment Inserts	4	4	4	4	4	4	4	4	4	4	\$25,500
Roadside approved screening devices	23	23	23	23	23	23	23	23	23	29	\$1,500
Radar Equipment (Genesis GHD)	1	1	1	1	1	1	1	1	1	1	\$1,200
Radar Equipment (Genesis II)	1	1	1	1	1	1	1	1	1	1	\$3,400
Radar Equipment (Genesis K-Brand)	2	2	2	2	2	2	-	-	-	-	\$1,800
Radar Equipment (Genesis VP)	2	2	2	2	2	2	2	2	2	2	\$2,600
Laser Equipment	-	-	5	11	15	15	15	15	15	20	\$3,100
Laser Equipment (Marksman)	3	3	3	3	3	3	3	3	3	3	\$7,800
Spectre Radar Detector Detector (Mic. Receiver)	-	-	1	1	1	1	1	1	1	1	\$2,300
Spectre III Radar Detector Detector (Interceptor)	1	1	1	1	1	1	1	1	1	1	\$2,300
Stalker Direction Sensing Radar 2	1	1	1	1	1	1	1	1	1	5	\$1,100
Stalker Direction Sensing Radar 2X	8	9	9	10	12	12	12	12	12	12	\$4,900
Stalker Dual SL	8	8	8	12	12	12	12	12	12	12	\$2,000



**City of Hamilton
Service Standard Calculation Sheet**

Service: Police Small Equipment and Gear
Unit Measure: No. of equipment and gear

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Stalker II Moving Directional Radar	1	1	1	1	1	1	1	1	1	1	\$4,400
UltraLyte Laser Technology Inc. - Laser Units	14	14	14	14	14	14	14	14	14	14	\$6,400
UltraLyte Laser Technology Inc. LRB	18	18	18	18	19	19	19	19	19	21	\$5,200
Total	2,003	2,054	2,070	2,488	2,501	2,501	2,499	2,499	2,501	2,519	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0039	0.0040	0.0040	0.0048	0.0048	0.0047	0.0047	0.0047	0.0046	0.0046

10 Year Average	2009-2018
Quantity Standard	0.0045
Quality Standard	\$4,822
Service Standard	\$22

D.C. Amount (before deductions)	13 Year
Forecast Population	86,183
\$ per Capita	\$22
Eligible Amount	\$1,870,171



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parking Spaces
Unit Measure: No. of spaces

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/space) Including Land
Carpark #1 (John and Rebecca)	169	169	169	169	169	169	169	169	169	169	\$556,300
Carpark #2 (Ottawa St)	358	358	358	358	358	358	358	358	358	358	\$658,500
Carpark #3 (Mountain Ave)	137	137	137	137	137	137	137	137	137	137	\$640,200
Carpark #4 (Kenilworth Ave)	35	35	35	35	35	35	35	35	35	35	\$180,300
Carpark #5 (King William/Mary)	127	127	127	127	127	127	127	127	127	127	\$403,000
Carpark #6 (Rosedale Dr)	7	7	7	7	7	7	7	7	7	7	\$48,900
Carpark #7 (Main and Ferguson)	60	60	60	60	60	60	60	60	60	60	\$184,000
Carpark #8 (King and Jarvis)	47	47	47	47	47	47	47	47	47	47	\$169,400
Carpark #9 (Upper Wellington)	15	15	15	15	15	15	15	15	15	15	\$67,200
Carpark #11 (Main and Garside)	9	9	9	9	9	9	9	9	9	9	\$38,000
Carpark #13 (Wilson and James)	16	16	16	16	16	16	16	16	16	16	\$67,200
Carpark #16 (Main and Balmoral)	20	20	20	20	20	20	20	20	20	20	\$63,500
Carpark #17 (Main and Huxley)	19	19	19	19	19	19	19	19	19	19	\$70,800
Carpark #19 (Main and Ottawa)	26	26	26	26	26	26	26	26	26	26	\$111,000
Carpark #20 (Up James/Brantdale)	25	25	25	25	25	25	25	25	25	25	\$103,700
Carpark #21 (Main and Tuxedo)	23	23	23	23	23	23	23	23	23	23	\$78,100
Carpark #22 (King and Locke)	14	14	14	14	14	14	14	14	14	14	\$63,500
Carpark #32 (East and Barton)	26	26	26	26	26	26	26	26	26	26	\$74,500
Carpark #33 (Up James/Genesse)	45	45	45	45	45	45	45	45	45	45	\$158,400
Carpark #34 (Main and Cope)	9	9	9	9	9	9	9	9	9	9	\$48,900
Carpark #35 (Concession and E21st)	24	24	24	24	24	24	24	24	24	24	\$89,100
Carpark #36 (Mulberry)	49	49	49	49	49	49	49	49	49	49	\$202,200
Carpark #37 (Convention Centre)	849	849	849	849	849	849	849	849	849	849	\$1,345,000
Carpark #39 (Barton and Grosvenor)	31	31	31	31	31	31	31	31	31	31	\$111,000
Carpark #40 (City Hall)	432	418	418	418	418	418	418	418	418	418	\$1,472,400
Carpark #42 (Barton and Birch)	41	41	41	41	41	41	41	41	41	-	\$246,000
Carpark #43 (Kenilworth/Newlands)	20	20	20	20	20	20	20	20	20	20	\$63,500
Carpark #44 (Barton and Emerald)	13	13	13	13	13	13	13	13	13	13	\$52,600
Carpark #45 (540 Barton East)	20	20	20	20	20	20	20	20	20	20	\$59,900
Carpark #46 (Barton and William)	15	15	15	15	15	15	15	15	15	15	\$67,200
Carpark #47 (Barton and Barnesdale)	21	21	21	21	21	21	21	21	21	21	\$74,500



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parking Spaces
Unit Measure: No. of spaces

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/space) Including Land
Carpark #49 (Barton and Caroline)	41	41	41	41	41	41	41	41	41	41	\$180,300
Carpark #50 (Cannon and Birch)	30	30	30	30	30	30	30	30	30	-	\$96,400
Carpark #56 (Main and Emerald)	18	18	18	18	18	18	18	18	18	18	\$70,800
Carpark #58 (Barton and Harmony)	34	34	34	34	34	34	34	34	34	34	\$63,500
Carpark #62 (Vine St)	137	137	137	137	137	137	137	137	137	137	\$359,200
Carpark #64 (Sherman Ave N)	18	18	18	18	18	18	18	18	18	18	\$78,100
Carpark #66 (Bay and Cannon)	91	91	91	91	91	91	91	91	91	91	\$282,500
Carpark #68 (York Parkade)	813	813	813	813	813	813	813	813	813	813	\$462,800
Carpark #69 (York Blvd)	17	17	17	17	17	17	17	17	17	17	\$59,900
Carpark #70 (Hughson St)	24	24	24	24	24	24	24	24	24	24	\$74,500
Carpark #72 (King and East)	21	21	21	21	21	21	21	21	21	21	\$78,100
Carpark #73 (King William/Wellington)	36	36	36	36	36	36	36	36	36	36	\$121,900
Carpark #74 (King and Hess)	11	11	11	11	11	11	11	11	11	11	\$56,200
Carpark #76 (Catharine and Hunter)	55	55	55	55	55	55	55	55	55	55	\$158,400
Carpark #79 (402 Barton St)	24	24	24	24	24	24	24	24	24	24	\$81,800
Carpark #80 (King and Bay)	205	205	205	205	205	205	205	205	205	205	\$596,400
Carpark #81 (Ferguson Ave)	14	14	14	14	14	14	14	14	14	14	\$78,100
Carpark #82 (Victoria and Barton)	39	39	39	39	39	39	39	39	39	39	\$136,500
Carpark #84 (Kenilworth and Albany)	29	29	29	29	29	29	29	29	29	29	\$111,000
Carpark #1DU (Booth St)	40	40	40	40	40	40	40	40	40	40	\$169,400
Carpark #2DU (Post Office)	18	18	18	18	18	18	18	18	18	18	\$111,000
Carpark #3DU (Canada Trust)	43	43	43	43	43	43	43	43	43	43	\$136,500
Carpark #4DU (Royal Bank)	83	83	83	83	83	83	83	83	83	83	\$278,900
Carpark #5DU (Golden Valley)	41	41	41	41	41	41	41	41	41	41	\$151,100
Carpark #6DU (Coach House)	42	42	42	42	42	42	42	42	42	42	\$180,300
Carpark #7DU (Hatt St)	94	94	94	94	94	94	94	94	94	94	\$395,700
Carpark #9DU (Bank of Montreal)	7	7	7	7	7	7	7	7	7	7	\$41,600
Carpark #10A (Wilson St/Ancaster)	38	38	38	38	38	38	38	38	38	38	\$220,500



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parking Spaces
Unit Measure: No. of spaces

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/space) Including Land
Dundas St./Flamborough	16	16	16	16	16	16	16	16	16	16	\$63,500
Total	4,781	4,767	4,696								

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0093	0.0092	0.0092	0.0091	0.0091	0.0090	0.0090	0.0089	0.0088	0.0086

10 Year Average	2009-2018
Quantity Standard	0.0090
Quality Standard	\$29,312
Service Standard	\$264

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$264
Eligible Amount	\$17,159,785



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parking Meters
Unit Measure: No. of Meters

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Parking Meters (On-Street)	2,546	2,808	2,674	2,574	2,515	2,702	2,714	2,426	2,426	2,426	\$600
Parking Meters (Off-Street)	-	-	-	-	77	77	77	77	57	-	\$600
Pay and Display Machine Spaces (On-Street)	-	-	14	18	16	16	16	16	16	16	\$5,300
Pay and Display Machine Spaces (Off-Streets)	-	-	-	-	72	72	72	72	72	72	\$5,300
Pay on foot Pay Stations	4	4	4	4	7	7	7	7	7	7	\$45,000
Pay on foot exit/entry terminals	13	13	13	13	13	13	13	13	13	13	\$7,900
Coin Sorter Machine	1	1	1	1	1	1	1	1	1	1	\$13,000
Coin Wrapper Machines	2	2	2	2	2	2	2	2	2	2	\$27,000
Electric Vehicles Charging Stations	-	-	-	-	2	2	2	2	2	2	\$10,000
Total	2,566	2,828	2,708	2,612	2,705	2,892	2,904	2,616	2,596	2,539	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0050	0.0055	0.0052	0.0050	0.0051	0.0055	0.0055	0.0049	0.0048	0.0047

10 Year Average	2009-2018
Quantity Standard	0.0051
Quality Standard	\$857
Service Standard	\$4

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$4
Eligible Amount	\$284,251



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parking Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Hamilton Place & Convention Centre Parking Garage:												
Main Office	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	\$225	\$274
Middle Office	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	\$225	\$274
Squad Room	800	800	800	800	800	800	800	800	800	800	\$225	\$274
Workshop	23,000	23,000	23,000	23,000	23,000	23,871	23,871	23,871	23,871	23,871	\$147	\$188
Total	31,200	31,200	31,200	31,200	31,200	32,071	32,071	32,071	32,071	32,071		

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0606	0.0605	0.0600	0.0597	0.0593	0.0606	0.0602	0.0597	0.0592	0.0589

10 Year Average	2009-2018
Quantity Standard	0.0599
Quality Standard	\$1,425
Service Standard	\$85

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$85
Eligible Amount	\$5,551,026



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parkland Development
Unit Measure: Acres of Parkland

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Acre)
New City of Hamilton (acres)											
City Wide	1,117	1,117	1,117	1,117	1,148	1,110	1,110	1,110	1,110	1,110	\$66,000
Neighbourhood	671	671	686	688	689	730.5	734.3	742.4	749.8	755.8	\$64,000
Parkette	68	68	73	74	74	66	66	67	67	67	\$150,000
Community	837	839	851	889	889	818	818	818	818	818	\$55,000
Heritage Parkland	409	409	409	409	409	404	404	404	404	404	\$34,000
Natural Open Space	2,114	2,114	2,137	2,137	2,052	1,943	1,943	1,943	1,943	1,943	\$10,600
General Open Space	191	191	185	195	200	217	217	217	217	217	\$34,000
Parks on Utility Lands	75	75	72	72	72	78	78	78	78	78	\$10,600
Other Utility Lands	118	118	119	119	119	81	81	81	81	81	\$10,600
School Lands	395	395	395	381	356	314	314	314	314	314	\$34,000
Non-City-Owned Lands (not including School Lands, Royal Botanical Garden lands or Conservation Authority Lands that the City maintains as parkland)	169	169	159	129	130	88	127	127	127	127	\$34,000
Leash-Free Dog Areas	-	-	-	2	2	41	41	41	41	41	\$10,600
Total	6,164	6,166	6,203	6,212	6,140	5,890	5,934	5,943	5,950	5,956	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011

10 Year Average	2009-2018
Quantity Standard	0.0115
Quality Standard	\$38,951
Service Standard	\$448

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$448
Eligible Amount	\$29,136,705



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parkland Amenities
Unit Measure: No. of parkland amenities

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Tennis Club Lit	46	46	46	46	46	48	48	48	48	48	\$77,600
Tennis Public Lit	25	25	25	25	25	22	22	22	22	22	\$77,600
Tennis Public Unlit	17	17	17	18	23	20	20	20	20	21	\$50,600
Soccer Class A+ (Lit) - Artificial Turf	-	-	1	1	1	1	1	1	1	1	\$1,200,000
Soccer Class A+ (Lit)	1	1	1	1	1	1	1	1	1	1	\$617,200
Soccer Class A Lit	17	17	17	15	15	15	15	15	15	15	\$285,600
Soccer Class B Lit	9	9	9	9	9	8	8	8	8	8	\$236,100
Soccer Class B Unlit	6	6	6	6	8	11	11	11	11	11	\$199,000
Soccer Class C Unlit	160	160	160	161	162	201	201	201	201	201	\$84,300
Lit Football Fields	3	3	3	3	3	4	4	4	5	6	\$158,500
Unlit Football Fields	2	2	2	2	2	2	2	2	2	2	\$76,400
Hardball Lit (premier diamond)	1	1	1	1	1	1	1	1	1	1	\$363,100
Hardball Lit	14	14	15	15	15	15	15	15	15	15	\$204,600
Hardball Unlit	22	22	22	22	21	21	21	21	21	21	\$88,800
Softball Lit	33	33	36	39	40	37	37	37	39	41	\$204,600
Softball Unlit	139	139	139	127	126	121	116	111	106	101	\$88,800
Tball	38	38	39	43	43	42	41	40	39	38	\$37,100
Batting Cages	12	12	12	12	12	12	12	13	16	16	\$20,000
Lit Bocce Courts	32	32	32	32	32	35	35	29	29	29	\$14,600
Regulation Bocce Courts Lit (min. 2 lanes)	10	10	10	10	10	8	8	8	8	8	\$125,900
Unlit Bocce Courts	7	7	7	7	5	2	2	2	2	2	\$7,900
Basketball Full-court	93	93	93	93	93	91	90	89	88	87	\$51,700
Basketball Half-court	-	-	-	-	-	159	159	159	160	160	\$25,800
Multi-Purpose Court	7	7	8	11	13	15	18	21	24	27	\$64,100
Spray Pads - Community/City Wide	16	16	17	17	20	20	21	21	22	26	\$330,000
Spray Pads - Neighbourhood/Parkette	35	35	35	37	38	38	38	37	39	41	\$250,000
Wading Pools	16	16	16	16	15	14	13	11	9	8	\$59,600
Play Structure - Neighbourhood/Parkette Parks	157	157	163	187	190	205	213	221	229	237	\$105,000
Play Structure - Community/City-wide Parks	59	59	62	67	69	71	74	77	80	83	\$203,400
Play Structure - Other Parks (School, Historical, Open Space)	38	39	27	26	27	29	30	31	32	33	\$85,400
Play Equipment - Community Parks/City-wide Parks	160	160	157	157	160	158	158	158	158	158	\$24,700



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parkland Amenities
Unit Measure: No. of parkland amenities

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Play Equipment - Neighbourhood Parks	367	367	402	420	436	432	427	422	417	412	\$173,100
Play Equipment - Other Parks (School, Historical, Open Space)	108	108	81	86	83	72	73	74	75	76	\$11,200
Natural Playground	-	-	-	-	-	4	5	6	7	7	\$125,000
Accessible Swing Seats	53	53	52	74	80	83	90	95	100	108	\$2,200
Swing Sets, 4 seats	157	159	161	163	165	167	169	171	173	175	\$39,200
Swing Sets, 6 seats	50	52	54	56	58	60	61	62	63	64	\$51,000
Swing Sets, 8 seats	40	41	42	43	44	45	46	47	48	49	\$62,800
Exercise Stations (per fitness station)	33	33	33	33	33	33	33	41	46	46	\$9,165
Skateboard Parks	5	5	5	5	5	5	5	5	5	6	\$870,000
Lawn bowling Greens	10	10	10	10	10	4	4	4	4	4	\$11,200
Horseshoe Pitch	9	7	5	3	1	1	1	1	1	1	\$7,900
Volleyball Courts	5	5	5	5	5	20	20	20	20	20	\$14,600
Shuffleboard Courts	6	6	6	6	6	6	6	6	6	6	\$1,100
Running Tracks	5	5	5	6	6	10	10	10	11	11	\$78,700
Public Beaches within Parks/along Trails	3	3	3	3	3	5	5	5	5	5	\$2,200
Public Boat Launches within Parks	2	2	2	2	2	1	1	1	1	1	\$14,600
Track and Field Amenities:											
High Jump Area	2	2	2	2	2	2	2	2	2	2	\$7,900
Discus Area	3	3	3	3	3	3	3	3	3	3	\$7,900
Long Jump pits	9	9	9	9	9	9	9	9	9	9	\$7,900
Hop Skip Jump area	1	1	1	1	1	1	1	1	1	1	\$7,900
Shot-put/discus	1	1	1	1	1	1	1	1	1	1	\$7,900
Steeplechase waterpit	1	1	1	1	1	1	1	1	1	1	\$11,200
Javelin runway	1	1	1	1	1	1	1	1	1	1	\$7,900
Benches	2,545	2,545	2,550	2,555	2,560	2,610	2,660	2,710	2,760	2,810	\$1,100
Bleachers	277	277	274	274	273	277	281	285	289	293	\$7,900
Display Fountains	5	6	7	8	9	11	11	11	11	11	\$18,000
Drinking Fountains	79	76	74	71	68	70	72	74	76	78	\$50,000
Trash Receptacles	1,302	1,307	1,314	1,320	1,327	1,377	1,427	1,477	1,527	1,577	\$1,100
Lighting Standards	1,968	2,109	2,250	2,391	2,532	2,557	2,582	2,607	2,632	2,657	\$4,500
Bridges - Pedestrian	24	28	33	38	42	38	38	38	38	38	\$61,800
Bridges - Vehicle	11	12	15	17	18	13	13	13	13	13	\$106,800



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parkland Amenities
Unit Measure: No. of parkland amenities

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Gates - Vehicle	112	112	113	114	115	117	119	121	123	125	\$10,700
Gates - Pedestrian	167	167	163	161	159	162	165	168	171	174	\$8,000
Irrigation Systems	55	55	55	58	58	60	62	62	64	64	\$7,900
Band shell (Battlefield Park)	1	1	1	1	1	1	1	1	1	1	\$342,900
Cricket Pitch	2	2	2	2	2	2	2	2	2	2	\$88,800
Cricket Practice Pitch	1	1	1	1	1	1	1	1	1	1	\$45,000
Australian Football Field	1	1	1	1	1	1	1	1	1	1	\$76,400
Viewing Platform	1	1	1	1	2	8	8	8	8	8	\$351,900
Escarpment Stairs	6	6	6	6	6	12	12	12	12	12	\$1,803,300
Outdoor Ice Rink - Naturally Cooled	66	66	66	66	66	66	66	66	67	67	\$98,000
Outdoor Ice Rink - Artificially Cooled	1	1	2	2	2	3	3	3	3	3	\$908,000
Park Signs - Community	87	87	87	87	87	88	89	90	91	92	\$9,500
Park Signs - Internal	609	609	609	609	609	614	619	624	629	634	\$9,200
Park Signs - Neighbourhood	237	237	239	240	243	245	245	246	250	250	\$6,500
Parking - Asphalt - lit (per stall)	9	9	9	9	9	1,533	1,583	1,633	1,683	1,733	\$5,600
Parking - Asphalt - unlit (per stall)	3,427	3,428	3,428	3,428	3,428	1,824	1,874	1,924	1,974	2,024	\$3,200
Parking - Granular - unlit (per stall)	3,931	3,932	3,932	3,932	3,932	3,194	3,244	3,294	3,344	3,394	\$1,100
Parking - Pervious Concrete - unlit (per stall)	-	-	-	22	22	22	22	22	22	22	\$18,000
Parking - Grasspave - unlit (per stall)	-	-	-	140	140	-	-	-	-	-	\$1,300
Pump Track (BMX/Bike Track) - Gage Park	-	-	-	-	-	-	1	1	1	1	\$111,800
Bob Mackenzie Ball Hockey Court (Roxborough ave)	-	-	-	-	-	-	1	1	1	1	\$148,400



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parkland Amenities
Unit Measure: No. of parkland amenities

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Pickleball Courts	-	-	-	-	-	-	-	6	6	6	\$3,000
Total	16,970	17,125	17,294	17,693	17,892	17,297	17,609	17,922	18,249	18,563	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.033	0.033	0.033	0.034	0.034	0.033	0.033	0.033	0.034	0.034

10 Year Average	2009-2018
Quantity Standard	0.0334
Quality Standard	\$16,778
Service Standard	\$560

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$560
Eligible Amount	\$36,451,778



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parkland Amenities - Buildings
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
Park Amenities (sq.ft.)											
Agro Park - Sun Shelter	-	-	-	-	-	-	-	-	400	400	\$190
Agro Park - Trellis	-	-	-	-	-	-	-	-	192	192	\$324
Alexander Park - Trellis	-	-	-	-	-	-	-	-	-	242	\$485
Allison Neighbourhood Park - Sun Shelter	400	400	400	400	400	400	400	400	400	400	\$176
Beverly Park - Pavilion	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332	\$68
Birch Avenue Leash-Free Area - Shelter #1	-	-	45	45	45	45	45	45	45	45	\$133
Birch Avenue Leash-Free Area - Shelter #2	-	-	45	45	45	45	45	45	45	45	\$133
Broughton Park West - Sun Shelter	-	-	-	360	360	360	360	360	360	360	\$137
Buchanan Park - Sun Shelter	-	-	-	-	-	-	522	522	522	522	\$177
Burkholder Park - Sun Shelter	-	-	-	400	400	400	400	400	400	400	\$175
Carpenter Park - Sun Shelter	-	-	-	-	-	-	-	-	383	383	\$201
Carter Park - Sun Shelter	-	-	-	-	-	332	332	332	332	332	\$238
Caterini Park - Sun Shelter	-	-	-	-	-	-	-	-	400	400	\$153
Centennial Heights Park - Pavilion	1,313	1,313	1,313	1,313	1,313	1,313	1,313	1,313	1,313	1,313	\$68
Chappel Estates Park - Sun Shelter	-	-	-	-	388	388	388	388	388	388	\$128
Churchill Park - Sun Shelters	1,308	1,308	1,308	1,308	1,308	1,308	1,308	1,308	1,308	1,308	\$39
Confederation Beach Park - Willow Cove Pavilion	2,594	2,594	2,594	2,594	2,594	2,594	2,594	2,594	2,594	2,594	\$68
Confederation Beach Park - Edgewater Pavilion	5,756	5,756	5,756	5,756	5,756	5,756	5,756	5,756	5,756	5,756	\$68
Copetown Lions Park - Pavilion	1,304	1,304	1,304	1,304	1,304	1,304	1,304	1,304	1,304	1,304	\$68
Courtcliffe Park - Picnic Shelter	1,485	1,485	1,485	1,485	1,485	1,485	1,485	1,485	1,485	1,485	\$68
Cranberry Hill Park - Sun Shelter	-	-	-	-	-	-	-	-	282	282	\$253
Creekside Park - Sun Shelter	-	-	-	-	-	-	-	488	488	488	\$151
Dundas Driving Park - Pavilion - 159080	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	\$147
Dundas Driving Park - Pavilion - 159665	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	2,058	\$147
Dundas Driving Park - Trellis	665	665	665	665	665	665	665	665	665	665	\$158
Dundurn Park - Picnic Pavilion	1,336	1,336	1,336	1,336	1,336	1,336	1,336	1,336	1,336	1,336	\$68
Durand Park - Sun Shelter	-	-	-	-	-	-	366	366	366	366	\$244
Durand Park - Trellis	-	-	-	-	-	-	180	180	180	180	\$288
Elmar Park - Sun Shelter	-	-	-	-	-	373	373	373	373	373	\$68



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parkland Amenities - Buildings
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
Eringate Park - Sun Shelter	400	400	400	400	400	400	400	400	400	400	\$242
Fair Park (Meadowlands Ph IIX & X) - Sun Shelter	-	-	-	-	-	-	-	400	400	400	\$118
Fairfield Park - Sun Shelter	400	400	400	400	400	400	400	400	400	400	\$129
Fairgrounds Community Park - Sun Shelter	-	334	334	334	334	334	334	334	334	334	\$226
Fairgrounds Community Park - Picnic Pavilion	1,816	1,816	1,816	1,816	1,816	1,816	1,816	1,816	1,816	1,816	\$94
Father Sean O'Sullivan Park - Sun Shelter	-	-	-	-	-	380	380	380	380	380	\$68
Freelton Community Park - Picnic Pavilion	1,220	1,220	1,220	1,220	1,220	1,220	1,220	1,220	1,220	1,220	\$68
Gage Park - Archway (Near Main St)	602	602	602	602	602	602	602	602	602	602	\$68
Gage Park - Band Shell	980	980	980	980	980	980	980	980	980	980	\$199
Gatesbury Sun Shelter	-	-	-	-	-	-	-	250	250	4,508	\$250
Glanbrook Hills Park - Sun Shelter	-	-	-	-	-	-	-	-	-	400	\$232
Globe Park - Sun Shelter	380	380	380	380	380	380	380	380	380	380	\$68
Hampton Park - Sun Shelter	-	400	400	400	400	400	400	400	400	400	\$118
Honourable Bob McKenzie Park - Sun Shelter	-	-	-	-	-	272	272	272	272	272	\$195
Huntington Park - Sun Shelter	380	380	380	380	380	380	380	380	380	380	\$68
Jackson Heights Neighbourhood Park - Sun Shelter	-	-	388	388	388	388	388	388	388	388	\$119
Jerome Neighbourhood Park - Sun Shelter	-	-	-	590	590	590	590	590	590	590	\$108
Joe Sam's Leisure Park - Sun Shelter	-	-	-	-	-	-	-	-	-	840	\$213
Johnson Tew Park - Sun Shelter	-	-	-	-	-	-	-	470	470	470	\$138
Kennedy East Park - Sun Shelter	380	380	380	380	380	380	380	380	380	380	\$68
Kings Forest Golf Club - Pavilion A	199	199	199	199	199	199	199	199	199	199	\$68
Kings Forest Golf Club - Sun Shelter	315	315	315	315	315	315	315	315	315	315	\$68
Kinsmen Park - Picnic Shelter	-	-	-	-	-	747	747	747	747	747	\$68
Kopperfield Park - Sun Shelter	-	-	-	-	-	-	400	400	400	400	\$185
Laidman Park - Sun Shelter	400	400	400	400	400	400	400	400	400	400	\$138
Lake Pointe Park - Sun Shelter	360	360	360	360	360	360	360	360	360	360	\$68
Lake Vista Park - Sun Shelter	360	360	360	360	360	360	360	360	360	360	\$200
Lynden Legion Park - Picnic Pavilion	337	337	337	337	337	337	337	337	337	337	\$68
Lynden Lions South Park - Picnic Pavilion	-	-	-	-	-	864	864	864	864	864	\$68



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parkland Amenities - Buildings
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
McClaren Park - Shade Structure	-	-	-	-	-	-	-	225	225	225	\$90
Mohawk Sports Park - First Base Dugout	366	366	366	366	366	366	366	366	366	366	\$54
Mohawk Sports Park - Third Base Dugout	366	366	366	366	366	366	366	366	366	366	\$54
Montgomery Park - Pavilion	381	381	381	381	381	381	381	381	381	381	\$68
Montgomery Park - Sun Shelter	260	260	260	260	260	260	260	260	260	260	\$68
Moorland Park - Sun Shelter	400	400	400	400	400	400	400	400	400	400	\$175
Mount Hope Park - Sun Shelter	-	-	-	-	-	-	-	-	-	724	\$175
Mount Lions Park - Sun Shelter Pavilion	380	380	380	380	380	380	380	380	380	380	\$147
Newlands Park - Sun Shelter	274	274	274	274	274	274	274	274	274	274	\$275
North Central Community Park - Sun Shelter	416	416	416	416	416	416	416	416	416	416	\$116
Peace Memorial Park - Trellis	1,314	1,314	1,314	1,314	1,314	1,314	1,314	1,314	1,314	1,314	\$78
Perth Park - Sun Shelter	-	-	-	-	-	-	232	232	232	232	\$329
Pier 4 Park - Pavilion/Sun Shelter At Water's Edge	-	-	-	-	-	795	795	795	795	795	\$68
Pine Ridge Park - Sun Shelter	300	300	300	300	300	300	300	300	300	300	\$290
Pipeline (Geraldine Copps) Parkette - Shade Structure	-	-	-	-	-	-	-	-	180	180	\$375
Powell Park - Sun Shelter	380	380	380	380	380	380	380	380	380	380	\$68
Red Hill Summit East Park - Sun Shelter	-	-	-	-	400	400	400	400	400	400	\$143
Richwill Park - Sun Shelter	354	354	354	354	354	354	354	354	354	354	\$68
Robert E. Wade Ancaster Community Park - Sun Shelter	-	-	784	784	784	784	784	784	784	784	\$130
Sackville Park - Bocce Sun Shelter	105	105	105	105	105	105	105	105	105	105	\$68
Sam Lawrence Park - Pavilion	1,675	1,675	1,675	1,675	1,675	1,675	1,675	1,675	1,675	1,675	\$68
Sam Manson Park - Sun Shelter	-	-	-	-	400	400	400	400	400	400	\$113
Seabreeze Park - Sun Shelter	-	-	-	400	400	400	400	400	400	400	\$152
Sheffield Ball Park - Pavilion	580	580	580	580	580	580	580	580	580	580	\$68
Southampton Estates Park - Sun Shelter	400	400	400	400	400	400	400	400	400	400	\$168
Southbrook Park - Sun Shelter	340	340	340	340	340	340	340	340	340	340	\$258
Strabane Community Park - Pavilion	880	880	880	880	880	880	880	880	880	880	\$68
Summerlea West Park - Sun Shelter	-	-	-	278	278	278	278	278	278	278	\$190



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parkland Amenities - Buildings
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
Summit Park - Sun Shelter	400	400	400	400	400	400	400	400	400	400	\$224
Templemead Park - Sun Shelter	560	560	560	560	560	560	560	560	560	560	\$68
Trenholme Park - Pavilion	394	394	394	394	394	394	394	394	394	394	\$68
Valens Park - Picnic Pavilion	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	\$68
Valley Park - Pavilion	1,660	1,660	1,660	1,660	1,660	1,660	1,660	1,660	1,660	1,660	\$68
Vincent Massey - Sun Shelter	-	-	-	-	-	-	-	400	400	400	\$133
Waterdown Memorial Park - Picnic Pavilion	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	\$68
Westover Community Park - Picnic Pavilion	-	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	\$68
William Connell Park - Trellis	-	-	-	-	-	-	-	-	-	660	\$118
William Mcculloch - Pavilion	-	-	365	365	365	365	365	365	365	365	\$68
William Schwenger Park - Sun Shelter	-	-	-	278	278	278	278	278	278	278	\$201
Winona Park - Picnic Pavilion	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	\$68
Winona Park - Trellis	-	-	-	300	300	300	300	300	300	300	\$246
Woolverton Park - Pavilion	-	-	-	-	-	366	366	366	366	366	\$68
York Road Parkette (Kaga Corner) - Sun Shelter	270	270	270	270	270	270	270	270	270	270	\$68
Total	46,084	48,318	49,945	52,551	53,739	57,867	59,567	61,800	63,637	70,761	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.090	0.094	0.096	0.101	0.102	0.109	0.112	0.115	0.117	0.130

10 Year Average	2009-2018
Quantity Standard	0.1066
Quality Standard	\$95
Service Standard	\$10

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$10
Eligible Amount	\$657,615



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parkland Trails
Unit Measure: Linear Kilometres of Paths and Trails

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/km)
Recreational Trails (km):											
Escarpment Rail Trail (Tar & Chip - unlit)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	\$227,200
Cootes Drive Path (asphalt - unlit)	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	\$129,000
Chedoke Radial Trail (part asphalt - part gravel)	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	\$96,700
Red Hill Valley Recreational Trails (tar & chip - unlit)	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	\$89,500
Desjardins Recreational Trail (gravel - unlit)	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	\$242,600
Hamilton Harbour Waterfront Trail (asphalt - lit - extra wide)	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	\$242,600
Hamilton Harbour Waterfront Trail Extension (asphalt - lit - extra wide)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	\$138,600
Escarpment Rail Trail Extension (asphalt - unlit)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	\$170,400
Waterdown Wetlands Recreational Trail (asphalt & boardwalk - unlit)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	\$73,300
Waterdown Wetlands Secondary Trails (screenings - until)	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	\$227,200
Hamilton Beach Recreational Trail (asphalt - lit - extra wide)	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	\$242,600
Macassa Bay Walkway (asphalt - lit)	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	\$173,200
Bayfront Park Pathway (asphalt - lit)	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	\$242,600
Pier 4 Park Pathway (asphalt - lit)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	\$119,300
Red Hill Valley Trail, (granular - unlit)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	\$170,400
East Hamilton Trail and Waterfront Link (asphalt - unlit)	-	-	3.50	3.50	4.80	4.80	4.80	4.80	4.80	4.80	\$154,600
East Mountain Trail Loop (asphalt - unlit)	-	-	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	\$117,800
Borer's Creek Trail (Initiative 15-1 Recreational Trails Plan)	-	-	-	-	-	-	-	-	0.4	0.4	\$1,062,000
Pine Ridge Trail	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	\$185,700
Key Drage Park Trail	-	-	-	-	-	-	-	-	-	0.30	\$84,300
Confederation Park - Stoney Creek Pond Trail	-	-	-	-	-	-	0.36	0.36	0.36	0.36	\$496,800
Green Millen Shore Estates Shoreline Trail (4m wide limestone screening)	-	-	-	-	-	-	0.31	0.31	0.31	0.31	\$194,400
Green Millen Shore Estates Shoreline Trail (2m wide limestone screening)	-	-	-	-	-	-	0.07	0.07	0.07	0.07	\$78,600
Green Millen Shore Estates Shoreline Trail (4m wide asphalt)	-	-	-	-	-	-	0.71	0.71	0.71	0.71	\$229,600



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parkland Trails
Unit Measure: Linear Kilometres of Paths and Trails

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/km)
Green Millen Shore Estates Shoreline Trail (3m wide asphalt)	-	-	-	-	-	-	0.31	0.31	0.31	0.31	\$179,100
Green Millen Shore Estates Shoreline Trail (1.8m wide boardwalk)	-	-	-	-	-	-	0.04	0.04	0.04	0.04	\$2,647,700
Shrewsbury Trail	-	-	-	-	-	-	0.09	0.09	0.09	0.09	\$246,600
Ryckman Parks Trail	-	-	-	-	-	-	0.29	0.29	0.29	0.29	\$219,100
Olmsted Trail	-	-	-	-	-	-	-	0.37	0.37	0.37	\$159,900
Shaver Estates Trail	-	-	-	-	-	-	-	-	-	0.38	\$1,194,400
Recreational Multi-Use Pathways (km):											
Park Corridor (asphalt & gravel - unlit)	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	\$171,100
Ancaster Radial Right of Way (gravel - unlit)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	\$170,400
Stoney Creek Multi-Use Path (asphalt - unlit)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	\$47,800
Spencer Creek Trail (natural footpath - unlit)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	\$104,000
Pipeline Walkway (asphalt - lit)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	\$2,372,200
Pier 7 & 8 Boardwalk	-	-	-	-	-	-	-	0.18	0.18	0.18	\$4,655,800
Total	46	46	58	58	59	59	62	62	63	63	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

10 Year Average	2009-2018
Quantity Standard	0.0001
Quality Standard	\$207,300
Service Standard	\$21

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$21
Eligible Amount	\$1,348,404



**City of Hamilton
Service Standard Calculation Sheet**

Service: Parks Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
Fertilizer Spreader	6	6	6	6	6	6	6	6	6	6	\$5,200
Aerator	5	5	5	5	5	5	5	5	5	5	\$7,300
Topdresser/box scraper	7	7	7	7	7	7	7	7	7	7	\$4,200
Rototiller	9	9	9	9	9	9	9	9	9	9	\$4,200
Total	27										

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.00005	0.00005

10 Year Average	2009-2018
Quantity Standard	0.0001
Quality Standard	\$2,600
Service Standard	\$0.26

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$0.26
Eligible Amount	\$16,912



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
City of Hamilton												
Simone Hall (Formerly Old Beasley Community Centre) - 133 Wilson St	2,456	2,456	2,456	2,456	2,456	2,456	2,456	2,456	2,456	2,456	\$337	\$398
Beasley Community Centre - 145 Wilson St. - in partnership w/ HWDSB and retained ownership of old Beasley Community Centre	-	6,157	6,157	6,157	6,157	6,157	6,157	6,157	6,157	6,157	\$337	\$398
Bennetto Recreation Centre - 450 Hughson St. N.	17,153	17,153	17,153	17,153	17,153	17,153	17,153	17,153	17,153	17,153	\$433	\$504
Central Memorial Recreation Centre - 93 West Ave. S.	26,474	26,474	26,474	26,474	26,474	26,474	26,474	26,474	26,474	26,474	\$335	\$396
Dalewood Recreation Centre - 1150 Main St. W.	11,601	11,601	11,601	11,601	11,601	11,601	11,601	11,601	11,601	11,601	\$428	\$498
Kiwanis Boys and Girls Club - 45 Ellis St.	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	\$404	\$472
Hill Park Recreation Centre - 465 East 16th St.	16,685	16,685	16,685	16,685	16,685	16,685	16,685	16,685	16,685	16,685	\$433	\$504
Huntington Park Recreation Centre - 87 Brentwood Dr.	29,681	29,681	29,681	29,681	29,681	29,681	29,681	29,681	29,681	29,681	\$388	\$454
Norman Pinky Lewis Recreation Centre - 192 Wentworth St. N.	35,333	35,333	35,333	35,333	35,333	35,333	35,333	35,333	35,333	35,333	\$506	\$584
Ryerson Recreation Centre - 247 Duke St.	27,847	27,847	27,847	27,847	27,847	27,847	27,847	27,847	27,847	27,847	\$238	\$289
Sir Allan MacNab - 145 Magnolia Dr.	29,561	29,561	30,597	30,597	30,597	30,597	30,597	30,597	30,597	30,597	\$385	\$451
Sir Wilfrid Laurier Recreation Centre - 60 Albright Rd.	16,617	16,617	16,617	16,617	16,617	16,617	16,617	16,617	16,617	16,617	\$467	\$541
Sir Winston Churchill Recreation Centre - 1715 Main St. E.	12,414	12,414	12,414	12,414	12,414	12,414	12,414	12,414	12,414	12,414	\$436	\$507
Westmount Recreation Centre (New) - 35 Lynbrook Dr.	-	-	-	51,938	51,938	51,938	51,938	51,938	51,938	51,938	\$558	\$642
Riverdale Community Centre (new) - 150 Violet Dr.	16,401	16,401	16,401	16,401	16,401	16,401	16,401	16,401	16,401	16,401	\$351	\$413
Jimmy Thompson Pool - 1099 King St. E.	23,129	23,129	23,129	23,129	23,129	23,129	23,129	23,129	23,129	23,129	\$411	\$480
Eastwood Arena - 111 Burlington St. E.	27,096	27,096	27,096	27,096	27,096	27,096	27,096	27,096	27,096	27,096	\$357	\$420
Scott Park Arena - 876 Cannon St. E.	23,950	23,950	23,950	23,950	23,950	23,950	-	-	-	-	\$338	\$399
Bill Friday Lawfield Arena - 150 Folkstone Rd. (formerly Lawfield Arena).	31,183	31,183	31,183	31,183	31,183	31,183	31,183	31,183	31,183	31,183	\$330	\$390
Coronation Arena - 81 Macklin St. N.	27,727	27,727	27,727	27,727	27,727	27,727	27,727	27,727	27,727	27,727	\$334	\$395
Chedoke Twin Pad - 91 Chedmac Dr.	89,460	89,460	89,460	89,460	89,460	89,460	89,460	89,460	89,460	89,460	\$274	\$328
Parkdale Arena (Pat Quinn) - 1770 Main St. E.	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	\$353	\$416
Inch Park Arena - 400 Queensdale Ave.	34,500	34,500	34,500	34,500	34,500	34,500	34,500	34,500	34,500	34,500	\$280	\$335
Mountain Arena and Skating Arena (Twin Pad - Dave Anderchck) - 25-55 Hester St.	80,755	80,755	80,755	80,755	80,755	80,755	80,755	80,755	80,755	80,755	\$302	\$359
Rosedale Arena - 100 Greenhill Ave.	34,251	34,251	34,251	34,251	34,251	34,251	34,251	34,251	34,251	34,251	\$354	\$417
Mohawk 4 Arena - 710 Mountain Brow Blvd.	136,000	136,000	136,000	136,000	136,000	136,000	136,000	136,000	136,000	136,000	\$274	\$328
Birge Outdoor Pool - 167 Birge St.	7,061	7,061	7,061	7,061	7,061	7,061	7,061	7,061	7,061	7,061	\$378	\$443
Parkdale Outdoor Pool - 1770 Main St. E.	4,252	4,252	4,252	4,252	4,252	4,252	4,252	4,252	4,252	4,252	\$241	\$292
Rosedale Outdoor Pool - 60 Greenhill Ave.	2,501	2,501	2,501	2,501	2,501	2,501	2,501	2,501	2,501	2,501	\$646	\$739
Victoria Outdoor Pool - 100 Strathcona	5,897	5,897	5,897	5,897	5,897	5,897	5,897	5,897	5,897	5,897	\$251	\$303
Chedoke Outdoor Pool - 500 Bendamere	2,480	2,480	2,480	2,480	2,480	2,480	2,480	2,480	2,480	2,480	\$604	\$692



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Walker Outdoor Pool - 180 Diconzo Dr.	3,703	3,703	3,703	3,703	3,703	3,703	3,703	3,703	3,703	3,703	\$571	\$656
Inch Parch Outdoor Pool - 400 Queensdale Ave.	4,252	4,252	4,252	4,252	4,252	4,252	4,252	4,252	4,252	4,252	\$525	\$605
Coronation Outdoor Pool - 81 Macklin St. N.	4,252	4,252	4,252	4,252	4,252	4,252	27,087	27,087	27,087	27,087	\$525	\$605
Chedoke Golf, Club House - 565 Aberdeen Ave.	12,420	12,420	12,420	12,420	12,420	12,420	12,420	12,420	12,420	12,420	\$261	\$314
Chedoke Golf, Pro Shop - 565 Aberdeen Ave.	2,974	2,974	2,974	2,974	2,974	2,974	2,974	2,974	2,974	2,974	\$368	\$432
Kings Forest Golf Clubhouse - 100 Greenhill Ave.	13,454	13,454	13,454	13,454	13,454	13,454	13,454	13,454	13,454	13,454	\$332	\$392
Ivor Wynne Stadium, Grandstands & Press Box - 75 Balsam Ave. N.	128,675	128,675	128,675	128,675	-	-	-	-	-	-	\$1,585	\$1,774
Tim Horton's Field	-	-	-	-	-	-	327,148	327,148	327,148	327,148	\$443	\$515
Churchill Fields Lawn Bowling (167 Cline N) - 167 Cline N.	4,568	4,568	4,568	4,568	4,568	4,568	4,568	4,568	4,568	4,568	\$225	\$274
Hamilton Tennis Club (257 Duke at HAAA Park)	7,064	7,064	7,064	7,064	7,064	7,064	7,064	7,064	7,064	7,064	\$380	\$445
Rosedale Tennis Club (Within Gage Park)	4,018	4,018	4,018	4,018	4,018	4,018	4,018	4,018	4,018	4,018	\$225	\$274
Rosedale Lawn Bowling (Within Gage Park) - 1000 Main St. E.	3,757	3,757	3,757	3,757	3,757	3,757	3,757	3,757	3,757	3,757	\$225	\$274
Gage Park Greenhouse #1/Tropical - 1000 Main St. E.	3,363	3,363	3,363	3,363	3,363	3,363	3,363	3,363	3,363	14,068	\$178	\$211
Gage Park Horticulture/Staff Bldg. - 1000 Main St. E.	7,389	7,389	7,389	7,389	7,389	7,389	7,389	7,389	7,389	7,389	\$235	\$661
Sackville Hill Senior Centre (780 Upper Wentworth)	24,452	24,452	24,452	24,452	24,452	24,452	24,452	24,452	24,452	24,452	\$357	\$420
Turner Park YMCA (Community Centre, Pool & Library)	59,490	59,490	59,490	59,490	59,490	59,490	59,490	59,490	59,490	59,490	\$413	\$463
YWCA - Hamilton Seniors' Active Living Centre (75 MacNab St. S. - basement level)	7,529	7,529	7,529	7,529	7,529	7,529	7,529	7,529	7,529	7,529	\$167	\$211
YWCA - Ottawa St. Seniors Leisure Centre - 52 & 66 Ottawa St. N. (In two Buildings)	5,220	5,220	5,220	5,220	5,220	5,220	5,220	5,220	5,220	5,220	\$167	\$211
Main Hess Senior Centre (181 Main St. W. - 3rd Floor)	10,930	10,930	10,930	10,930	10,930	10,930	10,930	10,930	10,930	10,930	\$357	\$420
Lister Block	-	-	16,285	16,285	16,285	16,285	16,285	16,285	16,285	16,285	\$382	\$448
Stoney Creek												
H.G./Brewster Pool - 200 Dewitt Rd.	11,764	11,764	11,764	11,764	11,764	11,764	11,764	11,764	11,764	11,764	\$503	\$581
Green Acres Outdoor Pool - 90 Randall Ave	9,451	9,451	9,451	9,451	9,451	9,451	9,451	9,451	9,451	9,451	\$313	\$371
Stoney Creek Arena - 37 King St. W.	29,279	29,279	29,279	29,279	29,279	29,279	29,279	29,279	29,279	29,279	\$427	\$497
Saltfleet Arena - 24 Sherwood Park Rd.	24,977	24,977	24,977	24,977	24,977	24,977	24,977	24,977	24,977	24,977	\$397	\$464
Optimist Club Community Centre - 890 Queenston	4,772	4,772	4,772	4,772	4,772	4,772	4,772	4,772	4,772	4,772	\$160	\$203
Stoney Creek Tennis Club (at Little League Park) - 880 Queenston Rd.	2,357	2,357	2,357	2,357	2,357	2,357	2,357	2,357	2,357	2,357	\$154	\$196
Valley Park Community Centre/Aquatic Centre - 970 Paramount Dr	35,362	35,362	35,362	35,362	35,362	35,362	35,362	35,362	35,362	35,362	\$299	\$356
Valley Park Tennis Club - 970 Paramount Dr.	1,690	1,690	1,690	1,690	1,690	1,690	1,690	1,690	1,690	1,690	\$165	\$208
Valley Park Arena - 970 Paramount Dr.	35,587	35,587	35,587	35,587	35,587	35,587	35,587	35,587	35,587	35,587	\$422	\$492
Fruitland Community Centre (Lion's Club) (14 Sherwood Park Rd)	5,047	5,047	5,047	5,047	5,047	5,047	5,047	5,047	5,047	5,047	\$234	\$284
Winona Scout Hall (Ward 11)	2,142	2,142	2,142	2,142	2,142	2,142	2,142	2,142	2,142	2,142	\$378	\$443
Winona Public School purchased for temporary community centre (facilities data)	-	-	-	-	-	-	-	33,480	33,480	33,480	\$370	\$661



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Stoney Creek Scout Hall (37 King St. W.)	2,763	2,763	-	-	-	-	-	-	-	-	\$239	\$290
Stoney Creek Recreation Centre (New) - 45 King St. W.	-	-	-	28,252	28,252	28,252	28,252	28,252	28,252	28,252	\$705	\$804
Winona Seniors - 1239 Highway 8 (Ward 11)	4,246	4,246	4,246	4,246	4,246	4,246	4,246	4,246	4,246	4,246	\$413	\$482
Club 60 - 4-6 King St. W.	3,568	3,568	3,568	3,568	3,568	3,568	3,568	3,568	3,568	3,568	\$358	\$421
Kiwanis Club (former police building) - 200 Jones Rd. (Also called Fruitland Community Centre)	6,860	6,860	6,860	6,860	6,860	6,860	6,860	6,860	6,860	6,860	\$363	\$427
Stoney Creek Alliance Church/Community Centre (Saltfleet Community)	-	28,991	28,991	28,991	28,991	28,991	28,991	28,991	28,991	28,991	\$48	\$79
Ancaster												
Ancaster Community Centre (Morgan Firestone Arena) - 385 Jerseyville Rd.	56,972	56,972	56,972	56,972	56,972	56,972	56,972	56,972	56,972	56,972	\$456	\$529
Ancaster Community & Rotary Centre - 385 Jerseyville Rd.	41,236	41,236	41,236	41,236	41,236	41,236	41,236	41,236	41,236	41,236	\$250	\$302
Ancaster Senior Achievement Centre - 622 Alberton Rd.	13,858	13,858	13,858	13,858	13,858	13,858	13,858	13,858	13,858	13,858	\$310	\$368
Lawn Bowling Club House - 291 Lodor St.	847	847	847	847	847	1,948	1,948	1,948	1,948	1,948	\$235	\$285
Community Centre (Old Town Hall) - 310 Wilson St.	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	\$284	\$340
Tennis Club House - 291 Lodor St.	1,076	1,076	1,076	1,076	1,076	791	791	791	791	791	\$160	\$203
Carluke Community Centre - Carluke Rd.	2,553	2,553	2,553	2,553	2,553	2,553	2,553	2,553	-	-	\$278	\$333
Optimist Youth Centre - 237 Manitou Way	3,819	3,819	3,819	3,819	3,819	3,819	3,819	3,819	3,819	3,819	\$288	\$344
Lions (South) Club Building Lynden Park - 4070 Governors Rd.	2,280	2,280	2,280	2,280	2,280	2,280	2,280	2,280	2,280	2,280	\$862	\$977
Copetown & District Lions Community Centre - 1950 Governors Rd.	8,190	8,190	8,190	8,190	8,190	8,190	8,190	8,190	8,190	8,190	\$362	\$425
Lions Club Outdoor Pool - 236 Jerseyville Rd.	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	\$708	\$807
Spring Valley Arena - 29 Orchard Drive	25,244	25,244	25,244	25,244	25,244	25,244	25,244	25,244	25,244	25,244	\$377	\$442
Aquatic Centre - 47 Meadowbrook Dr.	15,959	15,959	15,959	15,959	15,959	15,959	15,959	15,959	15,959	15,959	\$478	\$553
Dundas												
Dundas Outdoor Community Pool - 39 Market St. S.	11,457	11,457	11,457	-	-	-	-	-	-	-	\$207	\$255
Dundas Community Pool	10,364	10,364	10,364	10,364	10,364	10,364	10,364	10,364	10,364	10,364	\$614	\$164
Dundas Market Street Arena - Grightmire - 35 Market St. S.	37,816	37,816	37,816	37,816	37,816	37,816	37,816	37,816	37,816	41,416	\$303	\$360
Dundas Little Theatre	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	\$199	\$504
Olympic Arena - Westoby - 88 Olympic Dr.	27,150	27,150	27,150	27,150	27,150	27,150	27,150	27,150	27,150	27,150	\$375	\$440
Dundas Memorial Community Centre - 10 Market St. S.	13,600	13,600	13,600	13,600	13,600	13,600	13,600	13,600	13,600	13,600	\$518	\$597
Valleyfield Community Centre (Nigel Charlong Community Centre) - 287 Old Guelph Rd.	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	-	-	\$384	\$450
Dundas Driving Park Outdoor Rink Building - 71 Cross St. (Concession / Washroom / Ice Plant)	2,500	2,500	2,500	4,305	4,305	4,305	4,305	4,305	4,305	4,305	\$707	\$806
Tennis Club Building (Cross St.)	1,745	1,745	1,745	1,745	1,745	1,745	1,745	1,745	1,745	1,745	\$165	\$208
Lawn Bowling Club House (Cross St.)	1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,728	\$111	\$149



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Glanbrook												
Mt. Hope Hall - 3027 Homestead	7,492	7,492	7,492	7,492	7,492	7,492	7,492	7,492	7,492	7,492	\$190	\$217
Glanbrook Auditorium - 4300 Binbrook Rd	4,810	4,810	4,810	4,810	4,810	4,810	4,810	4,810	4,810	4,810	\$214	\$244
Glanbrook Arena - 4300 Binbrook Road	38,280	38,280	38,280	38,280	38,280	38,280	38,280	38,280	38,280	38,280	\$316	\$356
Binbrook Memorial Hall - 2600 Hwy 56	7,596	7,596	7,596	7,596	7,596	7,596	7,596	7,596	7,596	7,596	\$256	\$309
Woodburn Centennial Hall - 1062 Golf Club Road	2,974	2,974	2,974	2,974	2,974	2,974	2,974	2,974	2,974	2,974	\$334	\$395
Lions Youth Centre - 3027 Homestead Dr.	6,035	6,035	6,035	6,035	6,035	6,035	6,035	6,035	6,035	6,035	\$340	\$383
Flamborough												
Beverly Arena - 680 Highway 8	32,969	32,969	32,969	32,969	32,969	32,969	32,969	32,969	32,969	32,969	\$392	\$440
Beverly Community Centre - 680 Highway 8	4,630	4,630	4,630	4,630	4,630	4,630	4,630	4,630	4,630	4,630	\$278	\$314
Carlisle Arena - 1496 Centre Rd.	33,062	33,062	33,062	33,062	33,062	33,062	33,062	33,062	33,062	33,062	\$363	\$408
Carlisle Community Centre - 1496 Centre Rd. (Includes Storage / Washroom)	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	4,900	\$278	\$314
North Wentworth Arena	27,888	27,888	27,888	-	-	-	-	-	-	-	\$278	\$333
North Wentworth Community Centre	3,900	3,900	-	-	-	-	-	-	-	-	\$278	\$333
Harry Howell Arena (Formerly North Wentworth Twin Pad) - 27 Highway 5 W.	-	-	-	92,640	92,640	92,640	92,640	92,640	92,640	92,640	\$234	\$284
Beverly Township Hall - 795 Old Highway 8	2,422	2,422	2,422	2,422	2,422	2,422	2,422	2,422	2,422	2,422	\$278	\$314
Carlisle Memorial Hall - 273 Carlisle Rd.	4,513	4,513	4,513	4,513	4,513	4,513	4,513	4,513	4,513	4,513	\$334	\$376
Lynden Legion Park - 204 Lynden Rd.	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	\$83	\$99
Waterdown Memorial Hall - 317 Dundas St. E.	3,003	3,003	3,003	3,003	3,003	3,003	3,003	3,003	3,003	3,003	\$442	\$514
Millgrove Community Centre - 855 Millgrove Side. Rd.	4,811	4,811	4,811	4,811	4,811	4,811	4,811	4,811	4,811	4,811	\$278	\$314
Mountsberg Hall - 2133 Centre Rd.	1,432	1,432	1,432	1,432	1,432	1,432	1,432	1,432	1,432	1,432	\$334	\$376
Sealy Park Scout Hall - 115 Main St. S.	3,016	3,016	3,016	3,016	3,016	3,016	3,016	3,016	3,016	3,016	\$382	\$448
Sheffield Community Centre - 2339 5th Concession Rd. W.	2,836	2,836	2,836	2,836	2,836	2,836	2,836	2,836	2,836	2,836	\$383	\$449
Greensville Hall - 283 Brock Rd.	2,867	2,867	2,867	2,867	2,867	2,867	2,867	2,867	2,867	2,867	\$411	\$461
Valens Community Centre - 1818 Valens Rd.	3,180	3,180	3,180	3,180	3,180	3,180	3,180	3,180	3,180	3,180	\$278	\$314
YMCA (207 Parkside Dr.) (50% City Benefit)	43,000	43,000	43,000	43,000	43,000	43,000	43,000	43,000	43,000	43,000	\$167	\$211
Flamborough Seniors Centre 163 Dundas St. E.	-	-	-	-	-	-	-	5,560	5,560	5,560	\$400	\$450
Bernie Morelli Recreation Centre (& Senior's Centre) & outdoor rink/splashpad	-	-	-	-	-	-	-	-	-	50,000	\$479	\$554
Confederation Beach Park & Wild Water Works (10 Facilities)	24,710	24,710	24,710	24,710	24,710	24,710	24,710	24,710	24,710	24,710	\$780	\$887
Confederation Beach Park & Wild Water Works - Park Sheds (13 Facilities)	9,395	9,395	9,395	9,395	9,395	9,395	9,395	9,395	9,395	9,395	\$343	\$405
Confederation Beach Park & Wild Water Works - Admin Building & Main Kiosk	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	\$312	\$370



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Confederation Beach Park & Wild Water Works - Workshop	1,290	1,290	1,290	1,290	1,290	1,290	1,290	1,290	1,290	1,290	\$401	\$468
Chedoke Yard, Storage Bldg., 565 Aberdeen Ave.	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	\$101	\$242
Total	1,902,672	1,937,820	1,948,478	2,083,768	1,955,093	1,955,909	2,281,942	2,320,982	2,314,649	2,378,954		

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	3.6951	3.7581	3.7474	3.9884	3.7150	3.6971	4.2852	4.3228	4.2718	4.3672

10 Year Average	2009-2018
Quantity Standard	3.9848
Quality Standard	\$451
Service Standard	\$1,797

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$1,797
Eligible Amount	\$116,881,157



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities - Buildings Within Parks
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
Park Amenities (sq.ft.)											
Alexander Park - Washroom / Concession / Storage	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	\$780
Cathedral Park - Field House / Washrooms / Storage	1,475	1,475	1,475	1,475	1,475	1,475	1,475	1,475	1,475	1,475	\$780
Highland Gardens Park - Block Storage Hut	124	124	124	124	124	124	124	124	124	124	\$1,400
Escarpment Ward 1 - Utility Structure Associated With C.S.O. Tank Above Chedoke	282	282	282	282	282	282	282	282	282	282	\$638
Bayfront Park - Concession	693	693	693	693	693	693	693	693	693	693	\$147
Bayfront Park - Public Works Storage Building	1,398	1,398	1,398	1,398	1,398	1,398	1,398	1,398	1,398	1,398	\$90
Bayfront Park - Storage Building West Of Yacht Club	455	455	455	455	455	455	455	455	455	455	\$147
Bayfront Park - Washroom At Parking Lot With Roof Top Lookout	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	\$780
Bayfront Park - Yacht Club Building	3,813	3,813	3,813	3,813	3,813	3,813	3,813	3,813	3,813	3,813	\$191
Broughton Park East - Sunshelter With Storage Building	671	671	671	671	671	671	671	671	671	671	\$147
Jack C. Beemer Park Washroom & Concession	-	-	-	-	-	2,000	2,000	2,000	2,000	2,000	\$780
Carter Park - Washrooms / Storage	333	333	333	333	333	333	333	333	333	333	\$780
Central Park - Block Building With Concession Area & Shelter	695	695	695	695	695	695	695	695	695	695	\$147
Corktown Park - Washrooms / Storage	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546	\$780
Eastwood Park- Concession	2,777	2,777	2,777	2,777	2,777	2,777	2,777	2,777	2,777	2,777	\$147
Ferguson Ave Shelter - Pavilion	4,205	4,205	4,205	4,205	4,205	4,205	4,205	4,205	4,205	4,205	\$147
Jackie Washington Rotary Park - Washrooms / Concession	678	678	678	678	678	678	678	678	678	678	\$147
Pier 4 Park - Gartshore - Thomson Building	1,975	1,975	1,975	1,975	1,975	1,975	1,975	1,975	1,975	1,975	\$212
Shamrock Park - Storage	156	156	156	156	156	156	156	156	156	156	\$147
Belview Park - Utility Building For Spray Pad And Supie	365	365	365	365	365	365	365	365	365	365	\$355
Lucy Day Park - Storage/Utility/Washroom	351	351	351	351	351	351	351	351	351	351	\$355
Myrtle Park - Pavilion/Storage	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	\$147



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities - Buildings Within Parks
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
Powell Park - Washrooms, Small Meeting Space, Storage	4,305	4,305	4,305	4,305	4,305	4,305	4,305	4,305	4,305	4,305	\$147
Woodlands Park - Concession / Washrooms	2,495	2,495	2,495	2,495	2,495	2,495	2,495	2,495	2,495	2,495	\$780
Andrew Warburton Memorial Park - Storage/Utility Building With Sun Shelter	688	688	688	688	688	688	688	688	688	688	\$147
Globe Park - Storages	424	424	424	424	424	424	424	424	424	424	\$90
Globe Park - Washrooms / Changerooms	1,765	1,765	1,765	1,765	1,765	1,765	1,765	1,765	1,765	1,765	\$780
Mahony Park - Storage For Batting Cage	139	139	139	139	139	139	139	139	139	139	\$90
Mahony Park - Washrooms	2,941	2,941	2,941	2,941	2,941	2,941	2,941	2,941	2,941	2,941	\$780
Montgomery Park - Washroom / Storage / Concession	2,788	2,788	2,788	2,788	2,788	2,788	2,788	2,788	3,770	3,770	\$780
Normanhurst Community Centre	2,885	2,885	2,885	2,885	2,885	2,885	2,885	2,885	2,885	-	\$459
Roxborough Park - Washroom / Storage / Concession	1,184	1,184	1,184	1,184	1,184	1,184	1,184	1,184	1,184	1,184	\$780
St. Christopher's Park - Storage With Sunshelter	652	652	652	652	652	652	652	652	652	652	\$147
Woodward Park - Washroom / Sun Shelter	667	667	667	667	667	667	667	667	667	667	\$780
Buchanan Park - Storage	125	125	125	125	125	125	125	125	125	125	\$147
Buchanan Park - Washroom And Changeroom Facility	-	-	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959	\$780
Gilkson Park - Small Storage Next To Playground	274	274	274	274	274	274	274	274	274	274	\$90
Gilkson Park - Small Utility Shed Next To Ball Diamond At Street	100	100	100	100	100	100	100	100	100	100	\$90
Gilkson Park - Washrooms And Utility For Spray Pad	1,234	1,234	1,234	1,234	1,234	1,234	1,234	1,234	1,234	1,234	\$780
Gourley Park - Washroom / Storage / Concession	1,377	1,377	1,377	1,377	1,377	1,377	1,377	1,377	1,377	1,377	\$780
Mountview Park - Storage / Pavilion	557	557	557	557	557	557	557	557	557	557	\$147
Scenic Parkette - Storage	1,129	1,129	1,129	1,129	1,129	1,129	1,129	1,129	1,129	1,129	\$147
Shawinigan Park - Storage And Sunshelter	684	684	684	684	684	684	684	684	684	684	\$147
William Mcculloch Park - Change / Washroom	372	372	372	372	372	372	372	372	372	372	\$780
William Mcculloch Park - Storage	224	224	224	224	224	224	224	224	224	224	\$90
Veevers Park - Sunshelter With Storage Building	671	671	671	671	671	671	671	671	671	671	\$147



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities - Buildings Within Parks
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
Sam Manson Park - Washroom / Storage Building	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	3,250	\$780
Rosedale Park - Bocce / Small Building / Baseball Storage And Field House	-	-	-	-	-	5,699	5,699	5,699	5,699	5,699	\$139
Rosedale Park - Utility Bldg For Cso Tank	990	990	990	990	990	990	990	990	990	990	\$147
Rosedale Park - Utility Bldg For New Cso Tank Behind Arena	-	-	-	-	-	879	879	879	879	879	\$147
Father Sean O'Sullivan Park - Bocce Storage Shed	-	-	-	-	-	100	100	100	100	100	\$90
Father Sean O'Sullivan Park - Water Chamber Structure	-	-	-	-	-	72	72	72	72	72	\$147
Glendale Park - Spray Pad Utility Building / Storage	683	683	683	683	683	683	683	683	683	683	\$147
Beach Strip Open Space - Washroom Utility Building For Trail System	1,827	1,827	1,827	1,827	1,827	1,827	1,827	1,827	1,827	1,827	\$780
Billy Sherring Park - Sunshelter Washroom Building	1,405	1,405	1,405	1,405	1,405	1,405	1,405	1,405	1,405	1,405	\$780
Bruce Park - Washrooms / Changerooms	1,903	1,903	1,903	1,903	1,903	1,903	1,903	1,903	1,903	1,903	\$780
Eastmount Community Centre	2,413	2,413	2,413	2,413	2,413	2,413	2,413	2,413	2,413	2,413	\$511
Eleanor Park - Washroom / Storage / Utility	688	688	688	688	688	688	688	688	688	688	\$780
Elmar Park - Park Water Chamber Bldg	-	-	-	-	-	72	72	72	72	72	\$199
Macassa Park - Washroom / Storage	4,075	4,075	4,075	4,075	4,075	4,075	4,075	4,075	4,075	4,075	\$780
Sackville Hill Memorial Park - Bocce Storage Shed	150	150	150	150	150	150	150	150	150	150	\$90
Sackville Hill Memorial Park - Changeroom / Washrooms / Parks Staff Area	-	-	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	\$780
Sackville Hill Memorial Park - Garbage Storage (Associated with Facility & Park Services)	400	400	400	400	400	400	400	400	400	400	\$68
Sackville Hill Memorial Park - Storage Garage Used By Parks	500	500	500	500	500	500	500	500	500	500	\$147
T.B. Mcquesten Park - Storage / Washroom / Utility	4,336	4,336	4,336	4,336	4,336	4,336	4,336	4,336	4,336	4,336	\$780



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities - Buildings Within Parks
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
William Schwenger Washroom	-	-	-	-	-	-	-	-	-	800	\$780
Trieste Bocce Club - Bocce Court	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	\$147
Trieste Bocce Club - Clubhouse	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	\$147
William Connell Park Buildings (2: 1 public washroom & 1 fieldhouse building with showers & changerooms)	-	-	-	-	-	-	-	-	-	7,000	\$431
Mohawk Sports Park - Bernie Arbour Stadium / Changerooms / Concessions / Washrooms	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	\$355
Mohawk Sports Park - Building B - Rugby Field House / Changerooms / Washrooms	2,784	2,784	2,784	2,784	2,784	2,784	2,784	2,784	2,784	2,784	\$780
Mohawk Sports Park - Building C - Small Parks Utility Building Behind The Soccer Field House	1,711	1,711	1,711	1,711	1,711	1,711	1,711	1,711	1,711	1,711	\$355
Mohawk Sports Park - Building D - Track And Field Entrance Building	6,545	6,545	6,545	6,545	6,545	6,545	6,545	6,545	6,545	6,545	\$147
Mohawk Sports Park - Small Storage Structure Adjacent To Scorer's Booth	143	143	143	143	143	143	143	143	143	143	\$147
Mohawk Sports Park - Small Structure Next To Rugby Building	158	158	158	158	158	158	158	158	158	158	\$90
Mohawk Sports Park - Soccer Field House Building / Storage For Parks	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	\$212
Mohawk Sports Park - Storage - Most Southerly Building Between 2 Ball Diamonds	243	243	243	243	243	243	243	243	243	243	\$90
Mohawk Sports Park - Storage / Office Space	1,565	1,565	1,565	1,565	1,565	1,565	1,565	1,565	1,565	1,565	\$147
Berrisfield Park - Utility Building For Spray Pad And Supie	688	688	688	688	688	688	688	688	688	688	\$251
Bobby Kerr Park - Storage - 3 Structures Side By Side	383	383	383	383	383	383	383	383	383	383	\$147
New Bobby Kerr Washroom Building	-	-	-	-	-	-	-	-	900	900	\$780
Highview Park - Storage Shed	63	63	63	63	63	63	63	63	63	63	\$90
Lisgar Park - Bocce Building	-	-	-	-	-	765	765	765	765	765	\$147
Lisgar Park - Sun Shelter / Storage / Utility / Washrooms	690	690	690	690	690	690	690	690	690	690	\$147



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities - Buildings Within Parks
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
Mountain Drive Park - Washrooms / Storage	2,152	2,152	2,152	2,152	2,152	2,152	2,152	2,152	2,152	2,152	\$780
Templemead Park - Storage	138	138	138	138	138	138	138	138	138	138	\$90
Trenholme - Splashpad Equipment Building	-	-	-	50	50	50	50	50	50	50	\$251
Trenholme Park - Bocce Storage Shed	302	302	302	302	302	302	302	302	302	302	\$90
Trenholme Park - Public Washrooms	-	-	-	-	-	-	-	-	852	852	\$780
Victoria Park - Washroom / Concession At South End Of Park (Also secondary storage building near baseball diamond)	1,982	1,982	1,982	1,982	1,982	1,982	1,982	1,982	1,982	1,982	\$780
Chedoke Golf - Golf Shelter - 113753	198	198	198	198	198	198	198	198	198	198	\$68
Chedoke Golf - Storage - 110526	1,217	1,217	1,217	1,217	1,217	1,217	1,217	1,217	1,217	1,217	\$90
Chedoke Golf - Storage - 111373	130	130	130	130	130	130	130	130	130	130	\$147
Chedoke Golf - Storage - 111427	771	771	771	771	771	771	771	771	771	771	\$147
Chedoke Golf - Storage - 121640	195	195	195	195	195	195	195	195	195	195	\$147
Chedoke Golf - Storage - 124650	435	435	435	435	435	435	435	435	435	435	\$147
Chedoke Golf - Washrooms - 114305	548	548	548	548	548	548	548	548	548	548	\$780
Chedoke Golf - Washrooms - 126793	724	724	724	724	724	724	724	724	724	724	\$780
Chedoke Golf - Washrooms / Storage - 125141	396	396	396	396	396	396	396	396	396	396	\$780
Kings Forest Golf Club - Maintenance Building	6,474	6,474	6,474	6,474	6,474	6,474	6,474	6,474	6,474	6,474	\$296
Kings Forest Golf Club - Storage / Office	1,211	1,211	1,211	1,211	1,211	1,211	1,211	1,211	1,211	1,211	\$90
Kings Forest Golf Club - Storage Quonset	2,084	2,084	2,084	2,084	2,084	2,084	2,084	2,084	2,084	2,084	\$90
Churchill Park - Cricket Club's Storage Buildings (2)	271	271	271	271	271	271	271	271	271	271	\$147
Churchill Park - Garden Shed	138	138	138	138	138	138	138	138	138	138	\$147
Churchill Park - Small Storage Shed To East Of Main Building	182	182	182	182	182	182	182	182	182	182	\$147
Churchill Park - Storage Shed	110	110	110	110	110	110	110	110	110	110	\$147
Churchill Park - Washroom / Changeroom	857	857	857	857	857	857	857	857	857	857	\$780
HAAA - Field House/Changeroom/Washrooms	5,356	5,356	5,356	5,356	5,356	5,356	5,356	5,356	5,356	5,356	\$780
HAAA - Shelter For Tennis Court Area	265	265	265	265	265	265	265	265	265	265	\$276
Rosedale Tennis - Small Entrance Structure Attached To Tennis Bubble	205	205	205	205	205	205	205	205	205	205	\$276



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities - Buildings Within Parks
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
Rosedale Tennis Club Bubble Structure	23,065	23,065	23,065	23,065	23,065	23,065	23,065	23,065	23,065	23,065	\$75
Gage Park - 2 Storage Bldgs, 1 Concrete Stucco And 1 Block	202	202	202	202	202	202	202	202	202	202	\$147
Gage Park - New Baseball Changeroom Building By Parking Lot	867	867	867	867	867	867	867	867	867	867	\$147
Gage Park - Small Building South Of Baseball Change Rooms	158	158	158	158	158	158	158	158	158	158	\$90
Gage Park - Small Storage Shed Next To Lawn Bowling Club House	194	194	194	194	194	194	194	194	194	194	\$90
Gage Park - Small Structure North Of Tennis Courts	342	342	342	342	342	342	342	342	342	342	\$147
Gage Park - Washroom, Utility Building For Wading Pool And Spray Pad	480	480	480	480	480	480	480	480	480	480	\$780
Gage Park - Washrooms / Storage	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	\$780
Turner Park - Washrooms	-	-	-	-	900	900	900	900	900	1,800	\$780
Sam Manson Park - Bocce Storage Building	-	-	-	-	-	-	-	-	100	100	\$91
Sam Manson Park - Cocce Club House Building	-	-	-	-	-	-	-	-	1,350	1,350	\$780
Riverdale East Park Bocce Storage Building - 135 Vittorio Ave.	312	312	312	312	312	312	312	312	312	312	\$91
Glen Castle Park Bocce Storage Building - 30 Glen Castle Dr.	100	100	100	100	100	100	100	100	100	100	\$91
Dave Andreychuk Mountain Arena Bocce Storage Building - 25 Hester St.	190	190	190	190	190	190	190	190	190	190	\$91
Winona Park - Picnic Pavilion In Woods Area (Ward 11)	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	\$68
Winona Park - Storage	630	630	630	630	630	630	630	630	630	630	\$147
Battlefield Park - Washroom / Concession	3,350	3,350	3,350	3,350	3,350	3,350	3,350	3,350	3,350	3,350	\$780
Eastdale Park - Bocce / Washroom / Storage	-	-	-	-	-	580	580	580	580	580	\$780
Ferris Park - Bocce Club Bldg	-	-	-	-	-	592	592	592	592	592	\$780
Heritage Green Community Sports Park - Parks Works Building	396	396	396	396	396	396	396	396	396	396	\$251



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities - Buildings Within Parks
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
Heritage Green Community Sports Park - Washrooms / Storage / Utilities	-	-	-	-	-	5,213	5,213	5,213	5,213	5,213	\$780
Little League Park - Storage	499	499	499	499	499	499	499	499	499	499	\$147
Little League Park - Tennis Club House (Stoney Creek)	2,274	2,274	2,274	2,274	2,274	2,274	2,274	2,274	2,274	2,274	\$147
Maplewood Park - Storage/Washroom	141	141	141	141	141	141	141	141	141	141	\$147
Memorial Park - Bocce Building (87 Glen Cannon Dr.)	-	-	-	-	-	141	141	141	141	141	\$147
Stoney Creek Storage Building & Workshop (77 King St. West at Battlefield Park)	284	284	284	284	284	284	284	284	284	284	\$296
Valley Park - Washroom / Changeroom	141	141	141	141	141	141	141	141	141	141	\$780
Ancaster Little League Park Fieldhouse (Washroom / Storage / Concession)	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099	\$780
Ancaster Community Centre Park Fieldhouse (Washroom / Maintenance / Storage / Concession)	1,112	1,112	1,112	1,112	1,112	1,112	1,112	1,112	1,112	1,112	\$780
Small Storage (Village Green) - 291 Lodor St.	118	118	118	118	118	118	118	118	118	118	\$91
Dundas Driving Park - Baseball Washroom/Concession	1,279	1,279	1,279	1,279	1,279	1,279	1,279	1,279	1,279	1,279	\$780
Dundas Driving Park - Pavilion - 160003	1,225	1,225	1,225	1,225	1,225	1,225	1,225	1,225	1,225	1,225	\$147
Dundas Driving Park - Splash Pad Utility	-	-	-	206	206	206	206	206	206	206	\$147
Dundas Driving Park - Washroom	105	105	105	105	105	105	105	105	105	105	\$780
Edwards Park - Storage / Concession	809	809	809	809	809	809	809	809	809	809	\$199
Martino Memorial Park - Washrooms And Changerooms	930	930	930	930	930	930	930	930	930	930	\$780
Martino Memorial Park - Washrooms And Concession Booth	1,832	1,832	1,832	1,832	1,832	1,832	1,832	1,832	1,832	1,832	\$780
Sanctuary Park - Washrooms (may possibly be closed most seasons)	700	700	700	700	700	700	700	700	700	700	\$780
Veterans Park - Storage / Concession	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205	1,205	\$199
Binbrook Park - Ball Park Washroom	250	250	250	250	250	250	250	250	250	250	\$780



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities - Buildings Within Parks
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
Glanbrook Sports Park - Concession / Washrooms	505	505	505	505	505	505	505	505	505	505	\$780
Woodburn Ball Park - Concession / Washroom	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120	1,120	\$780
Flamborough Centre Park - Garage / Washroom / Concession	436	436	436	436	436	436	436	436	436	436	\$780
Freelton Community Park - Outdoor rink / Washrooms	-	-	-	-	-	-	-	3,240	3,240	3,240	\$1,147
Freelton Community Park - Storage	120	120	120	120	120	120	120	120	120	120	\$90
Freelton Community Park - Storage Building #2	120	120	120	120	120	120	120	120	120	120	\$147
Gatesbury Park - Washrooms (operationally closed)	700	700	700	700	700	700	700	700	700	700	\$780
Joe Sam's Leisure Park - Washroom And Storage / Snack Bar	1,795	1,795	1,795	1,795	1,795	1,795	1,795	1,795	1,795	1,795	\$780
Lynden Lions South Park - Lions Community Hall	2,280	2,280	2,280	2,280	2,280	2,280	2,280	2,280	2,280	2,280	\$417
Lynden Lions South Park - Washroom/Concession North End Of Park	1,167	1,167	1,167	1,167	1,167	1,167	1,167	1,167	1,167	1,167	\$780
Millgrove Park - Pavilion / Concession	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	\$120
Millgrove Park - Small Storage / Washroom Between The Diamonds	280	280	280	280	280	280	280	280	280	280	\$780
Millgrove Park - Washrooms	436	436	436	436	436	436	436	436	436	436	\$780
Sheffield Ball Park - Concession / Shelter	1,161	1,161	1,161	1,161	1,161	1,161	1,161	1,161	1,161	1,161	\$199
Strabane Community Park - Washroom / Concession / Storage	900	900	900	900	900	900	900	900	900	900	\$780
Tower Park - Storage	140	140	140	140	140	140	140	140	140	140	\$147
Waterdown Memorial Park - Storage Shed	88	88	88	88	88	88	88	88	88	88	\$90
Waterdown Memorial Park & Ice Loop- Washroom / Storage / Utility For Ice Plant and Spraypad	-	-	-	-	-	1,610	1,610	1,610	1,610	1,610	\$1,938
Carlisle Memorial Park - Storage For Grass Cutting Equipment	632	632	632	632	632	632	632	632	632	632	\$147



**City of Hamilton
Service Standard Calculation Sheet**

Service: Indoor Recreation Facilities - Buildings Within Parks
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
Carlisle Memorial Park - Washroom Building East Of The Storage Garage	155	155	155	155	155	155	155	155	155	155	\$780
Centennial Heights Park - 2nd. Flr Concession Booth / Lower Level Washrooms / Utility Room	528	528	528	528	528	528	528	528	528	528	\$780
Bullocks Corner Park - Storage / Concession	280	280	280	280	280	280	280	280	280	280	\$120
Bullocks Corner Park - Washroom / Storage And Utility Building	1,367	1,367	1,367	1,367	1,367	1,367	1,367	1,367	1,367	1,367	\$780
Beverly Park - Concession - Located South West Corner Of Parking Lot	600	600	600	600	600	600	600	600	600	600	\$199
Beverly Park - Football Portable Changeroom North Building	817	817	817	817	817	817	817	817	817	817	\$199
Beverly Park - Football Portable Changeroom South Building	831	831	831	831	831	831	831	831	831	831	\$199
Beverly Park - Storage Garage At Entrance To Park	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	\$199
Beverly Park - Tennis Clubhouse	605	605	605	605	605	605	605	605	605	605	\$142
Beverly Park - Washrooms - Located North West Corner Of Parking Lot	300	300	300	300	300	300	300	300	300	300	\$780
Total	204,340	204,340	210,299	210,555	211,455	229,178	229,178	232,418	236,602	242,417	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.397	0.396	0.405	0.403	0.402	0.433	0.430	0.433	0.437	0.445

10 Year Average	2009-2018
Quantity Standard	0.4181
Quality Standard	\$428
Service Standard	\$179

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$179
Eligible Amount	\$11,639,982



**City of Hamilton
Service Standard Calculation Sheet**

Service: Recreation Vehicles and Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
140A - Ice Edger	9	14	15	17	19	20	20	21	21	21	\$5,500
Snow Blower	12	13	13	13	15	15	15	16	18	18	\$1,200
Clark Focus 11	2	2	2	2	3	3	3	3	3	3	\$8,400
Clark Focus L20	-	-	-	-	-	1	1	3	3	3	\$8,400
Micro Mag 20-D	1	1	1	1	2	2	2	2	2	2	\$8,400
Magnum 34-D Scrubber	-	-	-	1	1	1	1	1	1	1	\$8,400
Magnum 26-D Scrubber	-	-	-	1	1	1	1	1	1	1	\$8,400
Nobles	-	-	-	-	-	1	1	1	1	1	\$8,400
Nobles Speed Scrub	-	-	-	-	1	2	2	3	3	3	\$8,400
Nobles SS3	-	-	-	-	-	1	1	1	1	1	\$8,400
Numatic International	-	-	-	-	-	1	1	1	1	1	\$8,400
Speed Scrubber 1701 Plus	1	1	1	1	1	1	1	1	1	1	\$8,400
Tomcat 2000	2	2	2	2	2	2	2	2	2	2	\$8,400
Tomcat 2300 Version 3.0	1	1	1	1	1	1	1	1	1	1	\$8,400
Tomcat 20-D	1	1	1	1	1	1	1	1	1	1	\$8,400
Tomcat 26-D	1	1	1	1	1	1	1	1	1	1	\$8,400
Tomcat Mini Mag 21-2500	1	1	1	1	1	1	1	1	1	1	\$8,400
Tomcat Mini Mag 26-D	2	2	2	2	2	2	2	2	2	2	\$8,400
Tomcat Magnum 34D	-	-	-	1	1	1	1	1	1	1	\$8,400
Viper	-	-	-	-	-	1	1	1	1	1	\$8,400
Total	33	39	40	45	52	59	59	64	66	66	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010

10 Year Average	2009-2018
Quantity Standard	0.0001
Quality Standard	\$5,300
Service Standard	\$0.53

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$0.53
Eligible Amount	\$34,474



**City of Hamilton
Service Standard Calculation Sheet**

Service: Library Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Hamilton												
Central - 55 York Blvd.	146,131	185,978	185,978	185,978	185,978	185,978	185,978	185,978	185,978	185,978	\$316	\$517
Barton - 571 Barton St. E.	7,612	7,612	7,612	7,612	7,612	7,612	7,612	7,612	7,612	7,612	\$426	\$674
Concession - 565 Concession St.	8,316	8,316	8,316	8,316	8,316	8,316	8,316	8,316	8,316	8,316	\$426	\$674
Kenilworth - 103 Kenilworth Ave.	7,960	7,960	7,960	7,960	7,960	7,960	7,960	7,960	7,960	7,960	\$426	\$674
Locke - 285 Locke St. S.	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,486	\$426	\$674
Picton (CLOSED)	3,172	-	-	-	-	-	-	-	-	-	\$426	\$674
Red Hill - 695 Queenston Rd.	11,760	11,760	11,760	11,760	11,760	11,760	11,760	11,760	11,760	11,760	\$316	\$517
Sherwood - 467 Upper Ottawa	20,400	20,400	20,400	20,400	20,400	20,400	20,400	20,400	20,400	20,400	\$316	\$517
Terryberry - 100 Mohawk Rd. E.	28,109	28,109	28,109	28,109	28,109	28,109	28,109	28,109	28,109	28,109	\$316	\$517
Westdale - 955 King St. W.	10,277	10,277	10,277	10,277	10,277	10,277	10,277	10,277	10,277	10,277	\$316	\$517
Turner Park Library - 352 Rymal Rd. E.	24,116	24,116	24,116	24,116	24,116	24,116	24,116	24,116	24,116	24,116	\$316	\$517
Stoney Creek												
Stoney Creek Town Hall Library - 777 Highway 8	15,739	15,739	15,739	15,739	15,739	15,739	15,739	15,739	15,739	15,739	\$316	\$517
Saltfleet Library - 131 Gray Rd.	15,645	15,645	15,645	15,645	11,573	11,573	11,573	11,573	11,573	11,573	\$316	\$517
Valley Park Library - 970 Paramount Dr.	2,976	2,976	2,976	2,976	2,976	2,976	2,976	2,976	2,976	2,976	\$426	\$674
Ancaster												
Library (300 Wilson St. East)	13,153	13,153	13,153	13,153	13,153	13,153	13,153	13,153	13,153	13,153	\$316	\$517
Dundas												
Dundas Public Library (Ogilvie St.)	13,712	13,712	13,712	13,712	13,712	13,712	13,712	13,712	13,712	13,712	\$316	\$517
Glanbrook												
Mount Hope - 3027 Homestead Dr.	2,631	2,631	2,631	2,631	2,631	2,631	2,631	2,631	2,631	2,631	\$426	\$655
Binbrook - 2641 Highway 56	2,958	2,958	2,958	2,958	2,958	2,958	2,958	2,958	2,958	5,977	\$426	\$655
Flamborough												
Waterdown - 25 Mill St. N.	3,637	3,637	3,637	3,637	3,637	3,637	-	-	-	-	\$426	\$674
Waterdown - 163 Dundas St E	-	-	-	-	-	-	17,813	17,813	17,813	17,813	\$316	\$517
Greenville - 59 Kirby Ave.	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	\$426	\$655



**City of Hamilton
Service Standard Calculation Sheet**

Service: Library Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Freelton - 1803 Brock Rd.	1,946	1,946	1,946	1,946	1,946	1,946	1,946	1,946	1,946	1,946	\$426	\$655
Carlisle - 1496 Centre Rd.	2,379	2,379	2,379	2,379	2,379	2,379	2,379	2,379	2,379	2,379	\$426	\$655
Rockton - 795 Old Highway 8	778	778	778	778	-	-	-	-	-	-	\$426	\$655
Millgrove - 857 Millgrove Side Rd.	1,672	1,672	1,672	1,672	1,672	1,672	-	-	-	-	\$426	\$655
Lynden - 79 Lynden Rd.	900	900	900	900	900	-	-	-	-	-	\$426	\$655
Lynden - 110 Lynden Rd.	-	-	-	-	-	4,000	4,000	4,000	4,000	4,000	\$426	\$655
Total	349,964	386,639	386,639	382,265	377,415	380,515	393,019	393,019	393,019	396,038		

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.6797	0.7498	0.7436	0.7317	0.7172	0.7193	0.7380	0.7320	0.7253	0.7270

10 Year Average	2009-2018
Quantity Standard	0.7264
Quality Standard	\$536
Service Standard	\$389

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$389
Eligible Amount	\$25,303,544



**City of Hamilton
Service Standard Calculation Sheet**

Service: Library Vehicles
Unit Measure: No. of library collection items

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Bookmobile	2	2	2	2	2	2	2	2	2	2	\$550,000
022-VAN 1/2 T	2	2	2	2	2	2	2	2	2	2	\$41,800
023-VAN 3/4 T	1	1	1	1	1	1	1	1	1	-	\$41,800
Ford E-450 Style Truck & Body	-	-	-	-	-	-	-	-	-	2	\$55,000
Genie Boom	-	-	-	-	-	-	-	1	1	1	\$20,400
Skyjack	-	-	-	-	-	-	-	1	1	1	\$20,400
Total	5	7	7	8							

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00002

10 Year Average	2009-2018
Quantity Standard	0.00001
Quality Standard	\$214,545
Service Standard	\$2

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$2
Eligible Amount	\$153,509



**City of Hamilton
Service Standard Calculation Sheet**

Service: Library Collection Materials
Unit Measure: No. of library collection items

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Books - Adult	531,736	501,456	478,540	441,166	440,537	399,516	409,508	370,450	389,122	407,794	\$51
Books - Teen	43,324	42,292	41,992	38,728	41,458	29,140	22,201	19,147	20,770	22,393	\$33
Books - Children	322,052	151,664	141,740	258,520	254,288	238,459	234,284	213,686	154,283	213,686	\$14
Audio Books - Adult	13,516	9,889	10,953	8,084	7,606	17,348	10,133	12,949	15,765	18,581	\$39
Audio Books - Children	3,465	2,276	2,328	3,289	3,493	817	814	616	551	486	\$32
Accessible Materials	8,574	8,427	6,249	15,482	12,405	19,729	19,231	20,211	15,459	17,835	\$32
Periodicals	72,554	72,852	74,517	72,706	78,389	83,696	83,735	67,651	61,948	56,245	\$14
CDs	48,487	48,724	53,012	55,817	58,621	57,455	71,204	64,666	63,104	61,542	\$20
DVDs	95,061	90,344	110,511	134,895	143,434	134,335	133,975	124,457	130,293	136,129	\$20
Blurays	2,367	2,737	4,368	8,888	12,806	15,336	15,349	16,175	17,779	19,383	\$30
Video Game - Adult & Teen	458	741	1,023	1,968	2,413	2,266	2,179	2,344	1,909	1,474	\$69
Video Game - Children	929	692	455	1,566	2,143	2,308	2,245	2,284	2,169	2,054	\$67
eBooks	581	1,997	6,254	18,342	60,316	63,636	96,733	102,128	102,790	103,452	\$40
eAudiobook	3,892	3,589	4,116	5,871	6,621	10,066	15,301	16,154	16,259	16,364	\$136
eMagazines	-	-	-	-	5,733	19,535	20,568	21,601	22,454	23,307	\$9
Databases	73	71	27	21	51	50	45	24	24	24	\$30,000
Total	1,147,069	937,751	936,085	1,065,343	1,130,314	1,093,692	1,137,505	1,054,543	1,014,679	1,100,749	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	2.23	1.82	1.80	2.04	2.15	2.07	2.14	1.96	1.87	2.02

10 Year Average	2009-2018
Quantity Standard	2.0094
Quality Standard	\$35
Service Standard	\$71

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$71
Eligible Amount	\$4,603,305



**City of Hamilton
Service Standard Calculation Sheet**

Service: Paramedics Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Station #1 - 35 - 43 John Street North	1,700	1,700	1,700	1,700	1,700	1,700	4,046	4,046	4,046	4,046	\$221	\$270
Station #3 Ambulance, 965 Garth St.	1,887	1,887	1,887	1,887	1,887	1,887	1,887	1,887	1,887	1,887	\$287	\$343
Station #4 Ambulance, 729 Upper Sherman	3,867	3,867	3,867	3,867	3,867	3,867	3,867	3,867	3,867	3,867	\$256	\$309
Station #7 Ambulance, 225 Quigley Rd.	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	\$297	\$354
Station #9 Ambulance, 125 Kenilworth Ave. N.	1,435	1,435	1,435	1,435	1,435	1,435	1,435	1,435	1,435	1,435	\$256	\$309
Station #10 Ambulance, Norfolk Ave.	1,364	1,364	1,364	1,364	1,364	1,364	1,364	1,364	1,364	1,364	\$282	\$337
Station #12 Ambulance, 199 Highway 8 Stoney Creek	-	2,983	2,983	2,983	2,983	2,983	2,983	2,983	2,983	2,983	\$234	\$284
Station #15 Ambulance, 415 Arvin Ave.	2,519	2,519	2,519	2,519	2,519	2,519	2,519	2,519	2,519	2,519	\$284	\$340
Station #17 Ambulance, 363 Isaac Brock St.	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	\$284	\$340
Station #18 Ambulance, 2636 (2640) Highway 56 Binbrook	-	2,737	2,737	2,737	2,737	2,737	2,737	2,737	2,737	2,737	\$247	\$299
Station #19 Ambulance, 3302 Homestead Rd.	1,483	1,483	1,483	1,483	1,483	1,483	1,483	1,483	1,483	1,483	\$307	\$346
Station #20 Ambulance, 365 Wilson St. W.	1,996	1,996	1,996	1,996	1,996	1,996	1,996	1,996	1,996	1,996	\$323	\$383
Station #21 Ambulance, Garner Rd., Ancaster	3,124	3,124	3,124	3,124	3,124	3,124	3,124	3,124	3,124	3,124	\$256	\$309
Station #23 Ambulance, Memorial Square	2,836	2,836	2,836	2,836	2,836	2,836	2,836	2,836	2,836	2,836	\$250	\$302
Station #24 Ambulance, 265 Parkside Dr.	2,098	2,098	2,098	2,098	2,098	2,098	2,098	2,098	2,098	2,098	\$422	\$492
Station #25 Ambulance, 361 Old Brock Rd.	-	878	878	878	878	878	878	878	878	878	\$254	\$306
Station #26 Ambulance, Lynden	-	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	\$254	\$288
Station #30 Ambulance, 489 Victoria Ave. N.	18,558	18,558	18,558	18,558	18,558	18,558	18,558	18,558	18,558	18,558	\$226	\$276
Station #32 Ambulance, 1000 Limeridge Rd.	-	-	7,060	7,060	7,060	7,060	7,060	7,060	7,060	7,060	\$260	\$313
Stoney Creek Mountain Training Facility (Shared Building B)	-	-	8,091	8,091	8,091	8,091	7,280	7,280	7,280	7,280	\$316	\$364
Total	45,044	52,845	67,996	67,996	67,996	67,996	69,531	69,531	69,531	69,531		

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0875	0.1025	0.1308	0.1301	0.1292	0.1285	0.1306	0.1295	0.1283	0.1276

10 Year Average	2009-2018
Quantity Standard	0.1225
Quality Standard	\$314
Service Standard	\$39

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$39
Eligible Amount	\$2,505,572



**City of Hamilton
Service Standard Calculation Sheet**

Service: Paramedics Vehicles & Equipment
Unit Measure: No. of vehicles and equipment

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
Emergency Support Unit	1	2	2	2	2	2	2	2	2	2	\$80,100
Defibrillators	52	52	52	52	65	65	65	65	65	65	\$30,100
Vehicle Equipment	93	93	93	93	93	93	93	93	93	93	\$5,500
Ambulances	30	30	31	31	32	36	37	41	41	41	\$268,000
Stryker Power Stretchers	-	-	-	-	-	-	2	50	50	50	\$22,400
Emergency Response Vehicles	16	16	16	17	19	19	16	17	17	17	\$108,000
Transport Van	-	-	-	-	-	-	3	3	3	3	\$63,200
Stryker Power Load Systems	-	-	-	-	-	-	2	40	40	40	\$26,500
Specialized Training Simulator Equipment	2	2	2	2	2	2	2	2	2	2	\$88,000
Paramedic Gear	22	16	12	18	21	30	34	13	21	37	\$1,200
Total	216	211	208	215	234	247	256	326	334	350	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0005	0.0006	0.0006	0.0006

10 Year Average	2009-2018
Quantity Standard	0.0005
Quality Standard	\$55,200
Service Standard	\$28

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$28
Eligible Amount	\$1,795,270



**City of Hamilton
Service Standard Calculation Sheet**

Service: Long Term Care Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Wentworth Lodge	122,000	122,000	122,000	122,000	122,000	122,000	122,000	122,000	122,000	122,000	\$410	\$478
Macassa Lodge	214,570	214,570	214,570	214,570	214,570	214,570	214,570	214,570	218,760	218,760	\$410	\$478
Total	336,570	340,760	340,760									

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.6536	0.6527	0.6473	0.6442	0.6395	0.6362	0.6320	0.6269	0.6289	0.6256

10 Year Average	2009-2018
Quantity Standard	0.6387
Quality Standard	\$478
Service Standard	\$305

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$305
Eligible Amount	\$19,858,544



**City of Hamilton
Service Standard Calculation Sheet**

Service: Social Housing
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
15, 17 Quinlan Court	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	\$143
192, 218, 242, 277 & 292 Queen Victoria Drive	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	\$138
86 & 88 Lockton Crescent	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	\$157
39, 62 Lawnhurst Drive	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	\$157
104, 140, 193, 212 & 232 Lawnhurst Drive	5,750	5,750	5,750	5,750	5,750	5,750	5,750	5,750	5,750	5,750	\$188
12 Garrow Drive	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	\$188
17 Glen Eden Court	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	\$188
367, 369, 383, 385, 389, 391, 399, 405, & 407 Franklin Road	8,993	8,993	8,993	8,993	8,993	8,993	8,993	8,993	8,993	8,993	\$217
388, 394, 396, 405 & 407 East 22nd Street	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	\$217
371-374, 377, & 379-383 East 22nd Street	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	\$193
392, 396, 398, 404 & 406 East 21st Street	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	\$217
369, 371, 372, 374, 376, 377, 378, 379, 381, 382 & 384 East 21st Street (11 units)	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	11,000	\$193
392, 402, 404, 408 & 412 East 23rd Street	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	\$217
373-375, 378-381 & 384-387 East 23rd Street	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	\$193
51 & 64 Berrisfield Crescent	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	\$215
663 & 665 Upper Wentworth Street	1,998	1,998	1,998	1,998	1,998	1,998	1,998	1,998	1,998	1,998	\$217
637, 639, 641, 643, 647 & 649 Upper Wentworth Street	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	\$193
25 Brewster Street	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	\$215
8 & 10 Cleveland Place	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	\$189
71, 73, 94, 115 & 125 Rand Street	5,643	5,643	5,643	5,643	5,643	5,643	5,643	5,643	5,643	5,643	\$188
12 & 14 Bogart Court	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	\$146
13, 15, 29 & 31 Markham Crescent	4,640	4,640	4,640	4,640	4,640	4,640	4,640	4,640	4,640	4,640	\$189
14 & 16 Arbutus Crescent	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	\$189
18 & 20 Joncaire Place	2,257	2,257	2,257	2,257	2,257	2,257	2,257	2,257	2,257	2,257	\$188
2 Lemoyne Place	1,129	1,129	1,129	1,129	1,129	1,129	1,129	1,129	1,129	1,129	\$188
18 & 20 Brendan Court	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	\$146
24, 48, 80 & 103 Boston Crescent	5,365	5,365	5,365	5,365	5,365	5,365	5,365	5,365	5,365	5,365	\$146
25, 27, 35, 37 & 48 Yorkdale Crescent	5,643	5,643	5,643	5,643	5,643	5,643	5,643	5,643	5,643	5,643	\$188
28 & 48 Odessa Street	2,257	2,257	2,257	2,257	2,257	2,257	2,257	2,257	2,257	2,257	\$187
30, 40 & 58 John Murray Street	3,386	3,386	3,386	3,386	3,386	3,386	3,386	3,386	3,386	3,386	\$125



**City of Hamilton
Service Standard Calculation Sheet**

Service: Social Housing
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
32, 56, 172, 214, 248 & 280 Birchcliffe Crescent	8,047	8,047	8,047	8,047	8,047	8,047	8,047	8,047	8,047	8,047	\$146
33, 52 & 54 William Johnson Street	3,386	3,386	3,386	3,386	3,386	3,386	3,386	3,386	3,386	3,386	\$188
4 & 6 Boon Court	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	\$146
7 & 9 Electra Court	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	\$189
9 Fuller Court	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	\$189
111 & 113 Birchview Drive	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	\$146
31, 66 & 227 Larch Street	4,024	4,024	4,024	4,024	4,024	4,024	4,024	4,024	4,024	4,024	\$146
395 Mohawk Road East, 169 Units, 6 Floors - Building	109,850	109,850	109,850	109,850	109,850	109,850	109,850	109,850	109,850	109,850	\$133
20 Congress Crescent, 110 Units, 10 Floors - Building	107,254	107,254	107,254	107,254	107,254	107,254	107,254	107,254	107,254	107,254	\$135
470 Stone Church Road East, Blocks 1-70, 70 Units	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	\$133
772 Upper Paradise Road - Blocks 1-47, 47 Units	49,117	49,117	49,117	49,117	49,117	49,117	49,117	49,117	49,117	49,117	\$112
580 Limeridge Road, East - Blocks 1-65, 65 Units	68,800	68,800	68,800	68,800	68,800	68,800	68,800	68,800	68,800	68,800	\$129
1100 Limeridge Road East, 57 Units, 4 Floors - Building	41,500	41,500	41,500	41,500	41,500	41,500	41,500	41,500	41,500	41,500	\$239
1150 Limeridge Road, East, Blocks 1-66, 66 Units	66,000	66,000	66,000	66,000	66,000	66,000	66,000	66,000	66,000	66,000	\$109
350 Limeridge Road West, Block 350-362, 7 Units	6,675	6,675	6,675	6,675	6,675	6,675	6,675	6,675	6,675	6,675	\$169
#5 (A-G) Kendale Court (7 Units)	6,675	6,675	6,675	6,675	6,675	6,675	6,675	6,675	6,675	6,675	\$169
97 (a-g), 87 (A-C), 107, 109, 111, 113, 115, 117 Elgar Court (16 Units)	15,257	15,257	15,257	15,257	15,257	15,257	15,257	15,257	15,257	15,257	\$169
89-93 Century Street 96-110 Ashley Street - 10 Units	11,228	11,228	11,228	11,228	11,228	11,228	11,228	11,228	11,228	11,228	\$147
75 Wentworth Street, North - Block 1-40, 40 Units	38,225	38,225	38,225	38,225	38,225	38,225	38,225	38,225	38,225	38,225	\$161
1081 Rymal Road East, Blocks 1-23, 23 Units	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000	\$147
1781 King Street, East - Block 1-18	13,700	13,700	13,700	13,700	13,700	13,700	13,700	13,700	13,700	13,700	\$192



**City of Hamilton
Service Standard Calculation Sheet**

Service: Social Housing
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
211 King Street East (8 Units)	10,310	10,310	10,310	10,310	10,310	10,310	10,310	10,310	10,310	10,310	\$281
67 Ossington Drive - Blocks 1-20, 20 Units	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	\$110
10 Brock Street - Block 1-10, 10 Units	12,300	12,300	12,300	12,300	12,300	12,300	12,300	12,300	12,300	12,300	\$148
1285 Upper Gage Avenue, Blocks 1-2, 13 Units	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	\$177
801 Upper Gage Avenue, 244 Units, 11 Floors - Building	137,115	137,115	137,115	137,115	137,115	137,115	137,115	137,115	137,115	137,115	\$127
25 Towercrest Drive, Blocks 1-64, 64 Units	73,600	73,600	73,600	73,600	73,600	73,600	73,600	73,600	73,600	73,600	\$143
101 Broadway Avenue - Block 1-45, 45 Units	27,650	27,650	27,650	27,650	27,650	27,650	27,650	27,650	27,650	27,650	\$191
430 Cumberland Avenue, 152 Units, 8 Floors	122,513	122,513	122,513	122,513	122,513	122,513	122,513	122,513	122,513	122,513	\$224
162 King William 40 Units	39,570	39,570	39,570	39,570	39,570	39,570	39,570	39,570	39,570	39,570	\$224
1884 & 1900 Main Street, West - 160 units	117,112	117,112	117,112	117,112	117,112	117,112	117,112	117,112	117,112	117,112	\$238
181 Main Street, West - Mall Level (Offices)	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	\$217
191 Main Street & 200 Jackson Street West (CityHousing Hamilton Office Space)	-	-	-	-	-	-	-	-	1,706	3,256	\$200
191 Main Street & 200 Jackson Street West (466 Units)	225,118	225,118	225,118	225,118	225,118	225,118	225,118	225,118	225,118	225,118	\$200
1, 3, 6, 26 Lewis Street (4 units)	3,483	3,483	3,483	3,483	3,483	3,483	3,483	3,483	3,483	3,483	\$250
1 Oriole Crescent - 38 Units	32,049	32,049	32,049	32,049	32,049	32,049	32,049	32,049	32,049	32,049	\$171
2 Oriole Crescent - Block 1-6, 121 Units	107,000	107,000	107,000	107,000	107,000	107,000	107,000	107,000	107,000	107,000	\$163
3 Oriole Crescent	871	871	871	871	871	871	871	871	871	871	\$250
1, 3 & 5 Richard Court	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	\$169
10 & 32 Airdrie Avenue	3,483	3,483	3,483	3,483	3,483	3,483	3,483	3,483	3,483	1,742	\$250
11, 30, 42 & 69 Austin Drive	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	\$169
11, 13, 20, 21, 27, 32, 35, 37 & 59 Bernard Street	8,224	8,224	8,224	8,224	8,224	8,224	8,224	8,224	8,224	8,224	\$238
4, 34, 42, 59, 61, 65 & 70 Bingham Road	6,966	6,966	6,966	6,966	6,966	6,966	6,966	6,966	6,966	6,095	\$250
29 Bingham Road - Block 29-41, 7 Units	6,505	6,505	6,505	6,505	6,505	6,505	6,505	6,505	6,505	6,505	\$160
10, 12, 13, 25, 34, 38, 45, 47, 49, 57 & 65 Eastvale Place	9,578	9,578	9,578	9,578	9,578	9,578	9,578	9,578	9,578	9,578	\$250
10, 12, 14, 16, 20, 25, 27, 41, 45, 48, 54, 62, 64, 66 & 68 Eaton Place	13,931	13,931	13,931	13,931	13,931	13,931	13,931	13,931	13,931	12,292	\$250



**City of Hamilton
Service Standard Calculation Sheet**

Service: Social Housing
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
7, 12, 14, 18, 22, 33, 35, 41, 45, 47, 51, 54, 58, 62 Glengrove Avenue	12,190	12,190	12,190	12,190	12,190	12,190	12,190	12,190	12,190	12,190	\$250
10 & 12 Jutland Court	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	\$189
59 & 63 Kirkland Drive	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	\$169
10 St. Andrews Drive - Block 74-80, (96 units)	94,000	94,000	94,000	94,000	94,000	94,000	94,000	94,000	94,000	94,000	\$162
4, 6, 7, 9, 10, 11, & 15-25 Thorley Drive (17 units)	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	\$169
14, 26, 30, 45, 46, 66, 81, 82, 85, 102, 106 & 169 Bellingham Drive	17,950	17,950	17,950	17,950	17,950	17,950	17,950	17,950	17,950	16,569	\$170
102 & 118 Reid Avenue North	871	871	871	871	871	871	871	871	871	871	\$250
41 Reid Street North, - Block 1-16 (16 units)	11,340	11,340	11,340	11,340	11,340	11,340	11,340	11,340	11,340	11,340	\$182
11 Reid Avenue South - Block 11-17, 4 Units	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	\$139
103 & 105 Chilton Drive (2 Units)	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	2,320	\$189
104 Osler Drive, 29 Units, 2 Floors (29 Units)	15,160	15,160	15,160	15,160	15,160	15,160	15,160	15,160	15,160	15,160	\$179
109 Fiddlers Green Road, 45 Units, 2 Floors	21,600	21,600	21,600	21,600	21,600	21,600	21,600	21,600	21,600	21,600	\$198
280 Fiddlers Green Road - Block 1-16 (16 Units)	6,125	6,125	6,125	6,125	6,125	6,125	6,125	6,125	6,125	6,125	\$130
9, 11, 19, 27, 30 Grimsby Avenue (5 Units)	5,224	5,224	5,224	5,224	5,224	5,224	5,224	5,224	5,224	4,353	\$250
11 Holton Avenue N. (1 Unit)	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	\$220
11 & 83 Locheed Drive (2 Units)	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	\$146
16, 18, 20, 22, 24, 26, 28, 30A, 30B, 30C, 30D, 30E, 30F, 32A, 32B, 32C, 32D, 32E, 32F, 32G, 32H, 34, 36, 38, 40,42, 44 Locheed Drive - (27 Units)	25,700	25,700	25,700	25,700	25,700	25,700	25,700	25,700	25,700	25,700	\$128
1111(A-G), 1115, 1117, 1119, 1121, 1123, 1125, 1127, 1129, 1133, 1137, 1139, 1141, 1143, 1145, 1147, 1151A, 1151B, 1151C & 1151D Limeridge Road (27 Units)	25,700	25,700	25,700	25,700	25,700	25,700	25,700	25,700	25,700	25,700	\$128
3, 4, 7, 8, 11, 12 & 14-17 Michael Avenue (10 Units)	15,400	15,400	15,400	15,400	15,400	15,400	15,400	15,400	15,400	14,000	\$169



**City of Hamilton
Service Standard Calculation Sheet**

Service: Social Housing
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
11 & 28 Rainham Street	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	\$138
148 & 150 Moxley Court (2 Units)	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	\$146
99 & 112 Moxley Court (2 Units)	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	\$146
4, 12, 48 Blair Avenue (3 Units)	2,612	2,612	2,612	2,612	2,612	2,612	2,612	2,612	2,612	2,612	\$250
12 Lisa Court	1,257	1,257	1,257	1,257	1,257	1,257	1,257	1,257	1,257	1,257	\$155
120 Strathcona Avenue N, 259 Units, 14 Floors	161,173	161,173	161,173	161,173	161,173	161,173	161,173	161,173	161,173	161,173	\$119
27, 29, 46, 126, 128 & 141 Gledhill Crescent (7 Units)	8,050	8,050	8,050	8,050	8,050	8,050	8,050	8,050	8,050	8,050	\$188
14 Brett Court	1,341	1,341	1,341	1,341	1,341	1,341	1,341	1,341	1,341	1,341	\$146
7, 14 & 59 Lesterwood Street (3 Units)	3,450	3,450	3,450	3,450	3,450	3,450	3,450	3,450	3,450	3,450	\$188
15, 22, & 187 Folkstone Avenue (3 Units)	3,664	3,664	3,664	3,664	3,664	3,664	3,664	3,664	3,664	3,664	\$166
15, 161 & 163 Golden Orchard Drive	3,450	3,450	3,450	3,450	3,450	3,450	3,450	3,450	3,450	3,450	\$188
15 & 17 Granby Court	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	\$188
15, 19, 20, 24, 26, 30, 34 Sumach Street (7 Units)	6,095	6,095	6,095	6,095	6,095	6,095	6,095	6,095	6,095	6,095	\$250
155 Park Street S, 375 Units, 23 Floors	214,532	214,532	214,532	214,532	214,532	214,532	214,532	214,532	214,532	214,532	\$139
16 Heatherdale Place	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	\$188
17 & 19 Banff Drive (2 Units)	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	\$169
17, 21, 23, 27 & 42 Maclaren Avenue (5 Units)	4,353	4,353	4,353	4,353	4,353	4,353	4,353	4,353	4,353	4,353	\$250
175 Brucedale Avenue East	1,400	-	-	-	-	-	-	-	-	-	\$145
18, 34, 43 & 47 Dartford Place (4 Units)	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	\$169
18, 41, 72 & 250 Duncairn Crescent (4 Units)	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	\$188
180 Tragina Avenue	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	-	\$220
181 Jackson Street W, 265 Units, 20 Floors	172,250	172,250	172,250	172,250	172,250	172,250	172,250	172,250	172,250	172,250	\$58
185, 206-210 Jackson Street East (80 Units)	69,421	69,421	69,421	69,421	69,421	69,421	69,421	69,421	69,421	69,421	\$145
19, 20, 27, 29, 58 Berko Avenue (5 Units)	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	7,000	\$169
19, 23 & 47 Camelot Drive (3 Units)	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	\$169
19 East 12th Street	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	\$220



**City of Hamilton
Service Standard Calculation Sheet**

Service: Social Housing
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
19, 29, 31, 35 & 37 Eastwood Street (5 Units)	4,353	4,353	4,353	4,353	4,353	4,353	4,353	4,353	4,353	4,353	\$250
209, 211, 230 & 232 Rexford Drive (4 Units)	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	\$227
226 Rebecca Street, 199 Units, 10 Floors - Building	129,350	129,350	129,350	129,350	129,350	129,350	129,350	129,350	129,350	129,350	\$92
24 Leduc Street	1,400	-	-	-	-	-	-	-	-	-	\$148
245 Kenora Avenue - 168 Units	168,000	168,000	168,000	168,000	168,000	168,000	168,000	168,000	168,000	168,000	\$108
249 Governor's Road - Block 1-4, (25 Units)	26,100	26,100	26,100	26,100	26,100	26,100	26,100	26,100	26,100	26,100	\$141
25 Glamis Court	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	\$177
25 Lynden Avenue, Block 1-18 (40 Units)	23,680	23,680	23,680	23,680	23,680	23,680	23,680	23,680	23,680	23,680	\$200
122-132 Hatt Street (34 Units)	34,800	34,800	34,800	34,800	34,800	34,800	34,800	34,800	34,800	34,800	\$174
27 Ling Street	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	\$188
30 Sanford Avenue South, 350 Units, 17 Floors	197,040	197,040	197,040	197,040	197,040	197,040	197,040	197,040	197,040	197,040	\$134
362 & 440 Melvin Avenue (2 Units)	1,741	1,741	1,741	1,741	1,741	1,741	1,741	1,741	1,741	1,741	\$250
36 & 60 Laird Drive	3,682	3,682	3,682	3,682	3,682	3,682	3,682	3,682	3,682	3,682	\$107
36 Queenslea Drive	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	\$138
37 & 95 Edwina Place	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	\$146
36, 38 & 63 Raleigh Court	4,125	4,125	4,125	4,125	4,125	4,125	4,125	4,125	4,125	4,125	\$141
4 & 6 Galloway Court	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	\$188
4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48 Millwood Place (23 Units)	20,350	20,350	20,350	20,350	20,350	20,350	20,350	20,350	20,350	20,350	\$166
101, 103, 105, 107, 109, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145 Bobolink Road (23 Units)	20,350	20,350	20,350	20,350	20,350	20,350	20,350	20,350	20,350	20,350	\$166
403, 447, 481, 558, 559, 575 & 609 Brigadoon Drive (7 Units)	8,050	8,050	8,050	8,050	8,050	8,050	8,050	8,050	8,050	8,050	\$188
Ferrie Street W - Units 15, 17, 19, 21, 23, 25, 27, 29 (8 Units)	8,281	8,281	8,281	8,281	8,281	8,281	8,281	8,281	8,281	8,281	\$159
Strachan St W - Units 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36 (18 Units)	18,633	18,633	18,633	18,633	18,633	18,633	18,633	18,633	18,633	18,633	\$159



**City of Hamilton
Service Standard Calculation Sheet**

Service: Social Housing
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
MacNab St North - Units 312,314,316,318,320,322,324,326,328,330, 332,334,336,338, 340,342,344,346, 348, 350, 352, 354, 356, 358,360,362,364, 366,368,370,372 (31 Units)	32,090	32,090	32,090	32,090	32,090	32,090	32,090	32,090	32,090	32,090	\$159
405 James Street N - Block 405-411, (34 Units)	35,196	35,196	35,196	35,196	35,196	35,196	35,196	35,196	35,196	35,196	\$159
499 James Street N - Block 499-525, 13 Units	13,856	13,856	13,856	13,856	13,856	13,856	13,856	13,856	13,856	13,856	\$138
4, 6, 8, 10 Picton Street West (4 Units)	4,264	4,264	4,264	4,264	4,264	4,264	4,264	4,264	4,264	4,264	\$138
45 & 72 Glenview Place	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	\$188
45 Montcalm Drive - Block 76 Units	72,860	72,860	72,860	72,860	72,860	72,860	72,860	72,860	72,860	72,860	\$157
478 Mackenzie Road	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	\$173
49 Grenoble Road	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	\$188
5 Maple Avenue, 43 Units, 5 Floors - Building	33,225	33,225	33,225	33,225	33,225	33,225	33,225	33,225	33,225	33,225	\$225
500 Macnab Street N, 146 Units, 18 Floors - Building	77,059	77,059	77,059	77,059	77,059	77,059	77,059	77,059	77,059	77,059	\$225
555 Queenston Road, 200 Units, 9 Floors - Building	109,120	109,120	109,120	109,120	109,120	109,120	109,120	109,120	109,120	109,120	\$146
5, 8, 16, 20, 37, 42, 44, 54, 56, 59, 76, 82, 90, 92, 96 & 98 Armstrong Avenue (16 units)	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	12,292	\$250
2, 4, 5, 6, 8, 56, 58, 75, 85, 64, 69, & 89 Martha Street (12 Units)	12,190	12,190	12,190	12,190	12,190	12,190	12,190	12,190	12,190	11,252	\$161
44 Martha Street - Block 14-21, 36 Units	33,457	33,457	33,457	33,457	33,457	33,457	33,457	33,457	33,457	33,457	\$160
34 Martha Street - Block 34-36, 2 Units	1,859	1,859	1,859	1,859	1,859	1,859	1,859	1,859	1,859	1,859	\$160
6 & 7 Admiral Place (2 Units)	1,741	1,741	1,741	1,741	1,741	1,741	1,741	1,741	1,741	1,741	\$250
60 & 61 Carson Drive (2 Units)	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	2,682	\$146
46,48, 50, 52, 54, 56, 58, 60, 66 (1-31), 70, 72,74,76,78,88, 90,92, 94,96, 98, 100, 102 Greendale Drive - Block 13-18, (52 Units)	53,388	53,388	53,388	53,388	53,388	53,388	53,388	53,388	53,388	53,388	\$128
149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175 Cranbrook Drive (14 Units)	14,102	14,102	14,102	14,102	14,102	14,102	14,102	14,102	14,102	14,102	\$130



**City of Hamilton
Service Standard Calculation Sheet**

Service: Social Housing
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
68 Macassa Avenue, 45 Units	26,850	26,850	26,850	26,850	26,850	26,850	26,850	26,850	26,850	26,850	\$645
60 Macassa Avenue, 2 floors (20 Units)	10,100	10,100	10,100	10,100	10,100	10,100	10,100	10,100	10,100	10,100	\$118
92 Macassa Avenue, 20 Units, 2 Floors - Building	10,100	10,100	10,100	10,100	10,100	10,100	10,100	10,100	10,100	10,100	\$118
685, 689, 690, 691, 693, 695, 699, 708, 719, 725, 726, 727, 735, 739, 740, 746, 752 & 772 Britannia Avenue\ (18 Units)	17,319	17,319	17,319	17,319	17,319	17,319	17,319	17,319	17,319	16,407	\$237
7 Galt Street	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	\$188
7 Lambert Street	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	\$188
727 Upper Sherman Avenue (16 units)	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	\$169
77 Alpine Avenue	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	\$220
77 Purnell Drive - Block (131 Units)	131,980	131,980	131,980	131,980	131,980	131,980	131,980	131,980	131,980	131,980	\$157
797, 799, 801, 803, 805, 807, 809, 811, 815, 817, 819, 821, 823, 825, 827, 829, 833, 835, 837, 839, 841, 843, 845, 847 Roxborough Avenue (24 Units)	22,304	22,304	22,304	22,304	22,304	22,304	22,304	22,304	22,304	22,304	\$160
80, 84, 90, 92 Palmer Road (4 Units)	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	5,600	\$169
893 Fennell Avenue East	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	\$220
95 Hess Street S, 290 Units, 17 Floors	256,500	256,500	256,500	256,500	256,500	256,500	256,500	256,500	256,500	256,500	\$146
55 Hess Street (23rd Floor)	5,980	5,980	11,960	11,960	11,960	11,960	11,960	11,960	11,960	11,960	\$217
980 Upper Ottawa Street - Block 23-27 (57 Units)	57,000	57,000	57,000	57,000	57,000	57,000	57,000	57,000	57,000	57,000	\$156
2, 4-8, 11, 12, 14, 15 & 17-20 Seeley Avenue (14 Units)	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	\$193
302, 304, 305, 307-311 & 314-317 East 24th Street (12 Units)	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	\$193
405 Catharine Street N (1 Unit)	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	1,400	\$184
42, 44, 48, 50, 52 & 54 Gildea Street (6 Units)	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	\$193
470, 472, 473, 477, 479, 481, 483, 485, 487, 491, 493, 495, 497 East 25th Street (13 Units)	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	\$193
170 East Avenue South (Villa San Miguel) 46 Units	48,646	48,646	48,646	48,646	48,646	48,646	48,646	48,646	48,646	48,646	\$190
680 Stone Church Road West 65 Units	63,562	63,562	63,562	63,562	63,562	63,562	63,562	63,562	63,562	63,562	\$139



**City of Hamilton
Service Standard Calculation Sheet**

Service: Social Housing
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)
690 Stone Church Road West (Villa Santa Maria) 30 Units	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	\$192
7, 9, 11, 13, 15, 17, 21, 22, 23, 24, 26, 27, 28, 29, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 43, 44, 46, 48, 50, 52, 54, 57, 58, 59, 60, 51, 62, 63, 64, 68, 70, 72, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 85, 86, 88, 90, 92, 94, 96, 100, 102, 104, 106, 109, 110, 111, 112, 114, 115, 116, 117 Lang Street (71 Units)	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	\$132
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32 Hayes Ave (16 Units)	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	\$186
30 Congress Crescent (110 Units)	106,740	106,740	106,740	106,740	106,740	106,740	106,740	106,740	106,740	106,740	\$136
50 Congress Crescent (53 Units)	61,000	61,000	61,000	61,000	61,000	61,000	61,000	61,000	61,000	61,000	\$143
7-23 Gurnett Drive (Villa Corvo) 5 units	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	\$173
87-89 King Street East (16 Units)	21,206	21,206	21,206	21,206	21,206	21,206	21,206	21,206	21,206	21,206	\$199
350-360 King Street (545 Units)	501,509	501,509	501,509	501,509	501,509	501,509	501,509	501,509	501,509	501,509	\$74
405 York Street (54 Units)	41,994	41,994	41,994	41,994	41,994	41,994	41,994	41,994	41,994	41,994	\$150
4 Bridgewater (62 Units)	-	-	53,776	53,776	74,440	74,440	74,440	74,440	74,440	74,440	\$139
95 King Street East (12 Units)	-	-	-	-	14,800	14,800	14,800	14,800	14,800	14,800	\$245
690 Stone Church Rd West (50 Units)	-	-	-	-	-	-	-	48,545	48,545	48,545	\$163
557 Queenston Road (34 Units)	29,400	29,400	29,400	29,400	29,400	29,400	29,400	29,400	29,400	29,400	\$146
Total	5,578,841	5,576,041	5,635,797	5,635,797	5,671,261	5,671,261	5,671,261	5,719,806	5,721,512	5,703,441	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	10.8344	10.8138	10.8391	10.7871	10.7764	10.7200	10.6498	10.6531	10.5593	10.4702

10 Year Average	2009-2018
Quantity Standard	10.7103
Quality Standard	\$150
Service Standard	\$1,605

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$1,605
Eligible Amount	\$104,387,772



**City of Hamilton
Service Standard Calculation Sheet**

Service: Provincial Offences Administration Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
45 Main Street East - Dedicated Space	16,034	16,034	16,034	16,034	16,034	16,034	16,034	16,034	16,034	-	\$460	\$534
45 Main Street East - Shared Space	2,375	2,375	2,375	2,375	2,375	2,375	2,375	2,375	2,375	-	\$460	\$534
50 Main Street East -Dedicated Space (Move-in August 2018)	-	-	-	-	-	-	-	-	-	57,915	\$460	\$534
Total	18,409	57,915										

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0358	0.0357	0.0354	0.0352	0.0350	0.0348	0.0346	0.0343	0.0340	0.1063

10 Year Average	2009-2018
Quantity Standard	0.0421
Quality Standard	\$534
Service Standard	\$22

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$22
Eligible Amount	\$1,462,234



**City of Hamilton
Service Standard Calculation Sheet**

Service: Health Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
100 Main St. E., suite 220	11,392	11,392	11,392	11,392	11,392	11,392	11,392	11,392	11,392	11,392	\$281	\$336
2255 Barton St - Unit 3/4	6,773	6,773	6,773	6,773	6,773	-	-	-	-	-	\$281	\$336
2255 Barton St - Unit 8	1,200	1,200	-	-	-	-	-	-	-	-	\$281	\$336
1447 Upper Ottawa (owned)	15,143	15,143	15,143	15,143	15,143	15,143	15,143	-	-	-	\$337	\$398
2 King St W., (DUN)	10,825	10,825	10,825	10,825	10,825	10,825	3,635	-	-	-	\$281	\$336
21 Hunter St. E.	5,324	5,324	5,324	5,324	5,324	5,324	5,324	5,324	5,324	5,324	\$281	\$336
1 Hughson St. N.	33,015	33,015	33,015	33,015	33,015	33,015	-	-	-	-	\$281	\$336
4 Hughson St. S.	2,790	2,790	-	-	-	-	-	-	-	-	\$281	\$336
1439 Upper Ottawa	1,227	1,227	1,227	1,227	1,227	1,227	-	-	-	-	\$281	\$336
1447 Upper Ottawa (leased)	4,892	4,892	4,892	4,892	4,892	4,892	4,892	-	-	-	\$309	\$367
125 Barton - West Nile	-	892	892	892	892	892	-	-	-	-	\$144	\$185
1 James St.	-	5,626	5,626	5,626	5,626	5,626	-	-	-	-	\$309	\$367
247 Centennial Unit 8	-	2,114	2,114	2,114	2,114	2,114	2,114	2,114	2,114	2,114	\$281	\$336
100 Main St. West	-	-	-	-	-	-	24,122	24,122	24,122	24,122	\$469	\$543
110 King Street West (Robert Thompson)	-	-	-	-	-	52,300	52,300	52,300	52,300	52,300	\$378	\$443
891 Upper James (leased)	-	-	-	-	-	2,159	2,159	2,159	2,159	2,159	\$279	\$334
Total	92,581	101,213	97,223	97,223	97,223	144,909	121,081	97,411	97,411	97,411		

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.1798	0.1963	0.1870	0.1861	0.1847	0.2739	0.2274	0.1814	0.1798	0.1788

10 Year Average	2009-2018
Quantity Standard	0.1975
Quality Standard	\$389
Service Standard	\$77

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$77
Eligible Amount	\$4,994,232



**City of Hamilton
Service Standard Calculation Sheet**

Service: Social and Child Services Facilities
Unit Measure: sq.ft. of building area

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
Leased Space:												
35 King Street East, 2nd Floor, 5th Floor	13,089	13,089	1,052	1,052	1,052	1,052	1,052	1,052	1,052	-	\$281	\$336
250 Main Street East	32,550	32,550	32,550	32,550	32,550	42,000	42,000	42,000	42,000	42,000	\$281	\$336
2225 Barton Street East, Units 3 & 4	13,498	13,498	13,498	13,498	13,498	19,992	19,992	19,992	19,992	19,992	\$281	\$336
1550 Upper James	13,095	13,095	13,095	13,095	13,095	13,095	13,095	13,095	13,095	13,095	\$281	\$336
4 Hughson Street South	4,185	4,185	-	-	-	-	-	-	-	-	\$281	\$336
181 & 191 Main Street West	21,770	21,770	21,770	21,770	21,770	21,770	21,770	21,770	20,064	18,514	\$281	\$336
350 King St. East Unit 110	8,405	8,405	8,405	8,405	8,405	8,405	8,405	8,405	8,405	8,405	\$281	\$336
55 Hess St. S.	5,980	5,980	-	-	-	-	-	-	-	-	\$281	\$336
247 Centennial Parkway North	-	-	2,020	2,020	2,020	2,020	2,020	2,020	2,020	2,020	\$281	\$336
Owned Space:												
Red Hill Day Care Centre	16,782	16,782	16,782	16,782	16,782	16,782	16,782	16,782	16,782	16,782	\$327	\$387
Lister Block	-	-	24,200	24,200	24,200	24,200	24,200	24,200	24,200	24,200	\$382	\$448
Total	129,355	129,355	133,373	133,373	133,373	149,316	149,316	149,316	147,610	145,008		

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.2512	0.2509	0.2565	0.2553	0.2534	0.2822	0.2804	0.2781	0.2724	0.2662

10 Year Average	2009-2018
Quantity Standard	0.2647
Quality Standard	\$357
Service Standard	\$95

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$95
Eligible Amount	\$6,155,303



**City of Hamilton
Service Standard Calculation Sheet**

Service: Waste Diversion - Facilities - Stations/Depots
Unit Measure: sq.ft. of building area

Description	Percentage Attributable to Diversion	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Building Value (\$/sq.ft.)	Value/ft ² with land, site works, etc.
77 James St.	100%	1,526	1,526	1,526	1,526	1,526	1,526	1,526	1,526	1,526	1,526	\$299	\$356
Transfer Stations / Community Recycling Centres:													
Dundas - Olympic Drive - Main Building	15%	1,473	1,473	1,473	1,473	1,473	1,473	1,473	1,473	1,473	1,473	\$680	\$776
- HHW Trailer	100%	930	930	930	930	930	930	930	930	930	930	\$364	\$428
- HHW Office (portable)	100%	140	140	140	140	140	140	140	140	140	140	\$289	\$345
- TS Scalehouse	15%	21	21	21	21	21	21	21	21	21	21	\$142	\$183
Kenora - Kenora Avenue - Main Building	15%	2,726	2,726	2,726	2,726	2,726	2,726	2,726	2,726	2,726	2,726	\$680	\$776
- HHW Trailer	100%	731	731	731	731	731	731	731	731	731	731	\$463	\$537
- HHW Office	100%	97	97	97	97	97	97	97	97	97	97	\$416	\$485
- TS Scalehouse	15%	21	21	21	21	21	21	21	21	21	21	\$167	\$211
Kilbride Yard, 37 Kilbride Rd. - Reuse Store	100%	3,561	3,561	3,561	3,561	3,561	3,561	3,561	3,561	3,561	3,561	\$401	\$468
Mountain - 37 Kilbride Road - Main Building	100%	12,692	12,692	12,692	12,692	12,692	12,692	12,692	12,692	12,692	12,692	\$680	\$776
- TS Scalehouse	15%	21	21	21	21	21	21	21	21	21	21	\$142	\$183
Glanbrook Landfill Site (Diversion portion only)	2%	129	129	129	129	129	129	129	129	129	129	\$680	\$776
Hamilton Materials Recycling Facility	81%	221,288	221,288	221,288	221,288	221,288	221,288	221,288	221,288	221,288	221,288	\$247	\$299
Hamilton Central Composting Facility - main processing facility & curing building	100%	107,387	105,125	106,504	105,734	102,894	102,196	102,058	102,288	89,465	89,465	\$395	\$462
Mountain Community Recycling Centre - Reuse Store & HHW Depot	100%	12,419	12,419	12,419	12,419	12,419	12,419	12,419	12,419	12,419	12,419	\$680	\$776
Contracted Local Yard - 560 Seaman St. Stoney Creek	61%	-	-	-	-	11,162	11,162	11,162	11,162	11,162	11,162	\$289	\$529
Contracted Local Yard	61%	1,937	1,937	1,937	1,937	-	-	-	-	-	-	\$289	\$934
Total		367,099	364,837	366,216	365,446	371,831	371,133	370,995	371,225	358,403	358,403		

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.7129	0.7075	0.7043	0.6995	0.7065	0.7015	0.6967	0.6914	0.6614	0.6579

10 Year Average	2009-2018
Quantity Standard	0.6940
Quality Standard	\$391
Service Standard	\$271

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$271.10
Eligible Amount	\$17,633,971



**City of Hamilton
Service Standard Calculation Sheet**

Service: Waste Diversion - Vehicles & Equipment
Unit Measure: No. of vehicles and equipment

Description	Percentage Attributable to Diversion	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
City Owned												
20 cyd single stream rear packer	48%	1.44	1.44	1.44	1.44	-	-	-	-	-	-	\$255,000
32 cyd single stream rear packer	48%	1.44	1.44	1.44	1.44	-	-	-	-	-	-	\$306,000
Compact pickup	48%	1.92	1.92	1.44	-	-	-	-	-	-	-	\$35,700
SUV 2wd	48%	0.48	1.44	-	-	0.48	0.48	1.44	1.44	1.44	1.44	\$35,700
Pick up 2wd	48%	3.84	3.36	3.84	4.32	3.84	4.80	4.80	4.80	4.80	4.80	\$34,700
Pickup 4x4	48%	0.48	0.48	0.48	0.48	0.48	0.48	1.44	1.44	1.44	1.44	\$51,000
Pickup 3/4 ton	48%			0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	\$58,100
Dump truck 5 ton	48%	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	\$114,200
25 cyd single stream rear packer	48%	1.92	1.92	2.88	2.40	8.16	8.16	7.68	7.68	7.68	7.68	\$153,000
25 cyd dual stream rear packer	48%	8.64	8.64	8.64	8.64	5.28	5.28	5.28	5.28	5.28	5.28	\$287,600
31 cyd single stream sideloader	48%	0.96	0.96	0.96	0.96	0.96	0.96	0.48	0.48	0.48	0.48	\$306,000
31 cyd dual stream side loader	48%	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	\$306,000
Contracted (GFL)												
Curbside/Roadside												
Recycling												
Freightliner with Heil Body - 32 yd rear packer dual stream - diesel	100%	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	\$255,000
Freightliner with Heil Body - 25 yd rear packer dual stream - CNG	100%	33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00	\$413,100
Peterbilt with McNeilus Body - 32yd dual stream - diesel	100%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	\$306,000
Organics/Garbage												
Freightliner with UHE Body - 32 yd rear packer dual stream CNG	48%	10.08	10.08	10.08	10.08	10.08	10.08	10.08	10.08	10.08	10.08	\$413,100
Leaf & Yard Waste/ Bulk												
Peterbilt with McNeilus Body - 25 yd rear packer ss diesel	48%	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	\$246,800
Peterbilt with McNeilus Body - 30yd dual stream - diesel	48%	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	\$255,000
Mack with McNeilus Body - 25 yd ss rear packer - diesel	48%	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	\$246,800
Frieghtliner with Labrie Body - 37 yd ss sideloader - diesel	48%	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	\$306,000



**City of Hamilton
Service Standard Calculation Sheet**

Service: Waste Diversion - Vehicles & Equipment
Unit Measure: No. of vehicles and equipment

Description	Percentage Attributable to Diversion	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
Front Load Bin Waste and Fibre Collection												
Mack with McNeilus Body - 40 yd single stream	48%	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	\$306,000
Mack with Labrie Body - 40 yd single stream	48%	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	\$306,000
Mack with Fanotech Body - 40 yd single stream	48%	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	\$306,000
Mack with Capital Body - 40 yd single stream	48%	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	\$306,000
Side-loader Fully Automated Recycling Collection												
Freightliner with Labrie Body - 33 yd dual stream	100%	4	4	4	4	4	4	4	4	4	4	\$413,100
Fork Truck (front load bin)												
UHE Pa Body	48%	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	\$76,500
Pickup Trucks	48%	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	\$45,900
RECYCLING & WASTE DISPOSAL												
CENTRAL COMPOSTING FACILITY												
City Owned												
Main fans	100%	2	2	2	2	2	2	2	2	2	2	\$46,900
Curing Building Fan	100%	1	1	1	1	1	1	1	1	1	1	\$40,800
Tunnel Fans	100%	16	16	16	16	16	16	16	16	16	16	\$276,500
Make Up Air Units	100%	2	2	2	2	2	2	2	2	2	2	\$61,200
Grinder	100%	1	1	1	1	1	1	1	1	1	1	\$714,000
Shredder	100%	1	1	1	1	1	1	1	1	1	1	\$853,700
Stationary Screening Plant	100%	1	1	1	1	1	1	1	1	1	1	\$20,700
PLC Units	100%	5	5	5	5	5	5	5	5	5	5	\$102,000
SCADA System	100%	1	1	1	1	1	1	1	1	1	1	\$510,000
Tube Conveyor	100%	1	1	1	1	1	1	1	1	1	1	\$102,000
Fixed Conveyors	100%	4	4	4	4	4	4	4	4	4	4	\$61,200
Stack Jet Fans	100%	2	2	2	2	2	2	2	2	2	2	\$40,800
Loaders Volvo L150 or Equivalent	100%	2	2	2	2	2	2	2	2	2	2	\$408,000
CAT 242 Skidsteer	100%	1	1	1	1	1	1	1	1	1	1	\$38,300
Ramrod Mini Skidsteer	100%	1	1	1	1	1	1	1	1	1	1	\$16,200
Genie Boom 40ft Manlift	100%	1	1	1	1	1	1	1	1	1	1	\$42,100



**City of Hamilton
Service Standard Calculation Sheet**

Service: Waste Diversion - Vehicles & Equipment
Unit Measure: No. of vehicles and equipment

Description	Percentage Attributable to Diversion	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
Grove 54ft Manlift	100%	1	1	1	1	1	1	1	1	1	1	\$12,200
Generator	100%	1	1	1	1	1	1	1	1	1	1	\$102,000
Overhead Filling Cassette	100%	1	1	1	1	1	1	1	1	1	1	\$369,200
Central Exhaust Fans	100%	2	2	2	2	2	2	2	2	2	2	\$120,400
Mag Conveyor	100%	1	1	1	1	1	1	1	1	1	1	\$49,000
Hydraulic Door Wagon	100%	1	1	1	1	1	1	1	1	1	1	\$5,100
Contracted												
Volvo L110 Loader	100%	-	-	-	1	1	1	1	1	1	1	\$408,000
TRANSFER STATIONS / COMMUNITY RECYCLING CENTRES												
Contracted (Waste Connections)												
Transfer Trailers	11%	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	\$127,500
Transfer Trucks	11%	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	\$137,700
Roll-off Bins												
- 20 yard	100%	12	12	12	12	12	12	12	12	12	12	\$8,200
- 30 yard	100%	15	15	15	15	15	15	15	15	15	15	\$10,200
- 40 yard	100%	28	28	28	28	28	28	28	28	28	28	\$12,200
Roll-off Trucks	15%	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	\$178,500
Scales												
- 80' above ground	15%	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	\$0
- 80' pit scale	15%	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	\$62,200
Front End Loaders	15%	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	\$408,000
LEAF & YARD COMPOSTING FACILITY												
Contracted (Waste Management Canada)												
Screeners	100%	1	1	1	1	1	1	1	1	1	1	\$255,000
Tub Grinder	100%	1	1	1	1	1	1	1	1	1	1	\$816,000
Excavator	100%	1	1	1	1	1	1	1	1	1	1	\$255,000
MATERIAL RECYCLING FACILITY												
City Owned												
Forklift	100%	1	1	1	1	1	1	1	1	1	1	\$51,000



**City of Hamilton
Service Standard Calculation Sheet**

Service: Waste Diversion - Vehicles & Equipment
Unit Measure: No. of vehicles and equipment

Description	Percentage Attributable to Diversion	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/Vehicle)
Forklift	100%	1	1	1	1	1	1	1	1	1	1	\$51,000
Total		206	207	207	206	206	207	208	208	208	208	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004

10 Year Average	2009-2018
Quantity Standard	0.0004
Quality Standard	\$198,475
Service Standard	\$79

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$79
Eligible Amount	\$5,164,002



**City of Hamilton
Service Standard Calculation Sheet**

Service: Waste Diversion - Carts & Containers
Unit Measure: No. of items

Description	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Value (\$/item)
Blue Boxes	42,000	75,000	108,000	139,000	183,000	228,000	271,000	319,000	362,000	403,472	\$5
Blue Carts	800	1,600	2,400	3,200	3,600	4,000	4,400	5,800	6,300	6,885	\$63
Small Green Carts	18,000	18,000	18,000	18,000	18,000	18,000	18,000	20,100	23,100	28,482	\$13
Large Green Carts	154,800	162,800	169,800	177,300	186,300	198,300	211,300	220,300	229,300	240,068	\$43
Mini Bins/Kitchen Organics Containers	182,000	198,000	214,000	230,000	233,000	237,200	244,200	250,200	256,200	262,536	\$2
Blue Bags	12,000	24,000	36,000	46,000	50,000	56,000	62,000	68,000	74,000	74,000	\$2
Gold Boxes	-	-	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	\$5
Blue Barrells	50	50	50	50	50	50	50	50	50	50	\$26
Public Space Litter Container - Jubilees	-	-	-	-	-	-	-	200	200	200	\$765
Public Space Litter Container - Fluted	50	50	50	50	50	50	50	50	50	50	\$102
Total	409,700	479,500	549,300	614,600	675,000	742,600	812,000	884,700	952,200	1,016,743	

Population	514,917	515,641	519,949	522,456	526,269	529,038	532,521	536,917	541,846	544,730
Per Capita Standard	0.80	0.93	1.06	1.18	1.28	1.40	1.52	1.65	1.76	1.87

10 Year Average	2009-2018
Quantity Standard	1.3441
Quality Standard	\$15
Service Standard	\$20

D.C. Amount (before deductions)	10 Year
Forecast Population	65,046
\$ per Capita	\$20
Eligible Amount	\$1,312,628



Appendix C: Long-Term Capital and Operating Cost Examination



Appendix C: Long-Term Capital and Operating Cost Examination

City of Hamilton Annual Capital and Operating Cost Impact

As a requirement of the D.C.A. under subsection 10 (2) (c), an analysis must be undertaken to assess the long-term capital and operating cost impacts for the capital infrastructure projects identified within the D.C. As part of this analysis, it was deemed necessary to isolate the incremental operating expenditures directly associated with these capital projects, factor in cost saving attributable to economies of scale or cost sharing where applicable and prorate the cost on a per unit basis (i.e. sq.ft. of building space, per vehicle, etc.). This was undertaken through a review of the City's approved 2017 Financial Information Return (F.I.R.).

In addition to the operational impacts, over time the initial capital projects will require replacement. This replacement of capital is often referred to as life cycle cost. By definition, life cycle costs are all the costs which are incurred during the life of a physical asset, from the time its acquisition is first considered, to the time it is taken out of service for disposal or redeployment. The method selected for life cycle costing is the sinking fund method which provides that money will be contributed annually and invested, so that those funds will grow over time to equal the amount required for future replacement. The following factors were utilized to calculate the annual replacement cost of the capital projects (annual contribution = factor X capital asset cost) and are based on an annual growth rate of 2% (net of inflation) over the average useful life of the asset:



Asset	Lifecycle Cost Factors	
	Average Useful Life	Factor
Stormwater Facilities, Channels & Drainage	100	0.00320
Stormwater Ponds	40	0.01656
Wastewater Facilities	55	0.01014
Wastewater Collection	100	0.00320
Water Distribution	80	0.00516
Roads	20	0.04116
Vehicles (Excluding Fire, Police & Transit)	10	0.09133
Transit, Police & Fire Vehicles	15	0.05783
Police and Fire Equipment	10	0.09133
Parkland	30	0.02465
Facilities	50	0.01182
Library materials	7	0.13451

Table C-1 depicts the annual operating impact resulting from the proposed gross capital projects at the time they are all in place. It is important to note that, while City program expenditures will increase with growth in population, the costs associated with the new infrastructure (i.e. facilities) would be delayed until the time these works are in place.



Table C-1
Operating Capital Impacts for Future Capital Expenditures

SERVICE	GROSS COST LESS BENEFIT TO EXISTING	ANNUAL LIFECYCLE EXPENDITURES	ANNUAL OPERATING EXPENDITURES	TOTAL ANNUAL EXPENDITURES
1. Stormwater Drainage and Control Services (Combined Sewer System)				
1.1 Stormwater Facilities	18,785,638	553,969	7,289	561,258
1. Stormwater Drainage and Control Services (Separated Sewer System)				
1.1 Channels, drainage and studies	127,880,596	5,908,621	484,203	6,392,824
1.2 Residential Ponds	581,250,884	30,097,564	2,200,828	32,298,392
2. Wastewater Services				
2.1 Wastewater Facilities	567,719,790	33,389,393	4,535,562	37,924,955
2.2 Wastewater Linear Services	322,373,551	13,080,990	8,087,981	21,168,971
3. Water Services				
3.1 Facilities, Storage and Distribution systems	328,766,296	17,686,822	11,815,876	29,502,698
4. Services Related to a Highway				
4.1 Services Related to a Highway	1,142,995,041	80,052,490	25,140,863	105,193,353
5. Public Works Facilities, Vehicles & Equipment				
5.1 Facilities	27,090,379	1,599,217	595,869	2,195,086
5.2 Vehicles & Equipment	14,673,987	1,727,050	322,763	2,049,813
6. Fire Protection Services				
6.1 Fire Facilities	26,154,468	1,291,290	13,102,119	14,393,409
6.2 Fire Vehicles & Equipment	4,126,179	213,916	2,067,015	2,280,931
7. Police Services				
7.1 Police Facilities	44,257,033	2,159,995	23,871,860	26,031,855
7.2 Police Vehicles & Equipment	5,576,700	2,741,686	3,008,024	5,749,710
8. Transit Services				
8.1 Transit facilities, vehicles and other infrastructure	228,745,715	15,555,020	16,549,474	32,104,494
9. Other Transportation Services				
9.1 Parking services	27,018,228	1,592,380	1,477,677	3,070,057
9.2 Airport lands	26,009,151	0	11,767	11,767
10. Parkland Development				
10.1 Parkland development, amenities, trails, vehicles & equipment	120,959,645	7,415,218	4,919,664	12,334,882
11. Indoor Recreation Services				
11.1 Recreation facilities, vehicles & equipment	167,212,297	8,634,663	4,996,818	13,631,481
12. Library Services				
12.1 Library facilities and vehicles	46,928,133	2,477,310	3,657,766	6,135,076
12.2 Library materials	4,816,650	586,350	375,429	961,779
13. Administrative Studies				
13.1 Administrative Studies - Community Based Studies	14,600,900	0	0	0
13.2 Administrative Studies - Engineering Services Studies	7,519,422	0	0	0
14. Long Term Care				
14.1 Long Term Care Facilities	9,367,630	683,280	6,266,814	6,950,094
15. Social and Child Services				
15.1 Social and Child Services Facilities	2,415,379	103,664	7,672,682	7,776,346
16. Health Services				
16.1 Health department space	82,598	30,220	5,646,141	5,676,361
17. Provincial Offences Administration				
17.1 P.O.A. facilities	3,197,903	0	528,171	528,171
18. Social Housing				
18.1 Social housing facilities	77,455,149	4,383,960	6,958,847	11,342,807
19. Paramedics				
19.1 Paramedics facilities	5,370,233	228,060	3,373,856	3,601,916
19.2 Vehicles & Equipment	3,482,500	576,115	2,187,885	2,764,000
20. Waste Diversion				
20.1 Waste diversion facilities, vehicles, equipment and other	46,271,300	4,016,951	3,299,837	7,316,788
Total	4,003,103,375	236,786,194	163,163,082	399,949,276



Appendix D: D.C. Reserve Fund Policy



Appendix D: D.C. Reserve Fund Policy

D.1 Legislative Requirements

The Development Charges Act, 1997 (D.C.A.) requires development charge collections to be placed in separate reserve funds. Sections 33 through 36 of the Act provide the following regarding reserve fund establishment and use:

- a municipality shall establish a reserve fund for each service to which the D.C. by-law relates; s. 7 (1), however, allows services to be grouped into categories of services for reserve fund (and credit) purposes, although only 100% eligible and 90% eligible services may be combined (minimum of two reserve funds);
- the municipality shall pay each development charge it collects into a reserve fund or funds to which the charge relates;
- the money in a reserve fund shall be spent only for the “capital costs” determined through the legislated calculation process (as per s. 5 (1) 2-8);
- money may be borrowed from the fund but must be paid back with interest (O.Reg. 82/98, s. 11 (1) defines this as Bank of Canada rate either on the day the by-law comes into force or, if specified in the by-law, the first business day of each quarter); and
- D.C. reserve funds may only be used as an interim financing source for capital undertakings for which development charges may be spent.

Annually, the Treasurer of the municipality is required to provide Council with a financial statement related to the D.C. by-law(s) and reserve funds. This statement must be made available to the public and may be requested to be forwarded to the Minister of Municipal Affairs and Housing. The D.C.A. does not prescribe how the statement is to be made available to the public. We would recommend that a resolution of Council make the statement available on the municipality’s website or upon request.

Subsection 43 (2) and O.Reg. 82/98 prescribes the information that must be included in the Treasurer’s statement, as follows:

- opening balance;
- closing balance;



- description of each service and/or service category for which the reserve fund was established (including a list of services within a service category);
- transactions for the year (e.g. collections, draws) including each assets capital costs to be funded from the D.C. reserve fund and the manner for funding the capital costs not funded under the D.C. by-law (i.e. non-D.C. recoverable cost share and post-period D.C. recoverable cost share);
- for projects financed by development charges, the amount spent on the project from the D.C. reserve fund and the amount and source of any other monies spent on the project.
- amounts borrowed, purpose of the borrowing and interest accrued during previous year;
- amount and source of money used by the municipality to repay municipal obligations to the D.C. reserve fund;
- list of credits by service or service category (outstanding at beginning of the year, given in the year and outstanding at the end of the year by holder);
- for credits granted under s. 14 of the old D.C.A., a schedule identifying the value of credits recognized by the municipality, the service to which it applies and the source of funding used to finance the credit; and
- a statement as to compliance with s. 59 (1) of the D.C.A., whereby the municipality shall not impose, directly or indirectly, a charge related to a development or a requirement to construct a service related to development, except as permitted by the D.C.A. or another Act.

The above, Figure 1, and Attachments 1 and 2, set out the format for which annual reporting to Council should be provided.

D.2 D.C. Reserve Fund Application

Section 35 of the D.C.A. states that:

“The money in a reserve fund established for a service may be spent only for capital costs determined under paragraphs 2 to 8 of subsection 5 (1).”

This provision clearly establishes that reserve funds collected for a specific service are only to be used for that service, or to be used as a source of interim financing of capital undertakings for which a development charge may be spent.



Figure 1
City of Hamilton
Annual Treasurer's Statement of Development Charge Reserve Funds

Description	Services to which the Development Charge Relates									
	Non-Discounted Services									Area Specific
	Services Related to a Highway	Public Works Facilities, Fleet & Equipment	Stormwater Combined System	Stormwater Separated System	Water Services	Wastewater Linear	Wastewater Facilities	Fire Protection Services	Police Services	Dundas/Waterdown
Opening Balance, January 1, _____										
Plus:										
Development Charge Collections										
Accrued Interest										
Repayment of Monies Borrowed from Fund and Associated Interest ¹										
Sub-Total	0		0		0		0	0	0	0
Less:										
Amount Transferred to Capital (or Other) Funds ²										
Amounts Refunded										
Amounts Loaned to Other D.C. Service Category for Interim Financing										
Credits ³										
Sub-Total	0		0		0		0	0	0	0
Closing Balance, December 31, _____	0		0		0		0	0	0	0

¹ Source of funds used to repay the D.C. reserve fund

² See Attachment 1 for details

³ See Attachment 2 for details

The Municipality is compliant with s.s. 59.1 (1) of the *Development Charges Act*, whereby charges are not directly or indirectly imposed on development nor has a requirement to construct a service related to development been imposed, except as permitted by the *Development Charges Act* or another Act.



Figure 1 Continued
City of Hamilton
Annual Treasurer's Statement of Development Charge Reserve Funds

Description	Services to which the Development Charge Relates														Total
	Discounted Services														
	Transit Services	Parkland Development	Indoor Recreation Services	Library Services	Administrative Studies - Engineering Services Studies	Administrative Studies - Community Based Studies	Paramedics	Long Term Care	Health Services	Social & Child Services	Social Housing	Airport lands	Parking services	Waste Diversion	
Opening Balance, January 1, _____															0
Plus:															
Development Charge Collections															0
Accrued Interest															0
Repayment of Monies Borrowed from Fund and Associated Interest ¹															0
Sub-Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Less:															
Amount Transferred to Capital (or Other) Funds ²															0
Amounts Refunded															0
Amounts Loaned to Other D.C. Service Category for Interim Financing Credits ³															0
Sub-Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Closing Balance, December 31, _____	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

¹ Source of funds used to repay the D.C. reserve fund

² See Attachment 1 for details

³ See Attachment 2 for details

Charges Act, whereby charges are not directly or indirectly imposed on development nor has a requirement to construct a service related to



Attachment 1
City of Hamilton
Amount Transferred to Capital (or Other) Funds – Capital Fund Transactions

Capital Fund Transactions	Gross Capital Cost	D.C. Recoverable Cost Share					Non-D.C. Recoverable Cost Share				
		D.C. Forecast Period			Post D.C. Forecast Period		Other Reserve/Reserve Fund Draws	Tax Supported Operating Fund Contributions	Rate Supported Operating Fund Contributions	Debt Financing	Grants, Subsidies Other Contributions
		D.C. Reserve Fund Draw	D.C. Debt Financing	Grants, Subsidies Other Contributions	Post-Period Benefit/ Capacity Interim Financing	Grants, Subsidies Other Contributions					
Services Related to a Highway											
Capital Cost A											
Capital Cost B											
Capital Cost C											
Sub-Total - Services Related to Highways	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Water Services											
Capital Cost D											
Capital Cost E											
Capital Cost F											
Sub-Total - Water	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Wastewater Services											
Capital Cost G											
Capital Cost H											
Capital Cost I											
Sub-Total - Wastewater	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0



Attachment 2
City of Hamilton
Statement of Credit Holder Transactions

Credit Holder	Applicable D.C. Reserve Fund	Credit Balance Outstanding Beginning of Year _____	Additional Credits Granted During Year	Credits Used by Holder During Year	Credit Balance Outstanding End of Year _____
Credit Holder A					
Credit Holder B					
Credit Holder C					
Credit Holder D					
Credit Holder E					
Credit Holder F					



Appendix E: Local Service Policy



Appendix E: Local Service Policy

E.1 Local Service Policy for Stormwater Drainage Systems

Stormwater runoff “minor” systems are designed and implemented to accommodate drainage to avoid property damage and flooding and to minimize inconvenience to the public from 1 in 5-year rainfall events. Minor systems are typically comprised of underground piping, manholes, catch basins, and outfall structures in addition to a rural type drainage system consisting of ditches and culverts.

Stormwater runoff “major” systems are designed and implemented for flood control to avoid loss of life, injuries, and significant damage to property from events greater than 1 in 5-year return producing unusual high intensity rainfall and/or large volume run-off. Major systems can be large diameter underground piping, open channels, road overland flow route, stormwater facilities, natural streams, or any combination thereof, capable of conveying run-off, from events up to and including a 1 in 100-year return period, to the ultimate receiving stream or water body.

The following should be read in conjunction with the City’s Comprehensive Development Guidelines and Financial Policies and Storm Drainage Policy, as amended.

E.1.1 Storm Sewers

1. The Developer is responsible for the full cost of all storm sewer mains up to and including 1,200 mm diameter in size (the local service component).
2. Storm sewers larger than 1,200 mm diameter in size are considered trunk sewers for the purposes of oversizing and are eligible for Development Charges (D.C.) contribution based flat rates outlined in the City’s Financial Policies for Development.

Storm sewer sizing to be designed to City standard criteria for minimum velocity (0.8 m/s) and slope (0.2 %), to convey the 5-year event assuming a 5 year downstream boundary water level, without surcharging. Elliptical pipes are to be converted to equivalent circular diameter for oversizing calculation. Oversizing as a result of lower than standard velocity/slope/hydraulic grade line due to site design conditions is the responsibility of the local development and not D.C.



eligible (excluding industrial lands as per the City's "Comprehensive Development Guidelines and Financial Policies Manual").

3. Storm sewers conveying an event larger than five (5) year return period (i.e. major system flows) are not eligible for D.C. contributions unless required to do so by the City. In some areas, a storm sewer system may not be viable, and the major overland system may not be able to safely convey the runoff resulting from a 1 in 100 year design storm event. In this case a relief sewer or alternate conveyance mechanism may provide the additional capacity required, and be funded through Development Charges.
4. The construction of storm sewers deemed to be temporary are not eligible for D.C. contributions.
5. Installation of private drain connections or private systems is considered a local service component and is the developer's responsibility.
6. The construction of on-site open watercourse and overland flow routes for conveyance Internal to a Development is considered a local service component and is not eligible for D.C. contributions. The construction of downstream off-site outlets to service more than one development, including open watercourses and/or culverts and storm sewers, identified through the City's Stormwater Master Plan, a Master Plan, a Master Drainage Plan, a Watershed/Subwatershed Study or a Block Plan or Neighbourhood Plan, has been included in the D.C. Background Study and is eligible for D.C. contributions.

E.1.2 Stormwater Management Facilities

1. Stormwater Management Facilities (S.W.M.) in Series: If the stormwater management plan for local development involves two or more S.W.M. facilities in series, conveyance of the controlled 100-year peak flow between facilities in series is not D.C. eligible for oversizing (the connecting works are not considered to be part of the S.W.M. facility and outlet structure and appurtenances). However, if local 5-year flows are added to the storm sewer between the facilities in series, then the potential oversizing (compared to the sewer without any local inflow) is D.C. eligible.



2. Centralized stormwater management facilities (e.g. wet ponds and dry ponds) identified through the City's Stormwater Master Plan, a Master Plan, a Master Drainage Plan, or a Watershed/Subwatershed Study have been included in the D.C. Background Study and are eligible for D.C. contributions.
3. A stormwater management facility not identified in an approved City Stormwater Master Plan, a Master Plan, a Master Drainage Plan, or a Watershed/Subwatershed Study is deemed a local service. Notwithstanding, an unidentified stormwater management facility may be eligible for D.C. contributions provided it can be demonstrated that it is a centralized public facility servicing a catchment area through an approved neighborhood stormwater study.
4. Stormwater quality treatment by mechanical means (i.e. oil/grit separators) is not eligible for D.C. contributions.
5. Stormwater management facilities serving only non-residential areas (i.e. industrial, commercial, institutional) are not eligible for D.C. contributions.
6. For stormwater facilities which benefit both residential and non-residential only the residential portion will be eligible for D.C. contributions. The portion servicing the non-residential land uses shall be the financial responsibility of the developer.
7. Where a centralized (communal) facility serves both residential and non-residential parcels, the cost is shared by the ratio of the areas served and factored by the respective runoff coefficients. Note that the non-residential area, if commercial, may also be required to provide lot-level quality controls, depending on location.
8. The construction of stormwater facilities deemed by the City to be temporary as part of the phasing of development is not eligible for D.C. contributions. Such a facility may be considered for D.C. contribution in the future if it is subsequently determined to be a permanent municipal facility forming part of the City's centralized system.
9. The Developer is responsible to acquire lands for stormwater management facilities External to a Development. The City will not act as a third-party agent in



the negotiation and acquisition of lands for stormwater management facilities on behalf of private interest, unless otherwise approved by Council.

10. Oversizing – Downstream Constraints: If local development improves an existing downstream constraint to conveyance, e.g. mitigation or removal of historically observed/recorded surface or basement flooding due to inadequate capacity of the existing culverts and/or sewers downstream, then a portion of this work may be D.C. eligible subject to a detailed study that the developer shall provide at their cost.
11. 100 Year Control: City policy dictates that the controlled 100-year outlet flow from the facility is required to be conveyed in an enclosure to the development outlet, and potentially also beyond the development limit, to the receiving watercourse. This is considered by the City to be part of the outlet works, which is the responsibility of the development. (Note: current City practice is to request the development to enclose the 100-year peak flow between the S.W.M. block and the outlet, and not spill onto City roads). If the S.W.M. facility outlet pipe size exceeds 1,200 mm to convey the controlled 5-year flow, then there may be a City share in accordance with the oversizing policy.
12. Rural Settlement Areas (R.S.A.): For Rural Settlement Areas, and other areas outside the Urban Boundary, the stormwater management system is deemed a local service component, and stormwater management infrastructure is not eligible for D.C. contributions.
13. Airport Employment Growth District (A.E.G.D.) lands:
 - Stormwater quality controls to be provided on-site by local developers (ref. City A.E.G.D. Subwatershed Study, April 2017).
 - Neighbourhood quantity control facilities to be dry ponds, per Federal Transport Canada regulation prohibiting wet ponds in the vicinity of airports.
 - The neighbourhood dry ponds serving roads with 26 m or greater right-of-way (R.O.W.), are partially D.C. eligible on account of also controlling runoff from subject public roads. The City estimates the share to be 5% of the total area of road R.O.W. contributing. Notwithstanding, non-



residential stormwater management facilities are currently excluded from the City stormwater D.C.

14. City Standard: Proposed facilities not to exceed 40 ha of drainage area (based on limits associated with overland runoff conveyance in road R.O.W.s).
15. Public Roads/Single Applicants: In the case of a Public road draining to a non-centralized facility under single applicant, the developer would construct the facility, and the City assumes and maintains facility, hence not D.C. eligible.
16. Underground Tanks: Underground storage tanks are not D. C. eligible.
17. Mixed Use Buildings: In mixed use buildings, where the residential square foot area is equal to or more than the non-residential area, the facility is assigned to the residential section of the D.C.
18. Commercial Lands: When a commercial parcel or parcels is nested within a predominantly residential area, and serviced by a residential S.W.M. facility, the commercial parcels are required to manage their own runoff (i.e. quality control) and are assigned a zero share of the centralized/communal quantity control volume.

E.1.3 Land for Stormwater Management Facilities

1. Calculation of Land Area: The footprint (area of land) for stormwater management facilities in the D.C. Background Study is the larger of the footprint required by:
 - a. 6% of the drainage area for a wet pond (quality and quantity) facility; or
 - b. 4% of the total contributing drainage area for a dry pond (quantity only) facility or a footprint area determined by a supporting study. An exception to this is lands within the Fruitland-Winona Secondary Plan (i.e. Stoney Creek Urban Boundary Expansion (S.C.U.B.E.)) where 10% of the drainage area was used to establish the footprint.
2. Valuation of Land: The value of land for stormwater management facilities in the D.C. Background Study have been established as follows:



- a. Land designated in the Official Plan for development in Ancaster and Waterdown – \$754,800/Acre (\$1,865,111/ha);
 - b. Land designated in the Official Plan for development in Hamilton, Stoney Creek, Dundas, Glanbrook – \$652,800/Acre (\$1,613,069/ha);
 - c. Land located outside the Urban Boundary shall be based on Open Space value established by an independent real estate appraisal to be obtained at the cost of the developer.
3. D.C. contributions allocated to land costs for stormwater management facilities shall be limited to lands within an approved block net of any identified setbacks and buffers (e.g. Ministry of Transportation (M.T.O.), the City's Natural Heritage System).
 4. Land Footprint Contingency: Land cost will be based on actual stormwater management footprint size at the established land value as outlined in Clause 1.3.2. The Land Footprint Contingency will be used to compensate for facilities with a footprint size larger than identified on the individual project.
 5. Engineering fees are not eligible for D.C. contributions for land acquisition costs.
 6. Tailwater Impacts on Land: If local downstream grades beyond the development limits create tailwater conditions at a facility outlet (e.g. flat topography), the land area requirements to achieve the required stormwater volumes will be more and therefore will increase the cost of the facility above the average cost for a facility using the unitary relationships. Detailed studies are required to identify potential candidate facilities to which this condition applies, in order to be able to include this higher cost in the D.C. In the absence of studies, the City has estimated the facilities for which this is potentially a condition, and for sizing allocated 10% of the contributing drainage area (e.g. S.C.U.B.E. facilities) versus 6% under standard size.



7. Land costs are adjusted annually for inflation using the Statistics Canada Quarterly, Non-Residential Construction Price Index (Table 18-10-0135-01) for the most recent year-over-year period as set out in D.C.A. and reviewed with every D.C. study.

E.1. 4 Capital Costs of Stormwater Management Facilities

1. Capital costs assigned to the individual projects are based on \$80/m³ of total volume for the first 6,500 m³, and \$40/m³ of total volume for the balance of storage volume in excess of 6,500 m³. The costs are adjusted annually for inflation using the Statistics Canada Quarterly, Non-Residential Construction Price Index (Table 18-10-0135-01) for the most recent year-over-year period as set out in D.C.A. and reviewed with every D.C. study.
2. Bedrock Impacts: If local conditions dictate that part of a facility excavation is required to be in rock, this will increase the cost of the facility above the average cost for a facility. An allowance has been made to increase the unit cost for rock excavation for these facilities, based on actual costs, up to a maximum of \$80/m³.
3. Frontage Calculation: Facility frontage calculation has been updated using historical actual costs. Pond frontage costs will be limited to a maximum of 120 m at \$1,500/m (aboveground and underground works).
4. Capital costs will be paid based on tendered prices in accordance with the City's Financial Policies, to an upset limit established based on the required total storage at the unit cost as outlined in Clause E.1.4.1.
5. Stormwater Management features eligible for D.C. contribution include the following:
 - a. Erosion and Sediment control;
 - b. Excavation (excludes cost to haul surplus material off site and/or placement and compaction of surplus material within subdivision);
 - c. Fine grading;
 - d. Decanting areas;
 - e. Forebay structures, pond liner, cooling trenches, etc.;



- f. Outlet control structures within the facility;
 - g. Inlet control structures (e.g. flow splitter manhole and headwall) excluding the inlet conveyance pipe upstream of the forebay headwall;
 - h. Emergency spillways;
 - i. Maintenance access roads;
 - j. Landscaping and pond signage; and
 - k. Bollards
6. Engineering fees (design engineering and soft costs)) are included in the capital cost assigned to individual projects in the D.C. Background Study.
 7. Performance monitoring or development impact monitoring of S.W.M. facilities are not eligible for D.C. contributions.
 8. Facility Volume Contingency: Eligible capital cost will be based on the required total storage volume at the established capital cost rate as outlined in Clause E1.4.1. The Facility Volume Contingency will be used to compensate for facilities larger in size than identified on the individual project.
 9. Stormwater management facilities eligible for D.C. contributions must be publicly tendered in accordance with the City's Financial Policies for Development.
 10. D.C. contribution for land value and capital cost are independent.

E.1.5 Culverts and Bridges

1. Culverts and Bridges (as related to road infrastructure): The responsibility for the cost of stormwater conveyance infrastructure associated with road infrastructure, as part of new development or redevelopment, is to be determined as follows:
 - a. The costs of stormwater infrastructure items (excluding land) shall be direct developer responsibilities as a local service for:
 - i. all crossings (new or extending or replacement) up to the 20 m local cross-section for roads that are required to service the development



- b. The costs of stormwater infrastructure items shall be eligible for inclusion in a stormwater Development Charge for:
 - i. new crossings (e.g. culverts/bridges) for roads greater than 20 m, where the D.C.-eligible portion is the fraction calculated by the length in excess of the width of 13.0 m (defined by the standard 8.0 m width of pavement, plus 2 x 0.5 m curbs, and plus 2 x 2.0 m sidewalks required for a local road), divided by the total length (i.e.



Summary of D.C. Eligibility for Culverts/Bridges					
Road Type	Road Right-of-Way Width	Culvert/Bridges (1)	Oversizing of Storm Sewers and Ditches for Conveyance and/or Treatment (A.E.G.D.) (2)	Contributing to Neighbourhood S.W.M. (A.E.G.D.)	Existing Culvert/Bridge Upgrades to meet City Design Standards (3)
Urban Local	20 m				
Urban Collector	26 m	Length greater than 13 m is D.C. eligible, costed as a fraction of the total length	In A.E.G.D., a 26 m road is 100 % developer responsibility; not D.C. eligible	Not D.C. eligible	a portion is D.C. eligible
Urban Arterial Minor	32 m	Length greater than 13 m is D.C. eligible, costed as a fraction of the total length	Subject to study, oversizing of stormwater conveyance elements greater than 26 m may be D.C. eligible	5 % of road R.O.W. assumed to contribute to facility, D.C. eligible	a portion is D.C. eligible
Urban Arterial Major	40 m	Length greater than 13 m is D.C. eligible, costed as a fraction of the total length	Subject to study, oversizing of stormwater conveyance elements greater than 26 m may be D.C. eligible	5 % of road R.O.W. assumed to contribute to facility, D.C. eligible	a portion is D.C. eligible
Rural Local	20 m	N/A			a portion is D.C. eligible
Rural Collector	20 m	N/A			a portion is D.C. eligible
Road Widening for Development	varies				Extensions to existing culverts bridges beyond the minimum 13 m length are D.C. eligible

Notes:

1. slopes on culvert ends are assumed common for urban roads hence the weighting is proposed to use pavement/curb/sidewalk width only
2. For A.E.G.D. only, road-specific Low Impact Development (L.I.D.) Best Management Practices (B.M.P.s) will require an update to City Standards. Notwithstanding, non-residential stormwater management facilities are currently exempted from the City stormwater D.C.
Notwithstanding, non-residential stormwater management facilities are currently exempted from the City stormwater D.C.
3. Existing culvert/bridge upgrades will be subject to study to determine remaining service life of existing culvert/bridge and D.C. eligible portion



the City cost share is 13 m divided by the total length of the proposed crossing in m).

- ii. Extensions to culverts/bridges for road R.O.W.s greater than a 20 m R.O.W., and length of crossings greater than 13 m, 100 % D.C. eligible.

E.1.6 Watercourses

1. Watercourses: Local development is responsible for any watercourse realignment and/or enclosures within its development limits. Local development is responsible for conveyance of upstream external flows through its development. Watercourse works to accommodate runoff from the development, external to the development, identified in City Master Drainage Plans and/or other related studies are D.C. eligible, proportionate to growth serviced by the watercourse.
2. Watercourse Enclosures: Watercourses enclosed by the development are not subsequently eligible for storm sewer oversizing under the D.C.

E.1.7 Combined Sewer Watershed

1. Combined Sewer Watershed: Current City practice is to control the future land use 100-year peak flow to pre-development land use 2-year levels, and required storage is the responsibility of development and not D.C. eligible. D.C.-eligible projects have been added as provisional items. Future studies will define locations for these provisional items.
2. Combined Sewer Watershed: New stormwater outlets potentially created through studies will be D.C. eligible where new development may be serviced by new separate storm sewers and a new suitable outlet. Stormwater costs will be shared 50/50 between the City (existing) and new development. The City will identify candidate locations subject to future study.



E.1.8 Miscellaneous

1. Off-site System Monitoring (holistic):

- Local monitoring of stormwater infrastructure built within the local development is the responsibility of the local developer. In addition, any off-site system monitoring required by a specific development as a condition of Site Plan/Draft Plan approval is the responsibility of the local developer.
- Holistic monitoring of more than one development (i.e. typically based on a Secondary Plan or Tertiary Plan Area) is D.C. eligible (included in list of D.C. eligible studies), and is currently proposed as a minimum for Elfrida, Greenville, S.C.U.B.E., and the A.E.G.D. lands. Estimated costs for a 7 to 10-year duration of multi-disciplinary monitoring is \$2M per study, based on recent similar studies in the Greater Golden Horseshoe area.

E.2 Local Service Policy for Water and Wastewater

Utilizing the City's development assumptions, the water and wastewater infrastructure required to service these areas was identified. To determine if a project is a Development Charges (D.C.) related project, the following two categories were considered:

Category 1 – Projects External to Proposed Development Lands (i.e. on existing road allowance and servicing more than one development)

The following project descriptions fall into Category 1 and will be fully or partially allocated to Development Charges:

- New infrastructure or upgrades to existing City infrastructure required to service more than one potential proposed development and/or development property, whether in a Greenfield area or Intensification area. This includes upgrades to infrastructure that is upstream (water) or downstream (wastewater) of multiple developments.
 - If an upgrade is triggered by growth (single or multiple potential development) and that planned growth is less than or equal to the



approved Traffic Survey Zone growth, the upgrade will be all or partially allocated to Development Charges.

- In the case that a development plans to have more growth than is planned for (by approved Traffic Survey Zones and system capacity) and if the infrastructure upgrade is as a result of growth over and above what is approved, that additional oversizing shall be the responsibility of the Developer (Direct Developer).
 - This may include watermains for transmission, distribution and looping.

New projects that physically lie outside of a proposed development, but only service a single development can be considered to be part of **Category 2**. For example, new sewer on existing road right of way (external to development) to service a new building on land not already serviced, with no additional developments potentially draining to the new sewer.

Local cost recoveries will be made on a site-specific basis based on frontage and/or drainage area.

Category 2 – Projects Within Proposed Development Lands - The following project descriptions fall into Category 2:

- Water and sewer infrastructure that is required to directly service the proposed development lands.
- Water and sewer infrastructure that is required to directly service the proposed development lands *and* potentially “oversized” in consideration (capacity, looping or fire protection) of additional proposed developable lands that are normally serviced via proposed development property.

In regards to Category 2 projects, the developer is required to pay for the full cost of the installation of sanitary sewers and watermain up to and including the sizes listed below. This is described as the Direct Developers Contribution. The minimum sizes are provided from the City’s Development Policies:

Sanitary Sewer 450 mm diameter

Watermain 300 mm diameter



Facilities (Water Pumping Station, Water Reservoir or Elevated Tank, Wastewater Pumping Station)

- No minimum size/capacity
- Facilities to service single proposed development lands will be Direct Developer Contribution.
- Facilities servicing multiple developments/service areas will be allocated to Development Charges Categories only (D.C., Benefit to Existing and Post Period Benefit).

Water Treatment / Wastewater Treatment – Treatment upgrades to be included in Development Charges Categories only (D.C., Benefit to Existing and Post Period Benefit).

Should the size of the local infrastructure be required to be greater than the minimum local servicing sizes (i.e. to support external development), Development Charges contributions shall be made. The City shall contribute, through the Development Charges Fund, towards the cost to install the infrastructure on a “Flat Rate” basis. “Flat Rate” is defined as the cost difference between the size required for external development and the minimum size, noted above in the City’s Development Policies.

Projects identified are sized based on the City’s engineering guidelines for design and to accommodate the future population and employment demand/flow within the proposed drainage/service areas.

The Development Charges Capital Program identified in this document demonstrates the calculated cost splits on a project by project basis.

E.2.1 Funding for Municipal Extensions

In cases where a new watermain or sewer is installed by a developer that benefits and enables a new connection to by an existing, unserviced property, a flat rate contribution is made back to the developer. Additional details of this funding methodology related to Direct Developer (or “Developer Initiated”) projects including projects external to the development lands are found in the 2007 City Report:

TOE02005b/FCS02026b/PED07248 - Funding Methodology for Municipal Infrastructure Extensions Review and Update



<http://www2.hamilton.ca/NR/rdonlyres/2913680C-68EA-4B5A-A288-0CAA23F6165A/0/Sep17TOE02005b.pdf>

E.2.2 Capacity Allocation

As growth and re-development progresses over time, The City requires a means to determine the amount of spare capacity within the water distribution and wastewater collection systems that are to be allocated to any potential development application. Additionally, the City must also determine a reasonable period of time in which this allocated capacity is to be made available prior to development.

The capacity will be allocated to projects in the order in which the Construction Plans are approved. In the event that multiple projects are approved at the same time, the identification, selection and prioritization of the project given in the City's Infrastructure Staging of Development Program will prevail.

This policy is intended to be used as a guide for conveyance only (not treatment), and are subject to review and update by the City moving forward.

E.2.3 Co-ordinated Projects with Transportation Requirements

Water and wastewater projects external to proposed development lands (i.e. on existing road allowances and/or existing roads) that fall into Category 1 and that are initiated as a result of identified transportation requirements and are eligible for inclusion in the D.C. at the same D.C. eligible percentage as the associated road.

Service connections (water and/or wastewater connections – public portion) will be constructed to each land parcel, when an existing dwelling unit exists. Property owners that require more than one service connection will be required to pay for the cost of the additional service connections prior to construction. Benefitting property owners shall contribute towards the cost to install the infrastructure on a “flat rate” basis. The “flat rate” will be established by the City at the beginning of each year.

E.3 Local Service Policy for Parkland Development

The developer's responsibilities related to parkland are generally described in Option 1 (sections 3.3 and 4.3) of the *Park and Open Space Development Guide*, latest version. Whether the developer chooses to develop under Option 1 or 2 of this guide is at the



discretion of the developer and the City, and requires entering into agreements as detailed in the *Park and Open Space Development Guide*. The direct developer responsibilities are the same regardless of which option is followed; the generality of the guide does not restrict the requirements as detailed in the local service policy below.

All parkland construction must adhere to the City of Hamilton's *Construction and Material Specifications Manual*, latest edition. This includes but is not limited to all soil testing, soil compaction, asphalt, concrete, and granular requirements.

E.3.1 Recreational Trails

1. Recreational trails (Trails, Multi-use trails, pathways, sidewalks) that are external to development and that do not form part of municipality's active transportation network, and their associated infrastructure (landscaping, bridges, trail surface, etc.), are included in parkland D.C.'s.
2. Recreational trails (Trails, Multi-use trails, pathways, sidewalks) that are internal to development and that do not form part of municipality's active transportation network, and their associated infrastructure up to base condition, are a direct developer responsibility as a local service provision under s. 59 of the D.C.A. and includes the following:
3. Recreational Trails outside of road allowances, including granular base and surfacing is a direct developer responsibility as a local service provision under s.59 of the D.C.A. and includes the following:
 - a. Recreational Trails that are part of the City's Recreational Trails Master Plan which fall in the subdivision area, with materials as indicated in the Plan.
 - b. Recreational Trails that are part of the City's Pipeline Trail Master Plan which fall in the subdivision area, with materials as indicated in the Plan.
 - c. Recreational Trails around stormwater management ponds that may link to maintenance truck access or other trails/pathways to provide additional recreation opportunities for residents.



- d. The base condition works for the open space areas that contain trails shall be the same as the works required for parkland in Section 2.a).

E.3.2 Parks (City-Wide Parks, Community Parks, Neighbourhood Parks & Parkettes)

1. Park development to base condition is a direct developer responsibility as a local service provision under s. 59 of the D.C.A. and includes the following:
 - a. Clearing and grubbing. Tree removals as per the subdivision's tree preservation and removals plan.
 - b. Topsoil Stripping, screening, and stockpiling.
 - c. Rough grading (pre-grading) to allow for positive drainage of the Park, with minimum slopes of 2%. If necessary, this may include some minor drainage tile work and grading as per the overall subdivision grading design complete with any required swales or catch basins. Runoff from the development property shall not drain into the park unless approved by the Manager, Environment Services, Public Works.
 - d. Spreading of topsoil to 150mm depth (import topsoil if existing on-site is insufficient to reach required depth).
 - e. Seeding of site with City-approved seed mix. Maintenance of seed until acceptance by City.
 - f. Parks shall be free of any contaminated soil or subsoil.
 - g. Parks shall not be mined for fill.
 - h. Parks shall be conveyed free and clear of all encumbrances.
 - i. 100% of 1.5m chain link perimeter fencing to the City standards to separate the development lands from the City lands or lands to be dedicated to the City, unless the perimeter fencing is on land that will be dedicated to the City to fulfil the requirement of parkland dedication under the Planning Act, in which case the cost shall be shared 50/50.



- j. When Park parcels cannot be developed in a timely manner, they shall be graded to ensure positive drainage and seeded to minimize erosion and dust. These shall be maintained by the developer until construction commences thereon.
 - k. The Park block shall not be used for topsoil or other construction material, equipment storage, or sales pavilions.
 - l. Required heritage features within the Park as set out within the Planning approval conditions.
2. Sports facilities, creative play structures/equipment, sun shelters, multi-purpose courts, walkways, plantings, site furnishings, and other amenities (including associated utilities) within Parks are included in the parkland D.C.'s.
3. Servicing Stubs to parkland are not required under the Local Service Policy for parkland, however, they are included in the *transportation* D.C.'s and local service policy. All park servicing calculations shall follow the criteria outlined in the City of Hamilton's *Engineering Guidelines for Servicing Land under Development Applications*, latest Edition (<https://d3fp1lf1m7btt3.cloudfront.net/sites/default/files/media/browser/2014-12-18/engineering-guidelines-servicing-land.pdf>).
4. Where parkland ownership is fragmented (one park block owned by multiple developers), only the final developer shall have the option to fully develop the park (i.e. Option 2 in the *Park and Open Space Development Guide* (<https://d3fp1lf1m7btt3.cloudfront.net/sites/default/files/media/browser/2014-12-18/park-open-space-development-guide.pdf>) will not be permitted by the City). However, all developers will still be required to complete all direct developer responsibilities to base condition (i.e. Option 1 of the *Park and Open Space Development Guide* will be required for the park block fragment that they own).

E.3.3 Open Space (General Open Space & Natural Open Space)

General Open Space

1. General Open Space shall include golf courses, community gardens, picnic areas, beaches, remnant parcels of open space lands, and urban plazas,



squares and core spaces. These areas do not function as parks but are used for both active and passive recreational activities.

2. General Open Space to base condition is a direct developer responsibility as a local service provision under s. 59 of the D.C.A. and includes the following:
 - a. Clearing and grubbing. Tree removals as per the subdivision's tree preservation and removals plan.
 - b. Topsoil Stripping, screening, and stockpiling.
 - c. Rough grading (pre-grading) to allow for positive drainage of the General Open Space, with minimum slopes of 2%. If necessary, this may include some minor drainage tile work and grading as per the overall subdivision grading design complete with any required swales or catch basins. Runoff from the development property shall not drain into the park unless approved by the Manager, Environment Services, Public Works.
 - d. Spreading of topsoil to 150mm depth (import topsoil if existing on-site is insufficient to reach required depth).
 - e. Seeding of site with City-approved seed mix. Maintenance of seed until acceptance by City.
 - f. General Open Space shall be free of any contaminated soil or subsoil.
 - g. Parkland shall not be mined for engineering fill and replaced with fill or topsoil.
 - h. General Open Space shall be conveyed free and clear of all encumbrances.
 - i. 100% of 1.5m chain-link perimeter fencing of General Open Space to the City standard located on the public property side of the property line as required by the City.
 - j. When General Open Space parcels cannot be developed in a timely manner, they shall be graded to ensure positive drainage and seeded to



minimize erosion and dust. These shall be maintained by the developer until construction commences thereon.

- k. The General Open Space block shall not be used for topsoil or other construction material, equipment storage, or sales pavilions.
 - l. Required heritage features within the General Open Space as set out within the Planning approval conditions.
3. Sun shelters, walkways, plantings, site furnishings, and other amenities (including associated utilities) within General Open Space are included in the parkland D.C.s.

Natural Open Space

1. Natural Open Space shall include lands with significant natural features and landscapes such as woodlots, hazard lands, forested slopes, creek/ravine corridors, the Niagara Escarpment, environmentally sensitive areas (of natural and scientific interest), and areas of wildlife habitat. These areas perform important biological and ecological functions and provide passive recreational opportunities.
2. Where Natural Open Space is to be left as existing in the plan of subdivision, Natural Open Space to base condition is a direct developer responsibility as a local service provision under s. 59 of the D.C.A. and includes the following:
 - a. Ensure that the area is not damaged or removed, and that the space is kept free of construction debris and garbage during construction.
 - b. The Natural Open Space block shall not be used for topsoil or other construction material, equipment storage, or sales pavilions.
 - c. Required heritage features within the Natural Open Space as set out within the Planning approval conditions.
 - d. Where naturalization or restoration works are required, only native plants shall be utilized.



- e. Where private lots back onto channels, 100% of 1.5m chain-link perimeter fencing to the City standard shall be located on the public property side of the property line as required by the City.
3. For Natural Heritage Systems, refer to Section E.4 of this local service policy.

E.4 Local Service Policy for Natural Heritage System (N.H.S.)

The City contains many natural areas and features that contribute to the municipality's beauty, unique character and quality of life. A systems approach has been used to develop a Natural Heritage System (N.H.S.) within the City, which consists of Core Areas, Linkages, the Greenbelt Plan N.H.S. and the Niagara Escarpment Plan Area (as per the City's Official Plan).

Core Areas are the most important components of the N.H.S. in terms of biodiversity, productivity, and ecological and hydrological functions and are comprised of key natural heritage features, key hydrologic features and local natural areas, as follows:

- Key Hydrologic Features
- Permanent and intermittent streams
- Lakes (and their littoral zones)
- Seepage areas and springs
- Wetlands
- Key Natural Heritage Features
- Significant habitat of endangered and threatened species
- Fish habitat
- Wetlands
- Life Science Areas of Natural and Scientific Interest (A.N.S.I.)
- Significant valley lands
- Significant wildlife habitat
- Sand barrens, savannahs, and tallgrass prairies
- Alvars
- Local Natural Areas
- Environmentally Significant Areas (E.S.A.)
- Unevaluated wetlands
- Earth Science Areas of Natural and Scientific Interest (A.N.S.I.)



Linkages are natural areas such as old fields, meadows, thickets, successional habitat, hedgerows, riparian vegetation and woodlands that ecologically connect Core Areas.

Developer responsibility as a local service provision would include but not be limited to:

- a) Planting internal to the development as required by the City as part of the creation of a vegetation protection zone (V.P.Z.) that protects the features and functions of the N.H.S. and achieves the goal of natural, self-sustaining vegetation.
- b) Implementation of mitigation measures as outlined within approved Environmental Impact Statements, Linkage Assessments, other studies (i.e. subwatershed studies, Secondary Plans) or as required by the City, Conservation Authorities or other authorities having jurisdiction (i.e. Niagara Escarpment Commission, Ministry of Natural Resources and Forestry). These measures may be located internal or external to the development and would include but not be limited to plant salvage, habitat restoration and management, plantings, monitoring, invasive species control, stewardship/education, and Species at Risk requirements.
- c) Fencing internal to the development at the boundary of the approved V.P.Z. associated with the N.H.S. features. This fencing is to be to the City's standards.
- d) Non-traditional fencing, such as dense plantings and bollards, to delineate the boundaries of the protected areas and prevent encroachment.
- e) Compensation planting requirements for tree removal according to the City's standards.

E.5 Local Service Policy for Services Related to a Highway

E.5.1 Overview

This appendix sets out the municipality's General Policy Guidelines on Development Charges (D.C.) and local service funding for Services Related to a Highway. The guidelines outline in general terms, the size and nature of the engineered infrastructure that is included in the study as a development charge project, versus infrastructure that is considered as a local service, to be emplaced separately by landowners, pursuant to a development agreement.



The following policy guidelines are general principles by which staff will be guided in considering development applications. However, each application will be considered in the context of these policy guidelines on its own merits and having regard to, among other factors, the context of the surrounding area and the location and type of services required as well as their relationship to the proposed development and to the existing and proposed development in the area as per subsection 59(2) of the Development Charges Act, 1997 (D.C.A.).

E.5.2 Services Related to a Highway

A highway and services related to a highway are intended for the transportation of people and goods via many different modes including, but not limited to, passenger automobiles, commercial vehicles, transit vehicles, cycling, and walking. A highway shall consist of all land, services, and infrastructure built to support this movement of people and goods regardless of mode of transportation in pursuit of a complete street.

The transportation planning paradigm across North America has shifted over the last decade or more. The design and layout, density, and mix of uses within a neighbourhood have become a critical consideration. This new consideration and need to grow the City along regional, sub-regional and community nodes and corridors characterized by denser and more mixed development is supported by highways that accommodate and promote walking, cycling and transit use over auto use and has been identified by the City of 2017 Hamilton Transportation Master Plan (H.T.M.P.), area specific Transportation Master Plans, and the City of Hamilton Official Plan (O.P.). The overall vision is to create a City which is highly walkable and in which it is easy and convenient to walk, cycle or take transit. The H.T.M.P. has set clear targets to reduce overall vehicle kilometers; reduce trips made by single occupant vehicles; increase trips made by transit; and encourage cycling and walking.

The City of Hamilton O.P. and the H.T.M.P. puts heavy emphasis on designing corridors, streets and paths with full consideration given to transit, cyclists and pedestrians. Consequently, the design elements of a highway as well as its role and function must change to embrace all categories of the transportation system users and needs to provide a *Complete Street*. Complete streets is a concept that defines a highway as a transportation facility that provides safe and comfortable travel for a wide



variety of users, regardless of mode, level of ability, and age. Complete streets allow safe travel for:

- Pedestrians of all ages and ability levels
- Cyclists
- Automobiles
- Transit vehicles
- Delivery vehicles

The main premise of complete streets is the recognition that the function of a street (or a highway) goes beyond simply moving vehicles. Rather, streets play an important role in moving people, connecting the community, accommodating pedestrians and cyclists, enabling goods movement, providing a space for public interaction and civic engagement, and providing access for local stores and businesses. A complete street concept has been fully embraced by the City of Hamilton and is fundamental to transportation policy in the City identified through the key planning documents mentioned earlier. It also translates to the planned capital projects and therefore the local service policy and the development charges process.

Under this premise, the design of a street is approached with the objective of optimizing the right-of-way (R.O.W.) to balance mobility needs and enhance connectivity for all users. Traffic Management is a range of measures and infrastructure that help achieve that balance (e.g. traffic signals, roundabouts). Travel Demand Management (T.D.M.) on the other hand refers to strategies that attempt to reduce or more efficiently manage the demand for travel within the existing transportation network and reduce capital expenditure without further expanding the supply of the network. Examples of T.D.M. strategies with impact on highway design, role, and function include:

- Carpooling to increase the occupancy of vehicles. High occupancy vehicle (H.O.V.) lanes provided within the road platform are needed to promote better utilization of existing assets by increased auto occupancy.
- Active transportation (A.T.) (walking or cycling) to reduce demand for vehicle travel by shifting commuter travel demand to cycling and walking. This measure is supported by on-road and off-road cycling trails, sidewalks, and multi-use pathways.



- Park and ride facilities at transit stations are designed to “capture” auto users at some critical gateway points and divert them to transit or A.T. modes.

The H.T.M.P. includes the identification of rapid transit initiatives and the implementation of Light Rail Transit (L.R.T.) corridors which will have effects on the design of these highways as either main L.R.T. corridors or the so called “feeder” routes. Several transit priority measures will be required to “prepare” a highway for serving transit effectively. These features will include but will not be limited to:

- H.O.V. or shared lanes for the exclusive or semi-exclusive use of transit vehicles and private automobiles with more than one occupant. They allow high-occupancy vehicles to have faster travel times than general purpose lanes, encouraging transit use and carpooling. Lanes may be designated as shared lanes only during peak periods.
- Provision of dedicated transit lanes along transit priority routes.
- Transit signals and transit priority signals that use real-time information to either extend a green light or shorten a red light when a bus is approaching to help the bus pass through the intersection without stopping thus giving priority to transit vehicles at intersections.
- Queue jump lanes with signal priority allow buses to bypass queues at intersections. Transit vehicles have an advanced green and can enter the intersection before other vehicles.
- Architecturally distinctive passenger amenities, bus bays, bus stop infrastructures and terminals located within the road allowance, and provided to improve safety and comfort for transit users.

The concept of services related to a highway has evolved and expanded to fully embrace the transportation of people and goods via many different modes including, but not limited to passenger cars, commercial vehicles, transit vehicles, bicycles and pedestrians. The highway therefore consists of all land and associated infrastructure built to support (or service) this movement of people and goods regardless of the classification of the road (i.e., local, collector or arterial) or the mode of transportation employed, thereby meeting their primary role and function of providing transportation “space” and opportunity for all users. The associated infrastructure to achieve this concept shall include, but is not limited to:



- road pavement, sub-structure and curbs;
- new sidewalks, sidewalks to fill in network gaps, sidewalks associated with the urbanization of roads or sidewalk enhancements and widenings;
- roundabouts, traffic calming features, left and right turn lanes, medians, lay-bys, pedestrian cross-overs;
- grade separation / bridge structures (for any vehicles, railways and/or pedestrians and cyclists);
- grading, drainage and retaining wall features;
- culvert structures;
- storm water drainage systems;
- traffic control systems, signals and related technologies;
- active transportation facilities (e.g. sidewalks, bike lanes, multi-use trails, trails, pathways, cycle tracks, bike share facilities and services, other cycling amenities, etc.);
- sustainable mobility programs;
- transit lanes, queue jump lanes, bus bays, stops and amenities;
- curb extensions between queue jump lanes and bus bays;
- roadway illumination systems;
- boulevard and median surfaces (e.g. sod & topsoil, paving, etc.);
- street trees, streetscaping and landscaping;
- parking lanes and driveway entrances;
- noise attenuation systems;
- signage;
- railings, safety barriers;
- related utilities; and
- temporary works to facilitate the implementation of any of the above.

For road classification information, refer to the City of Hamilton Official Plan and the *Comprehensive Development Guidelines and Financial Policies Manual, 2017*, or as may be amended from time to time.

<https://www.hamilton.ca/develop-property/policies-guidelines/comprehensive-development-guidelines-and-financial-policies>.



E.5.3 Infrastructure

E.5.3.1 Local and Collector Roads (including land)

1. All Local Roads are considered to be the developer's financial responsibility.
2. Collector Roads, internal to a development, inclusive of approvals, all land and associated infrastructure, including temporary works, are a direct developer responsibility under s. 59 of the Development Charges Act (D.C.A.) as the local service component, net of applicable oversizing per the Financial Policies for Development and the Comprehensive Development Guidelines and Financial Policies Manual, 2017, or as may be amended from time to time.

<https://www.hamilton.ca/develop-property/policies-guidelines/financial-policies-development>

In the Airport Employment Growth District (A.E.G.D.) Transportation Master Plan, certain collector roads internal to the development were listed as Schedule C improvements in the implementation plan. These are listed incorrectly and are a direct developer responsibility as outlined in this Local Service Policy.

3. Collector Roads, external to development, inclusive of all land and associated infrastructure, including temporary works, needed to support a specific development or required to link with the area to which the plan relates, are a direct developer responsibility under s. 59 of the D.C.A. (local service component) net of applicable oversizing per the Financial Policies for Development and the Comprehensive Development Guidelines and Financial Policies Manual, 2017, or as may be amended from time to time.

E.5.3.2 Arterial Roads

1. New, widened, extended or upgraded arterial roads, inclusive of all associated infrastructure, including temporary works, is included as part of highway costing funded through D.C. net of direct developer responsibility (local service component) per *Financial Policies for Development* and the *Comprehensive Development Guidelines and Financial Policies Manual, 2017*, or as may be amended from time to time.



2. Land Acquisition for arterial roads on existing rights-of-way to achieve a complete street: dedication under the Planning Act provisions (s. 41, 51 and 53) through development lands per *Financial Policies for Development* and the *Comprehensive Development Guidelines and Financial Policies Manual, 2017*, or as may be amended from time to time. In areas with limited development, this is included as part of highway costing funded through D.C.
3. Land Acquisition for arterial roads on new rights-of-way to achieve a complete street: dedication, where possible, under the Planning Act provisions (s.51 and 53) through development for lands up to the collector standard per *Financial Policies for Development* and the *Comprehensive Development Guidelines and Financial Policies Manual, 2017*, or as may be amended from time to time. Land acquisitions for road widenings and/or oversizing beyond the collector standard, or where located in an area with limited development, are included as part of highway costing funded through D.C.
4. Land acquisition beyond normal dedication requirements to achieve transportation corridors as services related to highways including grade separations and infrastructure for the movement of pedestrians, cyclists, public transit and/or railway vehicles are included as part of highway costing funded through D.C.

E.5.3.3 Traffic and Transit Control Systems, Signals and Intersection Improvements on Area Municipal Highways

1. New, widened, extended or upgraded arterial roads, including temporary works, unrelated to a specific development are included as part of highway costing funded through D.C. net of developer responsibility (local service component) per *Financial Policies for Development* and the *Comprehensive Development Guidelines and Financial Policies Manual, 2017*, as may be amended from time to time.
2. Arterial and non-arterial road improvements related to any private site entrances or entrances to specific development, including any temporary works, are a direct developer responsibility under s. 59 of the D.C.A. (local service component), net of applicable oversizing per *Financial Policies for Development* and the



Comprehensive Development Guidelines and Financial Policies Manual, 2017, or as may be amended from time to time.

3. Intersection improvements, new or modified signalization, signal timing and optimization plans, area traffic studies for highways attributed to growth and unrelated to a specific development are included as part of highway costing funded through D.C. as permitted under a. 5(1) of the D.C.A.

E.5.3.4 Streetlights

1. Streetlights on new arterial roads and arterial road improvements are considered part of the complete street and included as part of highway costing funded through D.C. net of direct developer responsibility (local service component).
2. Streetlights on non-arterial roads external to development needed to support a specific development or required to link with the area to which the plan relates are considered part of the complete street and included as a direct developer responsibility under s. 59 of the D.C.A. (local service component).
3. Streetlights on non-arterial roads internal to development are considered part of the complete street and included as a direct developer responsibility under s. 59 of the D.C.A. (local service component).

E.5.3.5 Transportation-Related Pedestrian and Cycling Facilities

1. Sidewalks, multi-use trails, trails, pathways, cycle tracks and bike lanes, inclusive of all required land and infrastructure, including related temporary works and grade separations, located within City arterial road and Provincial highway corridors are considered part of the complete street and included as part of highway costing funded through D.C., net of direct developer responsibility (local service component) per *Financial Policies for Development* and the *Comprehensive Development Guidelines and Financial Policies Manual, 2017, or as may be amended from time to time.*
2. Sidewalks deemed to be temporary are considered direct developer responsibility (local service component).



3. Sidewalks, trails, pathways, multi-use trails, cycle tracks and bike lanes, inclusive of all required land and infrastructure, including related temporary works and grade separations that are located within or linking to non-arterial road corridors internal to development are considered part of the complete street and are a direct developer responsibility under s. 59 of the D.C.A. (local service component) per *Financial Policies for Development* and the *Comprehensive Development Guidelines and Financial Policies Manual, 2017*, or as may be amended from time to time.
4. Other sidewalks, trails, pathways, multi-use trails, cycle tracks and bike lanes, inclusive of all required land and infrastructure, including related temporary works and grade separations, that are located within non-arterial road corridors external to development and needed to support a specific development or required to link with the area to which the plan relates are a direct developer responsibility under s. 59 of the D.C.A. (local service component) per *Financial Policies for Development* and the *Comprehensive Development Guidelines and Financial Policies Manual, 2017*, or as may be amended from time to time.
5. Multi-use trails (not associated with a road), inclusive of all land and required infrastructure and including related temporary works and grade separations, that go beyond the function of a (parkland) recreational trail and form part of the City's active transportation network for cycling and/or walking are included in D.C. calculation as permitted under a. 5(1) of the D.C.A.

E.5.3.6 Sustainable Modes Programs including Transportation Demand Management

1. Bike share expansions within existing service areas and in new service areas; cycling amenities including bike racks, lockers, shelters and fix-it stations; pedestrian amenities (e.g. benches); and sustainable mobility programs (e.g. Smart Commute, T.D.M. for higher density developments) are considered part of the complete street and included as part of highway costing funded through D.C. net of direct developer responsibility (local service component) per *Financial Policies for Development* and the *Comprehensive Development Guidelines and Financial Policies Manual, 2017*, or as may be amended from time to time.



E.5.3.7 Noise Abatement Measures

1. Noise abatement measures external and internal to development where it is related to, or a requirement of a specific development are a direct developer responsibility under s. 59 of the D.C.A. (local service component).
2. Noise abatement measures on new arterial roads and arterial road Improvements abutting an existing community and unrelated to a specific development are included in D.C. calculation as permitted under a. 5(1) of the D.C.A.

E.5.3.8 Transit Nodes, Terminals, Lanes and Bus Stop Infrastructure

1. Transit node, transit priority measures (e.g. queue jump lanes, transit signal priority) and bus stop infrastructure and amenities (including bus pads and shelters) located within arterial road corridors, and including transit stations or terminals located on lands to serve these road corridors are considered part of the complete street and included in D.C. calculation as permitted under a. 5(1) of the D.C.A. net of direct developer responsibility under s. 59 of the D.C.A. (local service component) per *Financial Policies for Development* and the *Comprehensive Development Guidelines and Financial Policies Manual, 2017*, or as may be amended from time to time.
2. Transit node, transit priority measures (e.g. queue jump lanes, transit signal priority) and bus stop infrastructure and amenities located within non-arterial road corridors internal to development are considered part of the complete street and direct developer responsibility under s. 59 of the D.C.A. (local service component).
3. Transit node, transit priority measures (e.g. queue jump lanes, transit signal priority) and bus stop infrastructure and amenities located within non-arterial road corridors external to development and needed to support a specific development or required to link with the area to which the plan relates are a direct developer responsibility under s. 59 of the D.C.A. (local service component).



E.5.3.9 Infrastructure Assets Constructed by Developers

1. All infrastructure assets constructed by developers must be designed in accordance with the City's engineering standards and policies.
2. All infrastructure assets shall be conveyed in accordance with the City's engineering standards and policies.



Appendix F: Water and Wastewater Servicing Needs – GM BluePlan Engineering Consultants Ltd.

Prepared By:



CITY OF HAMILTON

2019 CITY OF HAMILTON DEVELOPMENT CHARGES BY-LAW STUDY
APPENDIX F - WATER AND WASTEWATER

GMBP File: 717010
February, 2019



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1. INTRODUCTION

This water and wastewater technical report is prepared as a background document for the City of Hamilton’s 2019 Development Charges (D.C.) By-law. The 2019 D.C. Background Study is an update to the Consolidated Development Charges Background Report, dated October, 2014, prepared by Watson & Associates Limited. This water and wastewater technical report provides engineering input on growth related costs of water and wastewater infrastructure upgrades and will be used to update the City’s D.C. By-Law in 2019 for growth to 2031.

The objectives of this study are:

Identify the demand that will be placed on the community’s municipal water and wastewater system as a result of approved population and employment growth within the urban boundary to the year 2031, consistent with Places to Grow.

Recommend water and wastewater infrastructure required to service the expected growth needs in the two planning horizons 0 to 5 year and 6 year to urban boundary build-out (U.B.B.O.).

Provide growth related project cost estimates for water and wastewater infrastructure eligible for D.C. funding.

Section 5 describes the works required that are development related for each urban area. Figures are organized with the digit and decimal (e.g. 2.2). The digit identifies the type of infrastructure and the decimal identifies the urban area as follows (e.g. 2.2 Wastewater System, Ancaster).

Digit – Infrastructure

- 1 - Water Distribution System
- 2 - Wastewater System

Decimal – Area

- .1 - Waterdown
- .2 - Ancaster
- .3 - A.E.G.D./Mount Hope
- .4 - Binbrook
- .5 - Hamilton Mountain
- .6 - Stoney Creek Upper
- .7 - Stoney Creek Lower

The time periods for the projects are listed on tables identified as:

- a – 0 to 5 year period – Includes growth from 2019 to 2023, inclusive
- b – 6 year to Urban Boundary Build-Out (U.B.B.O.) – Includes growth from 2024 to 2031, inclusive

Within the tables and figure, the projects are further identified with unique identifiers as follows

- W Waterdown
- A Ancaster

B	Binbrook
MH	A.E.G.D./Mount Hope
HM	Hamilton Mountain
SCU	Stoney Creek Upper
SCL	Stoney Creek Lower
W-19	Water Projects
S-19	Wastewater Projects

Example: W# - W – 19 represents water project # in Waterdown
SCU# - S – 19 represents wastewater project # in Stoney Creek Upper

This report also includes a table for City-wide projects which lists proposed capital projects that affect the City's overall systems and are typically located outside the previously identified urban areas. General projects such as studies are also included; however, the majority of City Wide projects are being driven by and are benefitting growth.

The Woodward Wastewater Treatment Plant has been added to the charge as a separate item and is not listed in the City-Wide projects.

2. DEVELOPMENT AREAS

Through the development of the City of Hamilton's Growth Related Integrated Development Study (G.R.I.D.S.) and the 2006 City of Hamilton Water and water Master Plan, the City's Planning Department developed expected population and employment targets to reach the Province's Places to Grow requirements to the Urban Boundary Buildout (U.B.B.O.) in 2031. This growth was focused in the following areas:

- Waterdown,
- Ancaster,
- Binbrook,
- Airport Employment Growth District (A.E.G.D.) / Mount Hope,
- Hamilton Mountain,
- Stoney Creek Lower, and
- Stoney Creek Upper.

All areas capable of being developed in the urban boundary are assumed to have densities and land uses in accordance with the City's Official Plan.

Subsequent to the G.R.I.D.S. and Master Planning processes, additional study was undertaken for the Airport Employment Growth District (A.E.G.D.). A stand-alone servicing master plan for the A.E.G.D. was developed and identified detailed servicing requirements. These recommendations have been incorporated into the D.C. Background Study infrastructure requirements.

3. DEVELOPMENT CHARGES CALCULATIONS & POLICIES

3.1 Local Service Policy

Utilizing the City’s development assumptions, the water and wastewater infrastructure required to service these areas was identified. To determine if a project is a Development Charges (D.C.) related project, the following two categories were considered:

Category 1 - Projects External to Proposed Development Lands (i.e. on existing road allowance and servicing more than one development)

The following project descriptions fall into Category 1 and will be fully or partially allocated to Development Charges:

- New infrastructure or upgrades to existing City infrastructure required to service more than one potential proposed development and/or development property, whether in a Greenfield area or Intensification area. This includes upgrades to infrastructure that is upstream (water) or downstream (wastewater) of multiple developments.
 - If an upgrade is triggered by growth (single or multiple potential development) and that planned growth is less than or equal to the approved Traffic Survey Zone growth, the upgrade will be all or partially allocated to Development Charges
 - In the case that a development plans to have more growth than is planned for (by approved Traffic Survey Zones and system capacity) and if the infrastructure upgrade is as a result of growth over and above what is approved, that additional oversizing shall be the responsibility of the Developer (Direct Developer)
- This may include watermains for transmission, distribution and looping

New projects that physically lie outside of a proposed development, but only service a single development can be considered to be part of **Category 2**. e.g. New sewer on existing road right of way (external to development) to service a new building on land not already serviced, with no additional developments potentially draining to the new sewer

Local cost recoveries will be made on a site specific basis based on frontage and/or drainage area

Category 2 - Projects Within Proposed Development Lands - The following project descriptions fall into Category 2:

- Water and sewer infrastructure that is required to directly service the proposed development lands.
- Water and sewer infrastructure that is required to directly service the proposed development lands *and* potentially “oversized” in consideration (capacity, looping or fire protection) of additional proposed developable lands that are normally serviced via proposed development property.

In regard to Category 2 projects, the developer is required to pay for the full cost of the installation of sanitary sewers and watermain up to and including the sizes listed below. This is described as the Direct Developers Contribution. The minimum sizes are provided from the City’s Development Policies:

Sanitary Sewer	450 mm diameter
Watermain	300 mm diameter

Facilities (Water Pumping Station, Water Reservoir or Elevated Tank, Wastewater Pumping Station)

- No minimum size / capacity
- Facilities to service single proposed development lands will be Direct Developer Contribution.
- Facilities servicing multiple developments /service areas will be allocated to Development Charges Categories only (D.C., Benefit to Existing and Post Period Benefit).

Water Treatment / Wastewater Treatment – Treatment upgrades to be included in Development Charges Categories only (D.C., Benefit to Existing and Post Period Benefit).

Should the size of the local infrastructure be required to be greater than the minimum local servicing sizes (i.e. to support external development), Development Charges contributions shall be made. The City shall contribute, through the Development Charges Fund, towards the cost to install the infrastructure on a “Flat Rate” basis. “Flat Rate” is defined as the cost difference between the size required for external development and the minimum size, noted above in the City’s Development Policies.

Projects identified are sized based on the City’s engineering guidelines for design and to accommodate the future population and employment demand/flow within the proposed drainage/service areas.

The Development Charges Capital Program demonstrates the calculated cost splits on a project by project basis.

3.1.1 Funding for Municipal Extensions

In cases where a new watermain or sewer is installed by a developer that benefits and enables a new connection to by an existing, unserved property, a flat rate contribution is made back to the developer. Additional details of this funding methodology related to Direct Developer (or “Developer Initiated”) projects including projects external to the development lands are found in the 2007 City Report: *TOE02005b/FCS02026b/PED07248 - Funding Methodology for Municipal Infrastructure Extensions Review and Update*

3.1.2 Capacity Allocation

As growth and re-development progresses over time, The City requires a means to determine the amount of spare capacity within the water distribution and wastewater collection systems that are to be allocated to any potential development application. Additionally, the City must also determine a reasonable period of time in which this allocated capacity is to be made available prior to development.

The capacity will be allocated to projects in the order in which the Construction Plans are approved. In the event that multiple projects are approved at the same time, the identification, selection and prioritization of the project given in the City’s Infrastructure Staging of Development Program will prevail.

This policy is intended to be used as a guide for conveyance only (not treatment) and are subject to review and update by the City moving forward.

3.1.3 Co-ordinated Projects with Transportation Requirements

Water and wastewater projects external to proposed development lands (i.e. on existing road allowances and/or existing roads) that fall into Category 1 and that are initiated as a result of identified transportation requirements and are eligible for inclusion in the D.C. at the same D.C. eligible percentage as the associated road.

Service connections (water and/or wastewater connections – public portion) will be constructed to each land parcel, when an existing dwelling unit exists. Property owners that require more than one service connection will be required to pay for the cost of the additional service connections prior to construction. Benefitting property owners shall contribute towards the cost to install the infrastructure on a “flat rate” basis. The “flat rate” will be established by the City at the beginning of each year.

3.2 Benefit to Existing

The non-growth component has been identified for certain projects which benefit the existing service area. These components are typically associated with upgrades to the existing systems or facilities necessary to continue to provide service to the existing residential and non-residential users. These projects may also involve upgrades or expansions which provide additional capacity to meet growth in the service area. As such, for each of these projects, the growth related and non growth related needs and corresponding capacity and costs have been separately identified.

Given that the servicing program is designed to service growth to 2031 and the infrastructure is primarily located in new growth areas, there are limited benefit to existing (non-growth) components in the capital program.

For projects that may have a benefit to existing, a methodology was developed to estimate the B.T.E. split. If reasonable and appropriate data are available to support the accurate calculation of Benefit to Existing (B.T.E.), B.T.E.1, a calculation-based approach will be used to arrive at a project-specific B.T.E. percentage. Otherwise, the cost allocation shall reference a structured approximation policy assigning B.T.E. under categories B.T.E.2 through B.T.E.5, as outlined in the table below:

Table 1 – Benefit to Existing Approach

Category	B.T.E. %	Description
B.T.E.1	Calculated – if possible	<p>Calculated based on best available data. Example calculation basis:</p> <ul style="list-style-type: none"> • Cost for existing needs vs cost for growth • Existing measurable capacity deficiency that is addressed through new project that supports growth <p>EXAMPLE:</p> <ul style="list-style-type: none"> • Existing watermain/sewer is to be replaced within intensification area based on condition and State of Good Repair (S.O.G.R.) needs. Replacement is identified in the City’s ongoing S.O.G.R. program, not based on growth • There is potential growth (within D.C. Period and identified in planning estimates) that is serviced by watermain / sewer • In order to service existing service area plus growth, increase in diameter is required • B.T.E. % is calculated as: $\text{Cost for Replacement only Project} \div \text{Cost for Upsized Project}$ • Remaining cost is applicable to D.C.
B.T.E.2	10% B.T.E.	<p>These projects are driven by growth but are likely to address some minor existing deficiencies potentially related to level of service, security of supply, age, operational flexibility, condition or performance.</p> <p>EXAMPLE:</p> <ul style="list-style-type: none"> • A watermain replacement and upsizing is required to support growth in a new greenfield area

		<ul style="list-style-type: none"> • Adjacent existing serviced area is currently serviced by a watermain that is ~25 years old and may have slightly decreased capacity due to condition • Replacement watermain provides new service to new users and a replacement of the existing watermain • <i>Minor condition/age deficiency is addressed by construction of new watermain, therefore, 10% B.T.E. is applied</i>
B.T.E.3	25% B.T.E.	<p>These projects are driven by growth but will address some known existing deficiencies potentially related to operational issues or significant level of service, security of supply, age, operational flexibility, condition or performance.</p> <p>EXAMPLE:</p> <ul style="list-style-type: none"> • A new development within an intensification area is to be serviced by an existing sewer which has known capacity deficiencies and modelled surcharging • A larger sewer is required to address the existing capacity constraint as well as to service growth • <i>Level of service / capacity deficiency is addressed by construction of new watermain, therefore 25% B.T.E. is applied</i>
B.T.E.4	50% B.T.E.	<p>These projects equally provide additional capacity for growth as well as enhanced level of service in existing service areas. These projects address known existing deficiencies but also improve servicing conditions including security of supply/service.</p> <p>EXAMPLE:</p> <ul style="list-style-type: none"> • A new development within an intensification area is to be serviced by an existing sewer which has significant known condition issues and significant capacity constraints including <i>modelled</i> surcharging and occasional <i>observed</i> surcharging and capacity constraints • A larger, new sewer is required to address the existing deficiencies as well as to service growth • <i>Level of service, capacity and condition/age deficiencies are addressed by construction of new sewer, therefore 50% B.T.E. is applied</i>
B.T.E.5	Other	<p>These projects do not fall within B.T.E.1-B.T.E.5 categories and may require a unique split based on project specific factors.</p> <p>EXAMPLE:</p> <ul style="list-style-type: none"> • An existing sewage pumping station is deficient in pumping capacity, wet well storage capacity and standby power. Additionally, pumps and other mechanical equipment require replacement due to condition • Modifications to the station are recommended to address all issues, including pump replacement • The new pumps will be re-sized to accommodate both the increase in required existing flow as well as an additional marginal increase in capacity to accommodate small potential intensification developments • <i>Major capacity and level of service and condition constraints trigger the need for S.P.S. upgrade; only marginal increase in capacity is required, therefore an estimated 90% B.T.E. is applied to the project cost</i>

NOTE: The intensification allowance for water and wastewater within the City-Wide category is currently assumed to have a 50% Benefit to Existing 50% D.C. split based on assumed overall age, condition and level of service within intensification areas. The B.T.E. split that is applied will be reviewed and confirmed on a project by project basis as detailed intensification projects are initiated.

3.3 Post Period Oversizing

Project costs would be identified for any oversizing of infrastructure to service growth beyond the D.C. by-law planning period, in this case 2031.

Under this D.C. program, most of the local development area servicing is sized to service the specific development areas within the approved urban boundary. There is no post-period oversizing for these projects. There are some service areas that have made allowance for servicing lands outside the current urban boundary. These projects have some post period oversizing costs identified.

The trunk infrastructure is based on the City of Hamilton Master Plan. The Master Plan infrastructure and sizing was based on the growth plan projections and urban boundary established under G.R.I.D.S. This baseline data from G.R.I.D.S. forecasted to the 2031 planning horizon. In general, there is no post-period oversizing for the trunk infrastructure.

If reasonable and appropriate data are available to support the calculation of Post Period Benefit, P.P.1, a calculation-based approach will be used to arrive at a project-specific Post Period percentage. Otherwise, the cost allocation shall reference a structured approximation policy assigning Post Period splits under categories P.P.2 through P.P.5, as outlined in the table below:

Table 2 – Post Period Oversizing Approach

Category	Post Period %	Description
P.P.1	Calculated – if possible	<p>Calculated based on best available data. Example calculation basis:</p> <ul style="list-style-type: none"> Cost for 2031 project vs cost of oversized needs <p>Typical P.P. calculation is for greenfield linear works and consists of: $P.P. = \text{Cost for oversized pipe} - \text{Cost for pipe required for in-period growth only}$</p> <ul style="list-style-type: none"> Capacity for 2031 needs vs Capacity for post-period growth <p>EXAMPLE:</p> <ul style="list-style-type: none"> A new sewer is required to service a greenfield growth area up to the edge of the urban boundary. The urban boundary is anticipated to be built out within the year 2031 (in-period) Beyond the urban boundary lies a potential growth area that is likely to require servicing after 2031 The sewer is strategically oversized by one pipe size to accommodate the growth area outside of the urban boundary <i>Post Period Benefit is calculated as: $P.P. = \text{Cost for oversized pipe} - \text{Cost for pipe required for in-period growth only}$</i>
<p>P.P.1 is applicable in most cases of projects with Post Period Benefit. P.P.2, P.P.3, P.P.4 and P.P.5 are intended to be applied to unique projects where the calculations of capacities and costs applicable to in period growth and post period growth are complex and not easily defined.</p>		
P.P.2	10% P.P.	These projects are driven by growth within the By-law planning period but are oversized to provide some marginal additional capacity to support additional growth beyond the By-law planning period.
P.P.3	25% P.P.	These projects are driven by growth within the By-law planning period but are oversized to provide additional capacity to support growth beyond the By-law planning period. These projects are predominantly located in and/or support areas with likely future growth potential.

P.P.4	50% P.P.	These projects are strategically sized for significant additional future capacity. These projects are located in areas with constraints for additional capacity. These projects may also provide cost effective additional capacity.
P.P.5	Other	These projects do not fall within P.P.1-P.P.4 categories and may require a unique split based on project specific factors.

3.3.1 Provisional Post Period Benefit

Project specific post period benefit has been allocated based on growth triggers and assumptions stated in the table above. However, due to the uncertainty surrounding the 2031 to 2041 population and employment growth locations and densities as well as the uncertainty around the subsequent 2031 to 2041 water and wastewater servicing needs, it is anticipated that there will be additional post period benefit within a portion of the program. As such, a **\$45M Provisional Post Period Benefit** has been allocated proportionally to both the water (**\$35M**) and wastewater (**\$10M**) programs.

3.4 City-Wide Projects

The City has identified specific monitoring and programs that must be undertaken to evaluate the existing and future infrastructure requirements to service the City. For the most part, these are required for future development; however, the existing infrastructure will have to be evaluated. An allowance has been made for City-Wide costs for these items.

Development related projects are listed in the tables identified by infrastructure (water and sewage) and by urban area. A City-wide project table is included with projects that do not lie within the listed urban areas or that provide City-wide benefit, such as studies.

3.5 Residential/Non-Residential Cost Share

The general intent of the cost share for water and wastewater infrastructure is based on proportion of growth attributed to residential and non-residential use.

The Residential and Non-Residential growth split is determined based on growth from 2019 to 2031. This split excludes Work from Home and No Fixed Place of Work uses. The cost share based on this growth is 63% Residential and 37% non-residential.

3.6 Costing Criteria

In addition to updating the water and wastewater project scopes and descriptions, the overall project costs have also been revised from the 2014 D.C. Study. The linear unit costs for projects from the 2014 D.C. Study, which were represented in 2014 dollars, have been inflated based on indexing from 2014 to 2019 (12.4%) to represent current (2019) dollars.

Unit costs calculation was completed on a \$/m basis, with additional 25% added to account for engineering and contingency

Two types of unit cost were used:

- **Greenfield** - The greenfield unit rate assumes infrastructure is installed in new greenfield growth areas and will require less additional costs such as restoration, traffic control, utility re-locates, etc. It is also anticipated that Greenfield projects will be coordinated with adjacent watermain construction, storm sewer construction and potential road widening. As such, it is expected that some cost efficiencies may be achieved for Greenfield projects and the unit rate reflects this assumption
- **Urban** – the urban unit rate assumes a higher unit cost than Greenfield due to anticipated additional project specific costs. Typically, an Urban type project is a stand-alone linear water or wastewater project within an already built up area which may not have efficiencies of other coordinated construction works. The Urban unit rate reflects these assumptions

Where more up to date cost information was available, such as tender prices, detailed Environmental Assessment (E.A.) project cost estimates or from the City's Budget, these costs were used instead of the typical unit cost calculation.

For the Woodward Avenue Wastewater Treatment Plant (W.W.T.P.), the overall project implementation and costing has been reviewed and updated since the 2014 D.C. Study. Costing for the W.W.T.P. is based on actual incurred costs, or actual tender costs received, or preliminary design estimates, or conceptual estimates where appropriate. The Woodward Avenue W.W.T.P. information is addressed separately in this report.

3.7 Wastewater Runoff Controls

In order to mitigate the impact of runoff into the combined sewer network, a policy has been developed that applies to properties that are undergoing re-development within the combined sewer catchment area.

At the development stage, the owner will be required to submit a detailed Storm Water Management Report, to the satisfaction of the Manager of Engineering Design and Construction, addressing the fact that in the absence of an overland flow route, the release rate of a 100 year post development flow will be controlled to the release rate of a 2 year pre development flow.

It has been assumed that the old 18 year storm criteria are very much equivalent to current 2 year storm using Mount Hope Intensity-Duration-Frequency curves.

4. SERVICE STANDARDS

The following standards are the minimum acceptable level of service for each category of service. The City Standards will be used for the design and construction of all roads and municipal services required for all new development. These standards set the level of service for the community, both for new and existing development (i.e. replacement of existing infrastructure).

4.1 Water Distribution System

The water distribution system shall be designed to deliver all required water supply demands and fire flows (protection) based on the Ministry of the Environment, Conservation and Parks (M.E.C.P.) and Regional guidelines with due consideration to the Fire Underwriters Survey. The minimum watermain size for new construction shall be 150 mm diameter for residential areas and 300 mm for Commercial/ Institutional/ Industrial areas.

The City standards require that the minimum distribution system fire flow pressure be not less than 140 kpa (20 psi), distribution system maximum hour pressure does not fall below 275 kpa (40 psi) and distribution system static pressure does not exceed 700 kpa (100 psi). The water system shall be "looped" where possible to minimize water quality problems.

4.2 Sanitary Sewer System

The sewer system shall be designed to carry flows from the drainage area as specified by the City, which may include the Developer's lands, as well as lands beyond the Developer's properties including existing developed lands (external lands) and future developable lands within the urban boundary.

The minimum sewer size for residential development is 250 mm diameter with a minimum velocity of 0.75 m/s. The design shall conform to Ontario Provincial Standards Specifications. For industrial / commercial / institutional development, the minimum sewer size is 375 mm.

The development projections for new developments were provided by the City of Hamilton Planning Department and are the basis for analysis of the sanitary sewer system. The analysis of sewer systems was completed on the basis of the following criteria:

4.2.1 Sanitary Sewers

To determine sewer capacity, the sewers affected by new development were reviewed to determine their capacity. As-recorded information from the City was used to obtain pipe sizes and grades.

The following criteria are from the City's Comprehensive Development Guidelines and Financial Policies Manual (2017) and are used to estimate the sewage flows from a new residential and/or employment development:

Per Capita Flow	=	360 L/capita/day
Peaking Factor (Babbitt Formula)	=	$M = 5/P^{0.2}$ 5 (max.), 2.0 (min.)
Infiltration	=	0.4 L/s/ha – 0.6 L/s/ha (depending on anticipated storm sewer and dwelling weeping tile configuration)

The sewers are designed to flow at a maximum of 75% full.

In addition to using the City of Hamilton’s design criteria for sizing sewers in new development areas, the 2006 Water and Wastewater Master Plan Class E.A. Report identified major trunk sewer projects and upgrades using calibrated wastewater modelling software. A skeletonized model of the existing City of Hamilton wastewater system using DHI’s Mike Urban software was developed and calibrated by AWS Engineers and Planners Corp. This model was ran under future peak wet weather conditions and a 5 year storm event in order to identify major upgrades to the system under the Master Plan. The model results identified trunk projects that would be required to service new growth to 2031.

Construction of the 2006 Master Plan recommended sewer network has been refined through various detailed studies and analyses over the past 12 years. Constructed projects and modifications to the Master Plan program are reflected in the 2019 D.C. Study.

4.2.2 Sewage Pumping Stations

Existing sewage pumping stations affected by the new development were assessed to determine their available capacities and if upgrades would be required. For lands where gravity flow is not possible, new pumping stations were sized and identified. New pump stations were identified based on topography and availability of grade to connect into an existing or proposed trunk sanitary sewer system. Previous studies as well as the 2006 Water and Wastewater Master Plan Class E.A. Report identified many of the proposed pumping stations and upgrades.

4.2.3 Treatment Facilities

Based on growth projections, the flows draining to the respective treatment facilities were evaluated. The wastewater treatment strategy was based on the Water and Wastewater Master Plan.

The Woodward Avenue W.W.T.P. will require significant upgrades to support the growth related flows and address water quality requirements. The approach, level of capacity of each phase of the upgrade and cost estimates have been further defined through staff reports and project team documents. Additional information on the Woodward Avenue W.W.T.P. upgrade is further detailed in this report.

The Dundas W.W.T.P. will continue to operate. The Waterdown W.W.T.P. has been decommissioned and converted to a sewage pumping station, which pumps flow through a new forcemain, discharging to the existing Borer’s Creek Trunk Sewer.

The Woodward Avenue W.T.P. will continue to be the water supply source for all existing and future development areas in Hamilton.

5. PROJECT DESCRIPTIONS

Provided in Attachments A, B and C are tables listing the projects for each of the growth areas identified in Section 1. The corresponding figures identify the location of the projects listed in the tables. The tables and figures are located as follows:

Attachment A: Water Projects

Attachment B: Water City Wide Projects

Attachment C: Wastewater Projects

Attachment D: Wastewater City Wide Projects

Attachment E: Woodward Avenue W.W.T.P. Projects

The project list was devised through an extensive review of background information, including the previous Development Charges Background Studies (2004, 2009, 2011 and 2014), the 2006 Water and Wastewater Master Plan Class E.A. Report and the City's Capital Works Programs. Meetings with key City staff identified additional projects and refined the project lists.

In this section, we have provided some further input on some of the larger projects and servicing strategy within each development area.

5.1 Water Distribution System

5.1.1 Waterdown

The majority of the water projects in Waterdown are required to service the UpCountry Estates, North Waterdown and South Waterdown lands. The majority of the water infrastructure to service North Waterdown has been built. A 400 mm watermain will extend west to east along a new road alignment north of Parkside Drive, connecting the existing local network and supplying new growth in the north. A 600 mm trunk feedermain and HD016 Booster Station upgrades are planned which will support growth and provide security of supply. The Feedermain and Station upgrades have been refined through detailed studies since the previous D.C. Study.

Refer to Table F-1, as well as Figure 1-1 for location, size and cost of the projects for this area.

5.1.2 Ancaster

A new 500 mm to 600 mm trunk watermain is required on Garner Road from Southcote Road to Wilson Street West in order to provide trunk water transmission capacity to the Ancaster Industrial Park area. This area also has several proposed internal watermain projects, most of which are planned to be Direct Developer Contribution sized, and are required to service the development within the Park. A 300 mm crossing of Highway 403 along Shaver Road is planned to provide looping within the system and support the growth in the Ancaster Industrial Park. A recently completed study identified the proposed location for the new PD18 Elevated Tank, on Jerseyville Road.

Refer to Table F-1, as well as Figure 1-2 for location, size and cost of the projects for this area.

5.1.3 Binbrook

A new 400 mm trunk Feedermain along Fletcher Road and Cemetery Road, will be required to service the development needs of Binbrook. Additionally, new 400 mm watermain projects in west Binbrook will service the new growth areas.

Refer to Table F-1, as well as Figure 1-3 for location, size and cost of the projects for this area.

5.1.4 A.E.G.D./Mount Hope

Modifications to the A.E.G.D. service areas have resulted in minor updates to the proposed water network. However, the majority of the local 300 mm and 400 mm Pressure Districts 6 and 18 watermain network remains unchanged and follows the proposed road network throughout the A.E.G.D.

Refer to Table F-1, as well as Figure 1-3 for location, size and cost of the projects for this area.

5.1.5 Hamilton Mountain

Several 300 mm to 400 mm watermains are required to service the North Glanbrook Industrial Business Park (N.G.I.B.P.) in the southeast corner of the Hamilton Mountain Growth Area. Also required is a 1200 mm to 1050 mm trunk feedermain delivering water from Greenhill Pumping Station HD05A (see Stoney Creek Upper) through the Nash Neighbourhood to Mud Street and along Mud Street and Stone Church Road to Pumping Station HD06B. Other sections of 400 mm to 600 mm watermains will be required in the growth area of Upper Sherman Avenue and Rymal Road East and a new 400 mm watermain will be required along an easement from Twenty Road to Rymal Road. Recent analysis has determined that the Pressure District 7 elevated tank is to be located at the southwest corner of Trinity Church Road and Twenty Road.

Refer to Table F-1, as well as Figure 1-4 for location, size and cost of the projects for this area.

5.1.6 Stoney Creek Upper

This strategy will include capacity upgrades to Pumping Station HD05A and a new 1200 mm to 1050 mm feedermain from HD05A through the Nash Neighbourhood to Mud Street and along Mud Street and Stone Church Road to HD06B, both of which will also benefit growth within Pressure Districts 5 and 6. The Feedermain alignment has been further refined through recent detailed study. A new 600 mm Feedermain on Upper Centennial Parkway and new PD7 Pumping Station at Rymal Road and Upper Centennial Parkway are also recommended.

Refer to Table F-1, as well as Figure 1-5 for location, size and cost of the projects for this area.

5.1.7 Stoney Creek Lower

Several 300 mm and 400 mm watermains are required to provide looping and to service new employment growth areas within Lower Stoney Creek. The majority of these are employment growth areas that lie adjacent to the railway and Q.E.W.

Refer to Table F-1, as well as Figure 1-6 for location, size and cost of the projects for this area.

5.2 Wastewater System

5.2.1 Waterdown

Sewer extensions within growth areas in Waterdown will be required to service growth. In addition, a capacity upgrade at DC014 will be required to service south Waterdown development

Servicing of Waterdown North is partially complete and will only require short sewer extensions to complete servicing.

Refer to Table F-3, as well as Figure 2-1 for location, size and cost of the projects for this area

5.2.2 Ancaster

Most of the growth related D.C. wastewater projects within Ancaster have been completed. The remaining wastewater projects to service growth consist of short sections of gravity sewers ranging from 250 mm to 1050 mm within the Ancaster Business Park as well as Calvin Street S.P.S. upgrade and sewer extension east of Silver Maple Drive.

Refer to Table F-3, as well as Figure 2-2 for location, size and cost of the projects for this area.

5.2.3 Binbrook

In order to service the growth in Binbrook, pumping Station HC058 will require a capacity upgrade. A 600 mm internal sewer extending west along Windwood Drive is also required to service growth

Refer to Table F-3, as well as Figure 2-3 for location, size and cost of the projects for this area.

5.2.4 A.E.G.D./Mount Hope

Modifications to the A.E.G.D. service areas have resulted in minor updates to the proposed sewer network. However, the overall servicing strategy remains unchanged since the 2014 D.C. Study. The first anticipated phase of growth will be in the northeast corner of the A.E.G.D. and will be serviced through connections to existing trunk sewers and the Twenty Road S.P.S. The central portion of the A.E.G.D. will convey flow to the new Dickenson Road sewer within the A.E.G.D. which flows east and will connect with the new Dickenson / Centennial Trunk sewer east of Upper James Street.

Refer to Table F-3, as well as Figure 2-3 for location, size and cost of the projects for this area.

5.2.5 Hamilton Mountain

The main projects required for servicing the Hamilton Mountain growth area are the gravity sewers that service the N.G.I.B.P. This area will require gravity sewers ranging from 375 mm to 525 mm, which will flow to the north to the existing network. The Upper Centennial/Dickenson Trunk Sewer Project crosses the southern limit of the Hamilton Mountain service area, however, this infrastructure will service the A.E.G.D. and Upper Stoney Creek. The required projects have been modified since the previous D.C. They now consist of a deep trunk sewer (1,200 mm to 1,350 mm) tunnel from Upper James to Upper Centennial (Regional Road 56).

Refer to Table F-3, as well as Figure 2-4 for location, size and cost of the projects for this area.

5.2.6 Stoney Creek Upper

The majority of the Hamilton Mountain wastewater projects have been constructed. The remaining project is a 450 mm sewer on Rymal Road, west of Upper Centennial Parkway to service the Regional Official Plan Amendment (R.O.P.A.) 9 area.

Refer to Table F-3, as well as Figure 2-4 for location, size and cost of the projects for this area.

5.2.7 Stoney Creek Lower

A new sewage pumping station, forcemain and gravity sewer will be required to service the areas surrounding Fifty Road South of the Q.E.W. and growth at the north end of Millen Road will require gravity sewer upgrades and connection to the Eastern Sanitary Interceptor (E.S.I.). Additionally, the northern section of the Centennial Parkway Trunk Sewer twinning (1,500 mm) is required to service growth on the Hamilton Mountain

Refer to Table F-3, as well as Figure 2-6 for location, size and cost of the projects for this area.

5.3 City Wide Water and Wastewater Projects

City-Wide water and wastewater projects cover traditional water and wastewater infrastructure capital works (pumping stations, watermains, sewers, etc.) throughout the City, most of which are required to support growth, however, do not lie within the geographical areas of the other systems mentioned above. Also covered in City-Wide projects are items such as studies, flow monitoring and intensification upgrades.

The costs associated with intensification have been reviewed and updated for the 2019 D.C. to reflect an increased level of density and associated cost escalation within the City core. These costs are further described in Section 5.4.

In addition to projects being identified for servicing new developments, several major projects from the 2006 Water and Wastewater Master Plan Class E.A. Report were carried forward into the D.C. By-Law Study. These are large, trunk infrastructure projects and are required to service new growth areas.

Projects in this section relate to City-wide programs identified to increase available capacity in the system. This will allow development to continue in the City while maintaining water quality targets. Without these improvements, development freezes could take effect.

Refer to Table F-2 and F-4 for location, size and cost of the projects.

5.4 Intensification Allowance

Previous Development Charges By-Law studies have included a lump sum dollar amount for both water and wastewater intensification servicing. With the City undertaking detailed studies for specific intensification areas such as the West Harbour Secondary Plan (“Setting Sail”), Light Rapid Transit (L.R.T.) Corridor as well as the requirement by the province for further increases to the minimum levels of intensification growth, there will continue to be a need to further refine the servicing requirements for these areas.

As part of this D.C. By-Law Study, additional intensification allowance costs have been allocated to the D.C. program. The 2019 D.C. has recommended an increase to the water and wastewater allowance to bring the totals to \$30M for water and \$30M for wastewater over the remaining By-Law period.

5.5 Program Changes from 2019 D.C. Study

With respect to the linear program in the 2019 D.C. Study, the key program changes from 2014 include but are not limited to the following:

Water	Wastewater
Waterdown: <ul style="list-style-type: none"> New alignment for the PD016 Feedermain South Waterdown tower has been constructed Revised alignment for growth related watermains 	Waterdown: <ul style="list-style-type: none"> Several sanitary sewer projects completed/removed
Ancaster <ul style="list-style-type: none"> Ancaster PD018 elevated tank relocated to north of Jerseyville Road 	Ancaster <ul style="list-style-type: none"> Several sanitary sewer projects completed/removed
A.E.G.D. / Mount Hope <ul style="list-style-type: none"> A.E.G.D. service area boundary has been modified, resulting in removal of certain watermain projects No major project changes 	A.E.G.D. / Mount Hope <ul style="list-style-type: none"> A.E.G.D. service area boundary has been modified, resulting in removal of certain sanitary sewer projects
Binbrook <ul style="list-style-type: none"> Binbrook pumping station upgrades are complete 	Binbrook <ul style="list-style-type: none"> New Forcemain completed
Hamilton Mountain <ul style="list-style-type: none"> Realignment of the Stone Church Road Feedermain and distribution main on Dartnall Road 	Hamilton Mountain <ul style="list-style-type: none"> Dickenson Road trunk sewer updated to reflect new deep tunneled sewer strategy; S.P.S./Forcemain removed from program
Stoney Creek Upper <ul style="list-style-type: none"> Several watermain and facility projects completed/removed 	Stoney Creek Upper <ul style="list-style-type: none"> Several gravity sewer projects completed/removed Partial completion of Centennial Trunk
Stoney Creek Lower <ul style="list-style-type: none"> Several watermain and projects completed/removed 	Stoney Creek Lower <ul style="list-style-type: none"> No major changes to strategy Additional sewer upgrades added
City Wide <ul style="list-style-type: none"> Increased intensification upgrades to \$30M Total Several projects complete/removed 	City Wide <ul style="list-style-type: none"> Increased intensification upgrades to \$30M Total Several projects complete/removed

5.6 Woodward Avenue W.W.T.P.

5.6.1 Project Scope

As part of the 2019 City of Hamilton Development Charge Study and review of the water and wastewater capital program, it is recognized that the Woodward Avenue W.W.T.P. Upgrade is a significant and major capital project required to meet the future growth to 2031.

The scope of the Woodward Avenue W.W.T.P. expansion has evolved from the project developed under the 2006 Master Plan and carried in previous D.C. updates. The project has undergone review through the original Master Plan, subsequent Class E.A. study, and most significantly through the conceptual / preliminary design phases as part of the project implementation.

Over the last few years, the City of Hamilton proactively and continually reviewed the wastewater treatment capacity trends that were declining. Concurrently, additional discussions were taking place regarding the conditions and expectations for receiving federal and provincial grants and funding for the project. Based on this new information, it was determined that the optimal approach for the Woodward Avenue W.W.T.P. Upgrades would be to complete the water quality upgrades first and defer most of the capacity upgrades out in the future until such time as the current rated capacity of the plant would be constrained.

This approach results in a cost-effective implementation program for the Woodward Avenue W.W.T.P. Upgrades as well as meets the funding/grant requirements with respect to scope and timing in order to secure the funds.

5.6.2 Key Considerations

With respect to the wastewater flow projections, the analysis undertaken by the City team indicated observed lower than anticipated flows at the plant and decreasing trends in recent years. It is estimated that due to several factors, including reduced water demands and reduction in large scale employment, the wastewater flows are approximately 34 MLD lower than projected. While recent actual flows are below projections, caution should be taken before allocating this capacity to new development. It was determined that there is potential for these uses to return and that the City should safeguard this capacity for the already approved lands. On this basis, it has been determined that 50% of the available capacity will be made available to new development, while 50% will be maintained for the existing servicing areas. As such, 50% of the 34 MLD which equates to 17 MLD, within the current rated capacity of 409 MLD, of the Woodward Avenue W.W.T.P. can be utilized by new development.

Notwithstanding recent trends, it was also determined that the capacity for the future expansion of the Woodward Avenue W.W.T.P. would remain at 500 MLD to satisfy the capacity requirements of the Places To Grow 2031 population and employment projections. Updated projections based on recent flow measurement at the W.W.T.P. identified that there would be some Post Period benefit beyond the 2031 boundary. As such, a 25% Post Period Benefit was applied to the Woodward W.W.T.P. projects.

5.6.3 Project Cost Analysis

Given that the Woodward Avenue W.W.T.P. Upgrades have undergone a significant scope change, a new cost estimate for the total facility upgrades has been completed. Table F-5 provides the overall summary table of the project components that comprise the full upgrades. Attachment D also provides additional detail regarding available cost estimate breakdowns as well as the rationale for the D.C. eligible calculation.

The updated 2019 Cost Estimate for the Woodward Avenue W.W.T.P. Upgrades is summarized in the following table and further detailed in Table F-5.

Project ID	Description	Capital Cost Estimate (\$2019)
1	Wastewater Pumping Station	\$ 94,537,613
2a	Primary Clarifier - Primary Treatment (Phase 1- C.E.P.T.) - Engineering Included	\$ 16,255,669
2b	Primary Clarifier - Primary Treatment (Phase 2 - Tanks) - Engineering Included	\$ 52,246,549
2c	Primary Clarifier - Other Costs (includes New/Expanded Laboratory/Admin Building)	\$ 11,857,782
3	Tertiary Upgrades - North and South Secondary Treatment Plant Upgrades	\$ -
4a	Tertiary Upgrades - New Secondary/Tertiary Treatment Plant (Phase 1)	\$ 132,889,001
4b	Tertiary Upgrades - New Secondary/Tertiary Treatment Plant (Phase 2)	\$ 224,800,000
5a	Chlorine Contact Tank and Outfall - Railway Re-Alignment	\$ -
5b	Chlorine Contact Tank and Outfall - Secondary/Tertiary Chlorine contact Tank, Outfall and Red Hill Creek Upgrades	\$ 42,599,496
7	Chlorine Contact Tank and Outfall - New Outfall (included in 5b project)	\$ -
8	Plant Expansion - Engineering (Projects 1, 4a, 4b, 5, 13) Phase 1	\$ 24,810,804
8	Plant Expansion - Engineering (Projects 1, 4a, 4b, 5, 13) Phase 2	\$ 25,573,521
8	Plant Expansion - Engineering (Projects 1, 4a, 4b, 5, 13) Phase 3	\$ 28,300,000
8	Plant Expansion - Engineering - Other Costs (includes WWE Modular Office Building)	\$ 5,623,839
6	Biogas Digester - New W.A.S. Thickening Facility (forms part of the Digester Upgrades)	\$ -
9	Biogas Digester - Additional Dewatering Capacity	\$ -
10	Biogas Digester - Refurbishment of Digesters to Increase Capacity	\$ -
11a	Biogas Digester - Biogas Upgrades	\$ 45,005,784
11b	Biogas Digester - Digesters Upgrades	\$ 8,430,000
12	Biosolids Management Facility - Biosolids Thermal Reduction Disposal Facility	\$ 99,440,000
13a	Electrical System Upgrades - New Electrical and power systems - Phase 1	\$ 62,256,622
13b	Electrical System Upgrades - New Electrical and power systems - Phase 2	\$ 34,844,000
14	Collection System Upgrades	\$ 10,176,000
	Total	\$ 919,646,680

6. SUMMARY OF DEVELOPMENT CHARGES PROJECTS

The following tables summarize total project costs for the D.C. projects (not including Woodward W.W.T.P.). The detailed calculations are provided in Attachments A through E.

Total Costs

Area	Water	Sanitary	Total
Ancaster	\$ 31,804,000	\$ 6,590,000	\$ 38,394,000
Waterdown	\$ 20,414,000	\$ 11,719,000	\$ 32,133,000
Binbrook	\$ 11,465,000	\$ 2,406,000	\$ 13,871,000
A.E.G.D./Mt. Hope	\$ 15,941,000	\$ 31,659,000	\$ 47,600,000
Hamilton Mountain	\$ 50,778,700	\$ 90,365,000	\$ 141,143,700
Stoney Creek Upper	\$ 102,855,000	\$ 30,084,000	\$ 132,939,000
Stoney Creek Lower	\$ 8,670,000	\$ 27,298,000	\$ 35,968,000
City Wide Projects	\$ 111,742,000	\$ 69,762,000	\$ 181,504,000
Total (\$2019)	\$ 353,669,700	\$ 269,883,000	\$ 623,552,700

Non-Growth Related Costs (City Costs)

Area	Water	Sanitary	Total
Ancaster	\$ 7,402,000	\$ 1,750,000	\$ 9,152,000
Waterdown	\$ 3,554,000	\$ 7,322,000	\$ 10,876,000
Binbrook	\$ -	\$ -	\$ -
A.E.G.D./Mt. Hope	\$ -	\$ -	\$ -
Hamilton Mountain	\$ -	\$ -	\$ -
Stoney Creek Upper	\$ 5,217,500	\$ -	\$ 5,217,500
Stoney Creek Lower	\$ -	\$ 184,000	\$ 184,000
City Wide Projects	\$ 15,417,000	\$ 18,663,750	\$ 34,080,750
Total (\$2019)	\$ 31,590,500	\$ 27,919,750	\$ 59,510,250

Growth Related Costs - Development Charges

Area	Water	Sanitary	Total
Ancaster	\$ 23,729,500	\$ 3,261,000	\$ 26,990,500
Waterdown	\$ 15,641,000	\$ 3,382,200	\$ 19,023,200
Binbrook	\$ 10,736,000	\$ 1,787,000	\$ 12,523,000
A.E.G.D./Mt. Hope	\$ 12,305,000	\$ 28,365,000	\$ 40,670,000
Hamilton Mountain	\$ 42,649,730	\$ 80,993,000	\$ 123,642,730
Stoney Creek Upper	\$ 64,017,250	\$ 8,698,000	\$ 72,715,250
Stoney Creek Lower	\$ 8,670,000	\$ 24,742,600	\$ 33,412,600
City Wide Projects	\$ 90,688,300	\$ 51,098,250	\$ 141,786,550
Total (\$2019)	\$ 268,436,780	\$ 202,327,050	\$ 470,763,830

Direct Developer's Costs

Area	Water	Sanitary	Total
Ancaster	\$ -	\$ 838,000	\$ 838,000
Waterdown	\$ 408,000	\$ 714,000	\$ 1,122,000
Binbrook	\$ 729,000	\$ 619,000	\$ 1,348,000
A.E.G.D./Mt. Hope	\$ 3,636,000	\$ 3,294,000	\$ 6,930,000
Hamilton Mountain	\$ 1,492,000	\$ 532,000	\$ 2,024,000
Stoney Creek Upper	\$ 3,605,000	\$ 3,107,000	\$ 6,712,000
Stoney Creek Lower	\$ -	\$ 362,000	\$ 362,000
City Wide Projects	\$ -	\$ -	\$ -
Total (\$2019)	\$ 9,870,000	\$ 9,466,000	\$ 19,336,000

Post Period Benefit Costs

Area	Water	Sanitary	Total
Ancaster	\$ 672,500	\$ 741,000	\$ 1,413,500
Waterdown	\$ 811,000	\$ 300,800	\$ 1,111,800
Binbrook	\$ -	\$ -	\$ -
A.E.G.D./Mt. Hope	\$ -	\$ -	\$ -
Hamilton Mountain	\$ 6,636,970	\$ 8,840,000	\$ 15,476,970
Stoney Creek Upper	\$ 30,015,250	\$ 18,279,000	\$ 48,294,250
Stoney Creek Lower	\$ -	\$ 2,009,400	\$ 2,009,400
City Wide Projects	\$ 5,636,700	\$ -	\$ 5,636,700
Total (\$2019)	\$ 43,772,420	\$ 30,170,200	\$ 73,942,620



Attachment A – Water Projects

TABLE F-1 - WATER CAPITAL PROGRAM

Area	Planning Period	Project ID	Project/Street	From	To	Length (m)	Size (mm)	Estimated Total Cost (\$2019)	Direct Developer Contribution (\$2019)	Benefit to Existing	Benefit to Existing (\$2019)	Post Period Benefit (%)	Post Period Benefit (\$2019)	Development Charges (\$2019)	Updated Timing	Updated Cost	Scope Change: Location	Scope Change: Length and/or Size	Project Added	2014-2019 Change Details
WATERDOWN																				
Waterdown	0 to 5 years	W2-W-19	New Road	Sadielou Blvd	Mosaic Dr	700	400	\$ 680,000	\$ 408,000	0%	\$ -	0%	\$ -	\$ 272,000		X	X	X		Updated length and alignment, updated unit cost (inflation)
Waterdown	0 to 5 years	W6-W-19	HD016 Booster Station Upgrade, Back Up Power and Building Expansion	208 L/s	309 L/s		4 x 103 L/s	\$ 8,510,000	\$ -	10%	\$ 851,000	0%	\$ -	\$ 7,659,000		X				Updated cost based on City Capital Budget
Waterdown	0 to 5 years	W10-W-19	PD16 Feedermain - Valley Rd and Rock Chapel Rd	PS HD016	Dundas St/Algonquin Ave	2900	600	\$ 10,813,000	\$ -	25%	\$ 2,703,000	10%	\$ 811,000	\$ 7,299,000		X		X		Updated cost - inflation only; slight alignment update
Waterdown	0 to 5 years	W11-W-19	Up Country Estates - Dundas St	575 m west of Evans Ave	210 m west of Evans Ave	365	300	\$ 411,000	\$ -	0%	\$ -	0%	\$ -	\$ 411,000		X	X	X		Updated length, updated unit cost (inflation)
Sub-Total Waterdown								\$ 20,414,000	\$ 408,000		\$ 3,554,000		\$ 811,000	\$ 15,641,000						
ANCASTER																				
Ancaster	0 to 5 years	A1-W-19	Garner Rd	Southcote Rd	Fiddlers Green Rd	2060	600	\$ 9,936,000	\$ -	0%	\$ -	0%	\$ -	\$ 9,936,000		X				Updated cost - inflation only
Ancaster	0 to 5 years	A2-W-19	Shaver Rd	Westview Ave	Katsura Pl	800	300	\$ 902,000	\$ -	75%	\$ 677,000	0%	\$ -	\$ 225,000	X	X	X			Updated extents, updated unit cost (inflation)
Ancaster	0 to 5 years	A4-W-19	Ancaster Industrial Park - South Connection	McClure Rd Extension WM	Cormorant Dr (via Hydro Easement)	900	300	\$ 525,000	\$ -	0%	\$ -	0%	\$ -	\$ 525,000		X		X		Updated length, updated unit cost (inflation)
Ancaster	0 to 5 years	A16-W-19	Garner Rd	Fiddlers Green Rd	Hamilton Dr	1680	600	\$ 3,755,000	\$ -	0%	\$ -	0%	\$ -	\$ 3,755,000		X		X		Diameter updated from 500mm to 600mm; unit cost updated (inflation)
Ancaster	0 to 5 years	A17-W-19	Garner Rd	Hamilton Dr	Wilson St W	1800	500	\$ 3,236,000	\$ -	0%	\$ -	0%	\$ -	\$ 3,236,000		X				Updated unit cost - inflation only
Ancaster	0 to 5 years	A18-W-19	Reservoir W-H 18 (additional elevated storage) AEGD Proj B-20	North of Jerseyville Road - Final location to be determined				9.9 ML	\$ 13,450,000	\$ -	50%	\$ 6,725,000	10%	\$ 672,500	\$ 6,052,500	X	X	X		Updated capacity, location. Cost updated based on City Design Sheet
Sub-Total Ancaster								\$ 31,804,000	\$ -		\$ 7,402,000		\$ 672,500	\$ 23,729,500						
AEGD/MT. HOPE																				
AEGD/Mt. Hope	0 to 5 years	MH5-W-19	PD 18 Watermain on Southcote Rd	Garner Rd	383 m South	383	400	\$ 372,000	\$ -	0%	\$ -	0%	\$ -	\$ 372,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	0 to 5 years	MH12-W-19	PD 18 Watermain on Garner Rd and Glanaster Rd	HD018	New Road	400	400	\$ 389,000	\$ -	0%	\$ -	0%	\$ -	\$ 389,000		X	X	X		Updated length, updated unit cost (inflation)
AEGD/Mt. Hope	6 years to UBBO	MH1-W-19	PD 18 Watermain on Smith Rd	Garner Rd	389 m south	389	300	\$ 227,000	\$ -	0%	\$ -	0%	\$ -	\$ 227,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH2-W-19	PD 18 Watermain on new road	Southcote Rd	Smith Rd	417	400	\$ 405,000	\$ 243,000	0%	\$ -	0%	\$ -	\$ 162,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH3-W-19	PD 18 Watermain on Southcote Rd	New road	Hydro Corridor	700	400	\$ 680,000	\$ -	0%	\$ -	0%	\$ -	\$ 680,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH7-W-19	PD 6 Watermain on Book Rd	372 m east of Smith Rd	Smith Rd	372	400	\$ 361,000	\$ -	0%	\$ -	0%	\$ -	\$ 361,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH8-W-19	PD 18 Watermain on Southcote Rd	Book Rd	590 m north	590	300	\$ 344,000	\$ -	0%	\$ -	0%	\$ -	\$ 344,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH9-W-19	PD 18 Watermain on Smith Rd	Book Rd	603 m north	603	300	\$ 352,000	\$ -	0%	\$ -	0%	\$ -	\$ 352,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH10-W-19	PD 18 Watermain on new road	Smith Rd	421 m east	421	400	\$ 409,000	\$ 245,000	0%	\$ -	0%	\$ -	\$ 164,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH11-W-14	PD 6 Watermain on Glanaster Rd	Rymal Rd	Twenty Rd	1325	400	\$ 2,124,000	\$ -	0%	\$ -	0%	\$ -	\$ 2,124,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH13-W-19	PD 18 Watermain on new road	Raymond Rd Extension	863 m west	863	400	\$ 839,000	\$ 503,000	0%	\$ -	0%	\$ -	\$ 336,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH14-W-19	PD 18 Watermain on new road	Raymond Rd Extension	552 m east	552	400	\$ 536,000	\$ 322,000	0%	\$ -	0%	\$ -	\$ 214,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH15-W-19	PD 6 Watermain on Dickenson Rd	Garth St Extension	953 m west	953	300	\$ 556,000	\$ -	0%	\$ -	0%	\$ -	\$ 556,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH16-W-19	PD 18 Watermain on Southcote Rd	Hydro Corridor	293 m south	293	400	\$ 285,000	\$ -	0%	\$ -	0%	\$ -	\$ 285,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH17-W-19	PD 6 Watermain on Smith Rd	Book Rd	259 m south	259	400	\$ 252,000	\$ -	0%	\$ -	0%	\$ -	\$ 252,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH18-W-19	PD 18 Watermain on Smith Rd	Hydro Corridor	627 m north	627	300	\$ 366,000	\$ -	0%	\$ -	0%	\$ -	\$ 366,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH19-W-19	PD 18 Watermain on Smith Rd	Hydro Corridor	350 m south	350	300	\$ 204,000	\$ -	0%	\$ -	0%	\$ -	\$ 204,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH22-W-19	PD 6 Watermain on Book Rd	Glanaster Rd	595 m west	595	400	\$ 578,000	\$ -	0%	\$ -	0%	\$ -	\$ 578,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH23-W-19	PD 6 Watermain on Dickenson Rd	Glanaster Rd	598 m east	598	300	\$ 349,000	\$ -	0%	\$ -	0%	\$ -	\$ 349,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH24-W-19	PD 6 Watermain on new Garth St Extension	Dickenson Rd	837 m north	837	400	\$ 813,000	\$ 488,000	0%	\$ -	0%	\$ -	\$ 325,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH25-W-19	PD 6 Watermain on Dickenson Rd	Garth St	870 m east	870	300	\$ 507,000	\$ -	0%	\$ -	0%	\$ -	\$ 507,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH26-W-19	PD 6 Watermain on new Garth St Extension	Glanaster Rd	1365 m east	1365	400	\$ 1,326,000	\$ 796,000	0%	\$ -	0%	\$ -	\$ 530,000		X	X			Updated length, updated unit cost (inflation)
AEGD/Mt. Hope	6 years to UBBO	MH27-W-19	PD 6 Watermain on new Garth St Extension	Dickenson Rd	MH26-W-19	600	400	\$ 583,000	\$ 350,000	0%	\$ -	0%	\$ -	\$ 233,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH28-W-19	PD 6 Watermain on Smith Rd	265 m south of Book Rd	625 m south of Book Rd	322	400	\$ 313,000	\$ -	0%	\$ -	0%	\$ -	\$ 313,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH29-W-19	PD 6 Watermain on new Garth St Extension	Twenty Rd	662 m south	662	400	\$ 643,000	\$ 386,000	0%	\$ -	0%	\$ -	\$ 257,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH30-W-19	PD 6 Watermain on Book Rd	Smith Rd	Southcote Rd	397	400	\$ 386,000	\$ -	0%	\$ -	0%	\$ -	\$ 386,000		X				Updated unit cost - inflation only
AEGD/Mt. Hope	6 years to UBBO	MH44-W-19	PD 6 Watermain on new Garth St extension	Glanaster Rd	Smith Rd	520	400	\$ 505,000	\$ 303,000	0%	\$ -	0%	\$ -	\$ 202,000		X		X		Updated length, updated unit cost (inflation)
AEGD/Mt. Hope	6 years to UBBO	MH45-W-19	PD 6 Watermain on Southcote Rd	Book Rd	590 m south	500	300	\$ 292,000	\$ -	0%	\$ -	0%	\$ -	\$ 292,000					X	New
AEGD/Mt. Hope	6 years to UBBO	MH46-W-19	PD 6 Watermain on Book Rd	Southcote Rd	420 m west	420	300	\$ 245,000	\$ -	0%	\$ -	0%	\$ -	\$ 245,000					X	New
AEGD/Mt. Hope	6 years to UBBO	MH47-W-19	PD 18 Watermain on Book Rd	West of Southcote Rd	East of Smith Rd	1200	300	\$ 700,000	\$ -	0%	\$ -	0%	\$ -	\$ 700,000					X	New
Sub-Total AEGD/Mt. Hope								\$ 15,941,000	\$ 3,636,000		\$ -		\$ -	\$ 12,305,000						

General Features

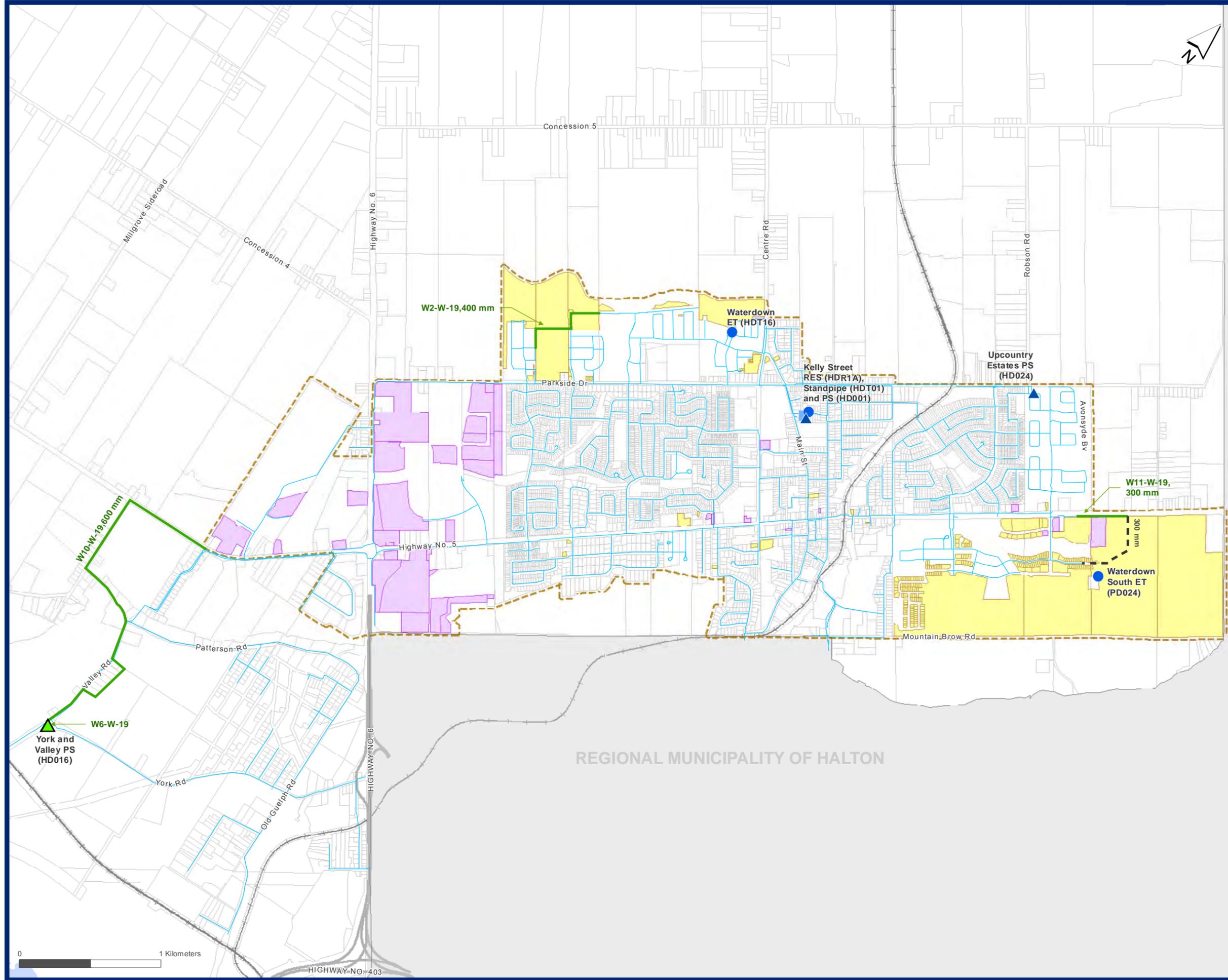
-  Highways
-  Railways
-  Urban Boundary
-  Other Municipalities
-  Parking Lot
-  Vacant Non-Residential
-  Vacant Residential

Existing Water Infrastructure

-  Water Treatment Plant
-  Pumping Station
-  Reservoir
-  Water Tower
-  Watermains

Future Water Infrastructure

-  Pumping Stations 0 - 5 Years
-  Water Tower 0 - 5 Years
-  Watermains 0 - 5 Years
-  Pumping Stations 6 Plus Years
-  Reservoir 6 Plus Years
-  Watermains 6 Plus Years
-  Watermains - 100% Direct Development Contribution



0 1 Kilometers

Figure 1-1
Waterdown Watermain
Development Charges Background Study

General Features

- Highways
- Railways
- Urban Boundary
- Other Municipalities
- Parking Lot
- Vacant Non-Residential
- Vacant Residential

Existing Water Infrastructure

- Water Treatment Plant
- Pumping Station
- Reservoir
- Water Tower
- Watermains

Future Water Infrastructure

- Pumping Stations 0 - 5 Years
- Water Tower 0 - 5 Years
- Watermains 0 - 5 Years
- Pumping Stations 6 Plus Years
- Reservoir 6 Plus Years
- Watermains 6 Plus Years
- Watermains - 100% Direct Development Contribution

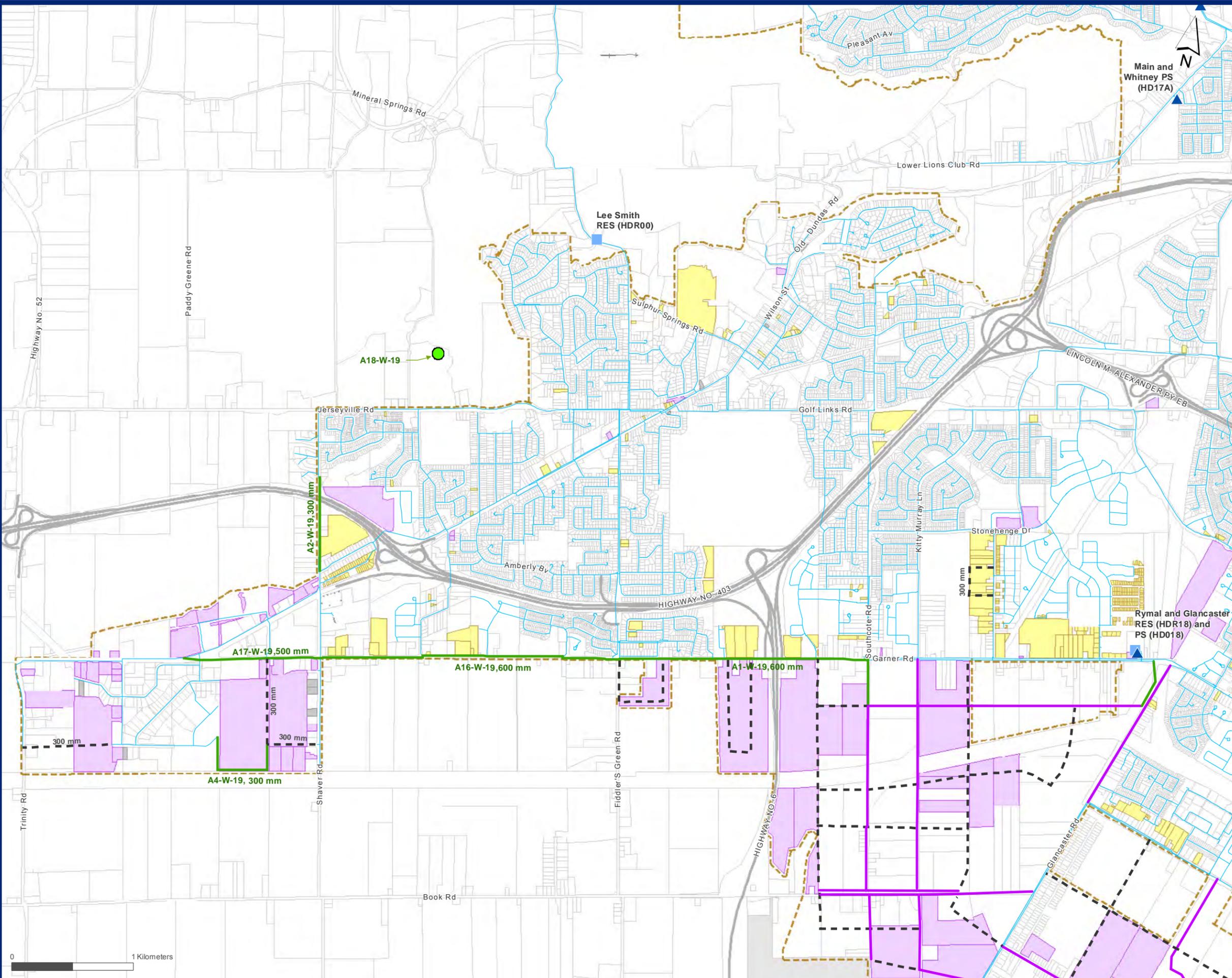


Figure 1-2
Ancaster Watermain
Development Charges Background Study



Hamilton

Integrated Water / Wastewater and Stormwater Master Plans

General Features

- Highways
- Railways
- Urban Boundary
- Other Municipalities
- Parking Lot
- Vacant Non-Residential
- Vacant Residential

Existing Water Infrastructure

- Water Treatment Plant
- Pumping Station
- Reservoir
- Water Tower
- Watermains

Future Water Infrastructure

- Pumping Stations 0 - 5 Years
- Water Tower 0 - 5 Years
- Watermains 0 - 5 Years
- Pumping Stations 6 Plus Years
- Reservoir 6 Plus Years
- Watermains 6 Plus Years
- Watermains - 100% Direct Development Contribution

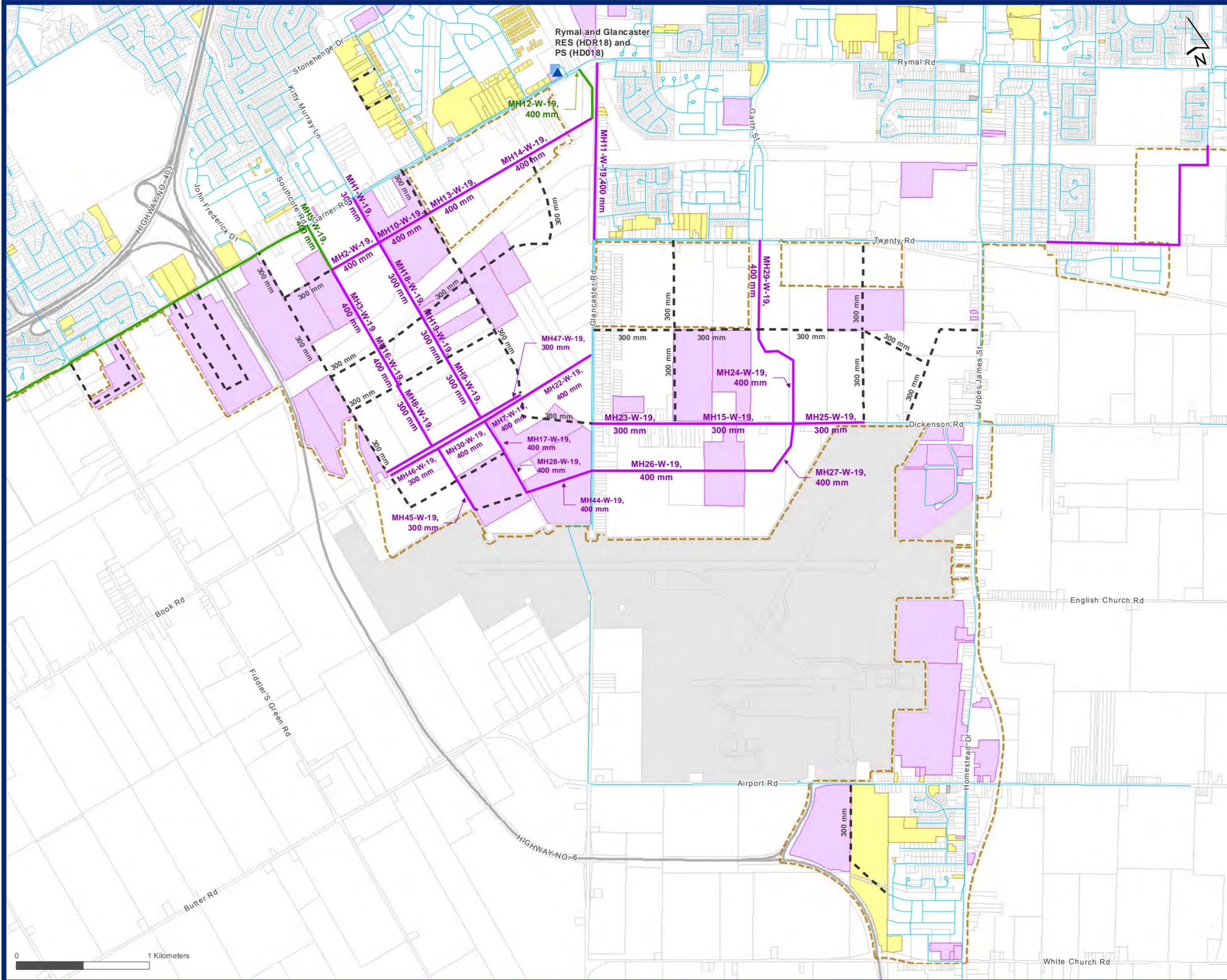


Figure 1-3
AEGD/Mount Hope Watermain
 Development Charges Background Study

0 1 Kilometers



General Features

- Highways
- Railways
- Urban Boundary
- Other Municipalities
- Parking Lot
- Vacant Non-Residential
- Vacant Residential

Existing Water Infrastructure

- Water Treatment Plant
- Pumping Station
- Reservoir
- Water Tower
- Watermains

Future Water Infrastructure

- Pumping Stations 0 - 5 Years
- Water Tower 0 - 5 Years
- Watermains 0 - 5 Years
- Pumping Stations 6 Plus Years
- Reservoir 6 Plus Years
- Watermains 6 Plus Years
- Watermains - 100% Direct Development Contribution

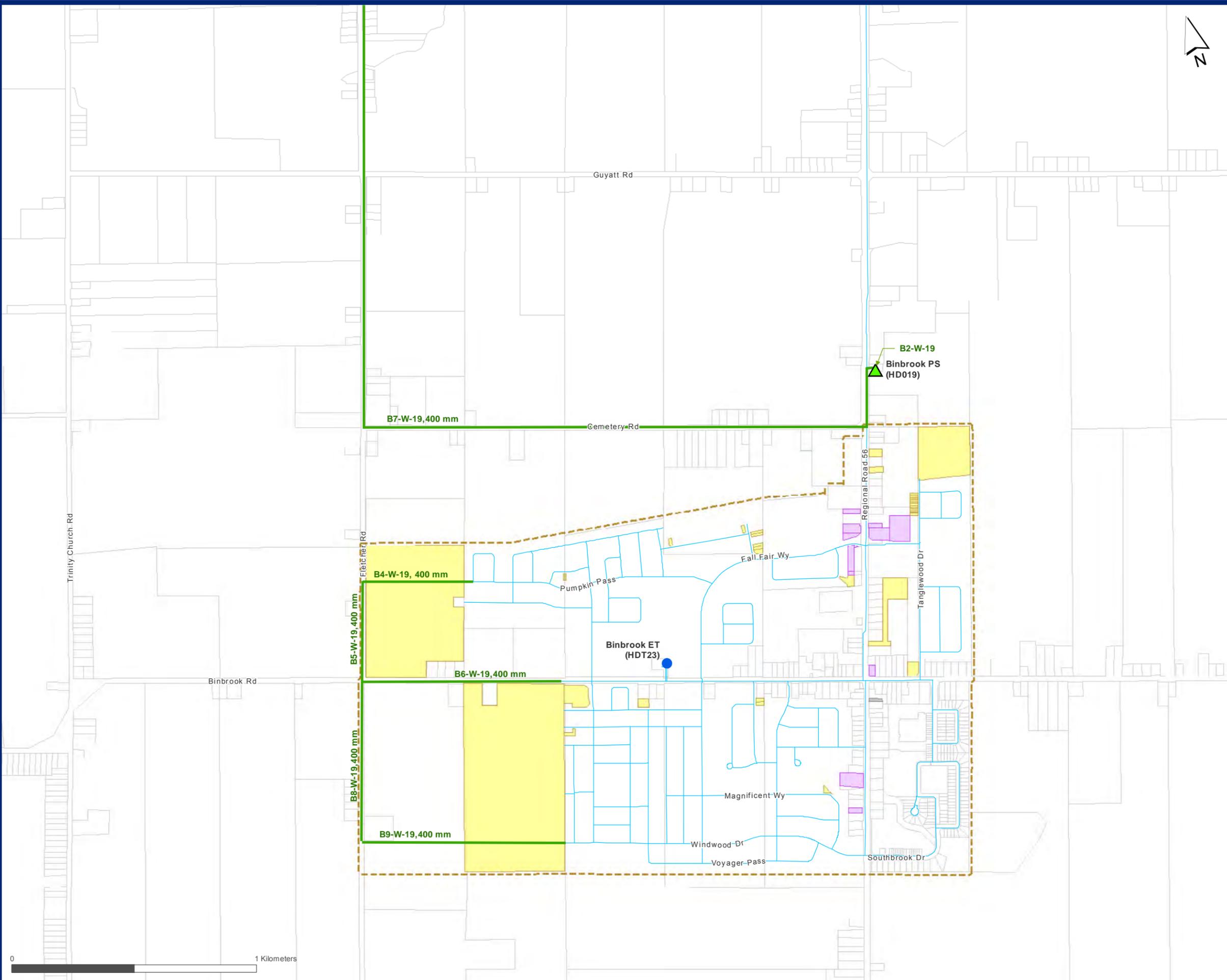
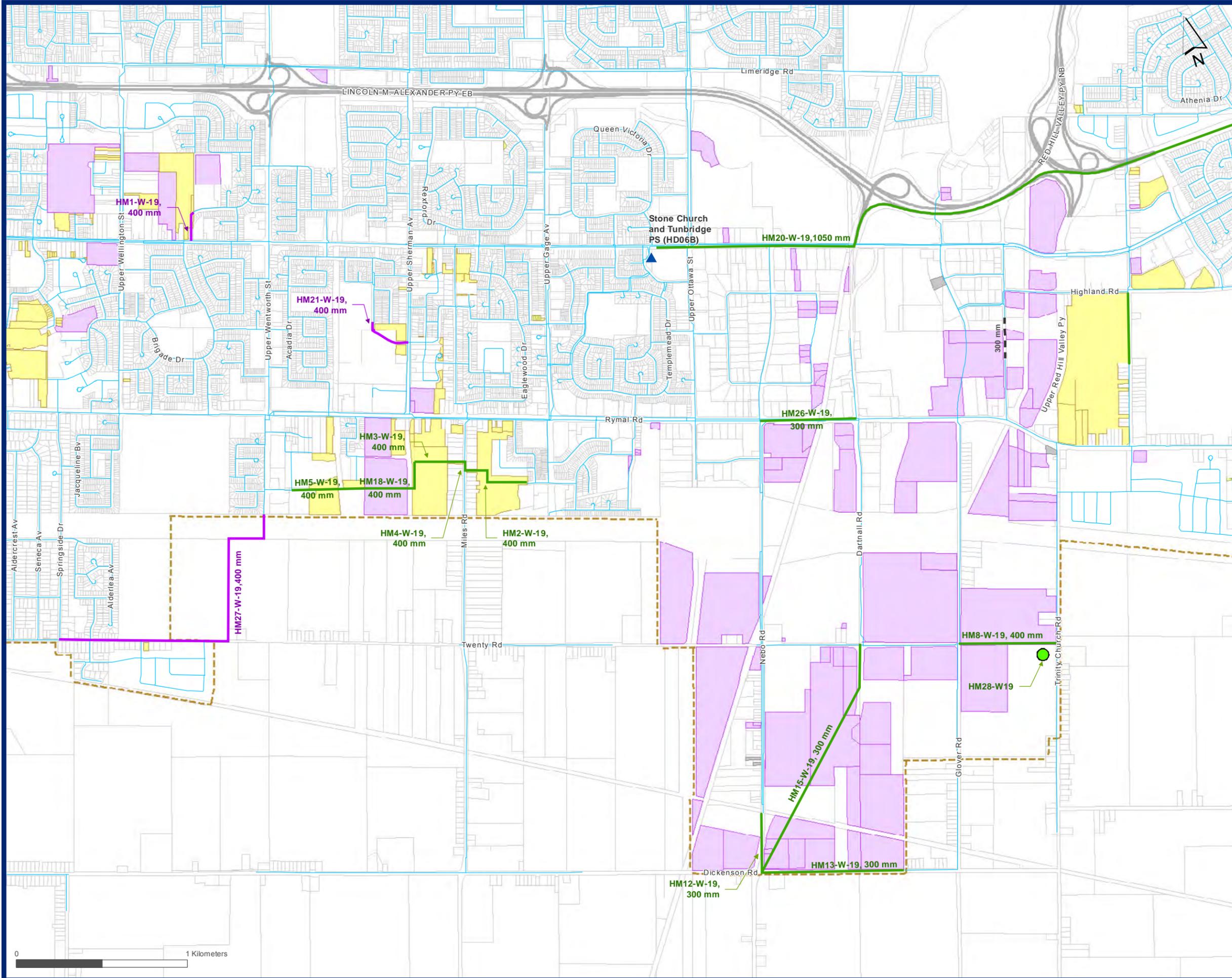


Figure 1-4
Binbrook Watermain
Development Charges Background Study



General Features

- Highways
- Railways
- Urban Boundary
- Other Municipalities
- Parking Lot
- Vacant Non-Residential
- Vacant Residential

Existing Water Infrastructure

- Water Treatment Plant
- Pumping Station
- Reservoir
- Water Tower
- Watermains

Future Water Infrastructure

- Pumping Stations 0 - 5 Years
- Water Tower 0 - 5 Years
- Watermains 0 - 5 Years
- Pumping Stations 6 Plus Years
- Reservoir 6 Plus Years
- Watermains 6 Plus Years
- Watermains - 100% Direct Development Contribution



Figure 1-5
Hamilton Mountain Watermain
Development Charges Background Study

General Features

-  Highways
-  Railways
-  Urban Boundary
-  Other Municipalities
-  Parking Lot
-  Vacant Non-Residential
-  Vacant Residential

Existing Water Infrastructure

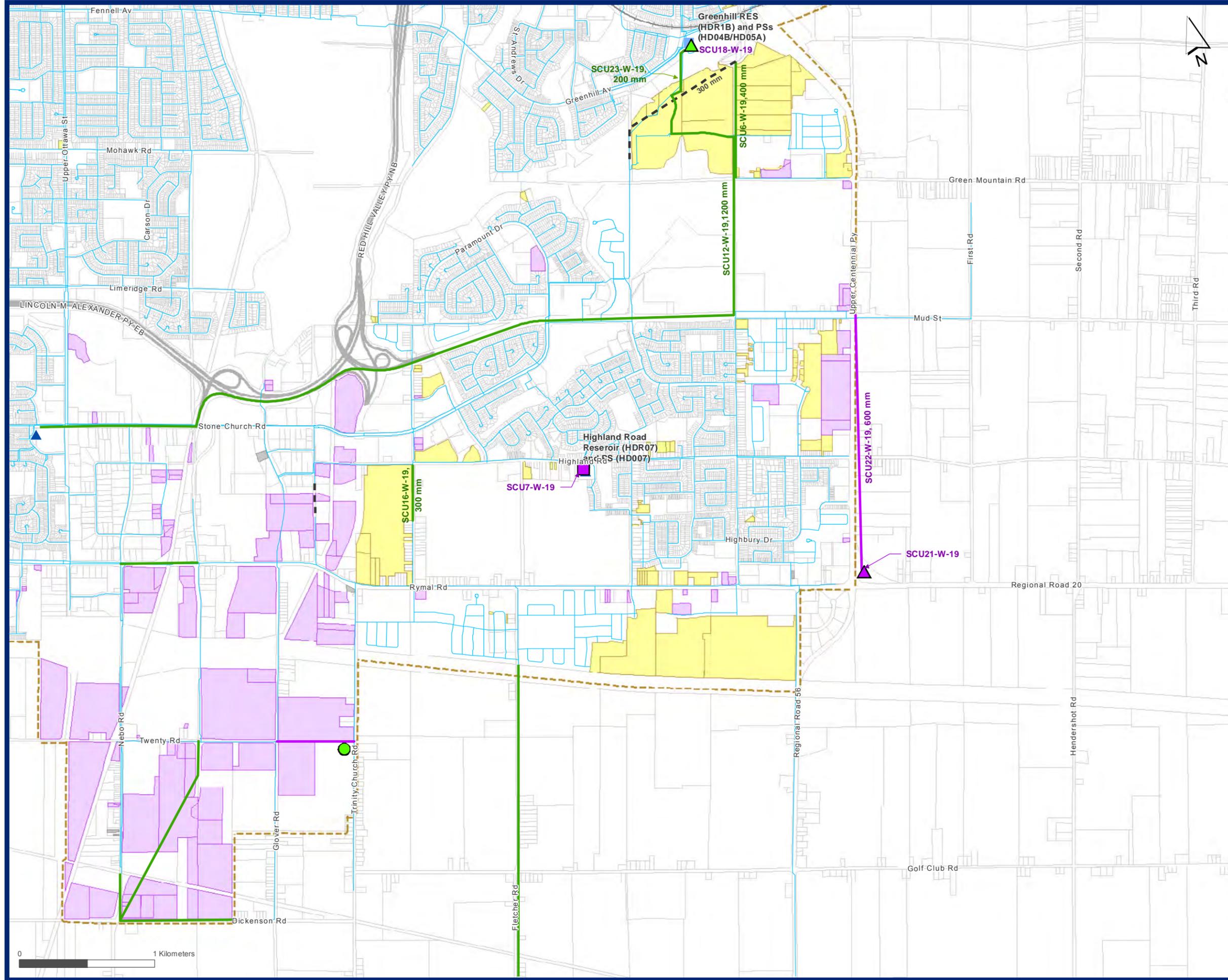
-  Water Treatment Plant
-  Pumping Station
-  Reservoir
-  Water Tower
-  Watermains

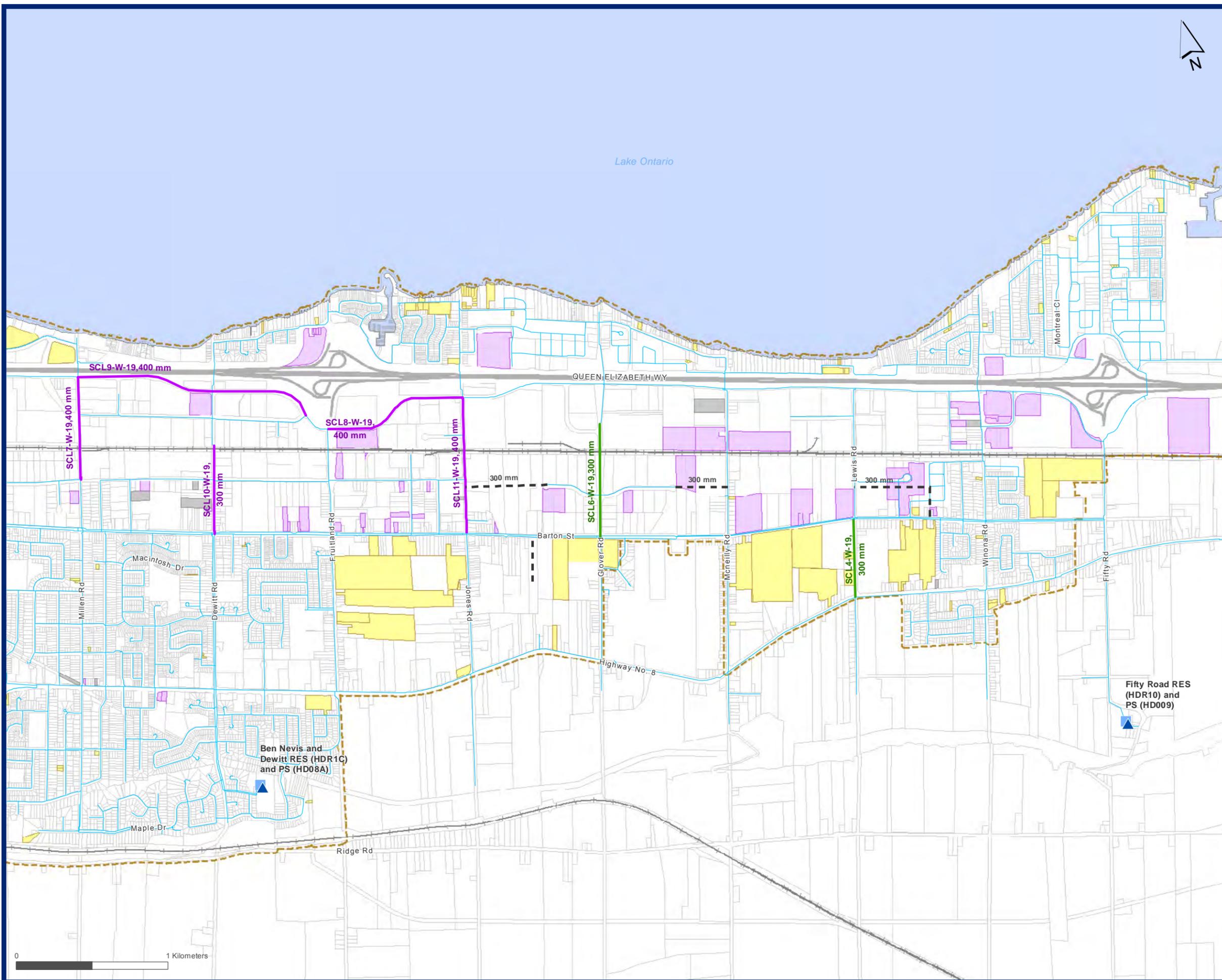
Future Water Infrastructure

-  Pumping Stations 0 - 5 Years
-  Water Tower 0 - 5 Years
-  Watermains 0 - 5 Years
-  Pumping Stations 6 Plus Years
-  Reservoir 6 Plus Years
-  Watermains 6 Plus Years
-  Watermains - 100% Direct Development Contribution



Figure 1-6
Stoney Creek Upper Watermain
Development Charges Background Study





General Features

- Highways
- Railways
- Urban Boundary
- Other Municipalities
- Parking Lot
- Vacant Non-Residential
- Vacant Residential

Existing Water Infrastructure

- Water Treatment Plant
- Pumping Station
- Reservoir
- Water Tower
- Watermains

Future Water Infrastructure

- Pumping Stations 0 - 5 Years
- Water Tower 0 - 5 Years
- Watermains 0 - 5 Years
- Pumping Stations 6 Plus Years
- Reservoir 6 Plus Years
- Watermains 6 Plus Years
- Watermains - 100% Direct Development Contribution



Figure 1-7
Stoney Creek Lower Watermain
Development Charges Background Study

0 1 Kilometers



Attachment B – Water City Wide Projects

TABLE F-2 - WATER CAPITAL PROGRAM - CITYWIDE

Area	Planning Period	Project ID	Project	Description	Estimated Total Cost	Direct Developer Contribution	City Cost Share	Post Period Benefit	Development Charges (\$2019)	Updated Timing	Updated Cost	Scope Change: Location	Scope Change: Length and/or Size	Project Added	2014-2019 Change Details
City Wide Projects	0 to 5 years	CW1-W-19	Oversizing of Infrastructure-Watermains	Oversizing of servicing infrastructure within subdivisions	\$ 306,000	\$ -	\$ -	\$ -	\$ 306,000		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW2-W-19	Regional Subdivider's Share for Local Improvements		\$ 1,161,000	\$ -	\$ -	\$ -	\$ 1,161,000		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW3-W-19	Intensification Infrastructure Upgrades - Water (0-5 years)	Upgrades to existing infrastructure to accommodate intensification	\$ 15,000,000	\$ -	\$ 7,500,000	\$ -	\$ 7,500,000		X		X		Updated cost; increased to account for additional anticipated intensification costs
City Wide Projects	0 to 5 years	CW5-W-19	HD12A Governor's Rd Pumping Station Upgrades	Additional pumping capacity new pump and new standby power (3ML/d)	\$ 3,518,000	\$ -	\$ -	\$ -	\$ 3,518,000		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW6-W-19	Governor's Rd PD 11 Watermain Extension	Twin Watermain feeding HD12A (220 m 400mm)	\$ 1,560,000	\$ -	\$ -	\$ -	\$ 1,560,000		X				Updated Cost - City Estimate
City Wide Projects	0 to 5 years	CW7-W-19	Governor's Rd PD 22 Watermain Extension	New watermain from HD12A to PD22 on Governor's Rd and Moss Blvd (1000m 300 mm)	\$ 1,340,000	\$ -	\$ -	\$ -	\$ 1,340,000		X				Updated Cost - City Estimate
City Wide Projects	0 to 5 years	CW12-W-19	Woodward WTP	Sedimentation Tank and Pre-Chlorination Upgrades (MP W-17 & W-18)	\$ 56,367,000	\$ -	\$ -	\$ 5,636,700	\$ 50,730,300		X				Updated Cost - City Estimate
City Wide Projects	0 to 5 years	CW14-W-19	Oversizing of Infrastructure-Watermains	Oversizing of servicing infrastructure for subdivisions not identified on draft plans	\$ 7,261,000	\$ -	\$ -	\$ -	\$ 7,261,000		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW15-W-19	Large diameter and cut-in valves on existing watermains		\$ 1,405,000	\$ -	\$ -	\$ -	\$ 1,405,000		X		X		Updated cost and combined with previous project CW13
City Wide Projects	0 to 5 years	CW23-W-19	Master Plan and additional studies		\$ 1,000,000				\$ 1,000,000					X	New
City Wide Projects	0 to 5 years	CW24-W-19	Freelton Well (FDF01) Capacity Increase	Increase the capacity of the Freelton municipal well in order to meet the ultimate water demand of the Freelton Rural Settlement Area	\$ 3,530,000	\$ -	\$ 417,000	\$ -	\$ 3,113,000					X	New
City Wide Projects	6 years to UBBO	CW4-W-19	Intensification Infrastructure Upgrades - Water	Upgrades to existing infrastructure to accommodate intensification	\$ 15,000,000	\$ -	\$ 7,500,000	\$ -	\$ 7,500,000		X		X		Updated cost; increased to account for additional anticipated intensification costs
City Wide Projects	6 years to UBBO	CW11-W-19	Locke St Watermain	Locke St from Barton St to Main St (1500 m; 500 mm)	\$ 4,294,000	\$ -	\$ -	\$ -	\$ 4,294,000		X		X		
Total Water CityWide					\$ 111,742,000	\$ -	\$ 15,417,000	\$ 5,636,700	\$ 90,688,300						



Attachment C – Wastewater Projects

TABLE F-3 - WASTEWATER CAPITAL PROGRAM

Area	Planning Period	Project ID	Project/Street	From	To	Length (m)	Size (mm)	Estimated Total Cost (\$2019)	Direct Developer Contribution (\$2019)	Benefit to Existing (%)	Benefit to Existing (\$2019)	Post Period Benefit (%)	Post Period Benefit (\$2019)	Development Charges (\$2019)	Updated Timing	Updated Cost	Scope Change: Location	Scope Change: Length and/or Size	Project Added	2014-2019 Change Details	
WATERDOWN																					
Waterdown	0 to 5 years	W3-S-19	Waterdown North Area	McCurdy Ave	Northerly	340	600	\$ 291,000	\$ 248,000	0%	\$ -	0%	\$ -	\$ 43,000		X		X		Updated length, updated unit cost (inflation)	
Waterdown	0 to 5 years	W4-S-19	Waterdown South Sewer	Dundas St and Evans Ave	300 m south and 300 m west of Dundas St and Evans Ave	640	525	\$ 498,000	\$ 466,000	0%	\$ -	0%	\$ -	\$ 32,000		X	X	X		Updated length and alignment. Updated unit cost (inflation)	
Waterdown	0 to 5 years	W6-S-19	DC014- Existing Pump Capacity & Wet Well upgrade at 1st St/ Hwy 5	Increase capacity from 283 L/s replacement pumps	(measured) to 456 L/s with 3 replacement pumps		456 L/s	\$ 4,930,000	\$ -	39%	\$ 1,922,000	10%	\$ 300,800	\$ 2,707,200	X	X		X		Updated cost based on City Capital Budget	
Waterdown	0 to 5 years	W7-S-19	Waterdown WWTP Decommissioning					\$ 6,000,000	\$ -	90%	\$ 5,400,000	0%	\$ -	\$ 600,000		X				Updated cost based on City Capital Budget	
Sub-Total Waterdown								\$ 11,719,000	\$ 714,000		\$ 7,322,000		\$ 300,800	\$ 3,382,200							
ANCASTER																					
Ancaster	0 to 5 years	A13-S-19	Ancaster Industrial Park Area- Hydro Corridor	Shaver Rd	New road	820	450	\$ 863,000	\$ -	0%	\$ -	0%	\$ -	\$ 863,000		X	X	X		Updated length and alignment. Updated unit cost (inflation)	
Ancaster	0 to 5 years	A15-S-14	HC011-Catvin St SPS Upgrades	Capacity Expansion to 118 L/s			118 L/s	\$ 3,500,000	\$ -	50%	\$ 1,750,000	0%	\$ -	\$ 1,750,000		X		X		Updated cost based on City Estimates	
Ancaster	0 to 5 years	A17-S-19	Area north of Garner Rd E / between Silver Maple Dr and Hwy 6	Garner Rd	30 m east of Silver Maple Dr	410	600	\$ 351,000	\$ 299,000	0%	\$ -	0%	\$ -	\$ 52,000	X	X	X	X		Updated length, updated unit cost (inflation)	
Ancaster	0 to 5 years	A20-S-19	Cormorant Rd extension	Tradewind Dr	Trinity Rd	740	1050	\$ 1,280,000	\$ 539,000	0%	\$ -	58%	\$ 741,000	\$ -		X	X	X		Updated length, updated unit cost (inflation)	
Ancaster	0 to 5 years	A21-S-19	Shaver Rd	Osprey Dr	Hydro Corridor	840	375	\$ 596,000	\$ -	0%	\$ -	0%	\$ -	\$ 596,000					X	New	
Sub-Total Ancaster								\$ 6,590,000	\$ 838,000		\$ 1,750,000		\$ 741,000	\$ 3,261,000							
AEGD/MT. HOPE																					
AEGD/Mt. Hope	0 to 5 years	MH1-S-19	Twenty Rd	Silverbirch Blvd	Upper James St	2000	450	\$ 2,896,000	\$ -	0%	\$ -	0%	\$ -	\$ 2,896,000		X				Updated length, updated unit cost (inflation)	
AEGD/Mt. Hope	0 to 5 years	MH2-S-19	Southcote Rd	Hydro Corridor	Garner Rd	875	375	\$ 621,000	\$ -	0%	\$ -	0%	\$ -	\$ 621,000		X				Updated unit cost - inflation only	
AEGD/Mt. Hope	0 to 5 years	MH3-S-19	Garner Rd	Hwy 6	Kitty Murray Ln	1150	375	\$ 1,553,000	\$ -	0%	\$ -	0%	\$ -	\$ 1,553,000		X				Updated unit cost - inflation only	
AEGD/Mt. Hope	0 to 5 years	MH4-S-19	Garner Rd	Kitty Murray Ln	Springbrook Ave	630	450	\$ 912,000	\$ -	0%	\$ -	0%	\$ -	\$ 912,000		X				Updated unit cost - inflation only	
AEGD/Mt. Hope	0 to 5 years	MH5-S-19	Smith Rd	Hydro Corridor	Garner Rd	700	375	\$ 497,000	\$ -	0%	\$ -	0%	\$ -	\$ 497,000		X				Updated unit cost - inflation only	
AEGD/Mt. Hope	0 to 5 years	MH6-S-19	Garner Rd	Springbrook Rd	Raymond Rd	880	600	\$ 1,531,000	\$ -	0%	\$ -	0%	\$ -	\$ 1,531,000		X				Updated unit cost - inflation only	
AEGD/Mt. Hope	0 to 5 years	MH22-S-19	HC019 and HC018 Upgrade Strategy					\$ 10,900,000	\$ -	0%	\$ -	0%	\$ -	\$ 10,900,000					X	New	
AEGD/Mt. Hope	6 years to UBBO	MH10-S-19	Dickenson Rd Trunk Sewer	Garth St Extension	Upper James St	1200	750	\$ 2,670,000	\$ -	0%	\$ -	0%	\$ -	\$ 2,670,000		X	X	X		Updated length, updated unit cost (inflation)	
AEGD/Mt. Hope	6 years to UBBO	MH11-S-19	Book Rd Trunk Sewer	400 m west of Southcote	Smith Rd	830	600	\$ 710,000	\$ -	0%	\$ -	0%	\$ -	\$ 710,000		X	X	X		Updated length, updated unit cost (inflation)	
AEGD/Mt. Hope	6 years to UBBO	MH12-S-19	Smith Rd	Hydro Corridor	Book Rd	950	375	\$ 674,000	\$ -	0%	\$ -	0%	\$ -	\$ 674,000		X				Updated unit cost - inflation only	
AEGD/Mt. Hope	6 years to UBBO	MH13-S-19	Garth St Extension	Smith Rd	Dickenson Rd	2275	525	\$ 3,625,000	\$ 3,294,000	0%	\$ -	0%	\$ -	\$ 331,000		X				Updated unit cost - inflation only	
AEGD/Mt. Hope	6 years to UBBO	MH14-S-19	Glancastr Rd	Airport	Garth St extension	450	375	\$ 319,000	\$ -	0%	\$ -	0%	\$ -	\$ 319,000		X				Updated unit cost - inflation only	
AEGD/Mt. Hope	6 years to UBBO	MH15-S-19	Glancastr Rd	Dickenson Rd	Garth St extension	375	375	\$ 266,000	\$ -	0%	\$ -	0%	\$ -	\$ 266,000		X				Updated unit cost - inflation only	
AEGD/Mt. Hope	6 years to UBBO	MH16-S-19	Glancastr Rd	Book Rd	Dickenson Rd	380	375	\$ 270,000	\$ -	0%	\$ -	0%	\$ -	\$ 270,000		X		X		Updated length, updated unit cost (inflation)	
AEGD/Mt. Hope	6 years to UBBO	MH17-S-19	Dickenson Rd	Garth St Extension	Smith Rd	2420	600	\$ 2,069,000	\$ -	0%	\$ -	0%	\$ -	\$ 2,069,000		X	X	X		Updated length, diameter and unit cost (inflation)	
AEGD/Mt. Hope	6 years to UBBO	MH18-S-19	Book Rd	Glancastr Rd	Smith Rd	950	375	\$ 674,000	\$ -	0%	\$ -	0%	\$ -	\$ 674,000		X		X		Updated length, updated unit cost (inflation)	
AEGD/Mt. Hope	6 years to UBBO	MH19-S-19	Southcote Rd	Hydro Corridor	Book Rd	875	375	\$ 621,000	\$ -	0%	\$ -	0%	\$ -	\$ 621,000		X				Updated unit cost - inflation only	
AEGD/Mt. Hope	6 years to UBBO	MH20-S-19	Smith Rd	Book Rd	Garth St extension	675	375	\$ 479,000	\$ -	0%	\$ -	0%	\$ -	\$ 479,000		X		X		Updated length, updated unit cost (inflation)	
AEGD/Mt. Hope	6 years to UBBO	MH21-S-19	Southcote Rd	Book Rd	Garth St extension	525	375	\$ 372,000	\$ -	0%	\$ -	0%	\$ -	\$ 372,000		X		X	X	New - MH21 now gravity sewer - SPS project removed	
Sub-Total AEGD/Mt. Hope								\$ 31,659,000	\$ 3,294,000		\$ -		\$ -	\$ 28,365,000							
BINBROOK																					
Binbrook	0 to 5 years	B2-S-19	PS HCO58 Upgrade - Regional Rd. 56 at Southbrook Dr.	Electrical, mechanical upgrades to SPS and replacement of 3 pumps			340 L/s	\$ 1,076,000	\$ -	0%	\$ -	0%	\$ -	\$ 1,076,000		X				Updated cost - inflation only	
Binbrook	0 to 5 years	B10-S-19	Windwood Dr Extension	Fletcher Rd	Brigham Ave	850	600	\$ 727,000	\$ 619,000	0%	\$ -	0%	\$ -	\$ 108,000		X	X	X		Updated length, updated unit cost (inflation)	
Binbrook	0 to 5 years	B11-S-19	Binbrook Rd	Fletcher Rd	Brigham Ave	850	375	\$ 603,000	\$ -	0%	\$ -	0%	\$ -	\$ 603,000					X	Updated alignment, updated unit cost (inflation)	
Sub-Total Binbrook								\$ 2,406,000	\$ 619,000		\$ -		\$ -	\$ 1,787,000							

General Features

- Highways
- Railways
- Urban Boundary
- Other Municipalities
- Parking Lot
- Vacant Non-Residential
- Vacant Residential

Existing Wastewater Infrastructure

- Wastewater Treatment Plant
- Pumping Station
- Sanitary Trunk
- Sanitary Sewer
- Combined Trunk
- Combined Sewer
- Forcemain

Future Wastewater Infrastructure

- Pumping Stations 0 - 5 Years
- Wastewater Treatment Plant 0 - 5 Years
- Sanitary Sewers 0 - 5 Years
- Forcemains 0 - 5 Years
- Pumping Stations 6 Plus Years
- Sanitary Sewers 6 Plus Years
- Forcemains 6 Plus Years
- Sanitary Sewers - 100% Direct Development Contribution

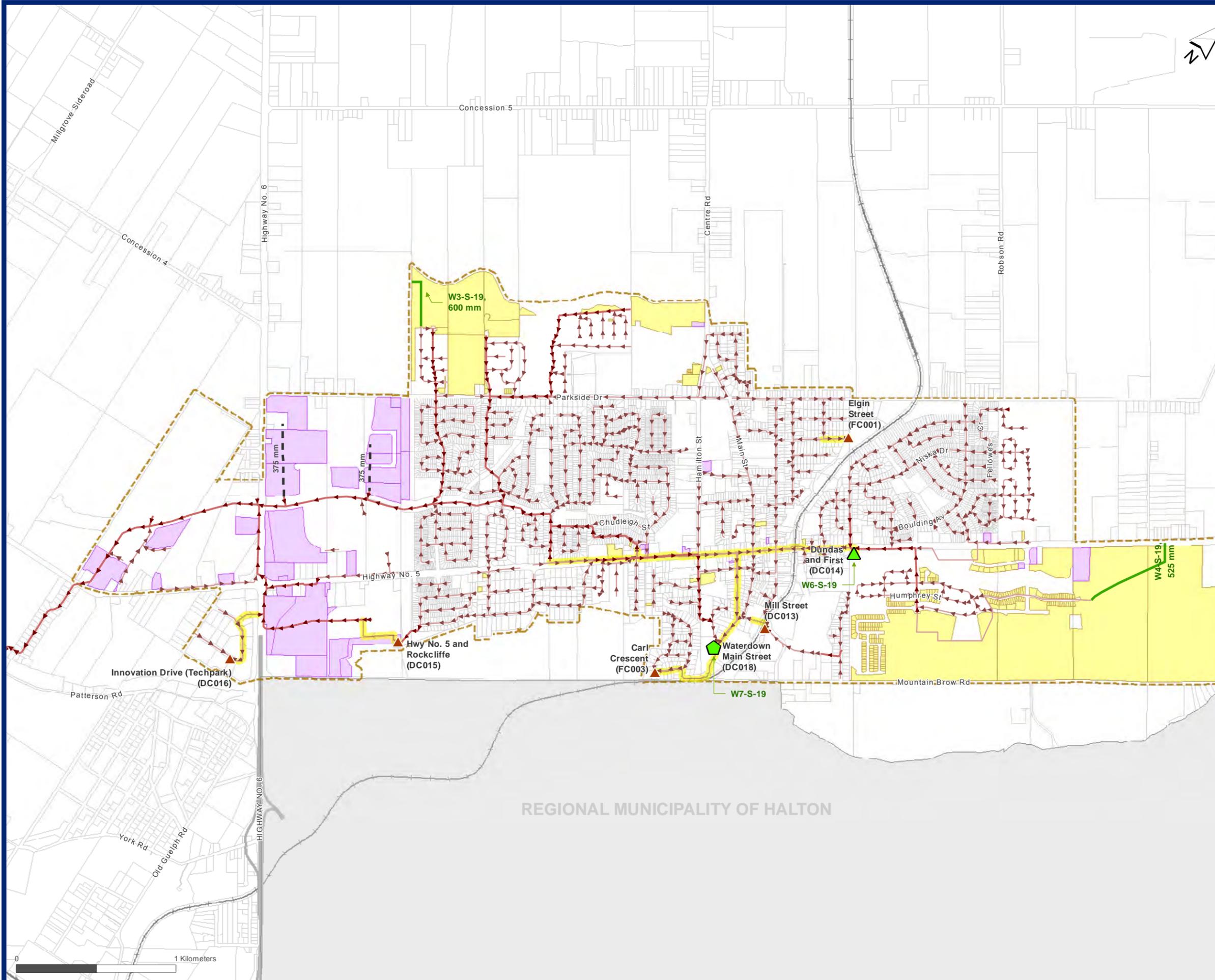
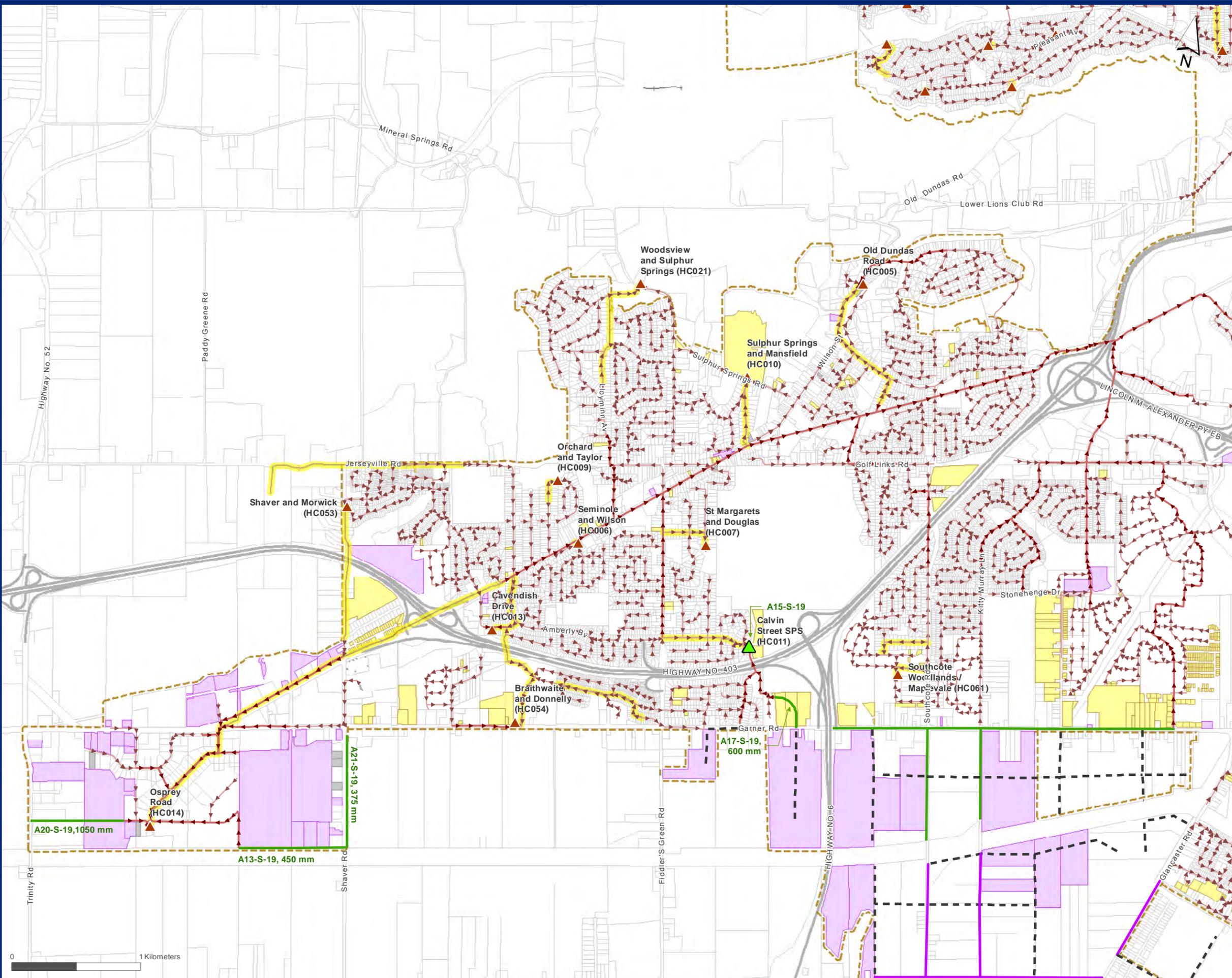


Figure 2-1
Waterdown Wastewater
Development Charges Background Study



General Features

- Highways
- Railways
- Urban Boundary
- Other Municipalities
- Parking Lot
- Vacant Non-Residential
- Vacant Residential

Existing Wastewater Infrastructure

- Wastewater Treatment Plant
- Pumping Station
- Sanitary Trunk
- Sanitary Sewer
- Combined Trunk
- Combined Sewer
- Forcemain

Future Wastewater Infrastructure

- Pumping Stations 0 - 5 Years
- Wastewater Treatment Plant 0 - 5 Years
- Sanitary Sewers 0 - 5 Years
- Forcemains 0 - 5 Years
- Pumping Stations 6 Plus Years
- Sanitary Sewers 6 Plus Years
- Forcemains 6 Plus Years
- Sanitary Sewers - 100% Direct Development Contribution



Figure 2-2
Ancaster Wastewater
Development Charges Background Study

General Features

- Highways
- Railways
- Urban Boundary
- Other Municipalities
- Parking Lot
- Vacant Non-Residential
- Vacant Residential

Existing Wastewater Infrastructure

- Wastewater Treatment Plant
- Pumping Station
- Sanitary Trunk
- Sanitary Sewer
- Combined Trunk
- Combined Sewer
- Forcemain

Future Wastewater Infrastructure

- Pumping Stations 0 - 5 Years
- Wastewater Treatment Plant 0 - 5 Years
- Sanitary Sewers 0 - 5 Years
- Forcemains 0 - 5 Years
- Pumping Stations 6 Plus Years
- Sanitary Sewers 6 Plus Years
- Forcemains 6 Plus Years
- Sanitary Sewers - 100% Direct Development Contribution

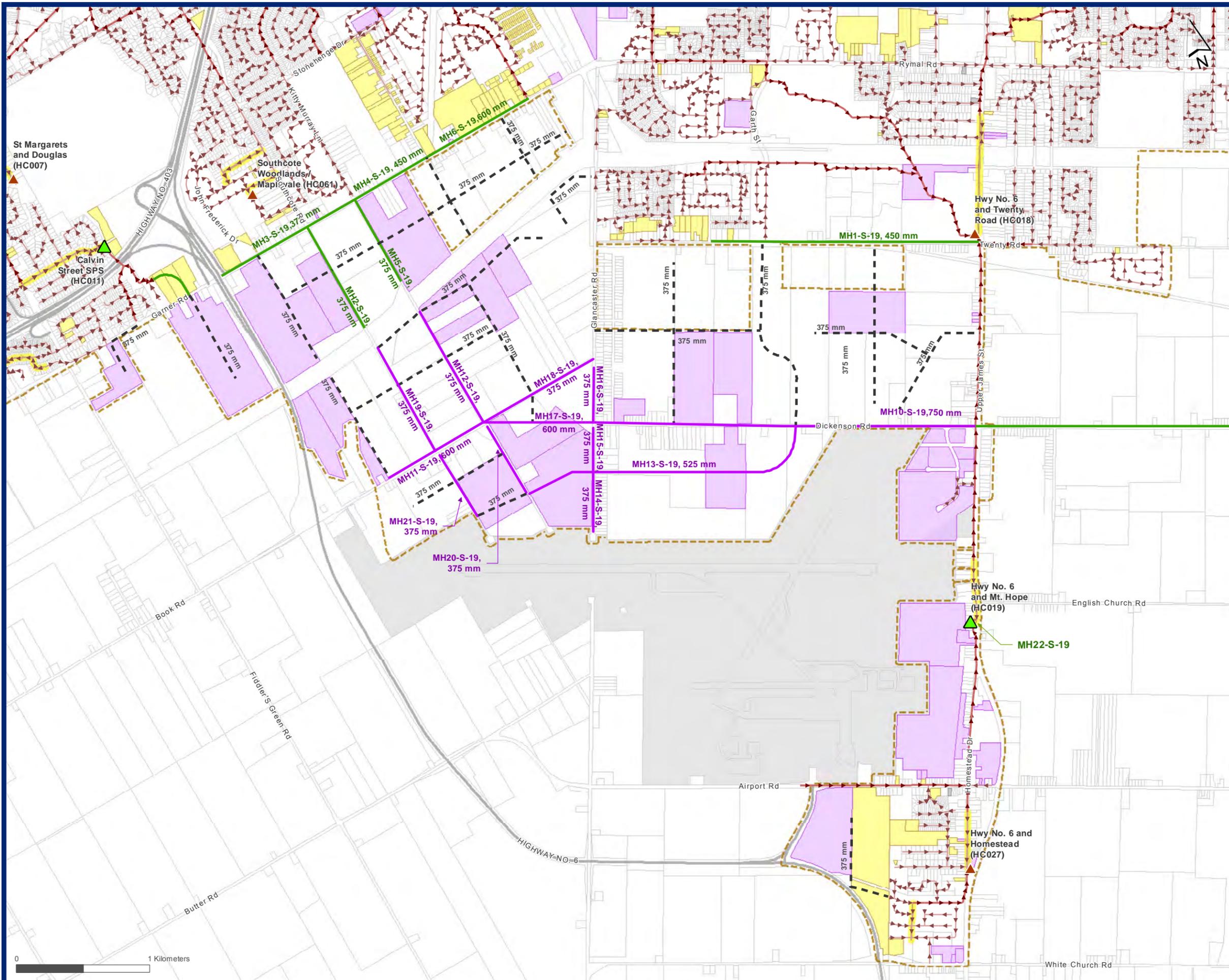


Figure 2-3
AEGD/Mount Hope Wastewater
Development Charges Background Study

General Features

- Highways
- Railways
- ⌞ Urban Boundary
- ⊞ Other Municipalities
- ⊞ Parking Lot
- ⊞ Vacant Non-Residential
- ⊞ Vacant Residential

Existing Wastewater Infrastructure

- ⬠ Wastewater Treatment Plant
- ▲ Pumping Station
- Sanitary Trunk
- Sanitary Sewer
- Combined Trunk
- Combined Sewer
- Forcemain

Future Wastewater Infrastructure

- ▲ Pumping Stations 0 - 5 Years
- ⬠ Wastewater Treatment Plant 0 - 5 Years
- Sanitary Sewers 0 - 5 Years
- Forcemains 0 - 5 Years
- ▲ Pumping Stations 6 Plus Years
- Sanitary Sewers 6 Plus Years
- Forcemains 6 Plus Years
- Sanitary Sewers - 100% Direct Development Contribution

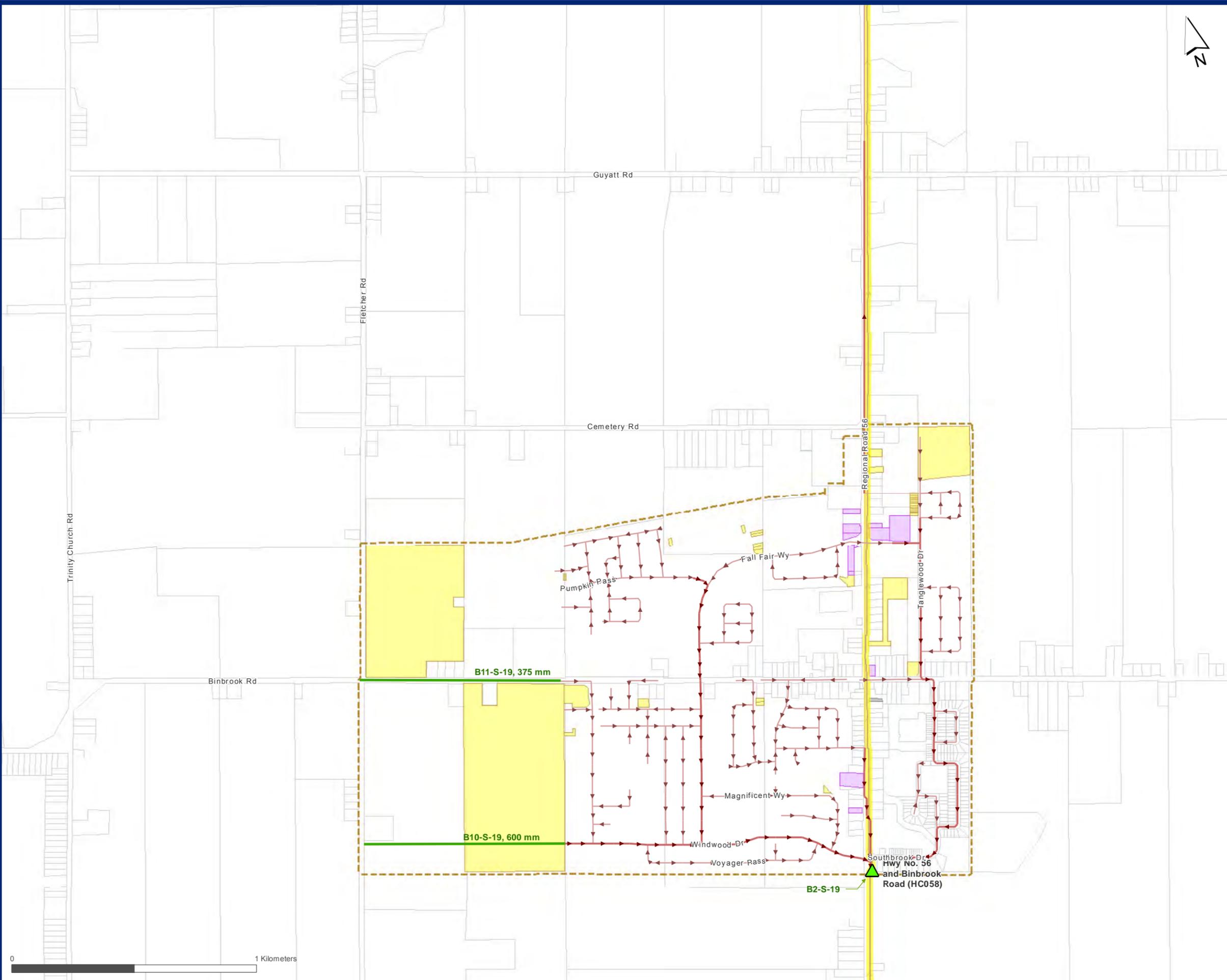
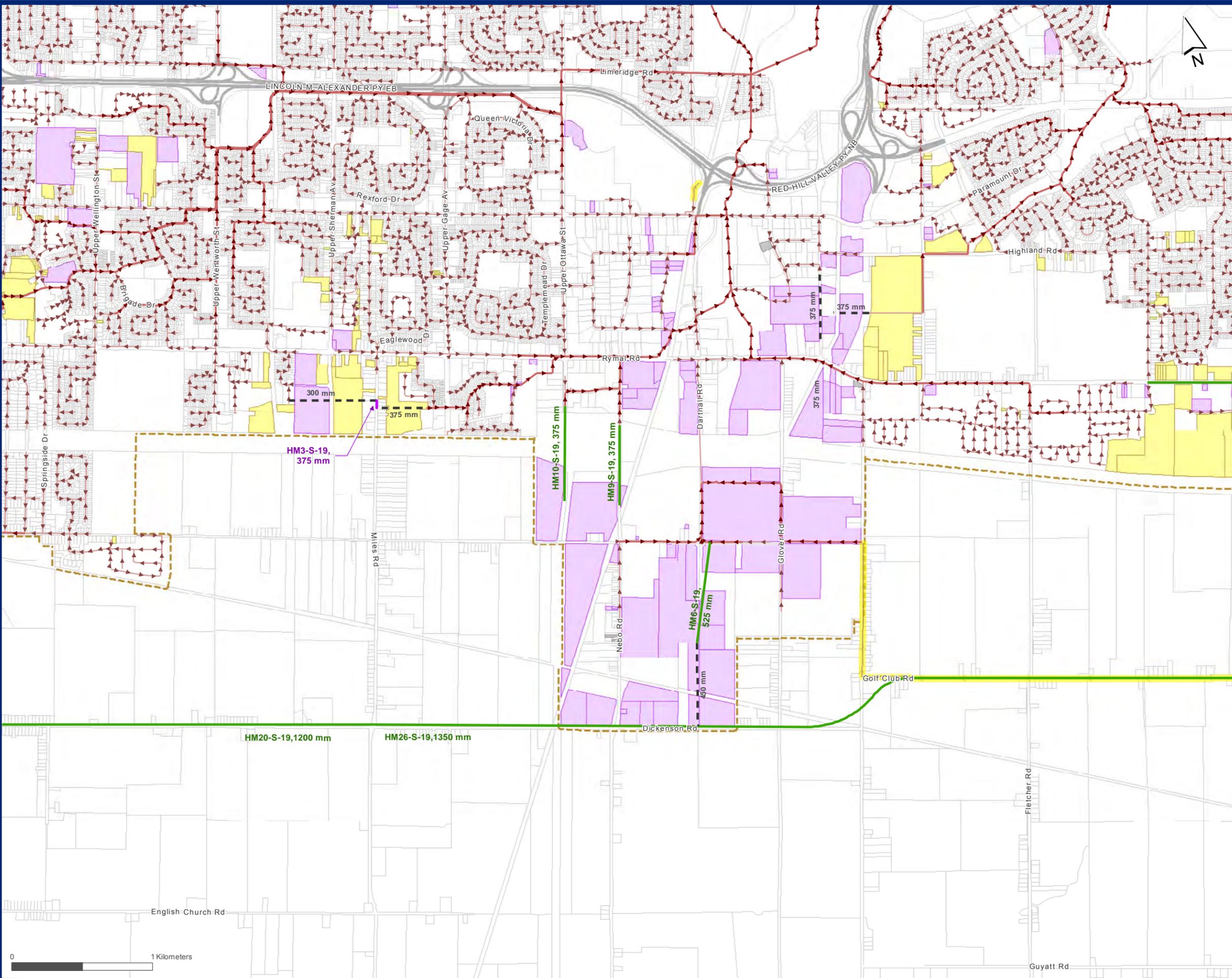


Figure 2-4
Binbrook Wastewater
Development Charges Background Study



General Features

- Highways
- Railways
- Urban Boundary
- Other Municipalities
- Parking Lot
- Vacant Non-Residential
- Vacant Residential

Existing Wastewater Infrastructure

- Wastewater Treatment Plant
- Pumping Station
- Sanitary Trunk
- Sanitary Sewer
- Combined Trunk
- Combined Sewer
- Forcemain

Future Wastewater Infrastructure

- Pumping Stations 0 - 5 Years
- Wastewater Treatment Plant 0 - 5 Years
- Sanitary Sewers 0 - 5 Years
- Forcemains 0 - 5 Years
- Pumping Stations 6 Plus Years
- Sanitary Sewers 6 Plus Years
- Forcemains 6 Plus Years
- Sanitary Sewers - 100% Direct Development Contribution



0 1 Kilometers

Figure 2-5
Hamilton Mountain Wastewater
Development Charges Background Study

General Features

- Highways
- Railways
- Urban Boundary
- Other Municipalities
- Parking Lot
- Vacant Non-Residential
- Vacant Residential

Existing Wastewater Infrastructure

- Wastewater Treatment Plant
- Pumping Station
- Sanitary Trunk
- Sanitary Sewer
- Combined Trunk
- Combined Sewer
- Forcemain

Future Wastewater Infrastructure

- Pumping Stations 0 - 5 Years
- Wastewater Treatment Plant 0 - 5 Years
- Sanitary Sewers 0 - 5 Years
- Forcemains 0 - 5 Years
- Pumping Stations 6 Plus Years
- Sanitary Sewers 6 Plus Years
- Forcemains 6 Plus Years
- Sanitary Sewers - 100% Direct Development Contribution

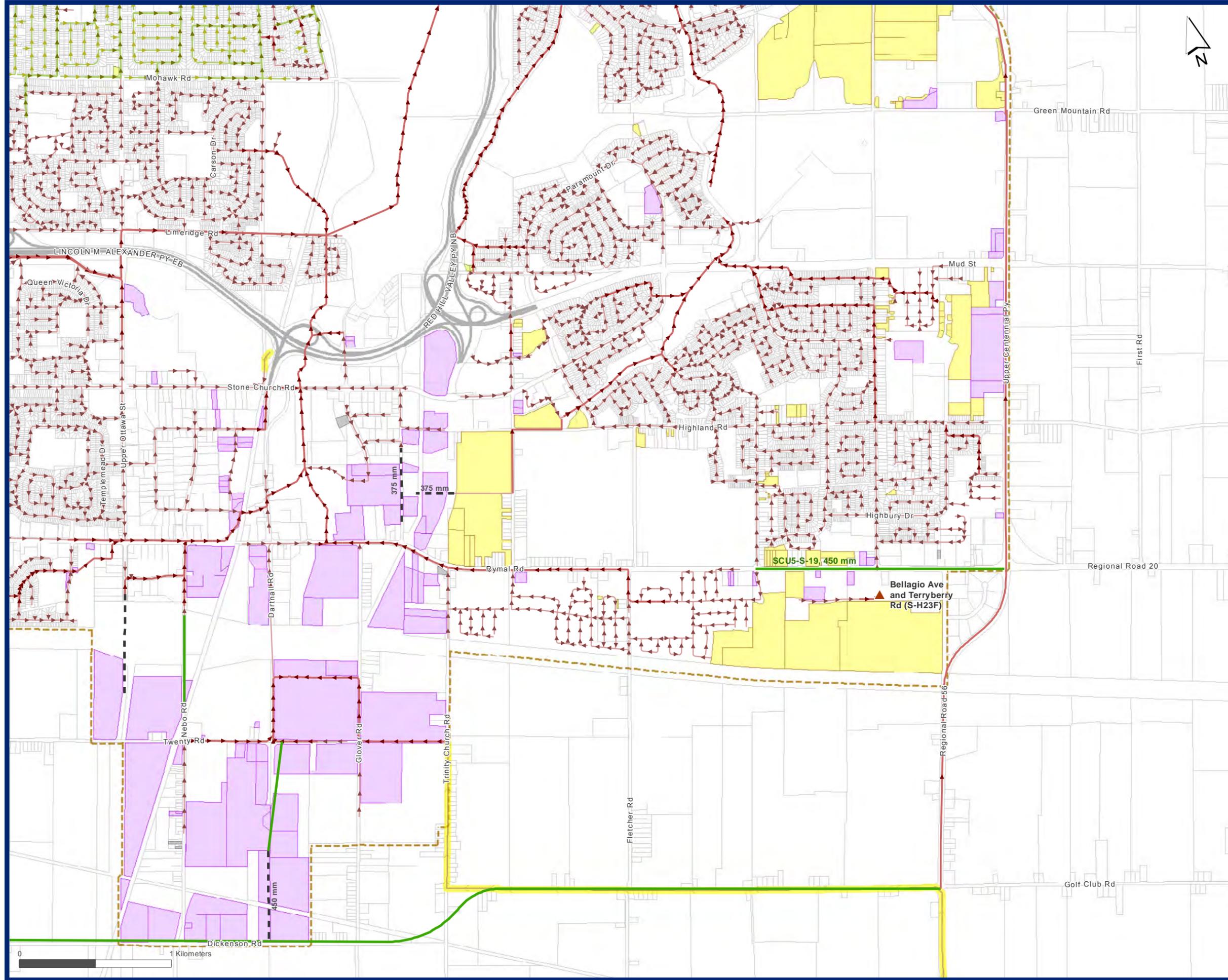


Figure 2-6
Stoney Creek Upper Wastewater
Development Charges Background Study

General Features

- Highways
- Railways
- Urban Boundary
- Other Municipalities
- Parking Lot
- Vacant Non-Residential
- Vacant Residential

Existing Wastewater Infrastructure

- Wastewater Treatment Plant
- Pumping Station
- Sanitary Trunk
- Sanitary Sewer
- Combined Trunk
- Combined Sewer
- Forcemain

Future Wastewater Infrastructure

- Pumping Stations 0 - 5 Years
- Wastewater Treatment Plant 0 - 5 Years
- Sanitary Sewers 0 - 5 Years
- Forcemains 0 - 5 Years
- Pumping Stations 6 Plus Years
- Sanitary Sewers 6 Plus Years
- Forcemains 6 Plus Years
- Sanitary Sewers - 100% Direct Development Contribution

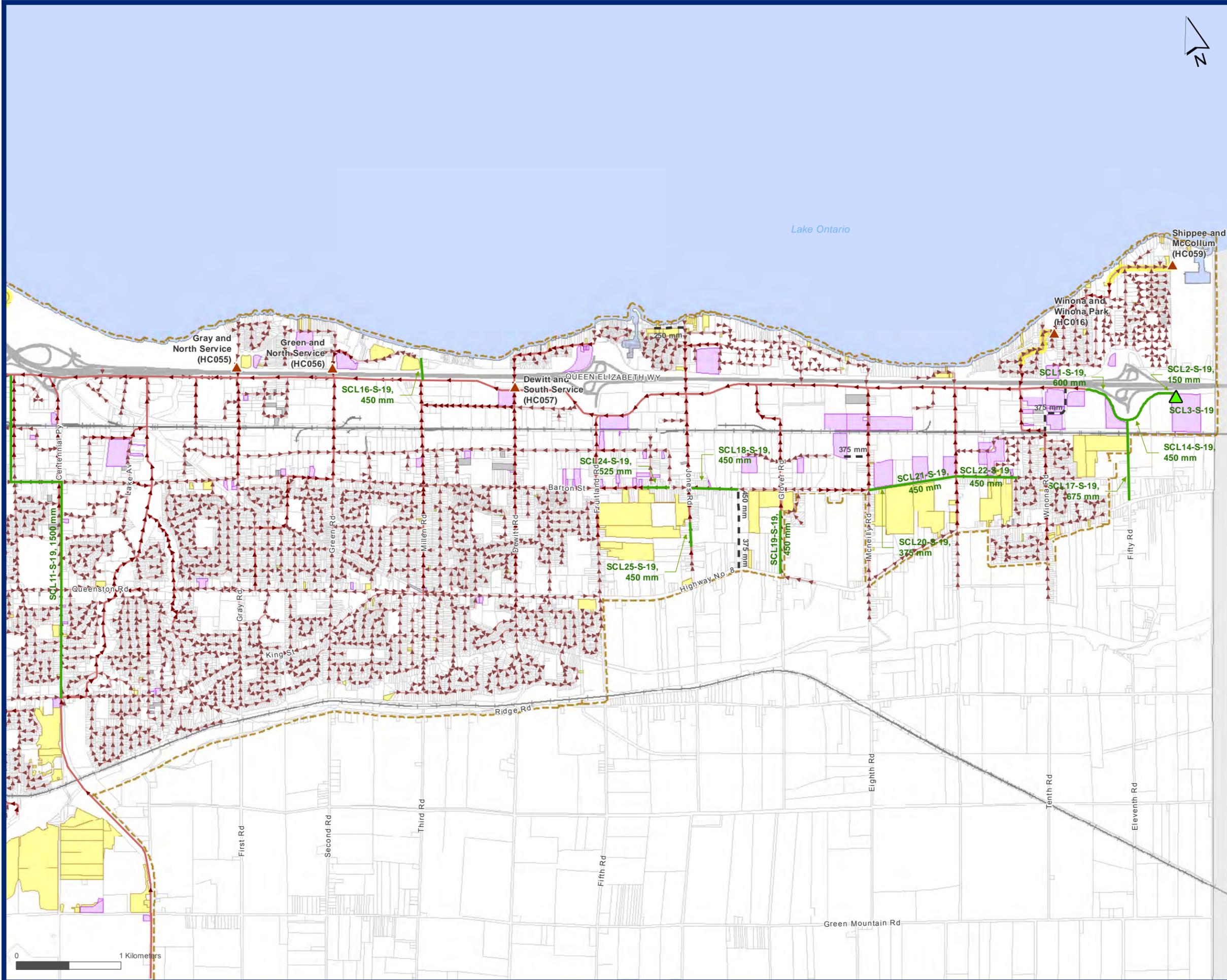


Figure 2-7
Stoney Creek Lower Wastewater
Development Charges Background Study

0 1 Kilometers



Attachment D – Wastewater City Wide Projects

TABLE F-4 - WASTEWATER CAPITAL WASTEWATER CAPITAL PROGRAM-CITYWIDE

Area	Planning Period	Project ID	Project	Description	Estimated Total Cost	Direct Developer Contribution	City Cost Share	Post Period Benefit	Development Charges (\$2019)	Updated Timing	Updated Cost	Scope Change: Location	Scope Change: Length and/or Size	Project Added	2014-2019 Change Details
City Wide Projects	0 to 5 years	CW1-S-19	Flow Monitoring	Total cost over a period of 2 - 2.5 years. Study being undertaken to know various flow characteristics to calibrate the Sanitary Sewer Model to assist the Master Planning Study	\$ 2,448,000	\$ -	\$ 1,224,000	\$ -	\$ 1,224,000		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW2-S-19	I/I Reduction Program	Program to free up extra capacity within the existing sewers - costs over five years	\$ 1,574,000	\$ -	\$ 787,000	\$ -	\$ 787,000		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW3-S-19	Annual Operational Improvements Outstations, 5160067052	Operational improvements to wastewater outstations to increase capacities.	\$ 611,000	\$ -	\$ 152,750	\$ -	\$ 458,250		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW4-S-19	Oversizing of Infrastructure-Sanitary	Oversizing of servicing infrastructure within subdivisions	\$ 611,000	\$ -	\$ -	\$ -	\$ 611,000		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW5-S-19	Land requirement for new sewage pumping stations and easements	Areas for SPS footprints and easements- 5 Ha	\$ 611,000	\$ -	\$ -	\$ -	\$ 611,000		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW6-S-19	Intensification Infrastructure Upgrades - Wastewater (0-5 years)	Upgrades to existing infrastructure to accommodate intensification	\$ 15,000,000	\$ -	\$ 7,500,000	\$ -	\$ 7,500,000		X		X		Updated cost; increased to account for additional anticipated intensification costs
City Wide Projects	0 to 5 years	CW15-S-19	Hwy 403 Trunk sewer twinning - Phase 1	MIP to Main-King	\$ 8,823,000	\$ -	\$ -	\$ -	\$ 8,823,000		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW18-S-19	Oversizing of Infrastructure-Sanitary	Oversizing of servicing infrastructure for subdivisions not identified on draft plans	\$ 1,171,000	\$ -	\$ -	\$ -	\$ 1,171,000		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW19-S-19	Regional Subdivider's Share for Local Improvements		\$ 257,000	\$ -	\$ -	\$ -	\$ 257,000		X				Updated cost - inflation only
City Wide Projects	0 to 5 years	CW20-S-19	West Harbour Sanitary Pumping Station and Forcemain	New SPS at north end of Pier 7/8, storage tank and twin forcemain discharging to Ferguson/Burlington	\$ 15,000,000	\$ -	\$ 1,500,000	\$ -	\$ 13,500,000		X				Updated cost - City Estimate
City Wide Projects	0 to 5 years	CW22-S-19	Master Plan and additional studies		\$ 1,000,000	\$ -	\$ -	\$ -	\$ 1,000,000					X	New
City Wide Projects	6 years to UBBO	CW7-S-19	Intensification Infrastructure Upgrades - Wastewater	Upgrades to existing infrastructure to accommodate intensification	\$ 15,000,000	\$ -	\$ 7,500,000	\$ -	\$ 7,500,000		X		X		Updated cost; increased to account for additional anticipated intensification costs
City Wide Projects	6 years to UBBO	CW16-S-19	Hwy 403 Trunk sewer twinning - Phase 2	Royal CSO to MIP	\$ 7,656,000	\$ -	\$ -	\$ -	\$ 7,656,000		X				Updated cost - inflation only
Total					\$ 69,762,000	\$ -	\$ 18,663,750	\$ -	\$ 51,098,250						



Attachment E – Woodward W.W.T.P.

TABLE F-5 - WOODWARD WWTP CAPITAL PROGRAM

Project ID	Description	CAPITAL COST					DEVELOPMENT CHARGES						
		Capital Cost Estimate (\$2019)	Internal Staffing Cost Allocation (Not Eligible for Funding)	Capital Cost w Internal Staffing (\$)	Grants, Subsidies and Other Contributions Attributable to New Development	Project Cost Less Grants, Subsidies, etc (\$)	Growth (%)	Non-Growth (%)	Benefit to Existing (\$)	Growth Related Cost (\$)	Post Period (%)	Growth - Post Period (\$)	Growth - In Period DC APPLICABLE COST (\$)
1	Wastewater Pumping Station	\$ 94,537,613	\$ 1,436,662	\$ 95,974,275	\$ 56,987,925	\$ 38,986,350	18.84%	81.16%	\$ 31,641,095	\$ 7,345,254	25.00%	\$ 1,836,314	\$ 5,508,941
2a	Primary Clarifier - Primary Treatment (Phase 1 - C.E.P.T.) - Engineering Included	\$ 16,255,669	\$ -	\$ 16,255,669	\$ 5,195,046	\$ 11,060,623	18.84%	81.16%	\$ 8,976,738	\$ 2,083,885	25.00%	\$ 520,971	\$ 1,562,914
2b	Primary Clarifier - Primary Treatment (Phase 2 - Tanks) - Engineering Included	\$ 52,246,549	\$ -	\$ 52,246,549	\$ 34,831,033	\$ 17,415,516	18.84%	81.16%	\$ 14,134,332	\$ 3,281,184	25.00%	\$ 820,296	\$ 2,460,888
2c	Primary Clarifier - Other Costs (includes New/Expanded Laboratory/Admin Building)	\$ 11,857,782	\$ -	\$ 11,857,782	\$ -	\$ 11,857,782	52.92%	47.08%	\$ 5,582,644	\$ 6,275,138	25.00%	\$ 1,568,785	\$ 4,706,354
3	Tertiary Upgrades - North and South Secondary Treatment Plant Upgrades	\$ -	\$ -	\$ -	\$ -	\$ -	0.00%	100.00%	\$ -	\$ -	0.00%	\$ -	\$ -
4a	Tertiary Upgrades - New Secondary/Tertiary Treatment Plant (Phase 1)	\$ 132,889,001	\$ 2,019,477	\$ 134,908,478	\$ 77,331,936	\$ 57,576,542	9.56%	90.44%	\$ 52,072,582	\$ 5,503,959	25.00%	\$ 1,375,990	\$ 4,127,969
4b	Tertiary Upgrades - New Secondary/Tertiary Treatment Plant (Phase 2)	\$ 224,800,000	\$ -	\$ 224,800,000	\$ -	\$ 224,800,000	100.00%	0.00%	\$ -	\$ 224,800,000	25.00%	\$ 56,200,000	\$ 168,600,000
5a	Chlorine Contact Tank and Outfall - Railway Re-Alignment	\$ -	\$ -	\$ -	\$ -	\$ -	19.88%	80.12%	\$ -	\$ -	25.00%	\$ -	\$ -
5b	Chlorine Contact Tank and Outfall - Secondary/Tertiary Chlorine contact Tank, Outfall and Red Hill Creek Upgrades	\$ 42,599,496	\$ 647,373	\$ 43,246,869	\$ 23,174,887	\$ 20,071,982	19.88%	80.12%	\$ 16,081,115	\$ 3,990,867	25.00%	\$ 997,717	\$ 2,993,150
7	Chlorine Contact Tank and Outfall - New Outfall (included in 5b project)	\$ -	\$ -	\$ -	\$ -	\$ -	0.00%	100.00%	\$ -	\$ -	25.00%	\$ -	\$ -
8	Plant Expansion - Engineering (Projects 1, 4a, 4b, 5, 13) Phase 1	\$ 24,810,804	\$ -	\$ 24,810,804	\$ -	\$ 24,810,804	14.73%	85.27%	\$ 21,156,173	\$ 3,654,631	25.00%	\$ 913,658	\$ 2,740,974
8	Plant Expansion - Engineering (Projects 1, 4a, 4b, 5, 13) Phase 2	\$ 25,573,521	\$ -	\$ 25,573,521	\$ -	\$ 25,573,521	14.73%	85.27%	\$ 21,806,541	\$ 3,766,980	25.00%	\$ 941,745	\$ 2,825,235
8	Plant Expansion - Engineering (Projects 1, 4a, 4b, 5, 13) Phase 3	\$ 28,300,000	\$ -	\$ 28,300,000	\$ -	\$ 28,300,000	100.00%	0.00%	\$ -	\$ 28,300,000	25.00%	\$ 7,075,000	\$ 21,225,000
8	Plant Expansion - Engineering - Other Costs (includes W.W.E. Modular Office Building)	\$ 5,623,839	\$ 2,804,250	\$ 8,428,089	\$ -	\$ 8,428,089	14.73%	85.27%	\$ 7,186,631	\$ 1,241,457	25.00%	\$ 310,364	\$ 931,093
6	Biogas Digester - New W.A.S. Thickening Facility (forms part of the Digester Upgrades)	\$ -	\$ -	\$ -	\$ -	\$ -		100.00%	\$ -	\$ -	0.00%	\$ -	\$ -
9	Biogas Digester - Additional Dewatering Capacity	\$ -	\$ -	\$ -	\$ -	\$ -		100.00%	\$ -	\$ -	0.00%	\$ -	\$ -
10	Biogas Digester - Refurbishment of Digesters to Increase Capacity	\$ -	\$ -	\$ -	\$ -	\$ -		100.00%	\$ -	\$ -	0.00%	\$ -	\$ -
11a	Biogas Digester - Biogas Upgrades	\$ 45,005,784	\$ -	\$ 45,005,784	\$ 20,000,000	\$ 25,005,784	12.89%	87.11%	\$ 21,782,816	\$ 3,222,968	25.00%	\$ 805,742	\$ 2,417,226
11b	Biogas Digester - Digesters Upgrades	\$ 8,430,000	\$ -	\$ 8,430,000	\$ -	\$ 8,430,000	100.00%	0.00%	\$ -	\$ 8,430,000	25.00%	\$ 2,107,500	\$ 6,322,500
12	Biosolids Management Facility - Biosolids Thermal Reduction Disposal Facility	\$ 99,440,000	\$ -	\$ 99,440,000	\$ 14,300,000	\$ 85,140,000	18.84%	81.16%	\$ 69,099,130	\$ 16,040,870	25.00%	\$ 4,010,217	\$ 12,030,652
13a	Electrical System Upgrades - New Electrical and power systems - Phase 1	\$ 62,256,622	\$ 946,097	\$ 63,202,719	\$ 35,721,251	\$ 27,481,468	19.21%	80.79%	\$ 22,202,989	\$ 5,278,478	25.00%	\$ 1,319,620	\$ 3,958,859
13b	Electrical System Upgrades - New Electrical and power systems - Phase 2	\$ 34,844,000	\$ -	\$ 34,844,000	\$ -	\$ 34,844,000	100.00%	0.00%	\$ -	\$ 34,844,000	25.00%	\$ 8,711,000	\$ 26,133,000
14	Collection System Upgrades	\$ 10,176,000	\$ 154,642	\$ 10,330,642	\$ 6,784,000	\$ 3,546,642	0.00%	100.00%	\$ 3,546,642	\$ -	0.00%	\$ -	\$ -
	Total	\$ 919,646,680	\$ 8,008,501	\$ 927,655,181	\$ 274,326,079	\$ 653,329,102			\$ 295,269,430	\$ 358,059,672		\$ 89,514,918	\$ 268,544,754



Appendix G: Stormwater Management Servicing Needs – Wood Environment & Infrastructure Solutions



**CITY OF HAMILTON
2019 DEVELOPMENT CHARGES UPDATE**

**STORMWATER
BACKGROUND STUDY**

May 14, 2019

**Wood Environment & Infrastructure Solutions
Wood Canada Limited**

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1. Introduction

This Background Study forms part of the overall City of Hamilton 2019 Development Charges Update to carry out a review of Water and Wastewater, Roads, and Stormwater Development Charges in the City of Hamilton, including changes and updates affecting the determination process for the stormwater component of the Development Charges that have occurred in the 2014-2018 period. The changes and updates have been summarized as follows:

- New projects have been identified and added
- New stormwater-related studies, and associated project and costs estimates, have been updated or completed (either superseding older studies, or where no earlier studies existed)
- Projects have been updated/modified and/or removed, based on new information from the City
- Land requirement calculations for stormwater management facilities, where no studies exist, have been verified by the City, based on recent actual facility land requirements
- Capital cost calculations for stormwater management facilities have been verified by the City, based on actual facility capital costs for those constructed in the 2014-2018 period
- Contingencies have been added for stormwater management facility footprint and volume increases
- Land requirement estimates for facilities subject to flat existing grades, and potentially backwater, have been adjusted
- Capital cost estimates for facilities in rock have been adjusted
- The Local Service Policy has been updated, and twenty-two new policies added (ref. Section 1.4 of this report for a summary, and Appendix E of the overall background Report for the full policies)
- Projects have been removed, due to being constructed and financed through the Development Charges
- Projects have been deleted from the planning timeframe of 2031 as a result of the updates to the City's growth forecasts.
- Non-residential stormwater facility growth costs excluded from the Development Charge; therefore having non-residential developers provide their stormwater management facilities directly.
- In instances where both residential and non-residential growth lands are proposed to contribute to a stormwater management facility, the areally-estimated component shares have been separated for costing purposes.

In addition to the above, unit rates for land costs have increased, and have been provided by the City's Real Estate Department; and capital costs for the materials for construction of stormwater infrastructure have increased by 12.4 %, in accordance with the Non Residential Construction Index prescribed by the Development Charges Act.

1.1 Study Area

For the 2019 Development Charges Update, development in the former member municipalities of the City of Hamilton has again been combined for financial purposes, however a column in the stormwater costing tables has been maintained for reference purposes (and to assist in locating the projects on the overall drawing), in which the City has been divided into the following seven (7) areas:

- Ancaster,
- Binbrook/Mount Hope,
- Hamilton Mountain,
- Stoney Creek (Lower),
- Stoney Creek (Mountain),
- Waterdown,
- Other (Hamilton Downtown, Dundas, Greensville, Carlisle, Freulton, and other outlying areas).

1.2 Background and Purpose

This stormwater background study provides information for the portion of the Development Charges relating to stormwater infrastructure including: channel system improvements, off-site erosion control, stormwater management works, oversizing of stormwater related infrastructure, and culverts related to identified road projects. Projects included in this study are future growth related, which include both planned and unplanned projects. Future growth related information has been collected from the City and City-approved studies and, where no information was available, appropriate assumptions and calculations have been made.

This report provides a summary of the approach used in establishing and summarizing of the stormwater-related Development Charges for both residential and non-residential development. The report consists of the following sections: Introduction, Municipal Stormwater Drainage Policies and Criteria, Methodology, Development Charges Summaries, and Conclusions.

1.3 Development Charges Act: Storm Services

According to the Development Charges Act (S.O. 1997, Chapter 27), the “council of a municipality may by by-law impose development charges against land to pay for increased capital costs required because of increased needs for services arising from development of the area to which the by-law applies”.

The services referred to include stormwater drainage and control. Costs to acquire land may be included, as well as costs to undertake studies in connection with any of the services, as well as the cost of the development charge background study (1997, c.27, s.3, 5).

The Development Charges are based on a projection of the costs to service new development to “build-out” over the next 13 years (i.e. to 2031).

All components of drainage works that have been considered to require development funding have been included. Storm drainage infrastructure has been classified into five categories: open watercourses (channel system improvements), off-site erosion control (not previously identified), stormwater

management facilities (quality and quantity), storm sewer oversizing, and culverts/bridges (not previously identified, and associated with new or widened roads).

1.4 City of Hamilton Development Charge – Local Service Policy

Within a development charge policy, there are certain works which are deemed "local services" which remain the responsibility of the developing landowner. The Local Service Policy for Stormwater Drainage Systems can be found in Appendix E of the Development Charge Background Study.

The following summarizes the updates and new policies that have been added to the City of Hamilton's Local Service Policy for Stormwater Drainage Systems, as part of this update to the Development Charge Bylaw. The new policies are primarily definitions and clarifications of current City guidelines, and practices, which had previously not been enshrined in the Local Service Policy. Many are previously documented in the City's "Comprehensive Development Guidelines and Financial Policies Manual, 2017":

Amended Policies From 2014

- Storm sewer oversizing definition related to minimum velocity and slope
- Definition of watercourse work downstream of off-site outlets to service more than one development, including open watercourses and/or culverts and storm sewers
- Updated valuation of land for stormwater management facilities

New Policies For 2019

- Stormwater management facilities in series
- Combined Residential / Non- Residential stormwater management facilities
- Oversizing of stormwater management facilities due to downstream constraints
- 100 Year Control in stormwater management facilities
- Criteria for stormwater management facilities in Airport Employment Growth District (A.E.G.D.)
- City Standard for total drainage area to stormwater management facilities
- City Standard for stormwater management facilities treating public roads / single applicants
- Definition of underground tanks for stormwater management facilities not Development Charge eligible
- Definition of stormwater management facilities servicing Mixed Use buildings
- Definition of stormwater management facilities servicing Commercial lands
- Tailwater impacts on land for stormwater management facilities
- Construction cost estimates for stormwater management facilities
- Bedrock impacts on stormwater management facilities cost estimates and actuals
- Frontage calculation for stormwater management facilities
- Definitions for culverts and bridges (as related to road infrastructure)
- Definition for culverts and bridges Development Charge eligible costs
- Watercourses definitions

- Watercourse enclosures not Development Charge eligible
- Combined sewer watershed peak flow control
- Combined sewer watershed provisional Development Charge eligible projects
- Combined sewer watershed provisional outlets
- Monitoring (holistic) of more than one development is Development Charge eligible

1.5 Background Information Collected

City staff, through the Technical Committee noted in Section 1.6, has supplied the following background information:

- Applicable background reports
- Summary of stormwater management facility construction costs and land areas
- Digital topographic mapping
- Digital growth-related land use fabric
- Digital DRAFT Staging of Development Plan land use fabric
- Stormwater policy/philosophy related to Development Charges
- Reviews and comments on overall map of growth areas and identified projects
- Culvert and bridge, and subdivision-related storm sewer oversizing database.

1.6 Administration

Many City of Hamilton staff have assisted in collecting the background information for this study, as well as meeting with Wood Environment & Infrastructure Solutions staff to review the various stormwater projects, cost estimates, financially committed projects, and underlying philosophy and assumptions; these have included:

Tony Sergi, Senior Director of Growth Management

Sally Yong-Lee, Manager of Infrastructure Planning

Monir Moniruzzaman, Senior Project Manager

Lindsay Gillies, Senior Financial Analyst

2. Municipal Stormwater Policy and Criteria

2.1 Overview

The costs to provide stormwater servicing are, in accordance with the Development Charges Act, related to the level of service to be provided.

The City of Hamilton's Storm Drainage Criteria and level of service has been summarized in this Section. The City's standards have been developed to provide this level of service, and to recognize other Provincial and Federal criteria for management of flooding, erosion, stormwater quality, and fisheries habitat protection and enhancement.

2.2 Storm Sewer System

The storm sewer system provides for the drainage and conveyance of the runoff resulting from a design storm event having a 5 year return period. In the former municipalities of the City of Hamilton, the storm sewers were designed to have the capacity for storm events ranging between a 1 in 2 year event and approximately a 1 in 50 year event (ref. Table G1):

TABLE G.1 COMPARISON OF FORMER AREA MUNICIPALITIES STORM DRAINAGE SYSTEM CRITERIA AND POLICY					
Former Municipality	Minor System Criteria	Foundation Drainage Requirements⁽²⁾	Combined Sewers	Roof Leader Policy	Major System Criteria
Hamilton	18 – 50 yr ⁽¹⁾	Gravity	Yes	Direct to Sewer	100 yr
Ancaster	2 yr	Sump Pumps	No	Surface	100 yr
Dundas	2 – 5 yr	N/A	No ⁽³⁾	N/A	100 yr
Flamborough	2 – 5 yr	Gravity/ Sump Pumps	No	Surface	100 yr/Regional ⁽⁴⁾
Glanbrook	5 yr	Sump Pumps	No	Surface	100 yr
Stoney Creek	5 yr	Gravity	No	Surface	100 yr

- Notes:
- ⁽¹⁾ 1942 - 1992 (inclusive) used an 18 year storm event; post 1992 used 50 year. Both design storms uses in Modified Rational Area Method
 - ⁽²⁾ Foundation drainage requirement exceptions are currently permitted upon receipt of a stormwater management report.
 - ⁽³⁾ The Pleasant Valley neighbourhood (Dundas) only has a combined sewer system permitted by By-Law.
 - ⁽⁴⁾ Regional event is Hurricane Hazel

New storm sewers will have to be designed to the new criteria, but new development must also reflect both the external upstream drainage and the existing storm sewer system (potentially none) downstream of the site.

The City of Hamilton Criteria and Guidelines for Stormwater Infrastructure Design (September 2007) outlines the criteria for the storm sewer system as follows:

Approved Master Drainage Plans (M.D.P.'s), which have established storm sewer sizing criteria other than 1 in 5 year standard will govern. In the absence of approved M.D.P.'s, storm sewers shall be designed to a minimum 1 in 5 year, unsurcharged standard (i.e. 85% of pipe capacity). For any storm sewer to be assumed by the City the minimum allowable pipe diameter is 300 mm.

Interfacing between new storm sewers designed to the minimum 1 in 5 year, unsurcharged standard and existing storm sewers of variable sizing standard shall require hydraulic analysis of the existing and proposed storm sewers. Flow capacity of the proposed storm sewer shall be determined based on the receiving existing sewer remaining unsurcharged. The proposed storm sewer flow capacity would either be the 1 in 5 year standard or designed to allow the existing storm sewer to remain unsurcharged. Should the proposed storm sewer flow capacity be required to be less than the 1 in 5 year standard, to prevent downstream surcharging, inlet capacity for the storm sewer should be designed accordingly. Should the existing downstream system be already surcharged, the proposed upstream storm sewer should not increase the level of surcharging downstream.

Hydraulic analysis of the proposed and existing storm sewer system shall provide hydraulic grade lines for the inlet capacity and/or 1 in 5 year standard and 1 in 100 year standard. Hydraulic analysis should demonstrate that no negative impact on the receiving storm sewer system results from the proposed storm sewer. The extent of the downstream off-site analysis needs to be verified with City staff prior to initiation, to ensure that downstream conditions are adequately accounted for in the analysis. The City shall provide the consultant with the 100 year hydraulic grade line for the existing storm infrastructure system when available. Should downstream storm sewer surcharging be a concern under existing conditions, the proponent may be required to restrict inlet capacity to ensure no negative impact on the receiving system. In addition, the proponent is to ensure that adequate overland flow capacity is available in the development and in the receiving major system, incorporating the influence of the restricted inlet capacity of the storm sewer system.

Storm Sewer Oversizing

The Development Charges are applicable primarily to oversizing of existing or new storm sewers, to allow for the conveyance of runoff from new development. Current City financial policy provides for relief for storm sewers in excess of 1200 mm in diameter (ref. Comprehensive Development Guidelines and Financial Policies Manual, 2017). Oversizing is common when a development has a large upstream drainage area that has also been proposed to be developed. When the stormwater peak flows from ultimate land use must be conveyed through a downstream development, the Development Charges provide a method for collecting funds for the net difference between the storm sewer system required solely for the subject development, and the oversized system required for the multiple developments.

In some areas, a storm sewer system may not be viable, and the major overland system may not be able to safely convey the runoff resulting from a 1 in 100 year design storm event. In this case a relief sewer or alternate conveyance mechanism may provide the additional capacity required, and be funded through Development Charges.

2.3 Road Crossings

Waterway openings for culverts and bridge crossings shall be designed in accordance with the Ministry of Transportation Ontario (M.T.O.) policies and guidelines.

Notwithstanding the M.T.O.'s drainage policy and guidelines, it is required that new roadway culverts and bridges have sufficient conveyance capacity to pass the Regulatory flood (larger of Hurricane Hazel or 100 year event), in order to avoid adverse backwater effects (ref. M.T.O. Directive B-100). If, due to economics or other mitigating circumstances, this is not feasible, a backwater analysis must be undertaken to determine the limits of upstream flooding and provide necessary mitigating design modifications.

Arterial and collector roadways in new developments should be, where possible, the only road classifications permitted to cross a watercourse having a drainage area in excess of 125 ha. Spacing and location of roadway crossings other than arterial or collector roads may be considered by the City when documented within the Stormwater Management Plan.

Freeboard and clearance (as defined in the governing M.T.O. manuals and the Ontario Bridge Code) requirements for watercourse crossings should be based on current M.T.O. criteria.

Where a permit is required from a Conservation Authority, watercourse crossings will not be permitted to increase upstream flooding on private lands, unless appropriate waivers can be secured.

Culvert replacements may require a Class Environmental Assessment as outlined within the City's Storm Drainage Policy.

Allowable Regional Storm event (Hurricane Hazel) flooding depths on roadways should be determined based on the standards within the Ontario Ministry of Natural Resources Natural Hazards Technical Guides, latest revision.

2.4 Natural Watercourse Systems

The City of Hamilton Criteria and Guidelines for Stormwater Infrastructure Design (September 2007) outlines the criteria for the open watercourses as follows:

Where watercourse alterations are proposed as part of a development, the design of such alterations shall incorporate and consider the following:

Design Approach and Principles

- Channel design is to be based on natural channel forming processes to achieve a dynamically stable system. The channel evaluation methodology and design approach is to be consistent with the most current Provincial guidelines (ref. Ontario Ministry of Natural Resources Natural Hazards Technical Guides, March 2003 and "Adaptive Management of Stream Corridors in Ontario", M.N.R., 2001).
- Alteration to a regulated watercourse will require a permit from the respective Conservation Authority (Development, Interference with Wetlands and Alterations to Shorelines and Watercourses) and potentially clearance/authorization from the Federal Department of Fisheries and Oceans (Fisheries Act) and Ontario Ministry of Natural Resources (Lakes and Rivers Improvement Act).
- Remedial works shall incorporate fish habitat protection/mitigation or compensation in accordance with the requirements of the Federal Department of Fisheries and Oceans (DFO) and Ontario Ministry of Natural Resources and Forestry (M.N.R.F.), related to stream type and significance.

- Remedial works shall incorporate the requirements of the governing Official Plan, as well as the requirements of provincial Ministries and other public agencies for protection of associated natural features such as:

Environmentally Significant Areas (E.S.A.)

- City of Hamilton
- Conservation Authorities

Niagara Escarpment

- Niagara Escarpment Commission (N.E.C.)

Heritage Sites

- Ontario Ministry of Tourism, Culture and Recreation

Setbacks

Conservation Authorities have established various watercourse setback policies which regulate development boundaries. The proponent should always verify that the most current Conservation Authority's setback policies are being adhered to. Each of the four Conservation Authorities, Hamilton Conservation Authority (H.C.A.), Niagara Peninsula Conservation Authority (N.P.C.A.), Grand River Conservation Authority (G.R.C.A.), and Conservation Halton (C.H.), require development to adhere to their specific setback policies. The most current policies were adopted in 2004, with each Conservation Authority creating a specific version of the Generic Regulations for development in or adjacent to hazardous lands and other regulated areas, i.e. "Development, Interference with Wetlands and Alteration to Shorelines and Watercourses".

The size of setbacks from the watercourse edge to developable lands is typically a function of the significance of the valley form, the sensitivity of the watercourse and the type of development (building or other).

The Conservation Authorities may establish setbacks using "Understanding Natural Hazards", M.N.R., 2001 to define the erosion hazard limit using stable slope allowances. Development Proponents should be aware that watercourse setbacks will typically be established by a Conservation Authority using the greater of the fisheries, valley and floodplain setbacks.

Access/Maintenance

- Creek block dedications adjacent to private land in new developments shall be fenced to prevent human access and encroachment. Fencing shall be on public property, 150 mm from the property line. Private access gates to creek block areas are not allowed.
- Natural channel design shall consider channel and utility maintenance requirements by incorporating access routes. Access routes may be located within the appropriate top of bank setback limit or adjacent to the low flow area in appropriately designated areas.

2.5 Stormwater Management Facilities

The City of Hamilton Stormwater Policy (March 2004) outlines the criteria for stormwater management quality, quantity and erosion control as follows:

Quality Control

Urbanization typically increases the contaminant load (i.e. sediment, metals, nutrients, bacteria) to natural stream systems. To mitigate this effect, stormwater quality treatment is required for all new development and redevelopment (including reconstruction of roadways with additional lanes, widening and cross-section revisions as required by review on an individual case basis by the Ministry of Environment) within the City of Hamilton, except for areas draining directly to a combined sewer system.

Stormwater quality treatment should provide a comprehensive approach to both surface runoff and groundwater. Thus, as a general consideration, maintenance of the natural hydrologic cycle including infiltration is encouraged and the use of stormwater management practices (S.W.M.P.) which enhance or maintain infiltration should be considered for each development.

Generally, active infiltration measures, such as soakaway pits and rear yard ponding, will be most applicable in permeable soils areas and their use will require supporting soils property documentation. Passive measures such as disconnection of roof leaders have been historically applied in many areas and shall be implemented in all areas unless specific constraints (such as in the former City of Hamilton and Town of Dundas where zero lot line construction on narrow width lots is permitted, or in the older City of Hamilton downtown areas where there is insufficient pervious area) preclude these measures. In all cases, the potential for groundwater contamination shall be considered where infiltration of road runoff is contemplated. In areas where hydrogeologic concerns are identified, particularly in areas where groundwater is used for human consumption and/or critical linkages to fisheries habitat are present, additional study and analysis may be required to determine the appropriate level of mitigation.

Stormwater quality treatment measures shall adhere to the specific guidelines for stormwater management practices that have been developed by the Province (ref. Stormwater Management Planning and Design Manual, Ministry of Environment, March 2003, or subsequent updates).

The design of stormwater quality facilities shall conform to existing Provincial requirements (ref. Stormwater Management Planning and Design Manual, M.O.E., March 2003, Water Management Policies, Guidelines Provincial Water Quality Objectives (Blue Book), M.O.E.E., 1994), as well as current policies within the City of Hamilton (i.e. Hamilton Harbour Remedial Action Plan, Vision 2020), or subsequent updates of the foregoing.

All new development shall implement a stormwater quality management strategy, which considers surface runoff and groundwater in compliance with the existing provincial and municipal policies.

In areas of existing development where re-development is proposed, requirements for stormwater quality measures will be evaluated on a site-specific basis, with regard to the feasibility of implementation. Where on-site measures are considered infeasible, or in areas serviced by combined sewers, the City of Hamilton's Planning and Development Department may consider the potential for contributions to off-site improvements in the form of a cash-in-lieu policy, as in the current Provincial Stormwater Management Planning and Design Manual, March 2003, or subsequent updates. In order to appropriately direct these

resources, a Master Storm Water Quality Plan (a regional assessment to identify retrofit locations and costs) is being contemplated by the City's Public Works Department. A 'pilot' study has been prepared for the former community of Stoney Creek.

Quantity Control and Flood Protection

Urbanization causes increases in runoff volumes and rates, due to an increase in impervious area and changes in conveyance systems. Without proper stormwater management, these increases may result in flooding and erosion.

The specified level of control for subject lands in the City of Hamilton is designated by a Watershed/Subwatershed or Master Drainage Plan where they exist. Such plans account for additional constraints (i.e. economic and physical limitations) which may limit the capacity of proposed stormwater management systems. Such plans may also demonstrate that the existing downstream capacities are sufficient to accommodate local increases in post-development peak flows (i.e. oversized sewers or watercourse reaches with adequate capacity and resistance to flow increases).

Local Conservation Authorities, through their mandate to control flooding and limit flood damage, have developed criteria for runoff control. Hence, application of these criteria through a co-ordinated approach to drainage planning on a watershed and subwatershed basis is required to ensure effective runoff control and minimization of flood damages.

Several Municipal jurisdictions have implemented a "**zero increase in peak runoff rate**" policy for controlling post-development runoff. While this type of policy provides simple and clear direction regarding stormwater management flood control, a uniform application of this type of policy does not consider the potentially negative effects on watercourses from extended periods of controlled peak discharge (i.e. increased erosion).

In cases where no Master Drainage Plan (M.D.P.) or Watershed/Subwatershed Planning has been completed or development lands are considered as external drainage areas to a M.D.P., watershed/subwatershed planning areas, consultation with the City shall determine if runoff peak flows shall be controlled to pre-development levels or alternative stormwater management is required. Discussion with the City's Planning and Development Department shall be required to determine the scope of assessment based on the potential impact on the receiving storm system (ref. Conditions for Practice). Should the proponent establish, to the satisfaction of the City's Planning and Development Department, that the potential impact of the proposed development would be minimal, the City's Planning and Development Department could decide that detailed modelling and analysis may not be required, as per the Conditions of Practice within the Criteria and Guidelines for Stormwater Infrastructure Design Manual. Should the City's Planning and Development Department deem a more detailed assessment appropriate, the proponent would need to demonstrate through appropriate modelling and analysis, that uncontrolled flow will not cause detrimental impacts on downstream properties and watercourse systems as per the Criteria and Guidelines for Stormwater Infrastructure Design Manual. At the development application stage, before the City's Planning and Development Department will accept an increase in runoff rates, the proponent must also receive endorsement from the agencies having jurisdiction. Over-control of runoff (i.e. less than pre-development runoff), may also be required as it relates to downstream constraints. .

2.6 Erosion Control

The rate that uncontrolled runoff, due to urbanization, can accelerate the natural evolutionary processes of a watercourse depends upon topography and soil conditions. When erosion and/or bank instability is probable (e.g. from outlets from future development areas), the proponent shall either provide effective on-site or system controls (e.g. end-of-pipe controls), stabilize the receiving watercourse by appropriate remedial measures, or contribute to a fund designated towards future watercourse improvements, typically identified in Watershed and Subwatershed Plans. Should on-site or system controls not adequately control flows below the receiving system's erosion threshold, either off-site watercourse remedial measures or contribution to a fund shall be required.

Requirements for erosion control will generally be determined through upper level studies such as Watershed/Subwatershed/Master Drainage Plans. In these cases, the proponent(s) will be required to provide mitigation in accordance with the Watershed or Subwatershed Plans or with the Master Drainage Plans, as well as policies of the local Conservation Authority.

In areas where no Watershed, Subwatershed Plan or Master Drainage Plan exists, it shall be the responsibility of the development proponent to mitigate potential erosion impacts in accordance with Provincial Guidelines, unless it can be demonstrated through appropriate modelling and/or analysis that erosion processes will not be adversely affected by the proposed development.

In areas where the downstream receiving watercourse is determined to be unstable, or where control/over control of flow rates is either not possible or not feasible, design of watercourse alterations would be considered subject to design in accordance with Natural Channel Design principles.

The City of Hamilton supports Natural Channel Design Principles, as specified by the Province in Natural Channel Systems, An Approach to Management and Design, M.N.R., 1994 (or most recent update) and "Adaptive Management of Stream Corridors in Ontario", M.N.R. 2002 (or most recent update) Implementation of Natural Channel Design principles on area watercourses shall follow the guidance within the Criteria and Guidelines for Stormwater Infrastructure Design Manual. Any watercourse alteration shall be designed to the future flow regime with stormwater management controls in-place.

Storm sewer outfalls in natural channels should be provided with proper protection against erosion, which includes appropriate bank scouring protection on either side of the outfall and creek. When storm sewer outfalls outlet to steep and/or deep valleys, drop structures shall be designed in such a manner as to ensure bank stability. Such local erosion protection measures shall be designed so as not to interfere with the natural channel forming processes of the receiving watercourse system. Natural channels shall be designed to accommodate various flow regimes resulting from phased stormwater management measures.

Although both swales and ditches only provide a flow conveyance function and not the natural channel form, swales and ditches should be designed with appropriate erosion protection. Erosion protection measures shall be provided at storm outfalls and for the swale/ditch according to erosion thresholds.

3. Methodology

3.1 Overview

All components of drainage works that have been considered to require development funding have been included in this assessment/calculation. Storm drainage infrastructure may consist of open watercourses, storm sewers (shared and outlet works), and stormwater management facilities. For the purposes of this assessment, the charges have been separated into five categories of work as follows:

A. Open Watercourses: Channel System Improvements (identified projects)

- Erosion control and conveyance works, including channelization and major culverts, identified along watercourses to address the impacts of growth, such as increased peak flows, volumes, and durations of erosive flows, as identified in currently approved studies

B. Open Watercourses: Erosion Control – Anticipated Future Works

- Off-site (immediately downstream of new development) erosion control and conveyance works not yet identified in any approved studies along watercourses to mitigate impacts of growth (i.e. areas not covered in current Master Drainage Plans, Subwatershed Studies, etc.).

C. Stormwater Management (Quality and/or Quantity Facilities)

- Stormwater quantity and quality control infrastructure required to manage runoff from future growth areas, to mitigate impacts on downstream systems.
- Retrofit facilities for managing runoff from future growth included
- Includes end-of-pipe infrastructure such as wetlands, wet ponds, dry ponds
- Includes opportunity for certain qualifying source controls, such as Best Management Practices, and Low Impact Development (unidentified in the list)

D. Storm Sewers – Oversizing and Neighbourhood Outlet Works

D1 Oversizing of trunk storm sewers

- Includes the oversizing of storm sewers to accommodate the new growth, or where multiple new growth areas combine to generate sufficient additional runoff that a sewer in excess of 1200 mm in diameter is required; the cost of the oversizing would be considered a Development Charge. Local storm sewers to service new growth, equal to and less than the 1200 mm diameter threshold, are considered a local Developer Contribution, and are not included in the Development Charge.

D2 Storm sewer – neighbourhood outlet works (recommended by studies)

- Includes the storm sewers and outlet works, shared by multiple development growth parcels, required to accommodate the new growth

E. Culverts and Bridges: Anticipated Future Works

- Future works (i.e. those not identified in previous studies as part of Category A) which require an upgrade (either in length or capacity) normally associated with new road construction to support growth.

A further two sub-categories (one for stormwater management facilities and one for watercourses) have been included, to specifically capture the infrastructure required for the identified growth areas:

- G.R.I.D.S. stormwater management facilities
- G.R.I.D.S. watercourses

G.R.I.D.S. is the City's Growth Related Integrated Development Strategy, which includes the areas identified as Potential New Business Park, in the existing Airport Business Park Special Policy Area, new employment lands adjacent to the Airport SPA lands, and a proposed urban boundary expansion/employment lands to the south and east of Highway 20 and Highway 53/Elfrida.

This growth area includes the lands which are the subject of the completed studies: Airport Employment Growth District – Phase 2, Dillon et al 2009, A.E.G.D. Subwatershed Study and Stormwater Master Plan (S.W.M.P.) Implementation Document, Aquafor Beech Ltd., April 2017, and Elfrida Subwatershed Study, Phase 1 Report, Aquafor Beech Limited, May 2018.

3.2 Future Development (Residential /Non-Residential growth area)

Figures G1-G7 cover the City of Hamilton, along with the bounded development areas from previous Development Charge Background Studies. For this 2019 Update Study, the City has provided a draft development staging plan (June 2018), which identifies the parcels of residential and non-residential growth, and where possible, the status of the lands with respect to anticipated timing of development. The City Development Engineering staff has also reviewed the proposed time frame of all of the stormwater projects, and grouped them into three time periods: 0-5 years, 6-10 years, and 11+ years.

It should be noted that for the purpose of calculating the development charge, there is no distinction between the three time frames. There has been a column left in the costing tables for reference purposes only.

Figures G1-G7 show the approximately forty (40) different subwatersheds that cover the City study area. These subwatersheds form part of four Conservation Authorities, namely: Conservation Halton, Hamilton Conservation Authority, Grand River Conservation Authority, and the Niagara Peninsula Conservation Authority.

3.3 Costing Assumptions

The estimates of the costs are based on the best available information for future projects. A complete listing of all the projects is in Appendix G1. All assumptions used to derive the costs are listed in this section. The costs are based on estimated construction costs plus a 15 % allowance for engineering, design, legal, and survey. Estimated land costs have also been included in the totals. Residential land costs have been tracked by the City, and currently have been set at \$652,800/ac (\$1,613,069/ha), except for Ancaster and Waterdown, which has been set at \$754,800/ac. (\$1,865,111/ha).

The costs have either been calculated using formulas based on 2011-2018 construction prices from projects completed in the City, and neighbouring Municipalities in the GTA, where no cost estimates are available in the background reports, or where construction estimates were available, the unit rates used in those estimates are considered to be valid in 2019 (i.e. are the same as rates from current contract bids).

The Development Charge component cost of the project (i.e. the portion attributable to new development) has been determined by examining the percentage of existing development that would benefit from the infrastructure.

3.3.1 Specific Costing Assumptions By Category

A complete summary listing of all projects is in Appendix G1, with the Residential listing first followed by the Non-Residential, and both sorted by geographic area, then category of project.

Costs for Category A (Open Watercourses: Channel System Improvements, for projects identified in City studies) have been established using the existing studies provided by the City (ref. list of references at the end of the report), and adjusted as per Section 3.3. In instances where the studies identified watercourse and road crossings, but no specific costs (Elfrida Secondary Plan, Waterdown East-West Corridor, Airport Employment Growth District), the City estimated the culvert crossing size and costing estimate using the method described below for Category E.

Costs for Category B (Open Watercourses: Erosion Control – Estimated Future Works not identified in previous studies) have been calculated as follows:

- for existing open watercourses downstream of new development, the length has been abstracted from the topographic mapping provided by the City,
- The applicable length for erosion protection has been defined by the distances to a receiving water body (i.e. lake), or to a point downstream where erosion is deemed to no longer be predicted to occur as a result of the subject development. This point has been estimated as the point where the total tributary drainage area exceeds 2 times the area tributary to the development discharge point (i.e. immediately downstream of the new development). This approach is intended to reflect the diminished erosion impact of developed discharge, as the size of the drainage area and flow in the watercourse increases downstream from the point of discharge.
- The percentage of the total length of channel to require erosion works has been established at between 5 and 20 %, depending on the relationship of total development area related to upstream drainage area. The greater the fraction of developed area, tributary to the subject watercourse, the greater the percentage of watercourse assumed to require erosion control. The maximum of 20 % reflects the anticipated benefits from on-site stormwater management which would greatly reduce downstream erosion potential. However, since volume control is not considered practical in most parts of Hamilton, erosion potential would not be eliminated entirely with on-site controls in place.
- The cost per metre of work has been estimated to be either \$1500 or \$2500 depending on the general size or depth of the creek bankfull section, and potential valley slopes, which has been expressed as a function of the upstream drainage area. Subject watercourses having an upstream drainage area of under 500 ha have been costed at \$1500 /m, and drainage areas over 500 ha at \$2500 /m. The difference reflects the condition whereby the required protection may vary between simple regrading of banks and vegetative bioengineering, to structural measures such as armour-stone and major earth excavation. The unit rate of \$1500 /m involves site preparation, dewatering, earth excavation, bioengineering (live staking, timber cribs, brush mattresses, etc.), and site

restoration. The unit rate of \$2500 /m differs in that more structural materials are employed for erosion control, such as riprap, and armour stone, which typically involve more excavation and items such as geotextiles, subdrains and backfill.

- The cost for land (easement) has been assumed to be the same as for stormwater management facilities, i.e. assuming highest and best use for the land. The land required for an easement has been estimated as either 5 m or 10 m width depending on the size of the creek (i.e. drainage area under or over 500 ha), multiplied by the length of creek to be treated. This estimate does not allow for connections between easements on separate sections of the creek.
- The fraction allocated to growth, or the new development fraction, is calculated by dividing the new development area (residential and non-residential) by the total of existing and future development area (residential and non-residential) within the contributing drainage area to the watercourse erosion project reach in question

Costs for Category C (stormwater management facilities) have either been based on previous studies or, if no estimate was available, the cost has been based on a formula relating the drainage area, required volume, and the required land to accommodate the facility footprint. The cost of land has been set at either \$652,800 per acre, or \$754,800 per acre (Ancaster and Waterdown) in accordance with the City's calculated costs.

Target volumes for stormwater quality, erosion control and flood control vary widely, each being specific to the location and watershed. Ranges have been estimated to be between 100 and 200 m³/impervious hectare for quality only; between 100 and 400 m³/impervious hectare for extended detention erosion control, and between 300 to 500 m³/impervious hectare for flood control. These are based on recent experience in developing urban environments in Hamilton, as well as in the Greater Golden Horseshoe. The specific targets will be directly related to the type of receiving watercourse. For sizing quality control facilities in the absence of available reporting, an average target volume of 475 m³/impervious hectare has been used, with an approximate impervious fraction of 40 %, therefore an average volume of 190 m³/hectare has been used for Development Charge calculation purposes for quality control facilities. An estimated volume of 720 m³/hectare has been used for Development Charge calculation purposes for combined quantity/quality control facilities.

The erosion control and flood control volumes are typically placed above the water quality control volumes, hence there may be economies in terms of land requirements when multiple functions are required at a facility. The construction costs have been based on the total volumes.

The land costs have been developed to take into account the required footprint of the facilities and have been based on the following rule:

- If the footprint has been established through a City-approved study, this area is to be used;
- If no study exists, a quality (only) facility or quantity (only) facility will require 4 % of the contributing drainage area; or
- If no study exists, a combined quality/quantity facility (and those combined facilities that include an erosion control volume) will require 6 % of the contributing drainage area

- The City has subsequently identified seven (7) facilities in the Fruitland-Winona Secondary Plan area, which will require 10 % of the contributing drainage area, due to grading constraints associated with local grades and existing ditch outlets. The City has furthermore identified two (2) additional residential facilities for which grading constraints have been identified, and hence applied the 10 % estimate to the area requirement: Ancaster facility ANC 14 at Meadowlands Phase 4, and Hamilton facility HAM 31 at Stonechurch and Wellington. (The City has identified one (1) non-residential facility for which grading constraints have been identified: Ancaster facility ANC 23 at Trustwood Industrial East).

The general construction cost relationship has been developed from both estimates and actual construction costs of a range of stormwater management facilities constructed in Southern Ontario over the past five years. Capital costs assigned to the individual projects are based on \$80/m³ of total volume for the first 6,500 m³, and \$40/m³ of total volume for the balance of storage volume.

The City has identified ten (10) facilities which are known to be located in an area of shallow depth to bedrock. The City has estimated the volume of rock that will be encountered, and increased the facility cost estimate for excavation accordingly, based on using a premium of \$80/m³, for the estimated rock volume, in addition to the standard cost estimate for earth excavation noted above. (Note that the City also has a contingency for additional facilities which may encounter more bedrock than estimated).

Unidentified Projects (Category C – Res. – Facility U1)

The City has included an item entry under Category C for stormwater management facilities that are currently not identified in the list of projects. The City has had several occasions over the preceding years where development has occurred in such a manner as to require temporary or additional stormwater management works. These works may, in some cases, be determined by the City to provide a long-term benefit to the stormwater system, and hence the City proposes to add these select works to their infrastructure. The City may then credit these works in part or in full, and hence have created this item as a form of a Credit Pool. The City will also review whether previously identified works in the area may need to be updated to reflect the new works. The City will develop a process for the auditing and accounting of these potential works to confirm the reasonableness of each cost estimate of the facility or portion of facility for which credit is being sought.

Low Impact Development Credit Policy (Category C – Res. – Facility U2)

The City of Hamilton supports Low Impact Development Best Management Measures to complement traditional stormwater management techniques. Low Impact Development Best Management Practices (LID BMP's) essentially promote treatment/management of storm runoff at the source. The benefits of this approach are widely understood and documented, hence not repeated within this document. Key concerns relate to implementation. The issues and challenges associated with the implementation of Low Impact Development Best Management Practices relate primarily to the fact that these measures are typically "on-lot" within private control, outside of the direct control of the Municipality. Due to this basic circumstance, the question is raised by municipal managers as how best to ensure that the "on-lot" measures are maintained, working, and not removed by private landowners and/or businesses. Clearly, by installing these Best Management Practices on private property, there will be an eventual loss of

effectiveness, either through lack of maintenance and/or removal in their entirety. The question relates to what extent this “loss” will occur and will this vary by land use.

Notwithstanding, Low Impact Development Best Management Practices in developing subwatersheds, have the potential to reduce the scale and scope of conventional end-of-pipe stormwater management systems. The question related to the foregoing perspective though, is how can this be accounted for functionally and financially in the construction and financing of traditional end-of-pipe stormwater management facilities. It must also be clear, in the case of intensification and infills, whether the stormwater management involves quality, quantity, or both.

As noted earlier, the City of Hamilton is supportive of Low Impact Development measures and as such wishes to encourage these through a form of incentive program. To this end, the City, through this Development Charge, has set up an initial Low Impact Development Credit Pool in the amount of \$1,500,000. The City is developing a policy for the management of this credit, which will be refined as the policy evolves over time.

Facility Road Frontage Costs (Category C – Res. – Facility U3)

The City has included an item entry under Category C for S.W.M. facility road frontage costs, to cover the portion of road cost that is fronted by a City S.W.M. facility block. The average frontage is 120 m, based on the average footprint and geometry of facilities, and verification of past frontages from the previous 8 years. This amounts to 120 m * \$1500/m/facility for the 38 residential facilities listed (retrofits excluded) or \$6,840,000.

Facility Land Footprint Contingency (Category C – Res. – Facility U4)

The City has included an item entry under Category C for special instances where the land footprint required is more than either the City formula-based calculation or the detailed estimate. The City has had several occasions over the preceding years where the footprint was between 6 and 10 %, and hence the Development Charge for those facilities did not cover the cost of the land. The City has proposed that, on average, 1 in 4 stormwater management facilities designed will require a larger footprint. Since there are 38 residential facilities on the list, this amounts to approximately 10 facilities. The average footprint for the 38 facilities has been used to calculate the land footprint contingency, using an average exceedance of the footprint by 20 %, amounting to approximately \$3,500,000 in land. Note that for the 2019 Study, the City has identified eight (8) facilities which have been identified to need a larger footprint, and they would not apply to this contingency. In identifying the eight (8) facilities, the likelihood of another ten (10) requiring a larger footprint is expected to be lowered.

Facility Volume Construction Contingency (Category C – Res. – Facility U5)

The City has included an item entry under Category C for special instances where the volume required is more than either the City estimate or the detailed estimate. This may be for exceptional circumstances, including an increase in land use density at a specific facility. The City has had several occasions over the preceding years, and based on this experience has assumed that 1 in 10 facilities will exceed the design volume by 10 %, amounting to \$3,150,000 in construction cost (primarily excavation).

Facility Rock Excavation Construction Contingency (Category C – Res. – Facility U6)

The City has included an item entry under Category C for special instances where the volume of rock encountered is more than either the City estimate or the detailed estimate. The City has recorded the instances of extra rock encountered in the facility construction over the preceding 5 years, and based on this experience has assumed that approximately 1 in 20 facilities (2) will encounter 9,000 m³ of rock, amounting to \$1,440,000 in extra construction cost for excavation. Note that for the 2019 Study, the City has specifically identified ten (10) facilities which have been identified in bedrock, and therefore they would not apply to this contingency. In identifying the ten (10) facilities, the likelihood of other facilities encountering bedrock has been lowered.

Unidentified Facilities in Combined Sewer Area (Category C – Res. – Facility U7)

The City has included an item entry under Category C for stormwater management facilities in the combined sewershed area, which are currently not identified in the list of projects. These works may, in some cases, be determined by the City to provide a long-term benefit to the stormwater system, and hence the City proposes to add these select works to their infrastructure. The area is currently under study, and the City estimates that there will be three (3) projects that result in a facility, costing an estimated \$2,000,000 each, for a total of \$6,000,000.

Retrofits

The City, as part of its Stormwater Master Plan (2007), has assessed the feasibility of retrofitting existing stormwater management facilities in order to provide stormwater quality control and erosion control measures. The objective for the City is to improve environmental conditions in the downstream receiving water bodies.

There are 29 identified retrofit opportunities (e.g. add a quality or erosion component to an area currently receiving only quantity or flood control) in the City. These have been separated into those 11 locations which serve only existing development (therefore not growth-related, and not currently considered), and those 18 which serve both existing and new development (the benefit to existing must be deducted).

For the 18 facilities that meet the criteria, the total area served is 759 ha and the growth-related fraction has been estimated at 54.45 %. Note that the City has confirmed that one of the facilities (Binbrook R54) has been superseded through the development process, and this one has been removed from the 2019 list of potential retrofits.

G.R.I.D.S.

G.R.I.D.S. is the City's Growth Related Integrated Development Strategy, which includes the areas identified as Potential new Business Park, in the existing Airport Business Park Special Policy Area, new employment lands adjacent to the Airport SPA lands, and a proposed urban boundary expansion/employment lands to the south and east of Highway 20 and Highway 53/Elfrida.

The growth areas identified in the G.R.I.D.S. study accounts for approximately 75 new projects, including an estimated 57 stormwater management facilities and 18 off-site erosion control projects, with the erosion projects lumped into 5 area erosion studies, based on the watersheds and distinct growth areas.

The City has completed the Draft Airport Employment Growth District study (December 2009), and the Airport Employment Growth District Subwatershed Study and Stormwater Master Plan (S.W.M.P) Implementation Document (April 2017), however the reports do not detail the siting of all future stormwater management facilities. There may be opportunities to further plan the areas, and reduce the infrastructure, however it is left at the conservative level for the charge calculation purposes. Once a Final Master Drainage Plan is complete, an update may be required for the G.R.I.D.S. stormwater management facilities (number, location, and sizes).

The G.R.I.D.S. development areas are drained by the Welland River, Three Mile Creek, and Twenty Mile Creek, each of which are considered to be sensitive coldwater fish habitat. Based on the anticipated Enhanced level of protection to be applied to the tributaries, it is proposed that all watercourse tributaries will be required to remain open: this therefore increases the number of facilities required to service the area.

Similar to the 2004, 2009, 2011 and 2014 Development Charge Background Studies, there are off-site erosion control studies and potentially work proposed for each receiving tributary downstream of the growth area.

The Airport SPA facilities have been preliminarily sized to have larger footprints on account of the condition that Transport Canada typically imposes on stormwater management facilities near airports. There cannot be open water facilities since these are considered to attract waterfowl, and pose a navigation hazard to aircraft. The facilities have therefore been sized as dry ponds. (ref. Storm Drainage System Local Service Policy number 18, Appendix E).

Costs for Category D (Storm Sewers Oversizing and Neighbourhood Outlet Works) are developed for two sub-categories: storm sewer oversizing, and storm sewers identified for neighbourhood outlet works.

Storm Sewers - Oversizing

The oversizing costs are based on the relative increase in cost for storm sewers over a threshold diameter of 1200 mm, as set by previous City Financial Policy. A list of projects has been generated by the City Development Engineering Department, and is included in Appendix G1-D. The list is based on two sources of information: Draft Approved Subdivision Plans, and Approved Secondary Plans.

Storm Sewers – Neighbourhood Outlet Works

The neighbourhood outlet works cost estimates are based on City studies for five (5) proposed neighbourhood storm outlet works (shared by multiple development growth parcels). A list of projects has been generated by the City Development Engineering Department, and is included in Appendix G1-D.

The City has included a provisional entry under Category D2 for storm sewer neighbourhood outlet works within the combined sewershed that are currently under study by the City and not identified in the list of projects. The City estimates a total of three (3) new neighbourhood outlets to service growth, at an estimated cost of \$1,000,000 each.

Costs for Category E (culvert and bridge upgrades not identified in previous studies) have been estimated in the following manner:

- Based on the planned Development Charge eligible road projects (replacement and widening of existing) affected watercourse crossings, based on the topographic mapping, have been determined (current estimate =152),
- The size of the new culvert cross-sectional area has been estimated as a function of the upstream drainage area,
- All “small” crossings where the culvert will likely have a diameter smaller than 1200 mm have been removed from the calculation, as those works would be assumed to be part of the road works,
- Also, any culverts previously identified in Category A (64) have not been included under this category,
- The remaining (87) culverts have been separated into three categories, based on: estimated flow conveyance area of 2 m², 4 m², and 8 m², (74, 7, and 6 respectively); for costing purposes unit rates of \$84,300, \$168,600 and \$337,200 per culvert/bridge respectively have been used, assuming a 26 m road width for all culverts/bridges. This cost estimate is based on concrete box culverts, and has been developed using 2014 unit rates and adjusted by the CPI factor for 2014-2018 of 12.4 %, installation estimated at double the supply cost, and allows for an average depth of cover on each culvert.

The costs are currently attributed to new development based on the benefit to growth percentage established in the roads study (ref. Appendix H).

3.4 Existing Agreements

As noted in Section 2, there are existing agreements (e.g. Special Policy Areas, Local Area Improvements, and Developer Agreements) in force that will need to be accounted for in the financial section of the Development Charges Update. Where it can be identified and verified by the City, existing developer contributions that have been made under existing agreements will be credited after the Development Charges are collected.

4. Summary of Stormwater Component of Development Charges

4.1 Overview

The following tables present the stormwater development charges cost estimates, by Category A to E, plus G.R.I.D.S.. In each table, the costs have been split into Residential and Non-Residential, providing the gross costs and the Development Charge related costs.

Table G.2: Summary of Stormwater Development Charges Costs				
Type of Work		Gross Estimated Cost	Development Charge Eligible Growth %	Development Charge Cost
A Channel System Improvements (Identified Projects)				
	Residential	\$20,923,000	100.00	\$ 20,923,000
	Non-Residential	<u>\$23,087,000</u>	<u>85.00</u>	<u>\$19,624,500</u>
Subtotal A		\$44,010,000	92.13	\$40,547,500
B Erosion Control – Estimated Downstream Future Works				
	Residential	\$17,745,811	48.10	\$8,535,252
	Non-Residential	<u>\$8,059,025</u>	<u>61.17</u>	<u>\$4,929,650</u>
Subtotal B		\$25,804,837	52.18	\$ 13,464,902
C Stormwater Management Quality/Quantity Facilities				
	Residential	\$185,683,445	96.81	\$179,761,145
	Non-Residential	<u>\$108,001,177</u>	<u>0.00</u>	<u>\$0</u>
Subtotal C		\$293,684,622	61.21	\$179,761,145
D Oversizing of trunk sewers and culverts				
	Residential	\$16,918,709	100.00	\$16,918,709
	Non-Residential	<u>\$2,984,000</u>	<u>100.00</u>	<u>\$2,984,000</u>
Subtotal D		\$19,902,709	100.00	\$19,902,709

Table G.2: Summary of Stormwater Development Charges Costs

Type of Work		Gross Estimated Cost	Development Charge Eligible Growth %	Development Charge Cost
<i>E Culverts and Bridges (not in Category A)</i>				
	Residential	\$4,467,900	79.15	\$3,536,385
	Non-Residential	<u>\$4,973,700</u>	<u>85.17</u>	<u>\$4,236,075</u>
Subtotal E		\$9,441,600	82.32	\$7,772,460
<i>G.R.I.D.S. Stormwater Management Quality/Quantity Facilities</i>				
	Residential	\$98,626,698	100.00	\$98,626,698
	Non-Residential	<u>\$179,980,176</u>	<u>0.00</u>	<u>\$0</u>
Subtotal G.R.I.D.S. S.W.M.		\$278,606,874	35.40	\$98,626,698
<i>G.R.I.D.S. Watercourses</i>				
	Residential	\$7,075,064	100.00	\$7,075,064
	Non-Residential	<u>\$12,422,574</u>	<u>100.00</u>	<u>\$12,422,574</u>
Subtotal G.R.I.D.S. Watercourses		\$19,497,638	100.00	\$19,497,638
TOTAL		\$690,948,280	54.94	\$379,573,051
Residential		\$351,440,627	95.43	\$335,376,253
Non-Residential		\$339,507,653	13.02	\$44,196,799

All of the proposed projects in Categories A to E and G.R.I.D.S., which have been considered for the storm drainage Development Charge, can be attributed to distinct parcels of residential and/or non-residential growth lands. These linkages form the basis for the proposed split of the total charge. For categories D, and E, in the absence of information to support the establishment of a City share, the % attributable to the City has been set at zero.

Note that for all projects listed related to the Elfrida growth area (Cat A, E, G.R.I.D.S. SWM and Watercourses), there has been a post-period deduction of two-thirds, for the projects scheduled for after 2031.

Table G.3: Summary of Stormwater DC Eligible In Period Costs

Category	Gross Estimated Cost	DC Eligible Growth (%)	DC Eligible Growth Cost	DC Eligible Post Period	DC Eligible In Period
A Watercourses	44,010,000	92.13	40,547,500	3,793,333	36,754,167
B Off-Site Erosion	25,804,837	52.18	13,464,902	-	13,464,902
C SWM	293,684,622	61.21	179,761,145	-	179,761,145
D Sewer Oversizing/Outlets	19,902,709	100.00	19,902,709	-	19,902,709
E Culverts/Bridges	9,441,600	82.32	7,772,460	334,390	7,438,070
GRIDS SWM	278,606,874	35.40	98,626,698	65,751,132	32,875,566
GRIDS Watercourses	19,497,638	100.00	19,497,638	4,716,709	14,780,929
Total	690,948,280	54.94	379,573,051	74,595,564	304,977,487

4.2 Summary

The City of Hamilton has updated the 2014 Development Charges project listing. The City has prepared an overall report, including appendices for details related to Stormwater, Water, Wastewater, and Transportation.

This appendix provides information for the portion of the Development Charges relating to stormwater including: erosion control, channel improvements, stormwater management works, oversizing of existing stormwater related infrastructure and stormwater related studies. Projects included in this report are future growth related which includes both planned and unplanned projects. Future growth related information has been collected from the City and other studies, and where no information was available appropriate assumptions have been made, as detailed herein. This appendix provides a summary of the approach used in establishing the Development Charges related costs and summarizing of the stormwater-related Development Charges for both residential and non-residential development.

A gross total of \$690,948,280 for stormwater projects has been identified, with the portion allocated to new development totaling \$379,573,051. The portion DC eligible in this period totals \$304,977,487.

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Additional City Reference Studies

NAME	DATE	REVISIONS	AUTHOR
Ancaster Commercial Development (S.W.M. Report)		September-95	Cosburn Patterson Wardman Limited
Ancaster Community Center (S.W.M. Plan)	September-91		Sandwell Swan Wooster.
Ancaster Industrial Park (S.W.M. Report Update)	September-02	December-02	A.J. Clarke and Associates Ltd.
Ancaster Industrial Park Detention Pond No. 2 (S.W.M. Study Addendum)	November-98		A.J. Clarke and Associates Ltd.
Ancaster Master Drainage Plan (Final Draft)	January-87		Philips Planning and Engineering Limited
Ancaster Meadows Phase 1 (S.W.M. Updated)	November-09		Metropolitan Consulting Inc.
Ancaster Meadows Phase II (Storm Drainage & Final Detention Pond Design)	August-86		Upper Canada Consultants
Ancaster Village Townhomes (S.W.M. Report)	September-93	January-95	A.J. Clarke and Associates Ltd.
Ancaster Woodlands Subdivision (S.W.M. Report)	July-013	Jan 14	S. Llewellyn & Associates Limited
Anpropco Developments (S.W.M. Study)		December-80	Paul Theil Associates Limited
Binbrook Settlement Area (Master Drainage Plan Update Report)	December-08		Weslake Inc.
Binbrook Urban Settlement Area (S.W.M. Report)	June-00		A.J. Clarke and Associates Ltd.
Bogle Subdivision (Functional Servicing Design Report)	June-00		Stantec
Bridgeport Subdivision (Preliminary S.W.M. Report)	May-03		A.J. Clarke and Associates Ltd.
Bridgeport Watercourses (Hydrologic & Hydraulic Analysis)	May-05		A.J. Clarke and Associates Ltd.
Bridle Ridge Subdivision Phase 3 ((S.W.M. Report)	July-05		S. Llewellyn & Associates Limited
Canada Bread (S.W.M. NGIBP S.W.M. Facility HC3-FB)		Aug-010	AMEC Earth & Environmental
Chedoke Golf Course Channel Municipal Class EA (Schedule B) Final	July-08		McCormick Rankin Corporation
City of Stoney Creek (Implementation of Drainage Works Watercourse 5,6,7 & 9)	May-92		Philips Planning and Engineering Limited
Clappison's Corners Industrial Business Park Master Drainage Plan (Final Report)	May-89		Totten Sims Hubicki Associates Consultants
Clovervale Subdivision (S.W.M. Report)	September-04		Lamarre Consulting Group Inc.
Clovervale Subdivision (Retrofit Design-S.W.M. Facility & Associated Conveyance Improvements)	November-013		AMEC Environment & Infrastructure
D'Aminco Cimico (S.W.M. Report)	September-09		Kenneth Youngs Engineering Inc.
Dartnall Rd Extension Culvert/Bridge (Hydraulic Impacts Report) Final Report	March-012		Dillon Consulting
Delsey Creek (Storm Drainage Master Plan - Class EA Study Project File Report)	October-03		MTE Consultants Inc.



NAME	DATE	REVISIONS	AUTHOR
Duff's Corners Business Park (S.W.M. Report)	May-06	April-07	A.J. Clarke and Associates Ltd.
Dussin Property - Meadowlands Neighbourhood (S.W.M. Report)	May-013		Lamarre Consulting Group Inc.
Elizabeth Gardens - Binbrook Settlement Area (S.W.M. Report)	June-04		Lamarre Consulting Group Inc.
Enclave The (S.W.M. Report)	April-97	July-97	A.J. Clarke and Associates Ltd.
Falling Brook Estates (S.W.M. Assessment)	July-96		A.J. Clarke and Associates Ltd.
Fiddler's Green Estates (S.W.M. Report)	July-91		Aquafor Engineering Limited
Fifty Road Joint Venture Inc. (S.W.M. Implementation Report)	February-00		Rand Engineering Corporation
Fifty Point West Neighbourhood (Addendum to Preliminary S.W.M. Plan)	November-97		Hydro Comp Inc.
Flamborough Business Park - Highway 6 & Dundas Street (S.W.M. Report)	March-06		Lamarre Consulting Group Inc.
Fontana Gardens Phase 3 (S.W.M. Assessment Report)	December-07		A.J. Clarke and Associates Ltd.
Foothills of Winona Avatar International Realty Corporation (S.W.M. Report)	August-01		Planning & Engineering Initiatives Limited
Forest Ridge (S.W.M. Report)	December-04		A.J. Clarke and Associates Ltd.
Forty Mile Creek Flood Damage Reduction Study	August-95		Aquafor Beech Limited
Fruitland Centre (S.W.M. Report)	June-03		Serabill Designbuild Corporation Inc.
Fruitland Meadows (S.W.M. Report for Existing S.W.M. Facility Retrofit)	January-02	March-03	S. Llewellyn & Associates Limited
Garner Grove Subdivision (S.W.M. Report)	December-02	July-03	Ashenhurst Nouwens Limited
Garner Neighbourhood (Master Drainage Plan)	July-96		Philips Planning and Engineering Limited
Garth Trails (S.W.M. Addendum)	June-02		A.J. Clarke and Associates Ltd.
Gates of Ancaster II Limited (S.W.M. Report)	April-07		John Towle Associates Limited
Gatesbury Developments Phase IV (Functional Report)	November-94		F. J. Ternoway & Associates Limited
Greater Hamilton Airport Business Park Phase 1 (SW Drainage Report)		August-92	CC Parker Consultants Limited
Green Millen Shore Estates (S.W.M. Report)	February-011	September-11	AMEC Environment & Infrastructure
Greenforest Estates (S.W.M. Report)	September-08		Kenneth Youngs Engineering Inc.
Greenhill Avenue Area Storm Drainage Study	June-08		SNC Lavalin
Greenwood Estates Subdivision (S.W.M. Report)	May-88		Youngs Consultants
Greystones (S.W.M. Report)	December-08		A.J. Clarke and Associates Ltd.
Hamilton International Airport Apron Expansion Phase 2 (S.W.M. Report)	October-02		Giffels Associates Limited
Hannon Creek Subwatershed NGIBP (Master Drainage Plan) Draft Report	March-07		Totten Sims Hubicki Associates Consultants
Head of the Lake (Mount Hope Terrace) (S.W.M. Report)	October-90	July-91	Philips Planning and Engineering Limited
Heritage Green Community - (Functional Engineering Report)	April-91		Delcan



NAME	DATE	REVISIONS	AUTHOR
Highgrove Park Estates (S.W.M. & Floodplain Mapping Tributary of Ann St Creek)	April-86	July-86	G. M. Serns & Associates Ltd.
Highland Estates (S.W.M. Review)	November-92		C.C. Parker Consultants Limited
Jackson Heights Phase 3 (S.W.M. Report)	July-06		A.J. Clarke and Associates Ltd.
Kaleidoscope Phase 1 - 157 Parkside Drive (S.W.M. Report)			AMEC Environment & Infrastructure
Kopperfields West Residential Community (S.W.M. Report)	September-98		Paul Theil Associates Limited
Lake Vista Winona Subdivision (Mattamy Winona Limited)	June-06	November-06	David Schaeffer Engineering Ltd
Lewis Road Improvements Class EA from Barton Street to South Service Road (Drairage and S.W.M. Report)	October-06	July-07	MacViro Consultants
Limberlost Estates (S.W.M. Report)	November-91		Town of Ancaster
Lime Kiln (S.W.M. Plan)	September-88		Philips Planning and Engineering Limited
Limestone Manor (S.W.M. Report)	September-12		Lamarre Consulting Group Inc.
Maple Leaf Foods - New Build (Site S.W.M. Design Report)	March-012		AECOM
Mattamy (Southcote) Limited (S.W.M. Implementation Report)	September-09		Rand Engineering Corporation
Mattamy on the Lake Subdivision (Mattamy (Winona) Limited) (S.W.M. Report)	April-07		David Schaeffer Engineering Ltd
Meadowbrook Manors (S.W.M. Report)	January-95		Weslake Inc.
Meadowlands Neighbourhoods 3, 4, 5 (Master Plan)	F-00		A.J. Clarke and Associates Ltd.
Meadowlands Neighbourhood 4 (Functional Servicing & S.W.M. Report)	March-04		Metropolitan Consulting Inc.
Meadowlands of Ancaster (Phase 6) (Proposed S.W.M. Facility)	October-01		A.J. Clarke and Associates Ltd.
Meadowlands of Ancaster (Phase 7) (S.W.M. Report)	March-03		A.J. Clarke and Associates Ltd.
Meadowlands Phase 10 (Proposed S.W.M. Plan)	January-08	May-08	Stantec Consulting Ltd.
Meadowlands Place (Functional Servicing & S.W.M. Assessment)	March-98	March-99	A.J. Clarke and Associates Ltd.
Meadowlands Place (S.W.M. Report)	September-98		A.J. Clarke and Associates Ltd.
Meadowlands The (Tiffany Watershed) (Detailed Master Drainage Plan)	March-88		Philips Planning and Engineering Limited
Millcreek Estates (S.W.M. Report)	September-92		Kenneth Youngs Engineering Inc.
Millers Pond Subdivision (S.W.M. Report)	July-01	July-02	S. Llewellyn & Associates Limited
Millrun Condominiums (S.W.M. Plan)	September-99		Phillips Planning and Engineering Limited
Montgomery Creek (S.W.M. Class EA)	August-97		Philips Planning and Engineering Limited
Morgan Firestone Arena Twinning (S.W.M. Report)	August-10		Their and Curran Architects Inc.
Mount Hope Secondary Plan (S.W.M. Report)	No date		Youngs Consultants



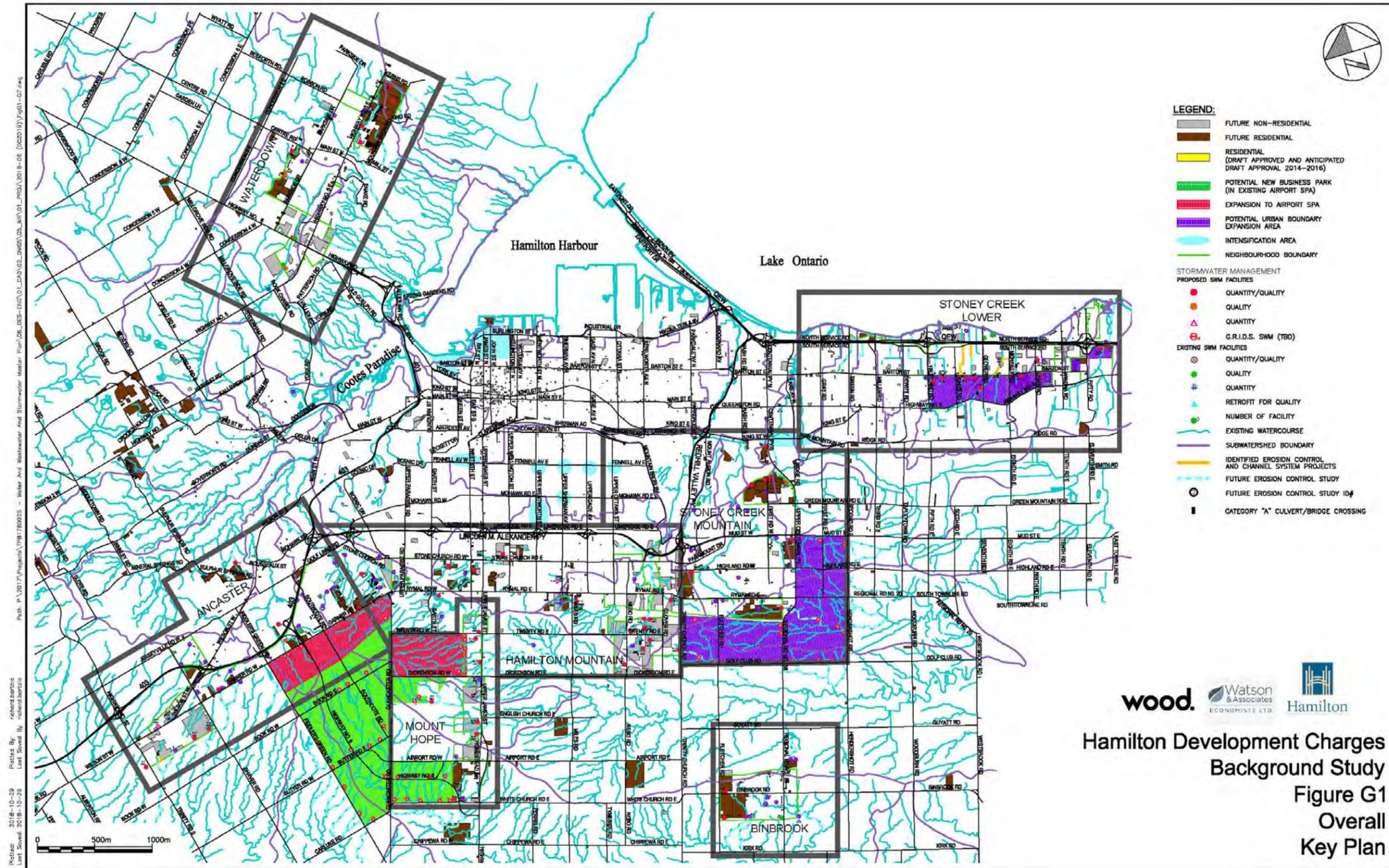
NAME	DATE	REVISIONS	AUTHOR
Mount Hope Urban Settlement Area (Master S.W.M. Plan)		December-94	Kenneth Youngs Engineering Inc.
Orchard Park Subdivision (S.W.M. Report)	May-13	Aug13;Oct13	S. Llewellyn & Associates Limited
Orkney Acres Rural Estate Subdivision (S.W.M. Report)	June-04		Lamarre Consulting Group Inc.
Orlick Aeropark (Design Brief)	February-08	April-09	Odan/Detech Group Inc.
Paradise Gardens (S.W.M. Report)	May-03		A.J. Clarke and Associates Ltd.
Paramount Estates (S.W.M. Report)	October-013		Lamarre Consulting Group Inc.
Parkside Hills Phase 1 (S.W.M. Design Brief)	May-07		Metropolitan Consulting Inc.
Pleasant Valley Development (S.W.M. Report)		July-07	Planning & Engineering Initiatives Limited
QEW Drainage Report (Pinelands Ave to Fifty Road)	No date		UMA Engineering Ltd.
Redeemer University College (S.W.M. Report)	November-04	Dec04;Apr05	Van der Woerd & Associates Ltd.
Ridgeview Subdivision (S.W.M. Report)	September-011		Lamarre Consulting Group Inc.
Riocan Power Centre (S.W.M. Report)	March-06		A.J. Clarke and Associates Ltd.
Rockcliffe Gardens (Storm Drainage Study)	February-77		William L. Sears and Associates Limited
Rockview Summit (S.W.M. Report)	Septemer-93	August-94	A.J. Clarke and Associates Ltd.
Rothsay Avenue Flood Remediation (Class EA) DRAFT	February-012		AMEC Environment & Infrastructure
Scenic Wood (Ancaster) (S.W.M. Study)	No date		Stantec
Seabreeze (S.W.M. Report)	July-06	April-07	A.J. Clarke and Associates Ltd.
Shaver Estates (S.W.M. Report)	January-04	June-04	A.J. Clarke and Associates Ltd.
Shaver Neighbourhood (East) (S.W.M. Plan)	November-96		Philips Planning and Engineering Limited
Shaver Neighbourhood (Master Drainage Plan - Addendum) (Final)	April-97		Weslake Inc.
Silverwood Homes (Functional Servicing & S.W.M. Report)	July-08		Metropolitan Consulting Inc.
Southampton Estates (S.W.M. Report)	April-03		Lamarre Consulting Group Inc.
Southcote Woodlands Plan of Subdivision (Design Brief for Phase II)	January-86	Jan;Jun;Jul07	Odan/Detech Group Inc.
Spencer Creek Estates (Preliminary S.W.M. Report)	October-98	January-99	Philips Planning and Engineering Limited
Spencer Creek Estates (S.W.M. Report)	April-98		CVE Engineering Ltd.
Spencer Creek Estates Phase 2 (S.W.M. Report)	May-12		EXP
Spencer Creek Village (S.W.M. Report)	June-99	October-99	Planning & Engineering Initiatives Limited
Springbrook Meadows - Phase 1 (S.W.M. Report)	February-92		Philips Planning and Engineering Limited
Spring Valley West, Shaver and Garner (S.W.M. Study Expanded Urban Area)	February-92		Philips Planning and Engineering Limited
Spring Valley West, Shaver and Garner (M.D.P. - Proposed Amendment)	November-96		Weslake Inc.

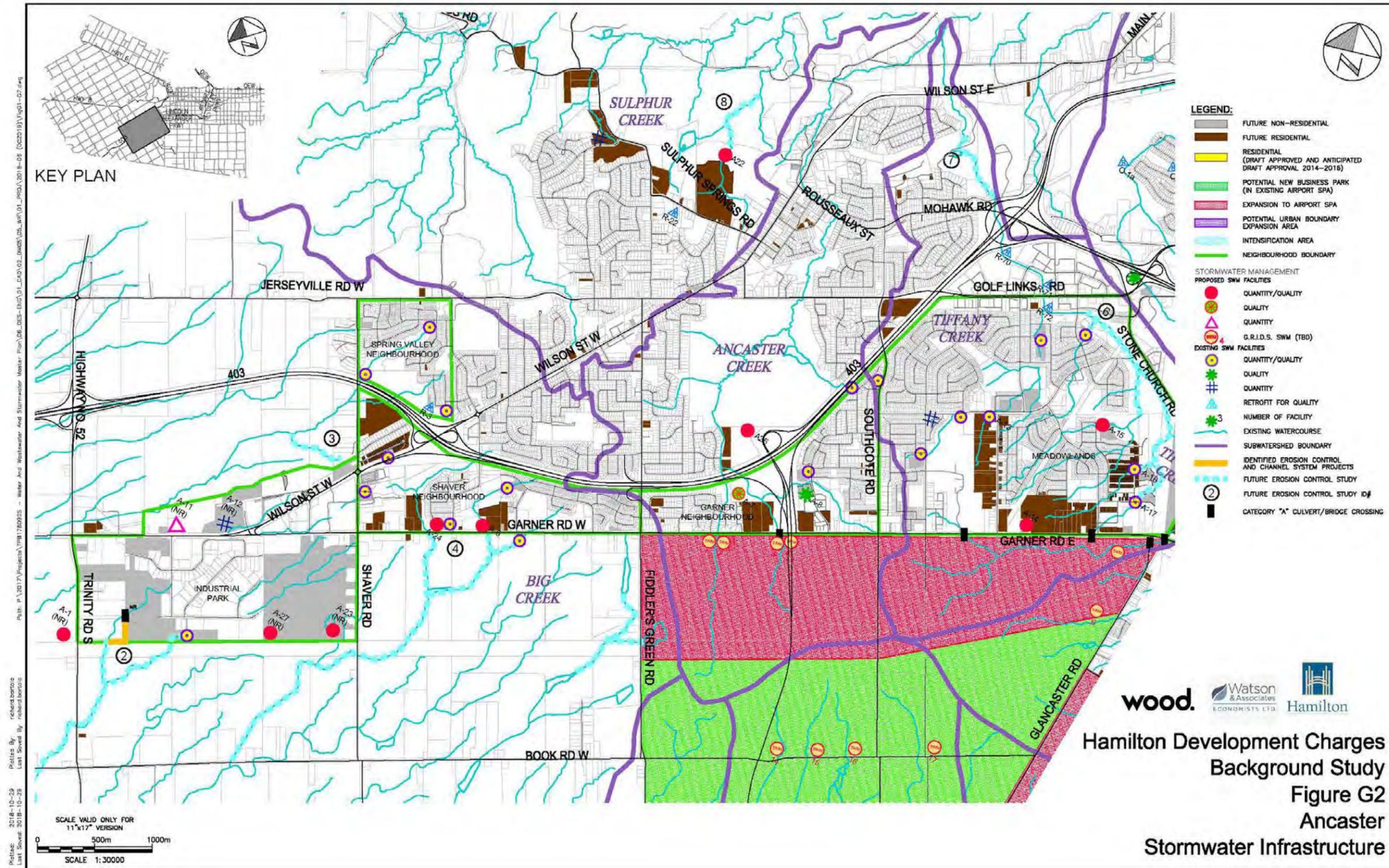


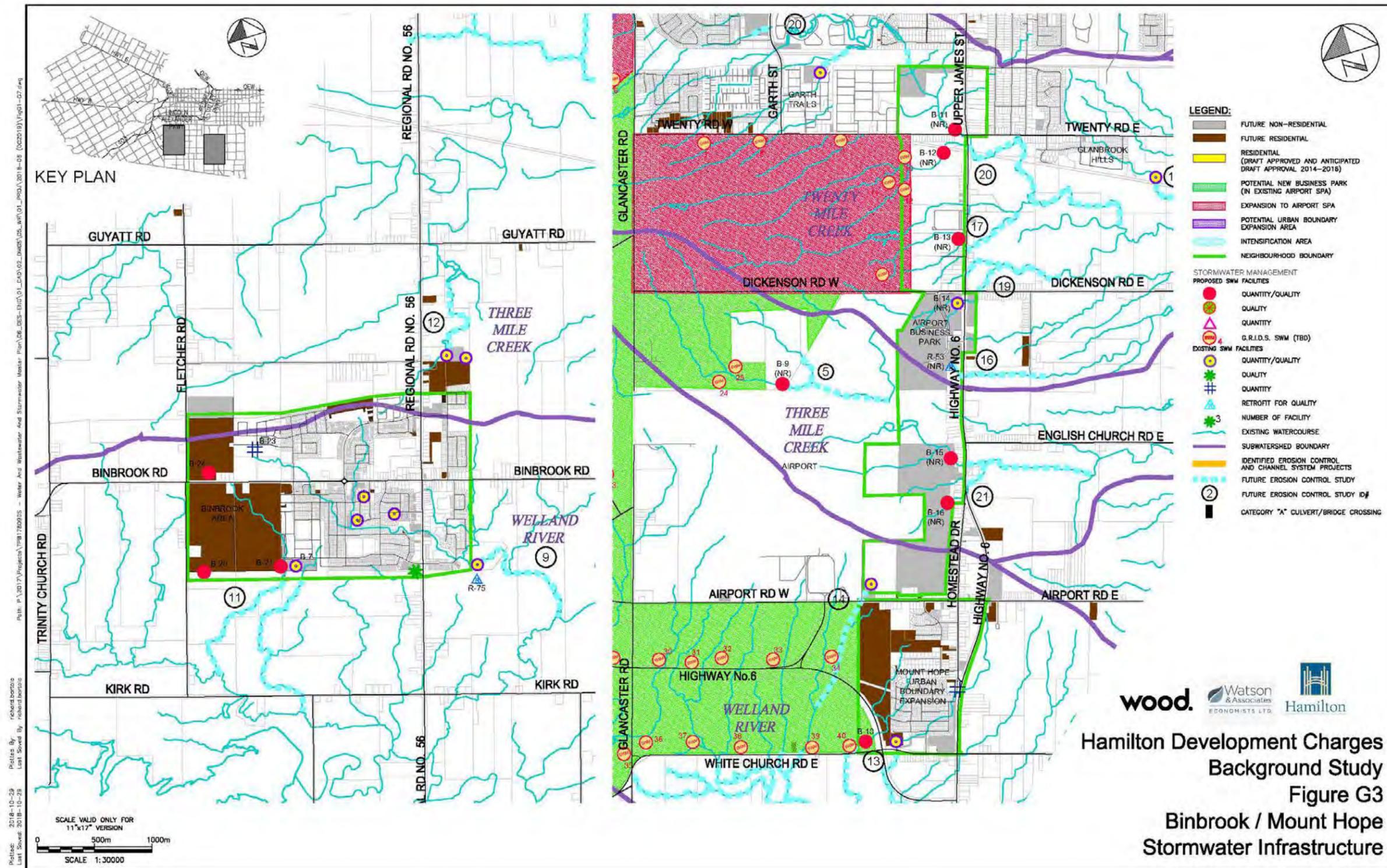
NAME	DATE	REVISIONS	AUTHOR
Stone Church Centre (S.W.M. Report)	March-04		A.J. Clarke and Associates Ltd.
Stoney Creek Master Drainage Plan Industrial Corridor Area No's 5-7(Addndm 1)	January-91		Philps Planning and Engineering Limited
Summerlea West Residential Subdivision (S.W.M. Report)	February-011	January-12	MTE Consultants Inc.
Sundusk Estates Subdivision (S.W.M. Report)	August-94		Kenneth Youngs Engineering Inc.
Sunnymeade Property (Storm Drainage Report)	February-88		Upper Canada Consultants
Sunset Ridge (S.W.M. Report)	July-98		Planning Initiatives Ltd.
Tech Park (S.W.M. Report)	February-94		Philips Planning and Engineering Limited
Tiffany (S.W.M. Report)	June-93	Oct-93 Jun 97	A.J. Clarke and Associates Ltd.
Trillium Estates Subdivision (S.W.M. Report)	August-03		S. Llewellyn & Associates Limited
Town of Ancaster (Master Drainage Plan)	August-99		C.N. Watson and Associates Ltd.
Twenty Road (Regional Stormwater Facility Design Report)	August-012		AECOM
Twin Gable Estates - Shaver Neighbour (East) (S.W.M. Plan)	July-97		Philips Planning and Engineering Limited
Upcountry Estates Limited - Proposed Residential Subdivision (Functional)	May-09		Condeland Engineering Ltd.
Van Every Gardens (S.W.M. Report)	March-96		Kenneth Youngs Engineering Inc.
Venator Crane Ltd. (S.W.M. Report)	May-06		S. Llewellyn & Associates Limited
Village Grove in Carlisle Subdivision (Final S.W.M. Report)	November-00		Stantec
Ward Estates (S.W.M. Report)	August-00		A.J. Clarke and Associates Ltd.
Waterdown Bay (Functional S.W.M. Plan Final Report)	May-05		McCormick Rankin Corporation
Watercourse 5.0 & 6.0 (Hydraulic Assessment)	January-011		Dillon Consulting
Waterdown North (Master Drainage Plan Addendum)	February-012		AMEC Environment & Infrastructure
Waterdown Woods (Functional Report)	January-91		Kenneth Youngs Engineering Inc.
Webster Estates (S.W.M. Report)	June-02	September-02	S. Llewellyn & Associates Limited
Wellington Meadows (Preliminary S.W.M. Plan)	July-97	September-97	Hydro Comp Inc.
West Bloom Estates (S.W.M. Update Report)	April-12		Metropolitan Consulting Inc.
West Central Mountain Drainage Assessment Supplemental Capacity Analysis & S.W.M. Sizing	October-11		AMEC Environment & Infrastructure
Westover Winds (Servicing/S.W.M. Report)	July-06		Weslake Inc.
Westview Estates (S.W.M. Plan)	November-96	May-97	Hydro Comp Inc.
Wilson Woods Condominium (S.W.M. Report)	August-94	November-94	A.J. Clarke and Associates Ltd.
Winona Crossing (Functional Servicing Report & S.W.M. Report)	January-013	November-013	A.J. Clarke and Associates Ltd.
Winona Meadows (S.W.M. Assessment)	July-95		A.J. Clarke and Associates Ltd.

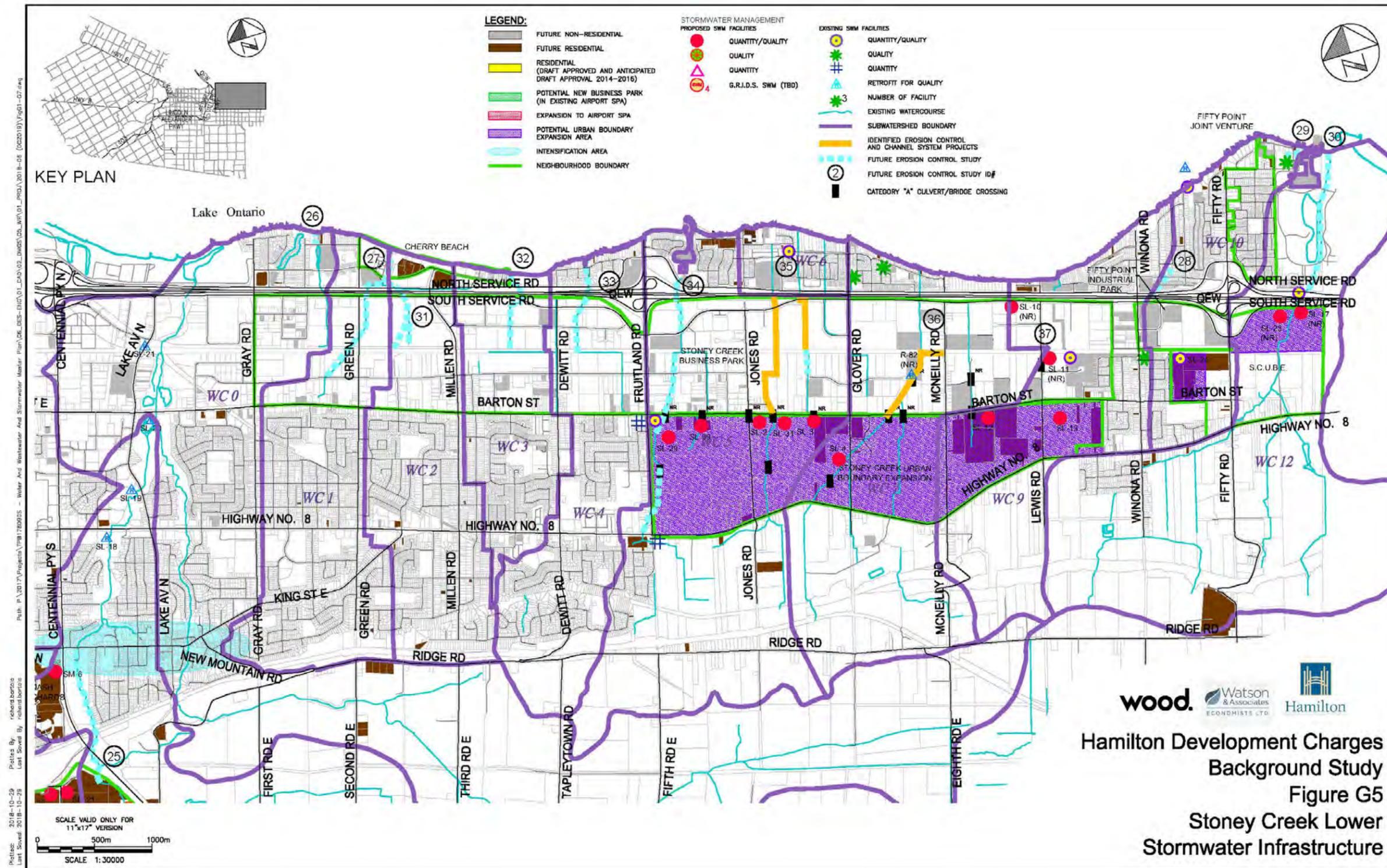
NAME	DATE	REVISIONS	AUTHOR
Winona Park Estates (S.W.M. Study)	April-90		Environmental Hydraulics Group
Winona Urban Area (Master Drainage Plan Implementation)	May-90		Philips Planning and Engineering Limited
Winona Urban Boundary Expansion (Preliminary Engineering Servicing Study)	August-92		Philips Planning and Engineering Limited
Woodland Manor (Functional Servicing Report)	May-08		Stantec Consultant Ltd.



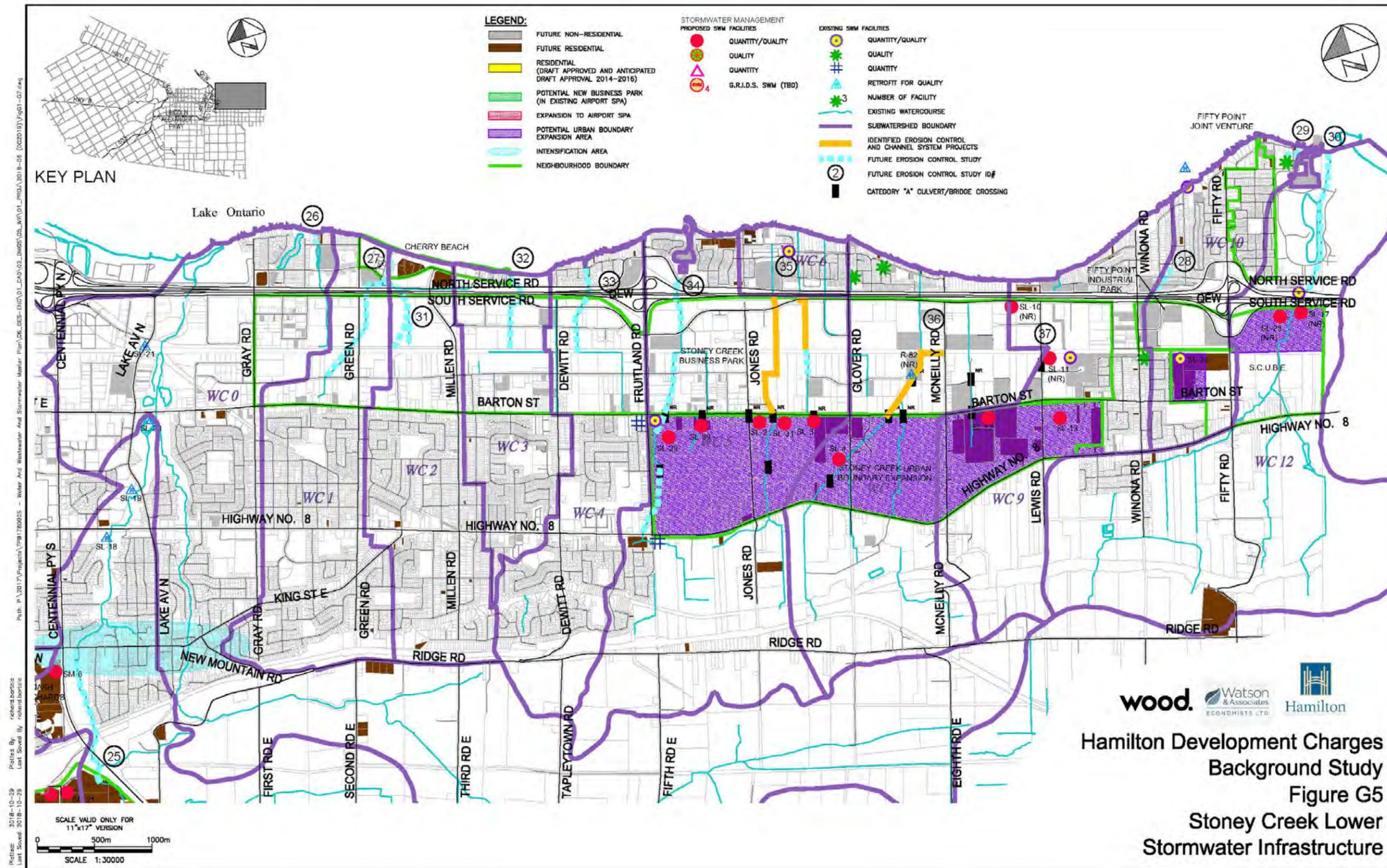




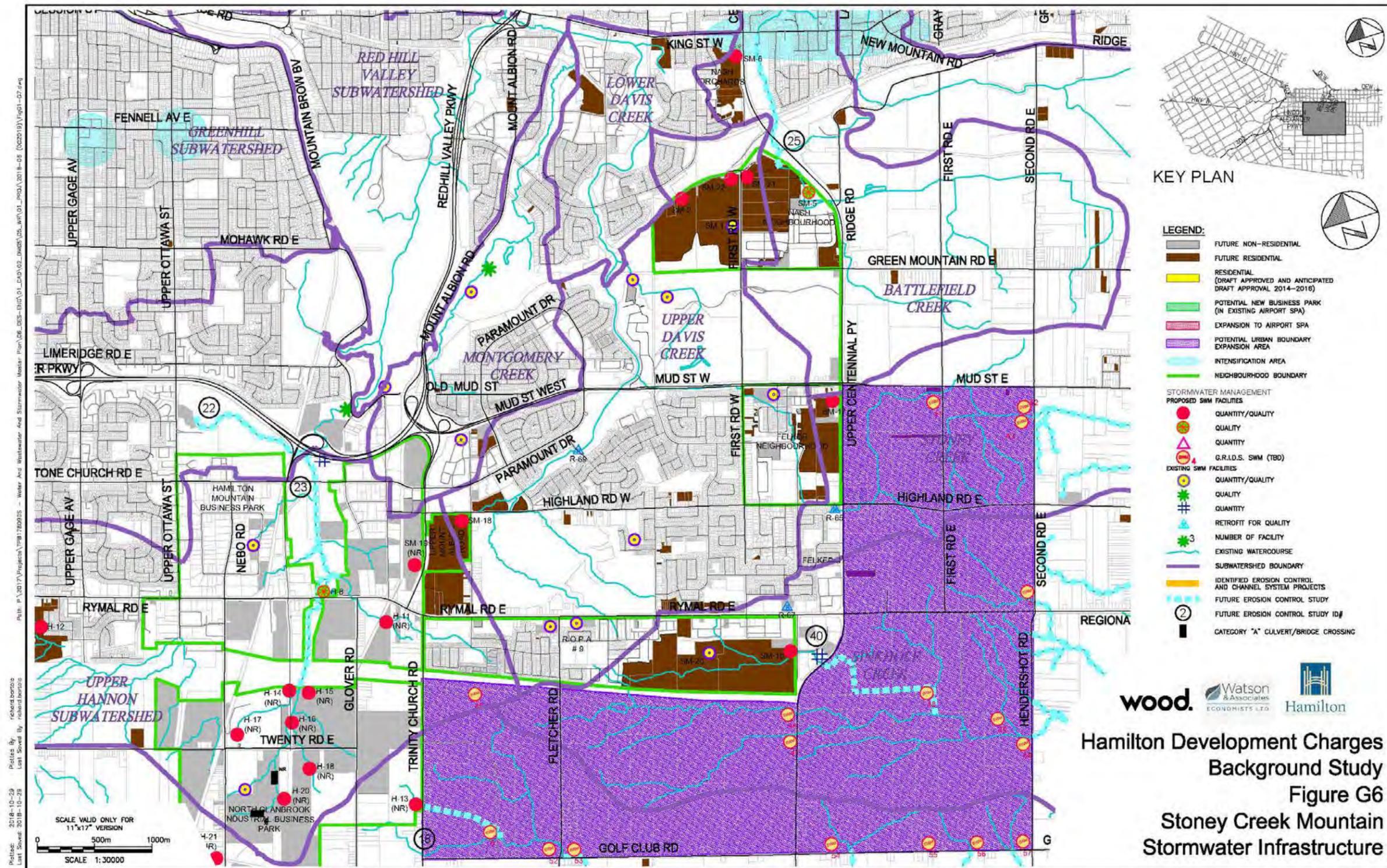


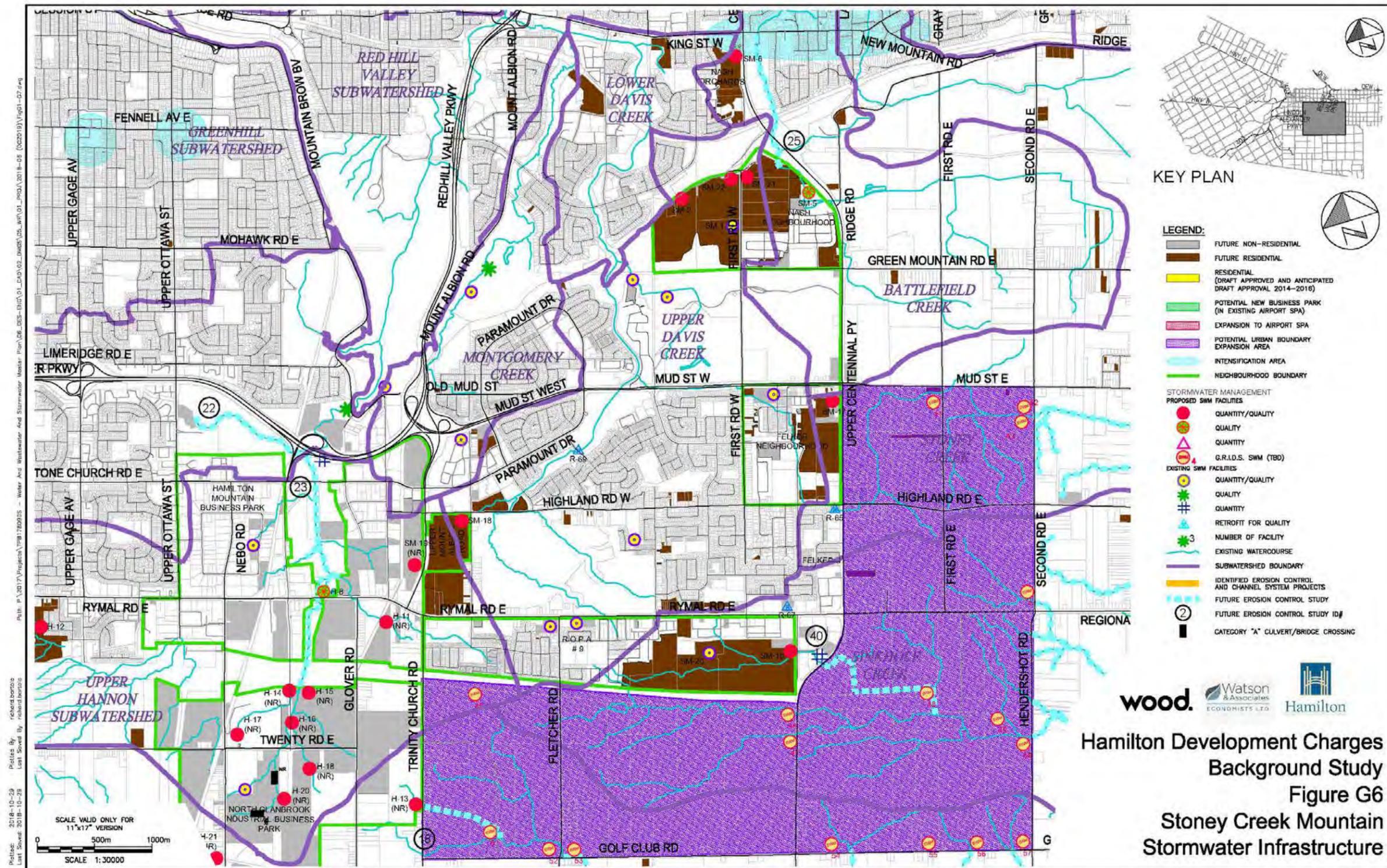


wood. Watson & Associates ECONOMISTS LTD. Hamilton
Hamilton Development Charges Background Study
Figure G5
Stoney Creek Lower Stormwater Infrastructure



wood. Watson & Associates ECONOMISTS LTD. Hamilton
Hamilton Development Charges Background Study
Figure G5
Stoney Creek Lower Stormwater Infrastructure





Appendix G-1

Cost Summary Sheets – Detailed By Category

APPENDIX G-1: CATEGORY A - OPEN WATERCOURSES: CHANNEL SYSTEM IMPROVEMENTS (IDENTIFIED PROJECTS) NON-RESIDENTIAL

Category			Project Title	Study Year	Drainage Area (ha)	Purpose	SWMF/ Drainage Work					2014 Estimated Capital Cost (\$)	2019 Estimated Capital Cost (\$)	Estimated Total Cost (Rounded)(\$)	Growth Related %	Net Growth Related Cost (\$)	Growth Related Post Period Cost (\$)	Net Total Cost (\$)	Remarks	Other Changes From 2014 Study
Primary Dev. Areas	Build Out (yr)	Secondary					Type of Work	Location of Work	Type	Description	Length (m)									
ANC	0-5	A	Ancaster Industrial Park - Cormorant Midblock	2013			culvert	Trinity to Tradewind				400,000	400,000	50	200,000		200,000	City updated estimate ref. AJC study and tender	city updated estimate ref. AJC study and tender	
ANC	0-5	A	Ancaster Industrial Park - Cormorant Midblock	2013			channel improvements	Trinity to Tradewind				400,000	400,000	50	200,000		200,000	city updated estimate ref. AJC study and tender	city updated estimate ref. AJC study and tender	
BMH	11+	A	AEGD major roads crossings	2017		road crossings at existing watercourses	40 culverts (12 small, 12 med, 16 large)	AEGD				8,430,000	9,475,320	100	9,480,000		9,480,000	City updated estimate	Inflation applied	
HAM	11+	A	Red Hill Business Park - Dartnall Road	2017			2 culverts (small)	Twenty to Dickenson				400,000	400,000	100	400,000		400,000	Upper Hannon Creek MDP Oct 2017	NEW	
SCL	11+	A	Master Drainage Plan Area No. 5, 6, 7. City of Stoney Creek	1990			Triple-Culvert replacement - QEW Corridor at w/c #5					1,405,493	1,579,774	100	1,580,000		1,580,000	to be updated when WC 5/6 studies completed	Inflation applied	
SCL	11+	A	Master Drainage Plan Area No. 5, 6, 7. City of Stoney Creek	1990			New culvert - North Service Rd. at w/c #5					233,434	262,380	100	260,000		260,000	to be updated when WC 5/6 studies completed	Inflation applied	
SCL	11+	A	Creek System Improvement W/C 7	2003			Lower culvert by 0.4 m - South Service Rd. under w/c #6					117,145	131,670	50	65,000		65,000	to be updated when WC 5/6 studies completed	Inflation applied	
SCL	11+	A	Master Drainage Plan Area No. 5, 6, 7. City of Stoney Creek	1990			Culvert replacement - QEW Corridor on w/c #6.2					518,783	583,112	100	580,000		580,000		Inflation applied	
SCL	11+	A	Water Course 5- Master Drainage Plan Area No. 5, 6, 7. City of Stoney Creek	1990	582		channel improvements			Length of channel improvement work	1015	2,305,703	2,591,610	100	2,590,000		2,590,000	to be updated when WC 5/6 studies completed	Inflation applied	
SCL	11+	A	Master Drainage Plan Area No. 5, 6, 7. City of Stoney Creek	1990			Lower culvert by 1.6 m - Arvin Ave. on w/c #5					62,477	70,224	20	14,000		14,000	to be updated when WC 5/6 studies completed	Inflation applied	
SCL	11+	A	Master Drainage Plan Area No. 5, 6, 7. City of Stoney Creek	1990			Culvert replacement - CNR line on w/c #5					163,556	183,837	20	36,000		36,000	to be updated when WC 5/6 studies completed	Inflation applied	
SCL	11+	A	Water Course 6 - Master Drainage Plan Area No. 5, 6, 7. City of Stoney Creek	1990	67		channel improvements			Length of channel improvement work	1077	2,469,333	2,775,530	50	1,390,000		1,390,000	to be updated when WC 5/6 studies completed	Inflation applied	
SCL	11+	A	Master Drainage Plan Area No. 5, 6, 7. City of Stoney Creek	1990			Lower culvert by 1.84 m - South Service Rd. under w/c #5					117,145	131,670	100	130,000		130,000		Inflation applied	
SCL	0-5	A	SCUBE - Barton Street	2017			WC9 channel/enclosure	west property limit of school to 140 m east				700,000	786,800	50	395,000		395,000	new configuration	Inflation applied	
SCL	11+	A	SCUBE - NSR	2013			culvert	Green easterly to City limits				750,000	843,000	100	843,000		843,000		Inflation applied	
WAT	11+	A	Hwy 5/6 Interchange				2 or 3 culverts	Hwy 5/6 and ramp				1,200,000	1,348,800	25	337,500		337,500	per City agreement with MTO	Inflation applied	
WAT	11+	A	Highway 6				culvert	Borer's Ck				1,000,000	1,124,000	100	1,124,000		1,124,000		Inflation applied	
Total Non-Residential												19,473,068	23,087,728	23,087,000	85	19,624,500	0	19,624,500		
Grand Total												32,731,450	44,001,750	44,010,000	92	40,547,500	3,793,333	36,754,167		

ANC: Ancaster
 BMH: Binbrook / Mount Hope
 HAM: Hamilton Mountain
 SCL: Stoney Creek - Lower
 SCM: Stoney Creek - Mountain
 WAT: Waterdown

APPENDIX G-1 CATEGORY B: OFF SITE EROSION WORKS NOT IDENTIFIED IN PREVIOUS STUDIES (RESIDENTIAL & NON RESIDENTIAL)

ID #	Primary Development Area	Res/Non-Res	Subwatershed	Watershed	Remarks	Watershed Area ¹	Existing Development Area (ha)		Future Development Area (ha)		Development Fraction	Fraction of Watercourse Assumed to Require Erosion Control ²	Total Length of Downstream Watercourse to Assumed End-Point ³	Length of Erosion Control Works	Cost ⁴	Land Cost	Total Cost	New Development Fraction	Development Related Cost	Remarks	Other Changes from 2014 Study
						A	B	C	D	E	F = 100 X (B+C+D+E) / A	G	H	I = G X H	J	K	L=J+K	M = (D+E) / (B+C+D+E)	L X M		
						(ha)	Res. (ha)	Non-Res. (ha)	Res. (ha)	Non-Res. (ha)	(%)		(m)	(m)	(\$)	(\$)	(\$)	(\$)			
2	ANC	Non-Res	Big Creek (Outlet #1 & #2 Industrial Park)	Big Creek		271		11.6	5.32	136.83	56.73	0.15	4,988	748	\$1,122,300	\$697,738	\$1,820,038	0.925	\$1,682,721	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
3	ANC	Res	Big Creek (Spring Valley West and Shaver Neighbourhood)	Big Creek	South of Shaver Neighbourhood	43	35		5.5		94.19	0.20	600	120	\$180,000	\$111,907	\$291,907	0.136	\$39,642	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
4	ANC	Res	Big Creek (Spring Valley West and Shaver Neighbourhood)	Big Creek		100	70.92		21.48	0.29	92.69	0.20	1,500	300	\$450,000	\$279,767	\$729,767	0.235	\$171,399	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
5	BMH	Non-Res	Three Mile Creek	Twenty Mile Creek	Part of Airport Business Park and Airport	165		20		24.48	26.96	0.10	1,500	150	\$225,000	\$139,883	\$364,883	0.550	\$200,817	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
6	ANC	Res	Tiffany Creek	Coote's Paradise	Meadowlands, Garner, Ancaster. A portion of the w/c is lined in a SWMF	165	25		129.84	0.37	94.07	0.20	2,500	500	\$750,000	\$466,278	\$1,216,278	0.839	\$1,020,369	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
7	ANC	Res	Tiffany Creek	Coote's Paradise	Falkirk West and Bayview Glen Estates	110			11.5	1.76	12.05	0.05	450	23	\$33,750	\$20,982	\$54,732	1.000	\$54,732	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
8	ANC	Res	Sulphur Creek	Coote's Paradise		1794			15.98		0.89	0.05	500	25	\$62,500	\$46,628	\$109,128	1.000	\$109,128	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
9	BMH	Res	Binbrook Node B	Welland River	Binbrook Urban area of 200 ha Draining at Node 'B'	300	191.27		100.12	0.5	97.30	0.20	4,500	900	\$1,350,000	\$725,881	\$2,075,881	0.345	\$715,595	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
11	BMH	Res	Binbrook Node D	Welland River	Three tributaries B7-a,b,c	133			100.26		75.38	0.20	4,100	820	\$1,230,000	\$661,358	\$1,891,358	1.000	\$1,891,358	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
12	BMH	Res	Binbrook Node G	Twenty Mile Creek (Three Mile, Sinkhole Creek)	Jackson Heights etc	25	15		9.14		96.56	0.20	750	150	\$225,000	\$120,980	\$345,980	0.379	\$130,997	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
13	BMH	Res	Node of Welland River south of Mount Hope Urban Boundary SWMF # B-10	Welland River	Mount Hope & adjacent areas (including Airport Business Area)-two outlet	220	128.52	20	47.39	4.76	91.21	0.20	1,500	300	\$450,000	\$241,960	\$691,960	0.260	\$179,826	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
14	BMH	Non-Res	Node of Welland River north of Mount Hope Urban Boundary	Welland River		30				20	66.67	0.15	1,200	180	\$270,000	\$145,176	\$415,176	1.000	\$415,176	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
15	HAM	Res	Node Downstream of Glanbrook Hills	Twenty Mile Creek (Three Mile, Sinkhole Creek)	Garth Trail, North Glanbrook Industrial Park, Airport Industrial Business Park, part of Binbrook and others	40	20		16.47		91.18	0.20	900	180	\$270,000	\$145,176	\$415,176	0.452	\$187,495	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated

¹To point immediately d/s of future development (start of off-site erosion assessment)

²0.05 - Where Development Fraction is 0 - 25%

0.10 - Where Development Fraction is 26 - 49%

0.15 - Where Development Fraction is 50 - 74%

0.20 - Where Development Fraction is 75 - 100%

³Location where d/s of this point no erosion is deemed to occur from subject development; total drainage area to this point estimated as a maximum of 2X the study watershed area (Column A). Note that the end point may also be set by Hamilton Harbour or La

⁴\$2500/m for Watershed Area > 500 ha

\$1500/m for Watershed Area < 500 ha

Coote's Paradise (Borer's Creek, Spencer Creek, Sulphur Creek, Ancaster Creek, Chedoke Creek, Others)

Hamilton Harbour (Red Hill Creek, Central Business Park)

APPENDIX G-1 CATEGORY B: OFF SITE EROSION WORKS NOT IDENTIFIED IN PREVIOUS STUDIES (RESIDENTIAL & NON RESIDENTIAL)

ID #	Primary Development Area	Res/Non-Res	Subwatershed	Watershed	Remarks	Watershed Area ¹	Existing Development Area (ha)		Future Development Area (ha)		Development Fraction	Fraction of Watercourse Assumed to Require Erosion Control ²	Total Length of Downstream Watercourse to Assumed End-Point ³	Length of Erosion Control Works	Cost ⁴	Land Cost	Total Cost	New Development Fraction	Development Related Cost	Remarks	Other Changes from 2014 Study
						A	B	C	D	E	F = 100 X (B+C+D+E) / A	G	H	I = G X H	J	K	L=J+K	M = (D+E) / (B+C+D+E)	L X M		
						(ha)	Res. (ha)	Non-Res. (ha)	Res. (ha)	Non-Res. (ha)	(%)		(m)	(m)	(\$)	(\$)	(\$)		(\$)		
16	BMH	Non-Res	Node Downstream of SWMF # R53	Twenty Mile Creek (Three Mile, Sinkhole Creek)		40				36.81	92.03	0.20	850	170	\$255,000	\$137,111	\$392,111	1.000	\$392,111	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
17	HAM	Non-Res	Node Downstream of SWMF # B 13	Twenty Mile Creek (Three Mile, Sinkhole Creek)		32				19.67	61.47	0.15	600	90	\$135,000	\$72,588	\$207,588	1.000	\$207,588	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
18	HAM	Non-Res	Node Downstream of SWMF # H 13	Twenty Mile Creek (Three Mile, Sinkhole Creek)		181				63.3	34.97	0.10	2,000	200	\$300,000	\$161,307	\$461,307	1.000	\$461,307	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
19	HAM	Non-Res	Node Downstream of SWMF # B 14	Twenty Mile Creek (Three Mile, Sinkhole Creek)		58				5.71	9.84	0.05	1,100	55	\$82,500	\$44,359	\$126,859	1.000	\$126,859	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
20	HAM	Non-Res	Node Downstream of SWMF # B 11 & B 12	Twenty Mile Creek (Three Mile, Sinkhole Creek)		700	282.29		26.2	48.63	51.02	0.15	3,000	450	\$1,125,000	\$725,881	\$1,850,881	0.210	\$387,829	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
21	BMH	Non-Res	Node Downstream of SWMF # B 15 & 16	Twenty Mile Creek (Three Mile, Sinkhole Creek)		179	100			54.41	86.26	0.20	1,400	280	\$420,000	\$225,830	\$645,830	0.352	\$227,573	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
22	HAM	Res	Upper Ottawa subwatershed	Hamilton Harbour	Erosion works downstream identified in previous studies	1356	766	308.9	136.28	0.86	89.38	0.20	1,100	220	\$550,000	\$354,875	\$904,875	0.113	\$102,385	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
23	HAM	Res	Hannon Creek subwatershed	Hamilton Harbour		1070	115.2	357.7	75.95	292.53	78.63	0.20	2,000	400	\$1,000,000	\$645,228	\$1,645,228	0.438	\$720,523	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
25	SCL	Res	Battlefield Creek	Lake Ontario (Battlefield Creek, SC, WC 0-12)	Nash	300			62.09	1.92	21.34	0.05	1,250	63	\$93,750	\$50,408	\$144,158	1.000	\$144,158	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
26	SCL	Res	Water Course 0	Lake Ontario (Battlefield Creek, SC, WC 0-12)	WC 0	321	112.9	149.7	1.12	2.98	83.08	0.20	50	10	\$15,000	\$8,065	\$23,065	0.015	\$355	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
27	SCL	Res	Water Course 1	Lake Ontario (Battlefield Creek, SC, WC 0-12)	WC 1	330	157.5	61	13.09	2.87	71.05	0.15	1,900	285	\$427,500	\$229,862	\$657,362	0.068	\$44,748	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
28	Water Course 10/12	Non-Res	Fifty Point Industrial Park	Lake Ontario (Battlefield Creek, SC, WC 0-12)	assumed Fruitland-Winona SP land use	20				16.56	82.80	0.20	600	120	\$180,000	\$96,784	\$276,784	1.000	\$276,784	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated

¹To point immediately d/s of future development (start of off-site erosion assessment)

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0.15 - Where Development Fraction is 50 - 74%

0.20 - Where Development Fraction is 75 - 100%

³Location where d/s of this point no erosion is deemed to occur from subject development; total drainage area to this point estimated as a maximum of 2X the study watershed area (Column A). Note that the end point may also be set by Hamilton Harbour or La

⁴\$2500/m for Watershed Area > 500 ha

\$1500/m for Watershed Area < 500 ha

Cootes Paradise (Borer's Creek, Spencer Creek, Sulphur Creek, Ancaster Creek, Chedoke Creek, Others)

Hamilton Harbour (Red Hill Creek, Central Business Park)

APPENDIX G-1 CATEGORY B: OFF SITE EROSION WORKS NOT IDENTIFIED IN PREVIOUS STUDIES (RESIDENTIAL & NON RESIDENTIAL)

ID #	Primary Development Area	Res/Non-Res	Subwatershed	Watershed	Remarks	Watershed Area ¹	Existing Development Area (ha)		Future Development Area (ha)		Development Fraction	Fraction of Watercourse Assumed to Require Erosion Control ²	Total Length of Downstream Watercourse to Assumed End-Point ³	Length of Erosion Control Works	Cost ⁴	Land Cost	Total Cost	New Development Fraction	Development Related Cost	Remarks	Other Changes from 2014 Study								
						A	B	C	D	E	F = 100 X (B+C+D+E) / A											G	H	I = G X H	J	K	L=J+K	M = (D+E) / (B+C+D+E)	L X M
						(ha)	Res. (ha)	Non-Res. (ha)	Res. (ha)	Non-Res. (ha)	(%)											(m)	(m)	(m)	(\$)	(\$)	(\$)	(\$)	
29	SCL	Res	Fifty Point Joint Venture	Lake Ontario (Battlefield Creek, SC, WC 0-12)		45	32		1.17	0.19	74.13	0.20	300	60	\$90,000	\$48,392	\$138,392	0.041	\$5,642	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated								
30	SCL	Non-Res	Water Course 12	Lake Ontario (Battlefield Creek, SC, WC 0-12)	assumed Fruitland-Winona SP land use	642	75.8	14.1	0.89	24	17.88	0.05	1,350	68	\$168,750	\$108,882	\$277,632	0.217	\$60,199	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated								
31	SCL	Res	Water Course 2	Lake Ontario (Battlefield Creek, SC, WC 0-12)	WC 2	283	148	76.8	1.69	0.56	80.23	0.20	1,100	220	\$330,000	\$177,438	\$507,438	0.010	\$5,029	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated								
32	SCL	Res	Water Course 3	Lake Ontario (Battlefield Creek, SC, WC 0-12)	WC 3	190	74.4	73.3	4.44	2.44	81.36	0.20	900	180	\$270,000	\$145,176	\$415,176	0.045	\$18,479	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated								
33	SCL	Non-Res	Water Course 4	Lake Ontario (Battlefield Creek, SC, WC 0-12)	WC 4	376	133.9	60.9		14	55.53	0.15	800	120	\$180,000	\$96,784	\$276,784	0.067	\$18,558	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated								
34	SCL	Res	Water Course 5	Lake Ontario (Battlefield Creek, SC, WC 0-12)	w/c 5.1-1100m, w/c 5.0-2500; assumed FWSP land use	636	121.4	112.9	118.35	7.64	56.65	0.15	3,600	540	\$1,350,000	\$871,057	\$2,221,057	0.350	\$776,683	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated								
35	SCL	Res	Water Course 6	Lake Ontario (Battlefield Creek, SC, WC 0-12)	assumed Fruitland-Winona SP land use	100	19	18.1	50.39	11.65	99.14	0.20	1,300	260	\$390,000	\$209,699	\$599,699	0.626	\$375,281	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated								
36	SCL	Non-Res	Water Course 7	Lake Ontario (Battlefield Creek, SC, WC 0-12)	assumed Fruitland-Winona SP land use	421	77.2	28.2	25.28	36.2	39.64	0.10	1,000	100	\$150,000	\$80,653	\$230,653	0.368	\$84,975	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated								
37	SCL	Non-Res	Water Course 9	Lake Ontario (Battlefield Creek, SC, WC 0-12)	assumed Fruitland-Winona SP land use	579	148.76	51.2	86.41	16.98	52.39	0.15	800	120	\$300,000	\$193,568	\$493,568	0.341	\$168,222	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated								
40	SCM	Res	Sinkhole Creek	Twenty Mile Creek (Three Mile, Sinkhole Creek)	Felkirk South and ROPA #9 (Rymal Rd.)	140	63.1		100.13		116.59	0.20	1,200	240	\$360,000	\$193,568	\$553,568	0.613	\$339,575	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated								

¹To point immediately d/s of future development (start of off-site erosion assessment)

²0.05 - Where Development Fraction is 0 - 25%

0.10 - Where Development Fraction is 26 - 49%

0.15 - Where Development Fraction is 50 - 74%

0.20 - Where Development Fraction is 75 - 100%

³Location where d/s of this point no erosion is deemed to occur from subject development; total drainage area to this point estimated as a maximum of 2X the study watershed area (Column A). Note that the end point may also be set by Hamilton Harbour or La

⁴\$2500/m for Watershed Area > 500 ha

\$1500/m for Watershed Area < 500 ha

Coote's Paradise (Borer's Creek, Spencer Creek, Sulphur Creek, Ancaster Creek, Chedoke Creek, Others)
Hamilton Harbour (Red Hill Creek, Central Business Park)

APPENDIX G-1 CATEGORY B: OFF SITE EROSION WORKS NOT IDENTIFIED IN PREVIOUS STUDIES (RESIDENTIAL & NON RESIDENTIAL)

ID #	Primary Development Area	Res/Non-Res	Subwatershed	Watershed	Remarks	Watershed Area ¹	Existing Development Area (ha)		Future Development Area (ha)		Development Fraction	Fraction of Watercourse Assumed to Require Erosion Control ²	Total Length of Downstream Watercourse to Assumed End-Point ³	Length of Erosion Control Works	Cost ⁴	Land Cost	Total Cost	New Development Fraction	Development Related Cost	Remarks	Other Changes from 2014 Study
						A	B	C	D	E	F = 100 X (B+C+D+E) / A	G	H	I = G X H	J	K	L=J+K	M = (D+E) / (B+C+D+E)	L X M		
						(ha)	Res. (ha)	Non-Res. (ha)	Res. (ha)	Non-Res. (ha)	(%)		(m)	(m)	(\$)	(\$)	(\$)		(\$)		
42	WAT	Res	Falcon Creek	Grindstone Creek/ North Shore Watershed	OPA 28 South	48			48		100.00	0.20	1,200	240	\$360,000	\$223,813	\$583,813	1.000	\$583,813	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
43	WAT	Res	Grindstone Creek SWMF # W7	Grindstone Creek/ North Shore Watershed		45			45		100.00	0.20	900	180	\$270,000	\$167,860	\$437,860	1.000	\$437,860	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
44	WAT	Res	Grindstone Creek	Grindstone	OPA 28 South and Hecounton Estates	1011	254.8		108.81		35.97	0.10	2,000	200	\$500,000	\$373,022	\$873,022	0.299	\$261,251	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
45	WAT	Non-Res	Flamborough Industrial Park SWMF # W14	Grindstone Creek/ North Shore Watershed		45				15	33.33	0.10	900	90	\$135,000	\$83,930	\$218,930	1.000	\$218,930	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
46	WAT	Res	Indian Creek	Grindstone Creek/ North Shore Watershed	OPA 28 South	14			10.91		77.93	0.20	450	90	\$135,000	\$83,930	\$218,930	1.000	\$218,930	new development fraction recalculated as fraction of existing and future development, not drainage area	land values updated
48	OTH	Res	Central Business Subwatershed	Hamilton Harbour	Not in growth area	2400					0.00	0.00		0	\$0	\$0	\$0	0.000	\$0		
49	OTH	Res	Chedoke Creek	Hamilton Harbour	Not in growth area	2706					0.00	0.00		0	\$0	\$0	\$0	0.000	\$0		
50	OTH	Res	Green Hill subwatershed	Hamilton Harbour	Not in growth area	1225	1102.5				90.00	0.20	0	0	\$0	\$0	\$0	0.000	\$0		
51	OTH	Res	Logies Creek	Coote's Paradise	Not in growth area	1217					0.00	0.00		0	\$0	\$0	\$0	0.000	\$0		
52	OTH	Res	Lower Spencer Creek	Coote's Paradise	Not in growth area	277					0.00	0.00		0	\$0	\$0	\$0	0.000	\$0		
53	OTH	Res	Mid Spencer Creek	Coote's Paradise	Not in growth area	5513					0.00	0.00		0	\$0	\$0	\$0	0.000	\$0		
54	OTH	Res	Spring Creek	Coote's Paradise	Not in growth area	1305					0.00	0.00		0	\$0	\$0	\$0	0.000	\$0		
55	OTH	Res	Sydenham Creek	Coote's Paradise	Not in growth area	442					0.00	0.00		0	\$0	\$0	\$0	0.000	\$0		
Grand Total						27,643.0	4,270.5	1,364.4	1,379.2	863.9	28.50		58,638	9446	\$16,191,050	\$9,613,787	\$25,804,837	52.18	\$13,464,902		

¹To point immediately d/s of future development (start of off-site erosion assessment)

²0.05 - Where Development Fraction is 0 - 25%

0.10 - Where Development Fraction is 26 - 49%

0.15 - Where Development Fraction is 50 - 74%

0.20 - Where Development Fraction is 75 - 100%

³Location where d/s of this point no erosion is deemed to occur from subject development; total drainage area to this point estimated as a maximum of 2X the study watershed area (Column A). Note that the end point may also be set by Hamilton Harbour or La

⁴\$2500/m for Watershed Area > 500 ha

\$1500/m for Watershed Area < 500 ha

Coote's Paradise (Borer's Creek, Spencer Creek, Sulphur Creek, Ancaster Creek, Chedoke Creek, Others)

Hamilton Harbour (Red Hill Creek, Central Business Park)

Total Residential	\$17,745,811	48.10	\$8,535,252
Total Non-Residential	\$8,059,025	61.17	\$4,929,650

APPENDIX G-1: CATEGORY C - STORMWATER MANAGEMENT (QUALITY AND OR QUANTITY) FACILITIES RESIDENTIAL

Category			SWMF #	Project Title	Year	Drainage Area (ha)	Purpose	SWMF/ Drainage Work										Growth Related %	Net Growth/Total Associated Cost (\$)	Existing Benefit	Direct Developer Contribution (\$)	Non-Res Area Fraction Cost (\$)	Net Total Associated Cost (\$)	Remarks	Other Changes From 2014 Study			
Primary Dev. Areas	Build Out (yr)	Secondary						Type of Work	Location of Work	Type	Description	Total Volume (m3)	Estimated Footprint 4% (ha)	Estimated Footprint 6% (ha)	Study/Draft Plan Footprint (ha)	Footprint (ha)	Land Cost									Estimated Capital Cost (\$)	Estimated Total Cost Including Land	
ANC	11+	C	7	Gamer Neighbourhood Master Drainage Plan, Ancaster	July, 1996 Rev. Nov. 2003	10.4	MDP addressing drainage related issues for existing and future development	Proposed Quality Facility #1: Extended detention wetland	Between proposed Highway 6 (new) interchange corridor and the existing development	Quality	Storage Capacity =	910	0.42		0.42	775,886	72,800	848,686	100	848,686	-	-	-	848,686		land values updated		
ANC	0-5	C	14	Meadowlands Phase IV		6			Springbrook at Garter	Quality / Quantity	Storage Capacity =	2,110		0.36	0.60	1,119,066	168,797	1,287,863	100	1,287,863	-	-	-	1,287,863	Increase land to 10% due to known grade constraint	land values updated		
ANC	11+	C	22	Woodland Manor Preliminary SWM Report	Jul-08	15.3	SWM Plan for proposed urban development	SWMF	Sulpher Springs Road and Mansfield Drive	Quality / Quantity	Storage Volume =	13,289		0.92	0.92	1,712,172	791,576	2,503,748	100	2,503,748	-	-	-	2,503,748		land values updated		
ANC	11+	C	24	Miller's pond expansion		5		SWMF	Shaver Road and Garter Road	Quality		3,600	0.20		0.20	373,022	288,000	661,022	100	661,022	-	-	-	661,022		land values updated		
ANC	11+	C	25	Golf Stream Manor		36				Quality / Quantity		25,920	1.44		1.44	2,685,760	1,296,800	3,982,560	100	3,982,560	-	-	-	3,982,560		land values updated		
ANC	11+	R	3	N/A	N/A	31.34	Flood Control	Future Retrofit	Galley Cr & Speers Rd	Quality					0.00	-	443,100	443,100	30	132,930	310,170	-	-	-	132,930			
ANC	11+	R	22	N/A	N/A	2.19	Flood Control	Future Retrofit	Harrington Place and Lover's Lane	Quality					0.00	-	422,000	422,000	50	211,000	211,000	-	-	-	211,000			
ANC	11+	R	70	Drainage Report - The Meadowlands	N/A	296.9		Future Retrofit	Hwy 403 and Golf Links Rd	Quality					0.00	-	4,135,600	4,135,600	40	1,654,240	2,481,360	-	-	-	1,654,240			
ANC	11+	R	71	Drainage Report - The Meadowlands	N/A	42.51		Future Retrofit	Golf Links Rd and Meadowlands Blvd	Quality					0.00	-	601,350	601,350	40	240,540	360,810	-	-	-	240,540			
ANC	11+	R	72	Drainage Report - The Meadowlands	N/A	18.03		Future Retrofit	Golf Links Rd. and Meadowlands Blvd.	Quality					0.00	-	422,000	422,000	40	168,800	253,200	-	-	-	168,800			
BMH	11+	C	24	Ceterini	2013	15		SWMF	Binbrook Rd west of Woodland	Quality / Quantity	Storage Capacity =	9,400		0.90	0.90	1,451,762	635,996	2,087,758	100	2,087,758	-	-	-	2,087,758		land values updated		
BMH	0-5	C	10	Mountingate Functional Servicing Report	Oct. 2007	100.66	SWM Plan for proposed urban development	SWMF	South west of new Hwy - 6	Quality / Quantity	Storage Volume =	34,698		6.04	5.15	8,307,304	1,647,904	9,955,208	100	9,955,208	-	-	-	9,955,208		land values updated		
BMH	11+	C	21	Master Drainage Plan Update Report : Binbrook Settlement Area	Oct. 2006	31	additional facility adjacent to the watercourse	SWMF			Quality / Quantity	Storage Capacity =	19,376		1.86	1.86	3,000,308	1,035,058	4,035,366	100	4,035,366	-	-	-	4,035,366		land values updated	
BMH	11+	C	20	Binbrook Settlement Area	2013	22.72	MacNeilly facility	SWMF	Area draining to the south west near Fletcher Road	Quality / Quantity	Storage Capacity =	19,201		1.36	1.80	2,903,524	1,028,029	3,931,552	100	3,931,552	-	-	-	3,931,552		land values updated		
HAM	11+	C	12	Hannon Creek SWS - North Glatbrook Industrial Business Park MDP	Nov. 2008	10		SWMF	Upper Gage/Terris in tandem with HAM29	Quality / Quantity	Storage volume =	8,817		0.40	0.40	645,228	1,252,664	1,897,892	100	1,897,892	-	-	-	1,897,892	per City comments: estimated 8,000 m3 in rock	land values updated		
HAM	0-5	C	24	Mewburn and Sheldon Neighbourhoods Master Servicing Plan	2011	15.9	SWM Plan for proposed urban development	SWMF	West 5th and Stonechurch Road	Quality / Quantity	Storage Capacity =	12,650		0.95	1.25	2,016,336	1,246,000	3,262,336	100	3,262,336	-	-	-	3,262,336	New pond to help H-8; estimated 6000 m3 rock	land values updated		
HAM	11+	C	28	305 Stone Church Road West	2011	33.29	SWM Plan for proposed urban development	SWMF	NE limit of development	Quality / Quantity	Storage volume =	20,382		2.00	2.00	3,221,944	1,955,266.46	5,177,210	100	5,177,210	-	-	-	5,177,210	estimated 11,000 m3 rock	land values updated		
HAM	11+	C	29	Miles	2011	42	SWM Plan for proposed urban development	SWMF	NE limit of development	Quality / Quantity	Storage volume =	37,000		2.52	2.52	4,064,933	3,420,000	7,484,933	100	7,484,933	-	-	-	7,484,933	per City comments: estimated 21,000 m3 in rock	land values updated		
HAM	11+	C	30	St Elizabeth expansion	2013	50	SWM facility expansion	SWMF	expand for new development	Quality / Quantity	Storage volume =	38,000			0.00	-	1,780,000	1,780,000	100	1,780,000	-	-	-	1,780,000				
HAM	0-5	C	31	Upper Wellington and Stonechurch		14		SWMF	SW corner of Upper Wellington and Stonechurch Rd	Quality / Quantity	Extended Detention Pond	11,263		0.84	1.40	2,258,296	1,270,529.60	3,528,826	100	3,528,826	-	-	-	3,528,826	Increase land to 10% due to known grade constraint; estimated 7000 m3 in rock	land values updated		
HAM	11+	R	55	Villages of Glanaster	Jul. 1990	77.63	Flood Control	Future Retrofit	Twenty Rd and Garth St	Quality					3.11	-	5,008,901	1,086,650	6,095,551	80	4,876,441	1,219,110	-	-	-	4,876,441		land values updated
SCL	0-5	C	2	SCUBE Subwatershed Study (Phase 3)	May-13	26.4	Stormwater management strategy	SWMF	WC6 south of Barton West	SCUBE	Quantity / Quality	wet pond #3	13,216		1.58	2.64	4,258,502	788,640	5,047,142	100	5,047,142	-	-	-	5,047,142	Increase land to 10% due to known grade constraint	land values updated	
SCL	0-5	C	3	SCUBE Subwatershed Study (Phase 3 - Block 2)	Sep-18	16.4	Stormwater management strategy	SWMF	WC6.1 south of Barton West	SCUBE	Quantity / Quality	wet pond for 6.0	10,331		0.98	1.64	2,645,433	673,240	3,318,673	100	3,318,673	-	-	-	3,318,673	Increase land to 10% due to known grade constraint	land values updated	
SCL	0-5	C	31	SCUBE Subwatershed Study (Phase 3 - Block 2)	Sep-18	27.6	Stormwater management strategy	SWMF	WC6.1 south of Barton West	SCUBE	Quantity / Quality	wet pond for 6.1	18,115		1.66	2.76	4,452,070	984,600	5,436,670	100	5,436,670	-	-	-	5,436,670	Increase land to 10% due to known grade constraint	land values updated	
SCL	0-5	C	12	SCUBE Subwatershed Study (Phase 3)	May-13	54	Stormwater management strategy	SWMF	SCUBE Central	Quantity / Quality	wet pond #9-2	34,060		3.24	5.40	8,710,572	1,622,400	10,332,972	100	10,332,972	-	-	-	10,332,972	Increase land to 10% due to known grade constraint	land values updated		
SCL	0-5	C	13	SCUBE Subwatershed Study (Phase 3)	May-13	23.1	Stormwater management strategy	SWMF	SCUBE Central	Quantity / Quality	wet pond #9-3	14,592		1.39	2.31	3,726,189	843,680	4,569,869	100	4,569,869	-	-	-	4,569,869	Increase land to 10% due to known grade constraint	land values updated		

ANC: Ancaster
 BMH: Binbrook / Mount Hope
 HAM: Hamilton Mountain
 SCL: Stoney Creek - Lower
 SCM: Stoney Creek - Mountain
 WAT: Waterdown

APPENDIX G-1: CATEGORY C - STORMWATER MANAGEMENT (QUALITY AND OR QUANTITY) FACILITIES RESIDENTIAL

Category			SWMF/ Drainage Work																									
Primary Dev. Areas	Build Out (yr)	Secondary	SWMF #	Project Title	Year	Drainage Area (ha)	Purpose	Type of Work	Location of Work	Type	Description	Total Volume (m3)	Estimated Footprint 4% (ha)	Estimated Footprint 6% (ha)	Study/Draft Plan Footprint (ha)	Footprint (ha)	Land Cost	Estimated Capital Cost (\$)	Estimated Total Cost Including Land	Growth Related %	Net Growth/Total Associated Cost (\$)	Existing Benefit	Direct Developer Contribution (\$)	Non-Res Area Fraction Cost (\$)	Net Total Associated Cost (\$)	Remarks	Other Changes From 2014 Study	
SCL	0-5	C	29	SCUBE Subwatershed Study (Phase 3)	May-13	39.8	Stormwater management strategy	SWMF	WC5 south of Barton West	Quantity / Quality	wet pond #1	19,417		2.39	3.98	3.98	6,420,014	1,036,680	7,456,694	100	7,456,694	-	-	-	7,456,694	Increase land to 10% due to known grade constraint	land values updated	
SCL	0-5	C	30	SCUBE Subwatershed Study (Phase 3)	May-13	24.5	Stormwater management strategy	SWMF	WC5.2 south of Barton West	Quantity / Quality	wet pond #2	12,773		1.47	2.45	2.45	3,952,019	770,920	4,722,939	100	4,722,939	-	-	-	4,722,939	Increase land to 10% due to known grade constraint	land values updated	
SCL	11+	R	16	Lake Vista			Stormwater quality and associated resource management	Storm outfall retrofit	Lake Vista	Quality	OGS					0.00	-	50,000	50,000	100	50,000	-	-	-	50,000			
SCL	11+	R	18	Stormwater Quality Management Strategy Stoney Creek Master Plan	2004	27.2	Stormwater quality and associated resource management	Storm outfall retrofit	BFC, Little League Park, Queenston Rd.	Quality	Wetland	2,413				0.00	-	193,040	193,040	100	193,040	-	-	-	193,040			
SCL	11+	R	19	Stormwater Quality Management Strategy Stoney Creek Master Plan	2004	33	Stormwater quality and associated resource management	Storm outfall retrofit	BFC, Lake Ave. Park, Huckleberry Dr.	Quality	Wetland	2,582				0.00	-	206,560	206,560	100	206,560	-	-	-	206,560			
SCL	11+	R	20	Stormwater Quality Management Strategy Stoney Creek Master Plan	2004	77	Stormwater quality and associated resource management	Storm outfall retrofit	North of Barton St.	Quality	Wetland	6,724				0.00	-	528,960	528,960	100	528,960	-	-	-	528,960			
SCL	11+	R	21	Stormwater Quality Management Strategy Stoney Creek Master Plan	2004	20.5	Stormwater quality and associated resource management	Storm outfall retrofit	Lake Avenue, Warrington St.	Quality	Wetland	1,923				0.00	-	153,840	153,840	100	153,840	-	-	-	153,840			
SCM	0-5	C	10	Summit Park - ROPA 9		83.9	MDP addressing drainage related issues for future development	Proposed wetland/wetpond #3	West side of Swayze Road	Quantity / Quality		52,577				0.00	-	3,320,000	3,320,000	100	3,320,000	-	-	-	3,320,000	per development schedules May 2019		
SCM	0-5	C	18	Future Planned Residential Development		42	easterly portion	SWMF			Quantity / Quality	29,890				0.00	-	3,630,000	3,630,000	100	3,630,000	-	-	-	3,630,000	per development schedules May 2019		
SCM	11+	C	21	Davis Ck SWS - Nash Nhd		24.5		SWMF	North limit of First Road W. at east side	Quantity / Quality	Extended Detention Pond	17,615	1.47	1.47	1.47	2,371,211	2,373,800	4,745,011	100	4,745,011	-	-	-	4,745,011	per City comments, estimated 17,615 m3 in rock	land values updated		
SCM	0-5	C	22	Davis Ck SWS - Nash Nhd		15		SWMF	North limit of First Road W. at west side	Quantity / Quality	Extended Detention Pond	11,425	0.90	0.90	0.90	1,451,762	1,516,996	2,968,758	100	2,968,758	-	-	-	2,968,758	per City comments, estimated 10,000 m3 in rock	land values updated		
SCM	11+	C	2	Davis Ck SWS - Nash Nhd		22.85		Wet pond	Northwest portion, east of historical lands	Quantity / Quality	Extended Detention Pond	22,394			1.66	1.66	2,677,694	1,795,757	4,473,451	100	4,473,451	-	-	-	4,473,451	per City comments June 17, 2011, estimated 8,000 m3 in rock	land values updated	
SCM	11+	C	6	Montgomery Creek Nash Orchards - Water Community Functional SWM	Nov. 2008	30	Functional Service Plan for proposed urban development	SWMF	SW corner Mud St. and Upper Centennial PKWY.	Quantity / Quality	Storage volume =	20,300		1.80	1.87	1.87	3,016,439	1,071,992	4,088,431	100	4,088,431	-	-	1,022,108	3,066,323		land values updated	
SCM	11+	R	65	N/A	Apr. 1991	15.2		Future Retrofit	Hwy 20 and Highland Rd	Quality					0.00	-	422,000	422,000	30	126,600	295,400	-	-	-	126,600			
SCM	11+	R	67	Deerfield Estate Phase 1	Apr. 1991	19.8		Future Retrofit	Rymal Rd E and Whiteoak Rd.	Quality					0.00	-	422,000	422,000	50	211,000	211,000	-	-	-	211,000			
SCM	11+	R	69	Heritage Green Valley Park Stage II	Sept. 1990	83.9		Future Retrofit	Winter Drive and Paramount Drive	Quality					0.00	-	1,160,500	1,160,500	50	580,250	580,250	-	-	-	580,250			
WAT	0-5	C	1	MtNew Heights/Waterdown Bay Phase 2	Jul-13	12.43	To guide future development and management of the South Waterdown lands	SWMF	Grindstone Creek - East Tributary 5B (Northwest)	Quantity / Quality	Storage Capacity =	13,509				0.00	-	3,400,000	3,400,000	100	3,400,000	-	-	-	3,400,000	cost estimate including land, from developer, 2018		
WAT	0-5	C	3	MtNew Heights/Waterdown Bay Phase 2	Jul-13	8.89	To guide future development and management of the South Waterdown lands	SWMF	Grindstone Creek - East Tributary (north west) 5D	Quantity / Quality	Storage Capacity =	10,037				0.00	-	4,000,000	4,000,000	100	4,000,000	-	-	-	4,000,000	cost estimate including land, from developer, 2018		
WAT	0-5	C	4	MtNew Heights	Jul-13	41.06	To guide future development and management of the South Waterdown lands	SWMF	Grindstone Creek - South west Tributary 2	Quantity / Quality	Storage Capacity =	53,288	2.46	2.98	2.60	4,849,288	3,591,510	8,440,798	100	8,440,798	-	-	-	8,440,798	footprint per draft plan, estimated 15,000 m3 rock	land values updated		
WAT	11+	C	5	MtNew Heights	Jul-13	12.71	To guide future development and management of the South Waterdown lands	SWMF	East side of Waterdown Bay property	Quantity / Quality	Storage Capacity =	28,055	0.76	1.56	1.56	2,909,573	1,782,187.94	4,691,761	100	4,691,761	-	-	-	4,691,761	footprint per draft plan, estimated 6,000 m3 rock	land values updated		
WAT	11+	C	6	MtNew Heights	Jul-13	5.66	To guide future development and management of the South Waterdown lands	SWMF	Salem Property	Quantity / Quality	Storage Capacity =	16,754	0.34	0.34	0.34	633,392	930,160	1,563,551	100	1,563,551	-	-	-	1,563,551		land values updated		
WAT	0-5	C	19	Waterdown North Master Drainage Plan	Feb. 2007	9.7	Assess proposed expansion for the urban settlement area of Waterdown	SWMF for quality and erosion control	Along Bore's Creek, NW of Centre Road and Parkside Road intersection	Quality/Erosion	Storage Capacity =	5,918			1.75	1.75	756,744	473,448	1,230,192	100	1,230,192	-	-	-	1,230,192	footprint estimated June 1, 2011 by Metropolitan/City agreed hazard land impacts price \$175,000/acre	land values updated	
U	11+	C	U1	Unidentified			provisional item for unidentified SWM works		open	Quantity / Quality							-	5,000,000	5,000,000	100	5,000,000	-	-	-	5,000,000			
U	11+	C	U2				to include provision for LID infrastructure cost recovery		open	Quantity / Quality							-	1,500,000	1,500,000	100	1,500,000	-	-	-	1,500,000			
U	11+	C	U3	Frontage Costs			estimate of road frontage costs for 38 residential SWM facilities (Retrofits and Unidentified facilities excluded)		open	Quantity / Quality	120m * \$1500/m per facility						-	6,840,000	6,840,000	100	6,840,000	-	-	-	6,840,000			
U	11+	C	U4	Land Footprint Contingency			estimate that 10 facilities will exceed the estimated land footprint by 20%		open	Quantity / Quality						3,500,000		3,500,000	100	3,500,000	-	-	-	3,500,000				
U	11+	C	U5	Facility Unidentified Volume Contingency			estimate that 1/10 facilities will exceed the estimated volume by 10%		open	Quantity / Quality								3,150,000	3,150,000	100	3,150,000	-	-	-	3,150,000			
U	11+	C	U6	Facility Unidentified Rock Volume Contingency			estimate that two (2) facilities will encounter unanticipated 3000 m3 rock		open	Quantity / Quality								1,440,000	1,440,000	100	1,440,000	-	-	-	1,440,000	per development engineering		
U	11+	C	U7	Unidentified - Within Combined Sewershed			under study - estimate 3 projects will result in SWM facilities @ \$2M each		combined sewershed	Quantity / Quality								6,000,000	6,000,000	100	6,000,000	-	-	-	6,000,000	per development engineering		
Total Residential												691,959						98,052,984	73,280,460	185,683,445	96.81	179,761,145	5,922,300	0	1,022,108	178,739,037		

PART TWO - SECONDARY PLANS

Anticipated City Cost Sharing in Secondary Plans
Not Identified Under Subdivision Draft Plans
To be Funded From Development Charges

Secondary Plan Calculations

Add Overhead = 32.00%
Adjustment 2013 to 2018 1.0965

0-5 Years	5-10 Years
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Binbrook

Westerly extension of Windwood Drive to Fletcher Road

Description	Length in (m) or Quantity	Rate	City Contribution	City Contribution Incl Overhead		
Storm Sewer Over-Sizing 1650 mm	300	1110	333000	439560	\$	219,780.00
Storm Sewer Over-Sizing 1800 mm	400	1630	652000	860640	\$	430,320.00
				1300200		

Fruitland - Winona

Collector Roads D, E, and F

Description	Length in (m) or Quantity	Rate	City Contribution	City Contribution Incl Overhead		
Storm Sewer Over-Sizing 1500 mm	400	695	278000	366960	\$	183,480.00
Storm Sewer Over-Sizing 1650 mm	1000	1110	1110000	1465200	\$	732,600.00
Storm Sewer Over-Sizing 1800 mm	300	1630	489000	645480	\$	322,740.00
				2477640		

Jerome

Storm sewer servicing into storm water management pond H-31

Description	Length in (m) or Quantity	Rate	City Contribution	City Contribution Incl Overhead		
Storm Sewer Over-Sizing 1500 mm	200	695	139000	183480	\$	91,740.00

Mewburn

1500 Diam. To Pond HAM#24

Description	Length in (m) or Quantity	Rate	City Contribution	City Contribution Incl Overhead		
Storm Sewer Over-Sizing 1500 mm	350	695	243250	321090	\$	160,545.00

Nash Neighbourhood

North/South, East/West Street abutting Neighbourhood Park

Description	Length in (m) or Quantity	Rate	City Contribution	City Contribution Incl Overhead		
Storm Sewer Over-Sizing 1650 mm	150	1110	166500	219780	\$	109,890.00
Storm Sewer Over-Sizing 1800 mm	200	1630	326000	430320	\$	215,160.00
				650100		

Sheldon

North/South mid-block collector road opposite Matthew Street to Stone Church Road

Description	Length in (m) or Quantity	Rate	City Contribution	City Contribution Incl Overhead		
Storm Sewer Over-Sizing 1350 mm	300	313	93900	123948	\$	61,974.00
Storm Sewer Over-Sizing 1650 mm	350	1110	388500	512820	\$	256,410.00
				636768		

Total by Period						\$2,784,639.00	\$2,784,639.00
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Secondary Plan Anticipated Oversizing Sub-total							\$5,569,278.00
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APPENDIX G-1: CATEGORY D2 -STORM SEWERS - NEIGHBOURHOD STORM OUTLETS (AS PER APPROVED STUDIES)

Description	City Capital Cost Estimate	City Contribution		
Nebo Rd: Twenty to 400 m s of Rymal (NON-RES)	1800000	1800000	\$	1,800,000.00
Parkside Dr storm sewer project (NON-RES)	500000	500000	\$	500,000.00
Roxborough Nhd Storm Outlet (RES)	950000	950000	\$	950,000.00
Airport Road Marion to Mountaigate (RES/NON-RES)	1368000	1368000	\$	1,368,000.00
Swayze Nhd Storm Outlet (RES)	2600000	2600000	\$	2,600,000.00
3 Unidentified Projects in Combined Watershed (RES)	1000000	3000000	\$	2,000,000.00
			\$	1,000,000.00

preliminary estimate by City - study not completed
based on cost schedule in subdivision agreement
preliminary estimate by City - study not completed

Total by Period						\$9,218,000.00	\$1,000,000.00
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Neighbourhood Storm Outlet Sub-total							\$10,218,000.00
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STORM SEWERS - Oversizing and Outlets - Total							\$19,902,709.24
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APPENDIX G-1 - CATEGORY E - CULVERTS AND BRIDGES NOT PREVIOUSLY IDENTIFIED IN CATEGORY A

Ref: Hamilton Development Charges -Transportation

Item Number	Road Project Description	From	To	Improvement	Length km	Benefit to Growth % (Roads)	Number of Culverts/Bridges > 1m ² end area	Replacement /Widening/ New	Identified in Category "A"	Small @ \$84,300 1-4m ²	Medium @ \$168,600 4-8m ²	Large @ \$337,200 >8m ²	Cost (2019\$)	Benefit to Growth % (SWM)	Growth Related Cost	Growth Related Post Period Cost	Net Growth Related Cost	Notes	Other Changes From 2014 Study
AEGD Projects																			
1	Airport Road	Upper James Street	Glancaster Road	2r-4u	2.84	60	3	Widening		3			\$252,900	60	\$151,740		\$151,740	non-res	inflation applied to benchmark costs
2	Airport Road	Butter Road	Glancaster Road	2r-4u	0.86	85	0	Widening		0			\$0	85	\$0		\$0		
3	Airport Service Road	Glancaster	Airport Road	4u	1.93	100	0	New		0			\$0	100	\$0		\$0		
4	Book Road	Fiddler's Green Road	Highway 6	2r-4u	0.99	85	1	Widening		1			\$84,300	85	\$71,655		\$71,655	non-res	inflation applied to benchmark costs
5	Book Road	Highway 6	Southcote Road	2r-4u	1.11	85	1	Widening		1			\$84,300	85	\$71,655		\$71,655	non-res	inflation applied to benchmark costs
6	Book Road	Highway 6	Southcote Road	4u-6u	1.11	85	0	Widening		0			\$0	85	\$0		\$0	do under 4 lane	
7	Book Road E	Collector 2W	Glancaster Road	2r-2u	0.59	85	0	Widening		0			\$0	85	\$0		\$0		
8	Butter Road	Fiddler's Green Road	Glancaster Road	2r-4u	3.39	85	0	Widening		0			\$0	85	\$0		\$0	non-res	
9	Carluka Road East	Fiddler's Green Road	Glancaster Road	2r-4u	1.05	85	0	Widening		0			\$0	85	\$0		\$0	non-res	
10	Collector Road 10N	Garner Road	Smith Road	2u	0.83	100	2	New (Cat A)	2				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
11	Collector Road 10N	Smith Road	Collector Road 2W	2u	0.65	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
12	Collector Road 1E	Collector 6N	Dickenson Road	2u	0.76	100	5	New (Cat A)	5				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
13	Collector Road 1N	Southcote Road	Collector Road 2E	2u	2.06	100	5	New (Cat A)	5				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
14	Collector Road 2E	Collector Road 1N	Airport Boundary	2u	0.47	100	0	New (Cat A)	0				\$0	100	\$0		\$0		
15	Collector Road 2W	Garner Road	Collector Road 10N	2u	0.27	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
16	Collector Road 2W	Collector Road 10N	Dickenson Road extension	2u	1.35	100	2	New (Cat A)	2				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
17	Collector Road 6E	Collector 6N	Dickenson Road	4u	0.71	100	2	New (Cat A)	2				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
18	Collector Road 6N	Glancaster Road	Collector Road 6E	4u	1.93	100	3	New (Cat A)	3				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
19	Collector Road 6N	Collector Road 6E	Collector Road 7E	4u	2.56	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
20	Collector Road 7E	Dickenson Road	Collector 6N	2u	0.49	100	2	New (Cat A)	2				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
21	Collector Road 7E	Collector 6N	Upper James Street	4u	0.58	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
22	Collector Road 7N	Book Road	Southcote Road	2u	0.91	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
23	Collector Road 7N	Southcote Road	Collector Road 2W	2u	0.89	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
24	Collector Road 12S	Collector 4E	Collector 5E	2u	0.35	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
25	Collector Road 12S	Collector 3E	Collector 4E	2u	0.35	100	2	New (Cat A)	2				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
26	Collector Road 1S	Fiddler's Green Road	Collector Road 9W	2u	0.41	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
27	Collector Road 2N	Collector Road 7N	Smith Road	2u	0.64	100	0	New (Cat A)	0				\$0	100	\$0		\$0		
28	Collector Road 2S	Fiddler's Green Road	Collector Road 9W	2u	0.41	100	0	New (Cat A)	0				\$0	100	\$0		\$0		
29	Collector Road 3E	Collector 12S	White Church Road	2u	0.2	100	0	New (Cat A)	0				\$0	100	\$0		\$0		
30	Collector Road 3S	Collector 6W	Southcote Road	2u	0.52	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
31	Collector Road 4E	Collector 12S	White Church Road	2u	0.18	100	0	New (Cat A)	0				\$0	100	\$0		\$0		
32	Collector Road 5E	Collector 12S	White Church Road	2u	0.18	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
33	Collector Road 5N	Fiddler's Green Road	Collector Road 9W	2u	0.84	100	0	New (Cat A)	0				\$0	100	\$0		\$0		
34	Collector Road 6S	Glancaster Road (north)	Airport Road	2u	0.92	100	0	New (Cat A)	0				\$0	100	\$0		\$0		
35	Collector Road 6S	Airport Road	Glancaster Road (south)	2u	0.4	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
36	Collector Road 6W	Collector 3S	Butter Road	2u	0.52	100	0	New (Cat A)	0				\$0	100	\$0		\$0		
37	Collector Road 7S	Fiddler's Green Road	Collector 9W	2u	0.4	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
38	Collector Road 8S	Fiddler's Green Road	Collector 9W	2u	0.41	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
39	Collector Road 8W	Garner Road	Collector 5N	2u	1.36	100	0	New (Cat A)	0				\$0	100	\$0		\$0		
40	Collector Road 9W	Garner Road	Carluka Road	2u	5.9	100	4	New (Cat A)	4				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
41	Dickenson Road	Glancaster Road	Upper James Street	2r-4u	2.9	85	8	Widening		7		1	\$927,300	85	\$788,205		\$788,205	non-res	inflation applied to benchmark costs
42	Dickenson Road extension	Southcote Road	Smith Road	4u	0.42	100	1	New		1			\$84,300	100	\$84,300		\$84,300	non-res	inflation applied to benchmark costs
43	Dickenson Road	Southcote Road	Smith Road	2r-4u	0.42	100	0	Widening					\$0	100	\$0		\$0		
44	Dickenson Road extension	Smith Road	Glancaster Road	4u	0.8	100	0	New					\$0	100	\$0		\$0	non-res	
45	Dickenson Road East	Upper James Street	w/o Nebo Road	2r-2u	4.6	60	0	Widening		0			\$0	60	\$0		\$0		
46	Garner Road	w/o Southcote	e/o Glancaster	2r-5u	2.98	85	2	Widening		2			\$168,600	85	\$143,310		\$143,310		inflation applied to benchmark costs
47	Garner Road	e/o Fiddler's Green Road	w/o Southcote Road	2r-4u	2.02	85	1	Widening		1			\$84,300	85	\$71,655		\$71,655		inflation applied to benchmark costs
48	Garth Street extension	Twenty Road	Dickenson Road	5u	1.5	100	2	New		2			\$168,600	100	\$168,600		\$168,600	non-res	inflation applied to benchmark costs
49	Garth Street extension	Dickenson Road	Collector 2E	5u	0.62	100	1	New		1			\$84,300	100	\$84,300		\$84,300	non-res	inflation applied to benchmark costs

APPENDIX G-1 - CATEGORY E - CULVERTS AND BRIDGES NOT PREVIOUSLY IDENTIFIED IN CATEGORY A

Ref: Hamilton Development Charges -Transportation

Item Number	Road Project Description	From	To	Improvement	Length km	Benefit to Growth % (Roads)	Number of Culverts/Bridges > 1m ² end area	Replacement /Widening/ New	Identified in Category "A"	Small @ \$84,300 1-4m ²	Medium @ \$168,600 4-8m ²	Large @ \$337,200 >8m ²	Cost (2019\$)	Benefit to Growth % (SWM)	Growth Related Cost	Growth Related Post Period Cost	Net Growth Related Cost	Notes	Other Changes From 2014 Study
AEGD Projects																			
50	Glancaster Road	Collector 1N	Airport Boundary	2r-2u	0.49	85	0	Widening		0			\$0	85	\$0		\$0		
51	Glancaster Road	Dickenson Road extension	Collector 1N	2r-4u	0.37	85	0	Widening		0			\$0	85	\$0		\$0		
52	Glancaster Road	Garner Road	Dickenson Road	2r-4u	2.46	85	4	Widening		4			\$337,200	85	\$286,620		\$286,620	non-res	inflation applied to benchmark costs
53	Smith Road	Dickenson Road extension	Collector 1N	2r-4u	0.65	85	0	Widening					\$0	85	\$0		\$0		
54	Smith Road	Garner Road	Dickenson Road extension	2u	1.57	100	1	New		1			\$84,300	100	\$84,300		\$84,300		inflation applied to benchmark costs
55	Smith Road	Collector 1N	Airport Boundary	2r-2u	0.35	100	0	Widening					\$0	100	\$0		\$0	non-res	
56	Smith Road extension	Hydro corridor north crossing		2u	0.26	100	0	New					\$0	100	\$0		\$0		
57	Southcote Road	Garner	Twenty Road extension	2r-4u	0.97	85	0	Widening					\$0	85	\$0		\$0		
58	Southcote Road	Twenty Road extension	Book Road	2r-4u	0.97	85	0	Widening					\$0	85	\$0		\$0		
59	Twenty Road	Glancaster Road	Aldercree Avenue	2r-4u	3.08	85	9	Widening		9			\$758,700	85	\$644,895		\$644,895	non-res	inflation applied to benchmark costs
60	Twenty Road extension	Southcote Road	Glancaster Road	4u	1.86	100	2	New		2			\$168,600	100	\$168,600		\$168,600	non-res	inflation applied to benchmark costs
61	Fiddler's Green Road	Garner Road	Carlisle Road	2r-4u	6.07	85	7	Widening		7			\$590,100	85	\$501,585		\$501,585	non-res	inflation applied to benchmark costs
62	Glancaster Road	Butter Road	White Church Road	2r-4u	2.31	85	2	Widening		2			\$168,600	85	\$143,310		\$143,310	non-res	inflation applied to benchmark costs
63	Southcote Road	Book Road	Collector 1N	2r-4u	0.65	85	0	Widening		0			\$0	85	\$0		\$0		
64	Southcote Road	Airport Boundary	Butter Road	2u	0.81	100	0	Replacement		0			\$0	100	\$0		\$0	non-res	
65	Upper James Street	Ardelea Avenue	Homestead Drive	4u-6u	4.69	85	6	Widening		5	1		\$590,100	85	\$501,585		\$501,585	non-res	inflation applied to benchmark costs
66	White Church Road	Glancaster Road	Highway 6	2r-4u	2.31	85	1	Widening		1			\$84,300	85	\$71,655		\$71,655	non-res	inflation applied to benchmark costs
67	Upper James Street	Malton	Highway 6	4r-5u_NBR	7	85	0	Widening					\$0	85	\$0		\$0		
SMATS Projects																			
68	West 5th Street	Rymal Road	Stone Church Road	2r-3u	1	60	0	New					\$0	60	\$0		\$0		
69	Garth Street	Rymal Road	Stone Church Road	2r-4u	1	85	0	Widening					\$0	85	\$0		\$0		
70	Rymal Road	Glancaster Road	Garth Street	2r-5u	1.3	85	1	Widening					\$337,200	85	\$286,620		\$286,620		inflation applied to benchmark costs
71	Rymal Road	Fletcher Road	Upper Centennial	2r-5u	2.49	85	1	Replacement					\$337,200	85	\$286,620		\$286,620		inflation applied to benchmark costs
72	Rymal Road	Upper Wentworth	West of Dartrnal	3r-3u	3.29	85	0	Widening					\$0	85	\$0		\$0		
73	Rymal Road	Upper James Street	Upper Wellington Street	2r-5u	0.87	85	0	Widening					\$0	85	\$0		\$0		
74	Rymal Road	Upper Wellington Street	Upper Wentworth Street	2r-5u	0.86	85	0	Widening					\$0	85	\$0		\$0		
75	Upper Wellington Street	Rymal Road	Stone Church Road	2u-4u	1	60	0	Widening					\$0	60	\$0		\$0		
SCUBE Projects																			
76	Arvin Avenue	McNeilly	Lewis Road	2u	0.8	100	0	New					\$0	100	\$0		\$0		
77	Arvin Avenue	Jones Road	existing east end	2u	0.5	100	0	New					\$0	100	\$0		\$0		
78	Arvin Avenue	McNeilly	existing west end	2u	0.4	100	1	New (Cat A)	1				\$0	100	\$0		\$0		
79	SCUBE Central (east-west collector)	McNeilly Road	eastern boundary collector	2u	1.47	100	0	New					\$0	100	\$0		\$0		
80	SCUBE Central (north-south collector)	Highway 8	Arvin Road extension	2u	0.48	100	0	New					\$0	100	\$0		\$0		
81	SCUBE Central (north-south collector)	Barton Street	Highway 8	2u	0.66	100	0	New					\$0	100	\$0		\$0		
82	SCUBE West (Block 1) (east-west collector)	Fruitland Road	north-south collector	2u	1.36	100	1	New (Cat A)	1				\$0	100	\$0		\$0		
83	SCUBE West (Block 1) (north-south)	Barton Street	Highway 8	2u	0.76	100	0	New					\$0	100	\$0		\$0		
Ancaster Industrial Park and TMP Projects																			
84	Ancaster New E/W Road (Trinity@Wilson)	Tradewind/ Cormorant	Trinity Road	2u	0.81	100	1	New (Cat A)	1				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
85	Garner Road / Wilson St / Hwy 2	Fiddler's Green Road	Hwy 2	2r-4r	3.5	85	0	Widening					\$0	85	\$0		\$0		
86	Golf Links Rd intersection improvements /Martindale			Int	--	85	0	Widening					\$0	85	\$0		\$0		
87	Golf Links Road	McNiven Road	Kitty Murray Lane	2r-3u	0.8	85	0	Widening					\$0	85	\$0		\$0		
88	Jerseyville Road	Shaver Road	Wilson Street	2r-3u	3.10	60	0	Widening					\$0	60	\$0		\$0		
89	Springbrook Avenue	Regan Drive	Garner Road	2r-2u	0.69	85	0	Widening					\$0	85	\$0		\$0		
90	Trinity Road	1km S. of Wilson	Hwy 403	2r-4u	2.2	85	2	Widening					\$674,400	85	\$573,240		\$573,240		inflation applied to benchmark costs
91	Shaver Road	Trustwood	Garner Road	2r-2u	1.00	85	0	Widening					\$0	85	\$0		\$0		
92	Southcote Road	Calder Street	Garner Road	2r-3u	1.26	60	0	Widening					\$0	60	\$0		\$0		
93	McNiven Road	Rousseaux Street	Golf Links Road	2r-3u	0.63	20	0	Widening					\$0	20	\$0		\$0		
94	Mohawk Road	McNiven Road	Highway 403	2r-3u	1.3	60	0	Widening					\$0	60	\$0		\$0		
95	Stone Church Road	Harrogate Drive	Stonehenge Drive	2r-4u	0.34	85	0	Widening					\$0	85	\$0		\$0		

APPENDIX G-1 - CATEGORY E - CULVERTS AND BRIDGES NOT PREVIOUSLY IDENTIFIED IN CATEGORY A

Ref: Hamilton Development Charges -Transportation

Item Number	Road Project Description	From	To	Improvement	Length km	Benefit to Growth % (Roads)	Number of Culverts/Bridges > 1m ² end area	Replacement /Widening/ New	Identified in Category "A"	Small @ \$84,300 1-4m ²	Medium @ \$168,600 4-8m ²	Large @ \$337,200 >8m ²	Cost (2019\$)	Benefit to Growth % (SWM)	Growth Related Cost	Growth Related Post Period Cost	Net Growth Related Cost	Notes	Other Changes From 2014 Study
RHBPS Projects																			
96	Dartrall Road Extension	Twenty Road	Dickenson Road	4u	1.65	100	2	New (Cat A)	2				\$0	100	\$0		\$0	non-res	inflation applied to benchmark costs
97	Dickenson Road	w/o Nebo	w/o Glover	2r-2u	1.1	60	3	Widening		3			\$252,900	60	\$151,740		\$151,740		inflation applied to benchmark costs
98	Nebo Road	Rymal Road	Twenty Road	2r-2u	1.3	85	1	Replacement		1			\$84,300	85	\$71,655		\$71,655	non-res	inflation applied to benchmark costs
99	Nebo Road	800m South of Twenty Road	Dickenson Road	2r-2u	0.6	85		Widening					\$0	85	\$0		\$0	non-res	
100	Regional Road 56	Rymal Road	ROPA 9 Boundary	2r-5u	1.2	85	3	Widening		3			\$252,900	85	\$214,965		\$214,965		inflation applied to benchmark costs
101	Regional Road 56	Cemetery Road	South Limits of ROPA 9	various/ESR	0	85	0	Widening					\$0	85	\$0		\$0		
102	Twenty Road extension	Glover Road	Upper Red Hill Valley Parkway	3u	0.6	100	2	New		2			\$168,600	100	\$168,600		\$168,600		inflation applied to benchmark costs
103	Glover Road	Twenty Road	Rymal Road	2r-2u	2.6	85	0	Widening					\$0	85	\$0		\$0		
104	Upper Red Hill Valley Parkway (revisits)	Rymal Road	Dartrall Road extension	5u	2.5	100	1	New		1			\$84,300	100	\$84,300		\$84,300	non-res	inflation applied to benchmark costs
Waterdown Projects																			
105	Burke Street	Dundas Street	Mountain Brow	4u	0.85	95	0	New					\$0	95	\$0		\$0		
106	Parkside Drive	Highway 6	Main Street	2r-4u	2.92	60	2	New Cat A	2				\$0	60	\$0		\$0		
107	Parkside Drive	Main Street	Churchill (500 m east)	2r-4u	0.61.52	60	0	Widening					\$0	60	\$0		\$0		
108	East-West Road Corridor (Waterdown By-Pass)	Kerns Road	Highway 6	4u	6.34	95	8	New Cat A	8				\$0	95	\$0		\$0		
109	Waterdown Road (Burlington northern)	Mountain Brow Road	Craven Avenue	2r-4u	1.9	100	0	Widening					\$0	100	\$0		\$0		
110	Mountain Brow Road	Waterdown Road	New north-south link	2r-4u	0.91	85	2	Widening		2			\$337,200	85	\$286,620		\$286,620		inflation applied to benchmark costs
111	Dundas Street	New north-south link	Hamilton Boundary	4u-6u	0.87	85	0	New (Cat A)					\$0	85	\$0		\$0		
112	Centre Road	Northlawn	Parkside Drive	2r-3u	0.4	60	0	New (Cat A)					\$0	60	\$0		\$0		
Fruitland Winona Projects																			
113	Barton Street	Fruitland Road	Fifty Road	2r-3u	5	60	5	Widening (Cat A)	5				\$0	60	\$0		\$0		inflation applied to benchmark costs
114	Fifty Road	South Service Road	Barton Street	2r-4u	1	85	0	Widening					\$0	85	\$0		\$0	non-res	
115	Fifty Road Escarpment Access	QEW	Highway 8	2r-2u	0.8	85	0	Widening					\$0	85	\$0		\$0	non-res	
116	Fruitland Road By-pass	Barton Street	Highway 8	4u	1.1	85	1	New (Cat A)	1				\$0	85	\$0		\$0		inflation applied to benchmark costs
117	Fruitland Road	Arvin Avenue	Barton Street	2u-4u	0.3	85	0	Widening					\$0	85	\$0		\$0		
118	Highway 8 (Stoney Creek)	Dewitt Road	Fruitland Road	2r-5u	0.8	60	0	Widening					\$0	60	\$0		\$0		
119	Highway 8 (Stoney Creek)	Fruitland Road	East City Limit	2r-4r_NBR	3.3	60	4	Widening		3	1		\$421,500	60	\$252,900		\$252,900		inflation applied to benchmark costs
Elfrida Boundary Expansion Projects (NOTE: 2/3 Post-Period)																			
120	First Road East	Highway 20	Mud Street	2r-3u	2.1	85	1	Widening		1			\$84,300	85	\$71,655	\$47,770	\$23,885	2/3 Post-Period	inflation applied to benchmark costs
121	Fletcher Road	500m South of Rymal	Golf Club Road	2r-3u	1.6	85	1	Widening		1			\$84,300	85	\$71,655	\$47,770	\$23,885	2/3 Post-Period	inflation applied to benchmark costs
122	Golf Club Road	Trinity Church Road	Hendershot Road	2r-2u	7.00	85	1	Widening		1			\$84,300	85	\$71,655	\$47,770	\$23,885	2/3 Post-Period	inflation applied to benchmark costs
123	Hendershot Road	Highway 20	Golf Club Road	2r-3u	2.10	85	1	Widening		1			\$84,300	85	\$71,655	\$47,770	\$23,885	2/3 Post-Period	inflation applied to benchmark costs
124	Highland Road	Upper Centennial Parkway	Second Road East	2r-3u	2.00	85	0	Widening					\$0	85	\$0	\$0	\$0	2/3 Post-Period	
125	Mud Street	Upper Centennial Parkway	Second Road East	2r-2u	2.00	85	1	Widening		1			\$84,300	85	\$71,655	\$47,770	\$23,885	2/3 Post-Period	inflation applied to benchmark costs
126	Second Road East	Highway 20	Mud Street	2r-3u	3.00	85	1	Widening			1		\$168,600	85	\$143,310	\$95,540	\$47,770	2/3 Post-Period	inflation applied to benchmark costs
127	Trinity Church Road	Hydro corridor	Golf Club Road	2r-2u	2.00	85	0	Widening					\$0	85	\$0	\$0	\$0	2/3 Post-Period	
128	Upper Centennial Parkway	Green Mountain Road	Highway 20	4r-5u	2.90	85	0	Widening					\$0	85	\$0	\$0	\$0	2/3 Post-Period	
129	Hwy 56	Hydro Corridor	Golf Club Road	4r-5u	TBD	85	3	New (Cat A)	3				\$0	85	\$0	\$0	\$0	2/3 Post-Period	
Other Road Projects																			
130	Binbrook Road	Royal Winter Drive/Binhaven Road	Fletcher Road	2r-3u	0.7	85	0	Widening					\$0	85	\$0		\$0		
131	Highway 8 (Dundas)	Bond Street	Dundas Limits	2r-3u	0.4	60	0	Widening					\$0	60	\$0		\$0		
132	Highway 8 (Dundas)	Hillcrest	Park Ave	2r-3u	0.6	60	1	Widening		1			\$84,300	60	\$50,580		\$50,580		inflation applied to benchmark costs
133	Jones Road	Barton Street	South Service Road	2r-2u	0.90	50	1	Widening		1			\$84,300	50	\$42,150		\$42,150	non-res	inflation applied to benchmark costs
134	Lewis Road	Barton Street	South Service Road	2r-2u	0.80	50	1	New (Cat A)	1				\$0	50	\$0		\$0	non-res	inflation applied to benchmark costs
135	Longwood Road	Aberdeen Avenue	Main Street	various/ESR	0.65	50	0	Widening					\$0	50	\$0		\$0		
136	Miles Road	Rymal Road	Hydro Corridor	2r-3u	2.00	85	1	Widening		1			\$84,300	85	\$71,655		\$71,655		inflation applied to benchmark costs
137	Millen Road	Barton Street	South Service Road	2r-3u	1.00	60	0	Widening					\$0	60	\$0		\$0	non-res	
138	Fletcher Road	Binbrook Road	Golf Club Road	2r-2u	4.20	60	3	Widening		3			\$252,900	60	\$151,740		\$151,740		inflation applied to benchmark costs
139	South Service Road	Millen Road	Gray	2r-2u	1.70	85	0	Widening					\$0	85	\$0		\$0	non-res	
140	Trinity Church Road	Binbrook Road	Golf Club Road	2r-2u	5.20	60	1	Widening				1	\$337,200	60	\$202,320		\$202,320		inflation applied to benchmark costs

APPENDIX G-1 - CATEGORY E - CULVERTS AND BRIDGES NOT PREVIOUSLY IDENTIFIED IN CATEGORY A

Ref: Hamilton Development Charges - Transportation

Item Number	Road Project Description	From	To	Improvement	Length km	Benefit to Growth % (Roads)	Number of Culverts/Bridges > 1m ² end area	Replacement /Widening/ New	Identified in Category "A"	Small @ \$84,300 1-4m ²	Medium @ \$168,600 4-8m ²	Large @ \$337,200 >8m ²	Cost (2019\$)	Benefit to Growth % (SWM)	Growth Related Cost	Growth Related Post Period Cost	Net Growth Related Cost	Notes	Other Changes From 2014 Study	
141	Nebo Road	800m South of Twenty Road	Dickenson Road	2r-2u	0.6	85	0	Widening					\$0	85	\$0		\$0			
142	Twenty Road	Aldercreech Avenue	600m west of Nebo Road	2r-2u	4.1	60	0	Widening					\$0	60	\$0		\$0			
143	Upper Gage Street	Mohawk Road	Thorley	4u-5u	0.6	50	0	Widening					\$0	50	\$0		\$0			
144	Upper Sherman Avenue	Stone Church Road	LINC	2r-3u	0.90	60	0	Widening					\$0	60	\$0		\$0			
145	Upper Sherman Avenue	Stone Church Road	Rymal Road	2r-3u	1.00	60	0	Widening					\$0	60	\$0		\$0			
146	Upper Wellington Street	Limeridge Street	Stone Church Road	2r-5u	1.20	60	0	Widening					\$0	60	\$0		\$0			
147	West 5th Street	Limeridge Street	Stone Church Road	2r-3u	1.20	60	0	Widening					\$0	60	\$0		\$0			
148	Shaver Road	Hwy 403	Wilson Road		1.50	100	1	Widening			1		\$168,600	100	\$168,600		\$168,600		inflation applied to benchmark costs	
149	Scenic Drive	Old City Limits	Lavender S Leg		1.40	100	1	Widening			1		\$168,600	100	\$168,600		\$168,600		inflation applied to benchmark costs	
150	North Service Road	Green Road	East City Limits		8.30	100	1	New (Cat A)	1				\$0	100	\$0		\$0		inflation applied to benchmark costs	
151	Victoria Avenue	Ferrie Street	Burlington Street	Two-way conversion Service Roads	0.46	85	0	Widening					\$0	85	\$0		\$0			
152	Highway 5/6 municipal roads					100	1	New (Cat A)	1				\$0	100	\$0		\$0		inflation applied to benchmark costs	
															\$0		\$0			
Grand Total							154		67	74	7	6	\$9,441,600		\$7,772,460	\$334,390	\$7,438,070			
Growth %																				
Total Growth																\$7,772,460	\$334,390	\$7,438,070		

Total Residential	\$4,467,900	Res	\$3,536,385	\$334,390	\$3,201,995
Total Non-Residential	\$4,973,700	Non-Res	\$4,236,075	\$0	\$4,236,075

APPENDIX G-1 - GRIDS-RELATED STORMWATER MANAGEMENT (QUALITY AND OR QUANTITY) FACILITIES

Primary Dev. Areas	SWMM #	AEGD Stage #	Drainage Area (ha)	Volume (m3)	Estimated Footprint 4% (ha)	Land Cost 4%	Estimated Capital Cost (\$)	Estimated Cost (\$)	Growth Related %	Total Growth Associated Cost (\$)	Post Period Cost (\$)	Net Total Associated Cost 2014-2031 (\$)	Direct Developer Contribution (%)	Direct Developer Contribution (\$)	Net Total Associated Cost (\$)	Remarks	Other Changes From 2014 Study		
Expansion to Airport SPA	1	2	77	17,325	3.08	4,968,252	1,096,673	6,064,924	100	6,064,924	6,064,924	-	100	-	-	In Ancaster, south of Garner Road	land value updated, benchmark costs verified unchanged		
	2	2	33	7,425	1.32	2,129,251	470,003	2,599,253	100	2,599,253	2,599,253	-	100	-	-	In Ancaster, south of Garner Road	land value updated, benchmark costs verified unchanged		
	3	2	38.5	8,663	1.54	2,484,126	548,336	3,032,462	100	3,032,462	3,032,462	-	100	-	-	In Ancaster, south of Garner Road	land value updated, benchmark costs verified unchanged		
	4	2	88	19,800	3.52	5,678,002	1,253,340	6,931,342	100	6,931,342	6,931,342	-	100	-	-	In Ancaster, south of Garner Road	land value updated, benchmark costs verified unchanged		
	5	1	160	36,000	6.40	10,323,640	2,278,800	12,602,440	100	12,602,440	-	12,602,440	-	100	12,602,440	-	In Ancaster, south of Garner Road	land value updated, benchmark costs verified unchanged	
	6	1	63	14,175	2.52	4,064,933	897,278	4,962,211	100	4,962,211	-	4,962,211	-	100	4,962,211	-	In Ancaster, south of Garner Road	land value updated, benchmark costs verified unchanged	
	10	1	33	7,425	1.32	2,129,251	470,003	2,599,253	100	2,599,253	-	2,599,253	-	100	2,599,253	-	North of Airport	land value updated, benchmark costs verified unchanged	
	11	1	28	6,300	1.12	1,806,637	398,790	2,205,427	100	2,205,427	-	2,205,427	-	100	2,205,427	-	North of Airport	land value updated, benchmark costs verified unchanged	
	12	1	17.88	4,023	0.72	1,153,667	254,656	1,408,323	100	1,408,323	-	1,408,323	-	100	1,408,323	-	North of Airport	land value updated, benchmark costs verified unchanged	
	13	1	108	24,300	4.32	6,968,457	1,538,190	8,506,647	100	8,506,647	-	8,506,647	-	100	8,506,647	-	North of Airport	land value updated, benchmark costs verified unchanged	
	Potential New Business Park (In existing Airport Spa)	14	1	42.5	9,563	1.70	2,742,217	605,306	3,347,523	100	3,347,523	-	3,347,523	-	100	3,347,523	-		land value updated, benchmark costs verified unchanged
		15	1	25.5	5,738	1.02	1,645,330	363,184	2,008,514	100	2,008,514	-	2,008,514	-	100	2,008,514	-		land value updated, benchmark costs verified unchanged
		16	1	34	7,650	1.36	2,193,774	484,245	2,678,019	100	2,678,019	-	2,678,019	-	100	2,678,019	-		land value updated, benchmark costs verified unchanged
17		1	41	9,225	1.64	2,645,433	583,943	3,229,375	100	3,229,375	-	3,229,375	-	100	3,229,375	-		land value updated, benchmark costs verified unchanged	
18		1	124.88	28,098	5.00	8,057,601	1,778,603	9,836,205	100	9,836,205	-	9,836,205	-	100	9,836,205	-		land value updated, benchmark costs verified unchanged	
19		1	100	22,500	4.00	6,452,275	1,424,250	7,876,525	100	7,876,525	-	7,876,525	-	100	7,876,525	-	Involves off-site stream work	land value updated, benchmark costs verified unchanged	
20		1	230.5	51,863	9.22	14,872,494	3,282,896	18,155,391	100	18,155,391	-	18,155,391	-	100	18,155,391	-		land value updated, benchmark costs verified unchanged	
21		1	15	3,375	0.60	967,841	213,638	1,181,479	100	1,181,479	-	1,181,479	-	100	1,181,479	-		land value updated, benchmark costs verified unchanged	
22		1	34	7,650	1.36	2,193,774	484,245	2,678,019	100	2,678,019	-	2,678,019	-	100	2,678,019	-		land value updated, benchmark costs verified unchanged	
23		1	140.88	31,698	5.64	9,089,965	2,006,483	11,096,449	100	11,096,449	-	11,096,449	-	100	11,096,449	-		land value updated, benchmark costs verified unchanged	
24		1	50.5	11,363	2.02	3,258,399	719,246	3,977,645	100	3,977,645	-	3,977,645	-	100	3,977,645	-		land value updated, benchmark costs verified unchanged	
25		1	97	21,825	3.88	6,258,707	1,381,523	7,640,229	100	7,640,229	-	7,640,229	-	100	7,640,229	-		land value updated, benchmark costs verified unchanged	
26		2	45	10,125	1.80	2,903,524	640,913	3,544,436	100	3,544,436	-	3,544,436	-	100	-	-	Involves off-site stream work	land value updated, benchmark costs verified unchanged	
27		2	42.75	9,619	1.71	2,758,348	608,867	3,367,215	100	3,367,215	-	3,367,215	-	100	-	-	Involves off-site stream work	land value updated, benchmark costs verified unchanged	
28		2	18	4,050	0.72	1,161,410	256,365	1,417,775	100	1,417,775	-	1,417,775	-	100	-	-	Involves off-site stream work	land value updated, benchmark costs verified unchanged	
29		2	196.75	44,269	7.87	12,694,851	2,802,212	15,497,063	100	15,497,063	-	15,497,063	-	100	-	-		land value updated, benchmark costs verified unchanged	
30		2	24.75	5,569	0.99	1,596,938	352,502	1,949,440	100	1,949,440	-	1,949,440	-	100	-	-		land value updated, benchmark costs verified unchanged	
31		2	16.25	3,656	0.65	1,048,495	231,441	1,279,935	100	1,279,935	-	1,279,935	-	100	-	-		land value updated, benchmark costs verified unchanged	
32		2	15	3,375	0.60	967,841	213,638	1,181,479	100	1,181,479	-	1,181,479	-	100	-	-		land value updated, benchmark costs verified unchanged	
33		2	30.25	6,806	1.21	1,951,813	430,836	2,382,649	100	2,382,649	-	2,382,649	-	100	-	-		land value updated, benchmark costs verified unchanged	
34		1	24.75	5,569	0.99	1,596,938	352,502	1,949,440	100	1,949,440	-	1,949,440	-	100	1,949,440	-		land value updated, benchmark costs verified unchanged	
35		2	12.75	2,869	0.51	822,665	181,592	1,004,257	100	1,004,257	-	1,004,257	-	100	-	-		land value updated, benchmark costs verified unchanged	
36		2	22.5	5,063	0.90	1,451,762	320,456	1,772,218	100	1,772,218	-	1,772,218	-	100	-	-		land value updated, benchmark costs verified unchanged	
37		2	33.75	7,594	1.35	2,177,643	480,684	2,658,327	100	2,658,327	-	2,658,327	-	100	-	-	Involves off-site stream work	land value updated, benchmark costs verified unchanged	
38		2	56.25	12,656	2.25	3,629,405	801,141	4,430,545	100	4,430,545	-	4,430,545	-	100	-	-	Involves off-site stream work	land value updated, benchmark costs verified unchanged	
39		1	37.5	8,438	1.50	2,419,603	534,094	2,953,697	100	2,953,697	-	2,953,697	-	100	2,953,697	-	Involves off-site stream work	land value updated, benchmark costs verified unchanged	
Potential Urban Boundary Expansion Area		7	1	20	4,500	0.80	1,290,455	284,850	1,575,305	100	1,575,305	-	1,575,305	-	100	1,575,305	-	South of Twenty Road West, north of Airport	land value updated, benchmark costs verified unchanged
		8	1	37.25	8,381	1.49	2,403,473	530,533	2,934,006	100	2,934,006	-	2,934,006	-	100	2,934,006	-	South of Twenty Road West, north of Airport	land value updated, benchmark costs verified unchanged
		9	1	58.13	13,079	2.33	3,750,708	827,917	4,578,624	100	4,578,624	-	4,578,624	-	100	4,578,624	-	South of Twenty Road West, north of Airport	land value updated, benchmark costs verified unchanged
		40	1	11.25	2,531	0.45	725,881	160,228	886,109	100	886,109	-	886,109	-	100	886,109	-	potential to combine with B10	land value updated, benchmark costs verified unchanged
		41	Elfrida (Res)	126	28,350	5.04	8,129,867	1,794,555	9,924,422	100	9,924,422	6,616,281	3,308,141	0	-	3,308,141	0	First Rd E and Mud	land value updated, benchmark costs verified unchanged; 2/3 Post Period
		42	Elfrida (Res)	21.25	4,781	0.85	1,371,108	302,653	1,673,762	100	1,673,762	1,115,841	557,921	0	-	557,921	0	Second Rd E, Involves off-site stream work	land value updated, benchmark costs verified unchanged; 2/3 Post Period
		43	Elfrida (Res)	60	13,500	2.40	3,871,365	854,550	4,725,915	100	4,725,915	3,150,610	1,575,305	0	-	1,575,305	0	Second Rd E, Involves off-site stream work	land value updated, benchmark costs verified unchanged; 2/3 Post Period
		44	Elfrida (Res)	71.25	16,031	2.85	4,597,246	1,014,778	5,612,024	100	5,612,024	3,741,349	1,870,675	0	-	1,870,675	0	Second Rd E, Involves off-site stream work	land value updated, benchmark costs verified unchanged; 2/3 Post Period
		45	Elfrida (Res)	22	4,950	0.88	1,419,501	313,335	1,732,836	100	1,732,836	1,155,224	577,612	0	-	577,612	0	NW corner, Trinity Church at Hydro ROW	land value updated, benchmark costs verified unchanged; 2/3 Post Period
		46	Elfrida (Res)	147	33,075	5.88	9,484,845	2,093,648	11,578,492	100	11,578,492	7,718,995	3,859,497	0	-	3,859,497	0	HWY 56	land value updated, benchmark costs verified unchanged; 2/3 Post Period
		47	Elfrida (Res)	168.75	37,969	6.75	10,888,214	2,403,422	13,291,636	100	13,291,636	8,861,091	4,430,545	0	-	4,430,545	0	HWY 56	land value updated, benchmark costs verified unchanged; 2/3 Post Period
		48	Elfrida (Res)	140	31,500	5.60	9,033,185	1,993,950	11,027,135	100	11,027,135	7,351,424	3,675,712	0	-	3,675,712	0	First Rd E, Involves off-site stream work	land value updated, benchmark costs verified unchanged; 2/3 Post Period
		49	Elfrida (Res)	66	14,850	2.64	4,258,502	940,005	5,198,507	100	5,198,507	3,465,671	1,732,836	0	-	1,732,836	0	Second Rd E, Involves off-site stream work	land value updated, benchmark costs verified unchanged; 2/3 Post Period
	50	Elfrida (Res)	130.75	29,419	5.23	8,436,350	1,862,207	10,298,557	100	10,298,557	6,865,704	3,432,852	0	-	3,432,852	0	Second Rd E, Involves off-site stream work	land value updated, benchmark costs verified unchanged; 2/3 Post Period	
	51	Elfrida (Res)	38.5	8,663	1.54	2,484,126	548,336	3,032,462	100	3,032,462	2,021,641	1,010,821	0	-	1,010,821	0	u/s confluence u/s Fletcher	land value updated, benchmark costs verified unchanged; 2/3 Post Period	
	52	Elfrida (Res)	102.25	23,006	4.09	6,597,451	1,456,296	8,053,747	100	8,053,747	5,369,165	2,684,582	0	-	2,684,582	0	Fletcher at Golf Club	land value updated, benchmark costs verified unchanged; 2/3 Post Period	
	53	Elfrida (Res)	25.16	5,661	1.01	1,623,392	358,341	1,981,734	100	1,981,734	1,321,156	660,578	0	-	660,578	0	Fletcher at Golf Club, Involves off-site stream work	land value updated, benchmark costs verified unchanged; 2/3 Post Period	
54	Elfrida (Res)	29.25	6,581	1.17	1,887,290	416,593	2,303,884	100	2,303,884	1,535,922	767,961	0	-	767,961	0	Golf Club E of 56, Involves off-site stream work	land value updated, benchmark costs verified unchanged; 2/3 Post Period		
55	Elfrida (Res)	48.75	10,969	1.95	3,145,484	694,322	3,839,806	100	3,839,806	2,559,871	1,279,935	0	-	1,279,935	0	Golf Club btwn 56 and Hendershott	land value updated, benchmark costs verified unchanged; 2/3 Post Period		
56	Elfrida (Res)	29.25	6,581	1.17	1,887,290	416,593	2,303,884	100	2,303,884	1,535,922	767,961	0	-	767,961	0	Golf Club W of Hendershott, Involves off-site stream work	land value updated, benchmark costs verified unchanged; 2/3 Post Period		
57	Elfrida (Res)	26	5,850	1.04	1,677,592	370,305	2,047,897	100	2,047,897	1,365,264	682,632	0	-	682,632	0	Gol Club at Hendershott, Involves off-site stream work	land value updated, benchmark costs verified unchanged; 2/3 Post Period		
Total								278,606,874	100	278,606,874	124,864,454	153,742,420		120,866,854	32,875,566				
Total Residential								98,626,698	100	98,626,698	65,751,132	32,875,566		-	32,875,566				
Total Non-Residential								179,980,176	100	179,980,176	59,113,322	120,866,854		120,866,854	-				

APPENDIX G-1 - GRIDS-RELATED OPEN WATERCOURSES: EROSION CONTROL AND CHANNEL SYSTEM IMPROVEMENTS

Primary Dev. Areas	Location	Total Length of Downstream Watercourse to Assumed End-Point ³	Fraction of Watercourse Assumed to Required Erosion Control ²	Length of Erosion Control Works	Estimated Cost (\$)	Land Cost	Estimated Total Cost (\$)	Growth Related %	Net Total Associated Growth Related Cost (\$)	Growth Related Post Period Cost (\$)	Net Total Associated Growth Related Cost (\$)	Remarks	Other Changes From 2014 Study
Expansion to Airport SPA	Ancaster	1,303	0.2	260.6	390,900	243,024	633,924	100	633,924		633,924		land values updated (City benchmark unit costs unchanged)
	North of Airport	-	0.2	-	-	-	-	100	-		-		land values updated (City benchmark unit costs unchanged)
Potential New Business Park (In Existing Airport Spa)	West of Airport	24,231	0.2	4,846.2	7,269,300	4,519,350	11,788,650	100	11,788,650		11,788,650		land values updated (City benchmark unit costs unchanged)
Potential Urban Boundary Expansion Area	South of Twenty Road West, north of Airport	-	0.2	-	-	-	-	100	-		-		land values updated (City benchmark unit costs unchanged)
	Northwest of Golf Club Road and Hendershott	15,337	0.2	3,067.4	4,601,100	2,473,964	7,075,064	100	7,075,064	4,716,709	2,358,355	Residential	land values updated (City benchmark unit costs unchanged); 2/3 Post-period
Grand Total							19,497,638	100	19,497,638	4,716,709	14,780,929		
Total Residential							7,075,064	100	7,075,064	4,716,709	2,358,355		
Total Non-Residential							12,422,574	100	12,422,574	-	12,422,574		

²0.05 - Where Development Fraction is 0 - 25%
0.10 - Where Development Fraction is 26 - 49%
0.15 - Where Development Fraction is 50 - 74%
0.20 - Where Development Fraction is 75 - 100%

³Location where d/s of this point no erosion is deemed to occur from subject development; total drainage area to this point estimated as a maximum of 2X the study watershed area.

⁴\$2500/m for Watershed Area > 500 ha
\$1500/m for Watershed Area < 500 ha



Appendix H: Services Related to a Highway Needs – Dillon Consulting Limited



DILLON
CONSULTING

CITY OF HAMILTON

Draft 2019 Development Charge - Background Study

Appendix H – Services Related to Highway Needs

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1.0 Introduction

The following report is a technical appendix to Hamilton’s 2019 Development Charges (D.C.) Background Study. The purpose of the report is to provide an overview of the changes to Hamilton’s public highways (road) network within the D.C. study period (2019 to 2028), identify the capital costs associated with improvements and apportion the capital expenditures to existing and growth populations within the same study period.

Development Charges are a tool for municipalities to ensure that “growth pays for growth” – meaning that developments that grow the municipality cover the costs associated with extending municipal services for the new growth caused by these developments. Through the application of D.C., the development community contributes an appropriate share of infrastructure and capital costs (including those for public highways) for necessary growth-related improvements over the ten-year planning period. The Development Charges Act (D.C.A.), 1997, as amended regulates when and how municipalities may collect D.C.

2.0 Level of Service

2.1 Overview

Level of Service is a useful measure to understand how quantitatively and qualitatively the infrastructure of a municipality is performing and the value of City assets per capita. For transportation infrastructure in the City of Hamilton, level of service is measured in five distinct categories:

- Roads;
- Bridges, culverts, and roundabouts;
- Traffic signals;
- Terminals; and,
- Shelters.

The quality measure for road level of service is calculated as lane kilometers per capita for all road infrastructure (for automobiles, cyclists and pedestrians) in the City. Over the ten years prior to this study, lane kilometers per capita of road infrastructure has been steadily declining as the City has set policy directions in their Official Plan and Transportation Master Plan to prioritize more active transportation infrastructure and transit investments. This trend is expected to continue as mobility for new population growth will be increasingly accommodated

through non-automobile modes and therefore require a smaller proportional increase in lane kilometers.

Level of service for bridges, culverts, roundabouts, and traffic signals are calculated on an item per capita basis while terminals are calculated by square ft. of terminal space and shelters are calculated by lane km of roadway. These four measures have remained relatively stable throughout the previous ten years indicating that growth has been on pace with the provision of this infrastructure.

The level of service for the ten year Development Charge period is based on a historical average and projected population that determines the amount of infrastructure investment that is eligible to be recovered through development charges. The Benefit to Existing section in this appendix sets out the ratio of benefit to existing residents and benefit to new growth, which is the financial responsibility of the development community that is attributable to various infrastructure improvements. The level of service for roads; bridges, culverts, and roundabouts; and traffic signals; terminals; and shelters are presented in **Appendix B**.

3.0 Local Service Policy

Appendix E sets out the municipality's General Policy Guidelines on Development Charges (D.C.) and local service funding for Services Related to a Highway. The guidelines outline in general terms, the size and nature of the engineered infrastructure that is included in the study as a development charge project, versus infrastructure that is considered as a local service, to be emplaced separately by landowners, pursuant to a development agreement.

4.0 Benefit to Existing Community

4.1 Overview

The Hamilton Official Plan and the Hamilton Transportation Master Plan puts heavy emphasis on designing corridors, streets and paths with full consideration given to transit, cyclists and pedestrians. Consequently the design elements of a highway as well as its role and function must change to embrace the needs of all categories of transportation system users to provide a *Complete Street*. Complete streets is a concept that defines a highway as a transportation facility that provides safe and comfortable travel for a wide variety of users, regardless of mode, level of ability and age. Complete streets allow safe travel for:

- Pedestrians of all ages and ability levels;
- Cyclists;
- Automobiles;
- Transit vehicles; and,
- Delivery vehicles.

The main premise of complete streets is the recognition that the function of street (or a highway) goes beyond simply moving vehicles. Rather, streets play an important role in moving people, connecting the community, accommodating pedestrians and cyclists, enabling goods movement, providing a space for public interaction and civic engagement and providing access for local stores and businesses. A complete street concept has been fully embraced by the City of Hamilton and is the fundamental assumption for the key planning documents mentioned earlier. It also translates to the planned capital projects and therefore the development charges process.

Under this premise a street design is approached with the objective of optimizing the right-of-way (R.O.W.) by balancing mobility needs and enhancing connectivity for all users. Traffic

Management are a range of measures to help accomplish that (e.g. traffic signals, roundabouts). Travel Demand Management (T.D.M.) on the other hand refers to strategies that attempt to reduce or more efficiently manage the demand for travel within the existing transportation network and reduce capital expenditure for further expanding the supply network. Examples of TDM strategies with impact on highway design, role and function include:

- Carpooling to increase the occupancy of vehicles. High occupancy vehicle lanes (H.O.V.) provided within the road platform are needed to promote better utilization of existing assets by increased auto occupancy;
- Active transportation (walking or cycling) to reduce demand for vehicle travel by shifting commuter travel demand to cycling and walking. This measure is supported by on-road and off-road cycling trails and multi-use pathways; and,
- Park and ride facilities at transit stations are designed to “capture” auto users at some critical gateway points and divert them to transit.

The Hamilton Transportation Master Plan includes the identification of rapid transit initiatives and the implementation of LRT corridors which will have effects on the design of the transportation corridors, main LRT highways and the so called feeder routes. Several transit priority measures will be required to “prepare” a highway for serving transit effectively. These features will include but will not be limited to:

- H.O.V. or shared lanes for the exclusive or semi-exclusive use of transit vehicles and private automobiles with more than one occupant. They allow high-occupancy vehicles to have faster travel times than general purpose lanes, encouraging transit use and carpooling. Lanes may be designated as shared lanes only during peak periods;
- Provision of dedicated transit lanes along transit priority routes;
- Transit signal and transit priority signal uses real-time information to either extend a green light or shorten a red light when a bus is approaching to help the bus cross through the intersection without stopping. It provides priority to transit vehicles at intersections;
- Queue jump lanes with signal priority allow buses to bypass queues at intersections. Transit vehicles have an advanced green, and can enter the intersection before other vehicles; and,
- Architecturally distinctive passenger amenities, bus bays and shelters located within the road allowance and provided to improve safety and comfort for transit users.

The concept of services related to a highway is evolving and expanding to fully embrace the transportation of people and goods via many different modes including, but not limited to passenger cars, commercial vehicles, transit vehicles, bicycles and pedestrians and their related amenities and programs. The highway therefore consists of all land and associated infrastructure built to support (or service) this movement of people and goods regardless of the mode of transportation employed, thereby meeting their primary role and function of providing transportation “space” and opportunity for all users.

The associated infrastructure to achieve this concept shall include, but is not limited to:

- Highway Reconstruction with no Widening;
- New Highways;
- Highway Widenings;
- Highway Reconstruction and Urbanization;
- Traffic Management;
- Major Structures and Grade Separations;
- Active Transportation; and,
- Studies.

It is with this context that the transportation capital projects for the City of Hamilton were identified and included in the *Services Related to a Highway* portion of the development charge.

4.2 Approach to Benefit to Existing Community

The D.C.A. has a “benefit to existing (B.T.E.)” community provision that allows for a portion of growth-related capital costs identified in D.C. background studies to be deemed to benefit the existing community. These costs are discounted from the eligible D.C. capital costs and are essentially paid for by the existing residents and business (the community) through municipal property taxes and/or user fees.

The portion of the capital cost that is attributable to B.T.E. community typically varies by project type or grouping of projects depending on the extent of benefit. Said another way, to what extent is the project needed to support growth, bearing in mind the principle that “growth pays growth”.

Out of the highway related infrastructure needs identified for the City, certain improvements will benefit current residents and would comprise the non-growth component of the D.C. The improvements required to accommodate higher volumes of traffic and increased demand on

the existing infrastructure directly attributable to new developments are eligible for funding through Development Charges. All road reconstruction projects where there is no widening and the works are done due to the deterioration of the road and not to add capacity the cost is borne 100% by the existing community. All new road projects have been determined to be 100% growth related; required to meet the needs of new development. Certain portions of future reconstruction, widening and urbanization projects have recognized a benefit to existing (B.T.E.) community component.

Table 1 outlines the percentage allocation and the rationale behind attributing all or a portion of an improvement as B.T.E. community for various project types. In some cases project types were renamed and redefined from the previous D.C. Background Study to better align with the range of project types included in the capital plan and with the multi-modal integrated approach to transportation, including complete streets. For the most part, the B.T.E. community discount adopted for this D.C. Background Study is the same as the previous 2014 D.C. By-Law. The exception being those projects associated with active transportation (previously referred to as Community Trails and Bicycle Facilities). The rationale for the change is described in the table below.

Table 1: Benefit to Existing Community

Project Type	Rationale	Benefit to Existing (%)
Highway Reconstruction with no Widening	Where a road is reconstructed due to deterioration and there is no road widening or other infrastructure to support the growth in new development, 100% of the cost is B.T.E. community. These projects are excluded from the project list.	100%
New Highways	No deduction for B.T.E. community as new road links are built to increase capacity needed to serve growth. With the level of service in the overall road network deteriorating, even with construction of the 2019 – 2031 capital program, all of the cost of new road construction were allocated to growth.	0%
Highway Widening	Highways (roads) are widened to increase capacity to help accommodate growth. In cases where a road is widened, but not reconstructed, the existing lanes are resurfaced, intersections are improved and traffic signals and other right-of-way features may be upgraded as part of the widening. Typically a 15% deduction was applied to cover the estimated	5% - 50%

Project Type	Rationale	Benefit to Existing (%)
	<p>rehabilitation cost of the existing asset. The deduction essentially relates to the net extension of the functional life of the roadway in conjunction with the widening.</p> <p>Higher deduction (40% to 50%) were applied for projects located in mature neighborhoods subject to increased travel demand generated by new growth located elsewhere but impacting the facility:</p> <ul style="list-style-type: none"> • 5% B.T.E. – Applied to projects to support O.P.A. 28 (Waterdown) • 15% B.T.E. – Applied to most projects to reflect cost to rehabilitate road net of any growth • 40-50% B.T.E. – Applied to projects in long established and /or developed corridors, typically when the existing road is reconstructed and widened. 	
Highway Reconstruction & Urbanization	<p>Highway reconstruction and urbanization projects typically serve to improve safety, operation, bring roadway section to urban cross-section and increase the roads capacity (e.g. the addition of a centre left-turn lane). Capacity gains result from improvements in alignment, lane reconfiguration, pavement structure improvements, and in some cases, road damage caused by heavy construction traffic. The project allocation is location specific and ranges from 15% to 50%:</p> <ul style="list-style-type: none"> • 15% B.T.E. – Applied to most projects to reflect cost to rehabilitate road net of any growth • 40-50% B.T.E. – Applied to projects in long established and/or developed corridors and those rural corridors linking urban centres, typically when the existing road is reconstructed or widened. <p><i>*80% B.T.E. and 0% B.T.E applied to one project in Ancaster in</i></p>	15% to 50%*

Project Type	Rationale	Benefit to Existing (%)
	<i>a highly developed corridor and a Waterdown project respectively.</i>	
Traffic Management	<p>Traffic management includes projects that are required as a result of increased traffic due to growth. This could include new or modified traffic signals; intersections turn lanes; intersection improvements; roundabouts, traffic calming features, street lighting, and any related land acquisition. The introduction of traffic management projects is typically to address a bottleneck or a problem caused by growth (e.g. traffic infiltration) and on balance can reduce travel speeds or increase conflict potential, as such the benefit to the existing community is very low. Typically a 5% deduction was applied to reflect that for some projects there are geometric improvements or updated traffic signal technology that benefits the existing community. The remainder of the cost is allocated to growth understanding that the need for improvements is required to help accommodate growth. Land acquisition was 100% attributable to growth.</p> <p>Some projects due to their wider applicability to the existing community were deemed to have a higher B.T.E.</p>	5% -85%
Major Structures and Grade Separations	<p>These projects include grade separations (structures) for rail, pedestrians, and wildlife and are designed to address capacity deficiencies, safety concerns, and provide opportunities for other users in the road network resulting from growth in traffic. When a structure is driven by growth (i.e. Highway 5/6 Interchange) benefit to existing is 0%</p> <p>For rail, where there is an existing level crossing there is a benefit in the form of improved safety and elimination of delays due to train movements; a maximum 25% deduction has been made in order to address these considerations.</p> <p>For the Mohawk Road Highway 403 on-ramp, this was judged</p>	0% - 50%

Project Type	Rationale	Benefit to Existing (%)
	to be 50% benefit to existing.	
Active Transportation	<p>Active transportation includes sidewalks, on-road bicycle lanes, off-road trails, multi-use pathways, bike parking facilities, and crosswalks as well as other amenities and related programs; largely within the shared ROW. They play a complementary role with public transit, traffic management and transportation demand management infrastructure, amenities and programs aimed at decreasing single-occupant vehicle use. For this reason it is critical to helping to manage growth in travel demand due to new development and central to direction the city has adopted in their Official Plan and Hamilton Transportation Master Plan (H.T.M.P.) and as part of the complete streets approach to managing transportation.</p> <p>Collectively, active transportation looks to reduce the number of vehicles on City roads, particularly single occupant vehicles, thereby reducing the road infrastructure that would need to be added to accommodate the same demand. The H.T.M.P. targets an increase in active transportation mode split from 5% in 2016 to 15% by 2031. This reduces the capital infrastructure costs for such things as road widenings, but requires the installation of other infrastructure, amenities and programs. While there is some benefit to existing community, typically a 15% deduction was applied; the principle reason for implementing this approach is to help accommodate growth.</p> <p>Where the active transportation facility is constructed as part of a roadway project the B.T.E. is that of the underlying road project.</p>	15%
Studies	This includes, but is not limited to, transportation studies, including Transportation Master Plans, and other transportation planning studies, programs and initiatives required to support planned growth.	0% - 5%

Project Type	Rationale	Benefit to Existing (%)
	<p>When a study is about future planning it is 0% benefit to existing. Some programs (e.g. cordon counts program) are mostly about future orientation but has some value to existing residents. This has been assigned a benefit to existing of 5%</p> <p>Where the study is an Environmental Assessment for an individual road project, the cost is included in the road project cost and the B.T.E. is the same as the underlying road project.</p>	

5.0 Post Period Benefit

The capital project list identified through this process included projects to support development that may not occur until beyond the 2031 horizon year, that may not be built until after 2031 or that may be built late in the period where some of the benefit for the project extends to development built post 2031. For these projects a post period benefit was identified and applied as a deduction before the B.T.E. was calculated. Below is a description of the five categories of projects where a post period benefit was applied and the rationale for including the post period benefit:

- *A.E.G.D. Phase 3 lands* – Certain lands in the Airport Employment Growth District (A.E.G.D.) are expected to develop post 2031. Roads identified as required to support these development lands have a 100% post period benefit applied.
- *Elfrida Boundary Expansion* – These lands are expected to occur later in the 2019 to 2031 period and extend to post 2031. A 66% post period benefit was applied to these projects.
- *Major Structures* – Two major structure projects were identified where the expectation is that they will occur later in the 2019 to 2031 period and where the project benefit will extend to development built post 2031. A 50% post period benefit was applied to these projects.
- *Active Transportation* – A 30% post period benefit was applied to all active transportation projects to reflect that some of these projects will be built late in the 2019 to 2031 period or post 2031 and the benefit will extend to development built post 2031. There are a few exceptions to this where there was an expectation that the post period benefit should be higher; 50% in the case of four projects and 100% in the case of three projects.
- *Post Period Benefit Deduction* – Beyond the adjustments noted above, there is an acknowledgement that if all of the development and/or capital program is built by 2031, there will be excess capacity available for future growth in some projects.

6.0 Project Costing

6.1 Overview

This background study will serve as an input to the update to the 2019 Development Charges By-law for the City of Hamilton as required by the Development Charges Act. This section details the methodology, assumptions, and final recommendations of capital projects for services related to a highway that are necessary to support population and employment growth in the City of Hamilton.

Costs were drawn from a number of sources including previous studies where costs were determined for infrastructure (e.g., A.E.G.D. projects), the previous costs used in the 2014 Development Charges By-law, previous capital budget or capital forecast, estimates of costs as determined by City staff from experience with similar projects and the development of project costs derived from unit costs of the component pieces. Determining the final cost of capital projects required developing construction unit costs and costs for typical highway projects. The methodology for the unit cost approach is presented below. All costs are presented as 2019 dollars using construction cost escalations.

6.2 Unit Costs

Construction unit costs for each project are based on 2017 costs provided by the City of Hamilton where available and escalated to 2019 dollars. In the event that there was insufficient information on certain costs, an average of recent construction bid costs for road projects was calculated to produce a unit cost. **Table 2** shows the unit costs used to determine a price for recommended capital projects.

Table 2: Unit Costs for Capital Project Construction Line Items

ITEM	ITEM	AVERAGE UNIT PRICE (\$2019)
Clearing and Grubbing (Area)	m ²	3.93
Excavation	m ³	14.84
Remove Concrete Sidewalk/Driveway	m ²	16.86
Remove Culverts (Including headwalls/sewers)	m	32.07
Remove Catchbasin (single)	each	427.71

ITEM	ITEM	AVERAGE UNIT PRICE (\$2019)
Remove Concrete Curb and Gutter	m	10.43
Remove Manholes (full depth)	each	555.71
Remove Manholes (partial depth)	each	668.58
Remove Concrete Curb Outlets	each	10.43
Remove Catchbasin (double)	each	778.66
Cold plane exist. Asphalt	m ²	9.41
Full Depth Asphalt Removal	m ²	3.93
20mm CRLS (Crusher Run Limestone)	tonne	28.11
50mm CRLS (Crusher Run Limestone)	tonne	28.55
Granular A- Roadway	m ³	54.73
Granular B - Roadway	m ³	48.59
Tack Coat	m ²	0.61
Hot Mix HL3 (40mm)	tonne	133.79
Hot Mix HL3 (50mm)	tonne	110.67
Hot Mix HL8 (80mm)	tonne	100.09
Hot Mix HL8 (100mm)	tonne	111.99
Hot Mix HL8 (120mm)	tonne	146.15
150mm DIA non perforated sub drain	m	27.27
Concrete Sidewalk (not including granular or excavation)	m ²	60.70
Concrete Sidewalk (including granular base)	m ²	85.68
Install Concrete Curb & Gutter (OPSD600.040)	m	105.56
Topsoil and Sod (300mm)	m ²	20.41
Adjust Double Catchbasin	each	664.55
Adjust Single Catchbasin	each	664.55
Adjust MH	each	728.06
Adjust Catchbasin MH	each	490.04
Adjust Water Valve Boxes	each	675.12
Supply and Install Storm, Sewer Pipes (300mm min.)	m	350.26
Supply and Install Catchbasin Leads including	m	373.20

ITEM	ITEM	AVERAGE UNIT PRICE (\$2019)
appropriate fittings, Class 'B' bedding and Granular Backfill (single, 250mm DIA)		
Supply and Install Catchbasin (single, OPSD 705.010)	each	3,180.28
Supply and Install Catchbasin (double, OPSD 705.020)	each	3,979.94
Supply and Install Manhole, Maintenance Holes (OPSD701.01)	each	6,426.00
Pavement Markings	m	3.21
Fire Hydrant	each	6,588.73

6.3 Typical Project Costs

Typical project costing assumed that the quantities of materials used in each type of highway project remains unchanged from previous D.C. Background Studies. The typical costing relies on the updated unit costs from **Table 2** to produce a final cost of the project per kilometre as summarized in **Table 3**.

Table 3: Typical Cross Section Improvement Costs for Road Projects

IMPROVEMENT TYPE	CODE	COST PER KILOMETRE (\$2019)
New Construction		
Industrial Collector 2 Lanes	2i	\$3,627,132
Industrial Collector 3 Lanes	3i	\$3,878,569
Collector Rural Residential	2r	\$2,241,620
Rural 3 Lanes	3r	\$2,344,853
Rural 4 Lanes	4r	\$3,681,788
Collector Urban Residential	2u	\$3,615,428
Urban 3 Lanes Arterial/Collector	3u	\$3,929,403
Urban 4 Lanes Arterial	4u	\$5,177,191
Urban 5 Lanes Arterial	5u	\$6,040,438
Urban 6 Lanes Arterial	6u	\$6,417,038
Reconstruction		

IMPROVEMENT TYPE	CODE	COST PER KILOMETRE (\$2019)
Collector Rural Residential to Industrial Collector 2 Lanes	2r-2i	\$3,556,562
Collector Rural Residential to Collector Urban Residential	2r-2u	\$3,825,719
Collector Rural Residential to 3 Lanes Rural Arterial/Collector	2r-3u	\$4,208,903
Collector Rural Residential to 3 Lanes Rural Arterial with bike facilities	2r-3u+bikes	\$4,333,720
Collector Rural Residential to 4 Lanes Rural Arterial	2r-4r	\$3,252,048
Collector Rural Residential to 4 Lanes Rural Arterial with no base removal	2r-4r_NBR	\$3,041,904
Collector Rural Residential to 4 Lanes Urban Arterial	2r-4u	\$4,702,224
Collector Rural Residential to 5 Lanes Urban Arterial	2r-5u	\$5,591,273
Collector Urban Residential to 4 Lanes Urban Arterial	2u-4u	\$4,984,283
3 Lanes Rural to 3 Lanes Urban	3r-3u	\$4,080,044
4 Lanes Rural to 5 Lanes Urban	4r-5u	\$5,895,207
4 Lanes Rural to 5 Lanes Urban with no base removal	4r-5u_NBR	\$5,597,568
4 Lanes Urban to 5 Lanes Urban	4u-5u	\$6,276,960
4 Lanes Urban to 6 Lanes Urban	4u-6u	\$6,653,559
Other		
Environmental Assessment	EA	Project Specific
Structure	Structure	Project Specific

7.0

Development Charge Eligible Capital Projects

In order to produce a recommended project list, a review was completed of the City's Transportation Master Plan, 2019-28 Capital Budget, the 2019 to 2043 Capital Forecast, Recreational Trails Master Plan, Airport Employment Growth District Transportation Master

Plan Implementation Update, and 2014 Development Charge Background Study. The identified improvements comply with the City's Local Servicing Policy (see **Appendix E**). This review generated a project list that was refined based on discussions with City Staff to remove projects that have been completed, were outside the time horizon of the D.C. study (post-period; beyond 2031) or were not attributable to new growth and development. Capital costs for each project were sourced first from an E.A. or other study that has been completed in the last five years. Where none existed, project costs were calculated from the typical road section cost per kilometre and multiplied by the length of the project. A 10% allowance for engineering, 10% allowance for project contingencies and 10% internal project management cost have been included in the costs.

A list of the recommended projects and associated costs is presented in **Table 4** and **Exhibits 1-7**.

Table 4: Highway Projects 2019-2031

Item #	Project Name	From	To	Estimated Timing	Improvement Type	Length	Gross Capital Cost Including E.A. (2019\$)	Post Period Benefit	Developer Responsibility	Net Capital Estimate After Deduction (2019\$)	Benefit to Existing (%)	Benefit to Existing (\$)	Benefit to Growth (%)	Benefit to Growth (\$)
Airport Employment Growth District Projects														
1	Airport Road	Upper James Street	East Cargo Road	2019-2022	2r-3i	1.07	\$4,437,000	0%	0%	\$4,437,000	40	\$1,775,000	60	\$2,662,000
2	Airport Road	East Cargo Road	Terminal Access Road	2019-2022	2r-4u	0.32	\$2,423,000	0%	0%	\$2,423,000	40	\$969,000	60	\$1,454,000
3	Airport Road	Terminal Access Road	Glancaster Road	2023-2031	2r-3i	1.68	\$7,325,000	0%	0%	\$7,325,000	40	\$2,930,000	60	\$4,395,000
4	Airport Road*	Butter Road	Glancaster Road	2032-2041	2r-4u	0.86	\$7,470,000	100%	0%	\$0	15	\$0	85	\$0
5	Book Road	Fiddler's Green Road	Highway 6	2032-2041	2r-4u	0.99	\$6,340,000	100%	0%	\$0	15	\$0	85	\$0
6	Book Road*	Highway 6	Southcote Road	2032-2041	2r-4u	1.11	\$6,158,000	100%	0%	\$0	15	\$0	85	\$0
7	Book Road	Highway 6	Southcote Road	2032-2041	4u-5u	1.11	\$6,421,000	100%	0%	\$0	15	\$0	85	\$0
8	Book Road	Collector 2W	Glancaster Road	2032-2041	2r-2u	0.59	\$1,984,000	100%	0%	\$0	15	\$0	85	\$0
9	Butter Road East*	Airport Road	Glancaster Road	2023-2031	2r-2u	0.97	\$3,961,000	0%	0%	\$3,961,000	15	\$594,000	85	\$3,367,000
10	Butter Road East	Highway 6	Airport Road	2023-2031	2r-4u	0.37	\$3,428,000	100%	0%	\$0	15	\$0	85	\$0
11	Butter Road East	Fiddler's Green Road	Highway 6	2032-2041	2r-4u	0.94	\$8,708,000	100%	0%	\$0	15	\$0	85	\$0
12	Carluka Road East	Fiddler's Green Road	Glancaster Road	2032-2041	2r-4u	1.05	\$6,291,000	100%	0%	\$0	15	\$0	85	\$0
13	Collector Road 6N (oversizing)	Glancaster Road	Collector Road 6E	2032-2041	4u	1.93	\$2,896,000	100%	0%	\$0	0	\$0	100	\$0
14	Collector Road 6N (oversizing)	Collector Road 6E	Collector Road 7E	2032-2041	4u	2.56	\$3,635,000	100%	0%	\$0	0	\$0	100	\$0
15	Collector Road 7E (oversizing)	Collector 6N	Upper James Street	2032-2041	4u	0.58	\$1,312,000	100%	0%	\$0	0	\$0	100	\$0
16	Dickenson Road	Glancaster Road	Upper James Street	2025	2r-4u	2.90	\$14,282,000	0%	0%	\$14,282,000	15	\$2,142,000	85	\$12,140,000
17	Dickenson Road Extension	Southcote Road	Smith Road	2019-2022	4u	0.42	\$3,195,000	0%	0%	\$3,195,000	0	\$0	100	\$3,195,000
18	Dickenson Road Extension	Southcote Road	Smith Road	2032-2041	4u-6u	0.42	\$2,435,000	100%	0%	\$0	15	\$0	85	\$0
19	Dickenson Road Extension	Smith Road	Glancaster Road	2023-2031	4u	0.80	\$6,149,000	0%	0%	\$6,149,000	0	\$0	100	\$6,149,000
20	Garner Road*	Fiddler's Green Road	Glancaster Road	2023-2031	2r-4u	4.44	\$19,920,000	0%	0%	\$19,920,000	15	\$2,988,000	85	\$16,932,000
21	Garth Street extension (oversizing)	Twenty Road	Dickenson Road	2023-2031	5u	1.50	\$2,391,000	0%	0%	\$2,391,000	0	\$0	100	\$2,391,000
22	Garth Street extension (oversizing)	Dickenson Road	Collector 2E	2023-2031	5u	0.62	\$1,359,000	0%	0%	\$1,359,000	0	\$0	100	\$1,359,000
23	Glancaster Road	Collector 1N	Airport Boundary	2032-2041	2r-2u	0.49	\$2,019,000	100%	0%	\$0	15	\$0	85	\$0
24	Glancaster Road	Dickenson Road Extension	Collector 1N	2032-2041	2r-4u	0.37	\$2,426,000	100%	0%	\$0	15	\$0	85	\$0
25	Glancaster Road	Garner Road	Dickenson Road	2023-2031	2r-4u	2.46	\$16,844,000	0%	0%	\$16,844,000	15	\$2,527,000	85	\$14,317,000
26	Smith Road*	Dickenson Road extension	Collector 1N	2032-2041	2r-4u	0.65	\$4,055,000	100%	0%	\$0	15	\$0	85	\$0
27	Smith Road (except Hydro Corridor)	Garner Road	Dickenson Road extension	2032-2041	2u	1.57	\$9,919,000	100%	0%	\$0	0	\$0	100	\$0
28	Smith Road	Collector 1N	Airport Boundary	2032-2041	2r-2u	0.35	\$1,919,000	100%	0%	\$0	15	\$0	85	\$0
29	Smith Road extension	Hydro corridor north crossing		2032-2041	2u	0.26	\$1,037,000	100%	0%	\$0	0	\$0	100	\$0
30	Southcote Road*	Garner	Twenty Road extension	2019-2022	2r-4u	0.97	\$9,306,000	0%	0%	\$9,306,000	15	\$1,396,000	85	\$7,910,000
31	Southcote Road	Twenty Road extension	Book Road	2023-2031	2r-4u	0.97	\$8,541,000	0%	0%	\$8,541,000	15	\$1,281,000	85	\$7,260,000
32	Twenty Road	Glancaster Road	Aldercrest Avenue	2023-2031	2r-4u	3.08	\$17,826,000	0%	0%	\$17,826,000	15	\$2,674,000	85	\$15,152,000
33	Twenty Road extension	Southcote Road	Glancaster Road	2023-2031	4u	1.86	\$14,296,000	0%	0%	\$14,296,000	0	\$0	100	\$14,296,000
34	Fiddler's Green Road	Garner Road	Carluka Road	2032-2041	2r-4u	6.07	\$38,881,000	100%	0%	\$0	15	\$0	85	\$0
35	Glancaster Road*	Butter Road	Highway 6	2032-2041	2r-4u	1.40	\$13,210,000	100%	0%	\$0	15	\$0	85	\$0
36	Glancaster Road	Highway 6	White Church Road	2032-2041	2r-4u	0.89	\$7,911,000	100%	0%	\$0	15	\$0	85	\$0
37	Southcote Road	Book Road	Collector 1N	2023-2031	2r-4u	0.65	\$4,210,000	100%	0%	\$0	15	\$0	85	\$0
38	Southcote Road	Airport Boundary	Butter Road	2032-2041	2r-2u	0.81	\$3,855,000	100%	0%	\$0	15	\$0	85	\$0
39	Upper James Street	Alderlea Avenue	Homestead Drive	2023-2031	4u-5u	3.67	\$30,929,000	0%	0%	\$30,929,000	15	\$4,639,000	85	\$26,290,000
40	White Church Road	Glancaster Road	Highway 6	2032-2041	2r-4u	2.31	\$19,651,000	100%	0%	\$0	15	\$0	85	\$0
41	Upper James Street*	Homestead	Highway 6	2023-2031	4r-5u, NBR	2.78	\$12,395,000	0%	0%	\$12,395,000	15	\$1,859,000	85	\$10,536,000
South Mountain Area Transportation Study Projects														
42	West 5th Street	Rymal Road	Stone Church Road	2025	2r-3u	1.00	\$3,096,000	0%	0%	\$3,096,000	40	\$1,238,000	60	\$1,858,000
43	Rymal Road	Glancaster Road	Garth Street	2019-2022	2r-5u	1.30	\$7,993,000	0%	0%	\$7,993,000	15	\$1,199,000	85	\$6,794,000
44	Rymal Road	Fletcher Road	Upper Centennial	2020	2r-5u	2.49	\$15,717,000	0%	0%	\$15,717,000	15	\$2,358,000	85	\$13,359,000
45	Rymal Road*	Upper Wentworth	West of Dartnall	2019-2022	2r-5u	3.29	\$22,520,000	0%	0%	\$22,520,000	15	\$3,378,000	85	\$19,142,000
46	Rymal Road	Upper James Street	Upper Wellington Street	2026	2r-5u	0.87	\$4,624,000	0%	0%	\$4,624,000	15	\$694,000	85	\$3,930,000
47	Rymal Road	Upper Wellington Street	Upper Wentworth Street	2030	2r-5u	0.86	\$4,664,000	0%	0%	\$4,664,000	15	\$700,000	85	\$3,964,000
Stoney Creek Urban Boundary Expansion Projects														
48	Arvin Avenue	McNeilly	Lewis Road	2023-2031	2i	0.80	\$3,652,000	0%	0%	\$3,652,000	0	\$0	100	\$3,652,000
49	Arvin Avenue	Jones Road	Existing east end	2023-2031	2i	0.50	\$2,564,000	0%	0%	\$2,564,000	0	\$0	100	\$2,564,000
50	Arvin Avenue	McNeilly	Existing west end	2019-2022	2i	0.40	\$2,201,000	0%	0%	\$2,201,000	0	\$0	100	\$2,201,000
51	Fruitland Road	Highway 8	Barton Street	2023-2031	2r-4u	1.05	\$8,207,000	0%	0%	\$8,207,000	15	\$1,231,000	85	\$6,976,000
52	McNeilly Road*	Highway 8	Barton Street	2023-2031	2r-4u	0.89	\$6,797,000	0%	0%	\$6,797,000	15	\$1,020,000	85	\$5,777,000
53	Lewis Road*	Highway 8	Barton Street	2023-2031	2r-4u	0.52	\$4,290,000	0%	0%	\$4,290,000	15	\$644,000	85	\$3,646,000
54	Glover Road*	Highway 8	Barton Street	2023-2031	2r-4u	0.82	\$6,323,000	0%	0%	\$6,323,000	15	\$948,000	85	\$5,375,000
55	Jones Road*	Highway 8	Barton Street	2023-2031	2r-4u	0.93	\$7,068,000	0%	0%	\$7,068,000	15	\$1,060,000	85	\$6,008,000
Ancaster Industrial Park and Transportation Master Plan Projects														
56	Garner Road	Fiddler's Green Road	Highway 2/Wilson Street	2019-2022	2r-4u	3.50	\$20,208,000	0%	0%	\$20,208,000	15	\$3,031,000	85	\$17,177,000
57	Golf Links Road	McNiven Road	Kitty Murray Lane	2023-2031	2r-3u	0.80	\$4,646,000	0%	0%	\$4,646,000	15	\$697,000	85	\$3,949,000
58	Jerseyville Road	Shaver Road	Wilson Street	2023-2031	2r-3u	3.10	\$16,438,000	0%	0%	\$16,438,000	40	\$6,575,000	60	\$9,863,000
59	Springbrook Avenue	Regan Drive	Garner Road	2020	2r-2u	0.69	\$3,096,000	0%	0%	\$3,096,000	15	\$464,000	85	\$2,632,000
60	Trinity Road	1km south of Wilson	Highway 403	2019-2022	2r-4u	2.20	\$12,985,000	0%	0%	\$12,985,000	15	\$1,948,000	85	\$11,037,000
61	Shaver Road	Trustwood	Garner Road	2023-2031	2r-2i	1.00	\$4,840,000	0%	0%	\$4,840,000	15	\$726,000	85	\$4,114,000
62	Shaver Road	Highway 403	Wilson Street	2019-2022	2r-2u	1.50	\$6,189,000	0%	0%	\$6,189,000	15	\$928,000	85	\$5,261,000
63	Southcote Road	Calder Street	Garner Road	2022	2r-3u	1.26	\$5,871,000	0%	0%	\$5,871,000	40	\$2,348,000	60	\$3,523,000
64	McNiven Road	Rousseaux Street	Golf Links Road	2028	2r-3u	0.63	\$3,218,000	0%	0%	\$3,218,000	80	\$2,574,000	20	\$644,000
65	Mohawk Road	McNiven Road	Highway 403	2019-2022	2r-3u	1.30	\$7,656,000	0%	0%	\$7,656,000	40	\$3,082,000	60	\$4,574,000

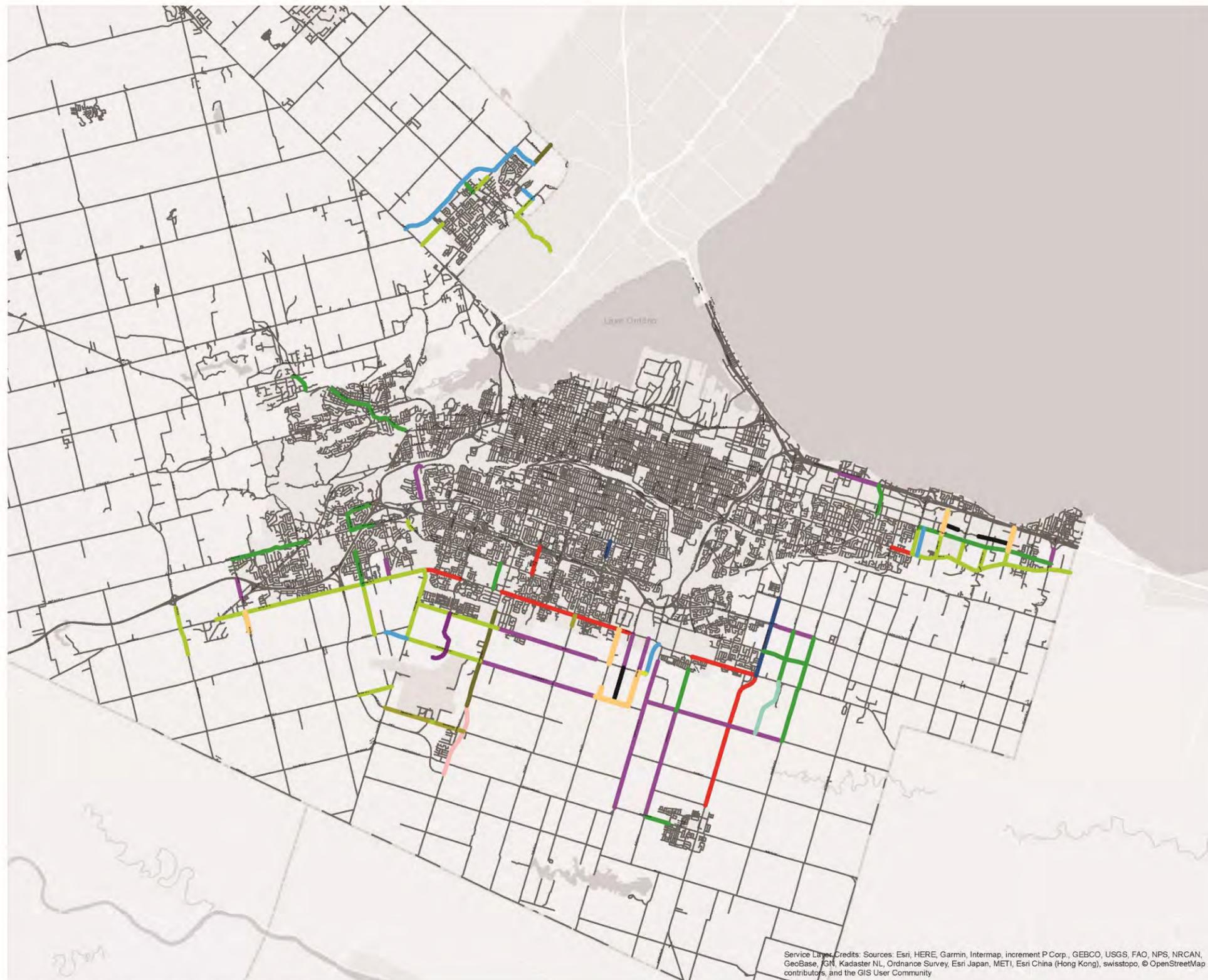
Item #	Project Name	From	To	Estimated Timing	Improvement Type	Length	Gross Capital Cost Including E.A. (2019\$)	Post Period Benefit	Developer Responsibility	Net Capital Estimate After Deduction (2019\$)	Benefit to Existing (%)	Benefit to Existing (\$)	Benefit to Growth (%)	Benefit to Growth (\$)	
66	Stone Church Road	Harragate Drive	Stonehenge Drive	2023-2031	2r-4u	0.34	\$3,114,000	0%	0%	\$3,114,000	15	\$467,000	85	\$2,647,000	
Red Hill Business Park Projects															
67	Dartnall Road Extension	Twenty Road	Dickenson Road	2022	2i	1.65	\$4,988,000	0%	0%	\$4,988,000	0	\$0	100	\$4,988,000	
68	Dickenson Road	West of Nebo	West of Glover	2023-2031	2r-2i	1.10	\$5,585,000	0%	0%	\$5,585,000	40	\$2,234,000	60	\$3,351,000	
69	Dickenson Road East*	Upper James Street	West of Nebo Road	2023-2031	2r-2u	4.60	\$18,170,000	0%	0%	\$18,170,000	40	\$7,268,000	60	\$10,902,000	
70	Nebo Road	Rymal Road	Twenty Road	2020	2r-2i	1.30	\$5,870,000	0%	0%	\$5,870,000	15	\$881,000	85	\$4,989,000	
71	Nebo Road*	800m South of Twenty Road	Dickenson Road	2019-2022	2r-2i	0.60	\$3,649,000	0%	0%	\$3,649,000	15	\$547,000	85	\$3,102,000	
72	Regional Road 56	Rymal Road	ROPA 9 Boundary	2019	2r-5u	1.20	\$8,587,000	0%	0%	\$8,587,000	15	\$1,288,000	85	\$7,299,000	
73	Regional Road 56*	Cemetery Road	South Limits of ROPA 9	2023-2031	2r-5u	4.56	\$11,867,000	0%	0%	\$11,867,000	15	\$1,780,000	85	\$10,087,000	
74	Twenty Road extension	Glover Road	Upper Red Hill Valley Parkway	2023-2031	3i	0.60	\$3,077,000	0%	0%	\$3,077,000	0	\$0	100	\$3,077,000	
75	Glover Road	Twenty Road	Rymal Road	2023-2031	2r-2i	2.60	\$9,400,000	0%	0%	\$9,400,000	15	\$1,410,000	85	\$7,990,000	
76	Upper Red Hill Valley Parkway	Rymal Road	Twenty Road	2023-2031	5u	1.23	\$10,375,000	0%	0%	\$10,375,000	0	\$0	100	\$10,375,000	
Waterdown Projects															
77	Burke Street	Skinner Road	Mountain Brow	2023-2031	4u	0.47	\$3,948,000	0%	0%	\$3,948,000	5	\$197,000	95	\$3,751,000	
78	Parkside Drive	Highway 6	Hollybush Drive	2023-2031	2r-4u	1.10	\$6,297,000	0%	0%	\$6,297,000	40	\$2,519,000	60	\$3,778,000	
79	Parkside Drive	Main Street	Churchill (500 m east)	2023-2031	2r-4u	0.61	\$4,749,000	0%	0%	\$4,749,000	40	\$1,900,000	60	\$2,849,000	
80	E-W Road Corridor (Waterdown By-Pass)	Dundas Street	Highway 6	2019-2022	4u	6.29	\$52,207,000	0%	0%	\$52,207,000	5	\$2,610,000	95	\$49,597,000	
81	Waterdown Road (Burlington)	Mountain Brow Road	Craven Avenue	2019	2r-4u	1.90	\$24,720,000	0%	0%	\$24,720,000	0	\$0	100	\$24,720,000	
82	Mountain Brow Road	Waterdown Road	New N-S Link (Burke Street)	2019-2022	2r-4u	0.91	\$7,654,000	0%	0%	\$7,654,000	15	\$1,148,000	85	\$6,506,000	
83	Dundas Street	New north-south link	Hamilton Boundary	2023-2031	4u-6u	0.87	\$8,039,000	0%	0%	\$8,039,000	15	\$1,206,000	85	\$6,833,000	
84	Centre Road	Northlawn	Parkside Drive	2019-2022	2r-3u	0.40	\$2,434,000	0%	0%	\$2,434,000	40	\$974,000	60	\$1,460,000	
Fruitland Winona Projects															
85	Barton Street	Fruitland Road	Fifty Road	2026	2r-3u	5.00	\$24,938,000	0%	0%	\$24,938,000	40	\$9,975,000	60	\$14,963,000	
86	Fifty Road	Q.E.W. (South Service Road)	Highway 8	2023-2031	2r-4u	0.80	\$5,277,000	0%	0%	\$5,277,000	15	\$792,000	85	\$4,485,000	
87	Fruitland Road By-pass	Barton Street	Highway 8	2019	4u	1.10	\$8,761,000	0%	0%	\$8,761,000	15	\$1,314,000	85	\$7,447,000	
88	Fruitland Road	Arvin Avenue	Barton Street	2023-2031	2u-4u	0.30	\$3,010,000	0%	0%	\$3,010,000	15	\$452,000	85	\$2,558,000	
89	Highway 8 (Stoney Creek)*	Dewitt Road	Fruitland Road	2023-2031	2r-5u	0.80	\$6,534,000	0%	0%	\$6,534,000	40	\$2,614,000	60	\$3,920,000	
90	Highway 8 (Stoney Creek)	Fruitland Road	East City Limit	2023-2031	2r-4r NBR	6.18	\$20,674,000	0%	0%	\$20,674,000	40	\$8,270,000	60	\$12,404,000	
Elfrida Boundary Expansion Projects															
91	First Road East	Highway 20	Mud Street	2023-2031	2r-3u	2.10	\$12,229,000	66%	0%	\$4,158,000	15	\$624,000	85	\$3,534,000	
92	First Road East (oversizing)	Highway 20	Golf Club Road	2023-2031	3u	2.21	\$3,225,000	66%	0%	\$1,096,000	0	\$0	100	\$1,096,000	
93	Fletcher Road*	500m South of Rymal	Golf Club Road	2023-2031	2r-3u	1.60	\$10,124,000	66%	0%	\$3,442,000	15	\$516,000	85	\$2,926,000	
94	Golf Club Road	Trinity Church Road	Hendershot Road	2023-2031	2r-2u	7.00	\$29,795,000	66%	0%	\$10,130,000	15	\$1,520,000	85	\$8,610,000	
95	Hendershot Road	Highway 20	Golf Club Road	2023-2031	2r-3u	2.10	\$10,729,000	66%	0%	\$3,648,000	15	\$547,000	85	\$3,101,000	
96	Highland Road	Upper Centennial Parkway	Second Road East	2023-2031	2r-3u	2.00	\$10,308,000	66%	0%	\$3,505,000	15	\$526,000	85	\$2,979,000	
97	Mud Street	Upper Centennial Parkway	Second Road East	2023-2031	2r-2u	2.00	\$9,166,000	66%	0%	\$3,117,000	15	\$468,000	85	\$2,649,000	
98	Second Road East	Highway 20	Mud Street	2023-2031	2r-3u	3.00	\$15,267,000	66%	0%	\$5,191,000	15	\$779,000	85	\$4,412,000	
99	Trinity Church Road*	Hydro corridor	Golf Club Road	2023-2031	2r-2u	2.00	\$9,541,000	66%	0%	\$3,244,000	15	\$487,000	85	\$2,757,000	
100	Upper Centennial Parkway	Green Mountain Road	Highway 20	2023-2031	4r-5u	2.90	\$20,111,000	66%	0%	\$6,838,000	15	\$1,026,000	85	\$5,812,000	
Other Road Projects															
101	Binbrook Road	Royal Winter Dr/Binhaven Rd	Fletcher Road	2019	2r-3u	0.70	\$6,840,000	0%	0%	\$6,840,000	15	\$1,026,000	85	\$5,814,000	
102	Highway 8 (Dundas)	Bond Street	Dundas Limits	2023-2031	2r-3u	0.40	\$3,199,000	0%	0%	\$3,199,000	40	\$1,280,000	60	\$1,919,000	
103	Highway 8 (Dundas)	Hillcrest	Park Ave	2020	2r-3u	0.60	\$2,566,000	0%	0%	\$2,566,000	40	\$1,026,000	60	\$1,540,000	
104	Jones Road	Barton Street	South Service Road	2023-2031	2r-2i	0.90	\$3,739,000	0%	0%	\$3,739,000	50	\$1,870,000	50	\$1,869,000	
105	Lewis Road	Barton Street	South Service Road	2023-2031	2r-2i	0.80	\$3,402,000	0%	0%	\$3,402,000	50	\$1,701,000	50	\$1,701,000	
106	Longwood Road	Aberdeen Avenue	Main Street	2023-2031	various/ESR	0.65	\$5,561,000	0%	0%	\$5,561,000	50	\$2,781,000	50	\$2,780,000	
107	Miles Road	Rymal Road	Hydro Corridor	2023-2031	2r-3i	2.00	\$10,769,000	0%	0%	\$10,769,000	15	\$1,615,000	85	\$9,154,000	
108	Millen Road	Barton Street	South Service Road	2023-2031	2r-3i	1.00	\$6,118,000	0%	0%	\$6,118,000	40	\$2,447,000	60	\$3,671,000	
109	Fletcher Road	Binbrook Road	Golf Club Road	2023-2031	2r-2u	4.20	\$17,568,000	0%	0%	\$17,568,000	40	\$7,027,000	60	\$10,541,000	
110	South Service Road	Millen Road	Gray	2023-2031	2r-2u	1.70	\$8,019,000	0%	0%	\$8,019,000	15	\$1,205,000	85	\$6,814,000	
111	Trinity Church Road	Binbrook Road	Golf Club Road	2023-2031	2r-2u	5.20	\$9,032,000	0%	0%	\$9,032,000	40	\$3,613,000	60	\$5,419,000	
112	Twenty Road	Aldercrest Avenue	600m west of Nebo Road	2023-2031	2r-2u	4.10	\$16,290,000	0%	0%	\$16,290,000	40	\$6,516,000	60	\$9,774,000	
113	Upper Gage Street	Mohawk Road	Thorley	2023-2031	4u-5u	0.60	\$5,281,000	0%	0%	\$5,281,000	50	\$2,641,000	50	\$2,640,000	
114	Upper Wellington Street	Limeridge Street	Stone Church Road	2019-2022	2r-5u	1.20	\$9,350,000	0%	0%	\$9,350,000	40	\$3,740,000	60	\$5,610,000	
115	Shaver Road	Highway 403	Wilson Street	2019-2022	2r-2u	1.50	\$6,189,000	0%	0%	\$6,189,000	15	\$928,000	85	\$5,261,000	
116	Scenic Drive	Lavender Drive (south leg)	Old City Limits	2019-2022	2r-2u	1.40	\$6,571,000	0%	0%	\$6,571,000	40	\$2,628,000	60	\$3,943,000	
117	North Service Road	Green Road	East City Limits	2019-2022	Intersection		\$3,013,000	0%	0%	\$3,013,000	0	\$0	100	\$3,013,000	
118	Victoria Avenue	Ferrie Street	Burlington Street	2019	2-way conversion	0.46	\$1,224,000	0%	0%	\$1,224,000	15	\$184,000	85	\$1,040,000	
119	Hwy 5/6 municipal roads (City portion)			2019-2022	Service Roads		\$22,981,000	0%	0%	\$22,981,000	0	\$0	100	\$22,981,000	
120	Post Period Benefit Deduction			2019-2031				100%	0%	-\$175,000,000	0	\$0	100	-\$175,000,000	
Major Structures															
121	Hwy 5/6 interchange			2019-2022	Structure		\$18,299,000	0%	0%	\$18,299,000	0	\$0	100	\$18,299,000	
122	Strathcona Pedestrian Bridge			2027	Structure		\$7,601,000	0%	0%	\$7,601,000	15	\$1,140,000	85	\$6,461,000	
123	Fifty Road	Grade Separation		2029	Structure		\$25,765,000	50%	0%	\$12,883,000	25	\$3,221,000	75	\$9,662,000	
124	Other Rail Grade Separations	Grade Separation		2024-2031	Structure		\$25,765,000	50%	0%	\$12,883,000	25	\$3,221,000	75	\$9,662,000	
125	Mohawk Road			2019-2022	Hwy 403 WB on-ramp		\$3,934,000	0%	0%	\$3,934,000	50	\$1,967,000	50	\$1,967,000	
Programs															
126	Intersection Pedestrian Signal			2019-2031	City-Wide Program		\$11,700,000	0%	0%	\$11,700,000	5	\$585,000	95	\$11,115,000	

Item #	Project Name	From	To	Estimated Timing	Improvement Type	Length	Gross Capital Cost Including E.A. (2019\$)	Post Period Benefit	Developer Responsibility	Net Capital Estimate After Deduction (2019\$)	Benefit to Existing (%)	Benefit to Existing (\$)	Benefit to Growth (%)	Benefit to Growth (\$)
127	Traffic Count Program			2019-2031	City-Wide Program		\$2,000,000	0%	0%	\$2,000,000	5	\$100,000	95	\$1,900,000
128	Geotechnical Investigation Program			2019-2031	City-Wide Program		\$9,100,000	0%	0%	\$9,100,000	85	\$7,735,000	15	\$1,365,000
129	Mapping Update Program			2019-2031	City-Wide Program		\$305,000	0%	0%	\$305,000	5	\$15,000	95	\$290,000
130	Active Transportation Benchmarking			2019-2031	City-Wide Program		\$390,000	0%	0%	\$390,000	5	\$20,000	95	\$370,000
131	Development Road Urbanization			2019-2031	City-Wide Program		\$6,500,000	0%	0%	\$6,500,000	5	\$325,000	95	\$6,175,000
132	Street Lighting Enhancement Program			2019-2031	City-Wide Program		\$3,250,000	0%	0%	\$3,250,000	5	\$163,000	95	\$3,087,000
133	Pedestrian Crossovers			2019-2031	City-Wide Program		\$900,000	0%	0%	\$900,000	5	\$45,000	95	\$855,000
134	Advanced Traffic Management Systems			2019-2031	City-Wide Program		\$14,390,000	0%	0%	\$14,390,000	75	\$10,793,000	25	\$3,597,000
135	Express Bus (L.A.S.T. Line) Enhanced Passenger Amenities			2019-2031	City-Wide Program		\$8,010,000	0%	0%	\$8,010,000	50	\$4,005,000	50	\$4,005,000
136	Miscellaneous Land Acquisitions			2019-2031	City-Wide Program		\$5,000,000	0%	0%	\$5,000,000	5	\$250,000	95	\$4,750,000
137	Transit Shelter Expansion Program			2019-2031	City-Wide Program		\$1,950,000	0%	0%	\$1,950,000	50	\$975,000	50	\$975,000
138	Bus Stop Shelter Rehabilitation Program			2019-2031	City-Wide Program		\$1,625,000	0%	0%	\$1,625,000	85	\$1,381,000	15	\$244,000
139	Cordon Count Program			2019-2031	City-Wide Program		\$330,000	0%	0%	\$330,000	5	\$17,000	95	\$313,000
140	New Sidewalk Program			2019-2031	City-Wide Program		\$6,500,000	0%	0%	\$6,500,000	5	\$325,000	95	\$6,175,000
141	New Traffic Signals			2020-2031	City-Wide Program		\$12,000,000	0%	0%	\$12,000,000	5	\$600,000	95	\$11,400,000
142	New Traffic Signal - Waterdown Road/Mill St at Mountain Brow			2019	Traffic Signal		\$250,000	0%	0%	\$250,000	5	\$13,000	95	\$237,000
143	New Traffic Signal - Rymal Road west of Walmart Access			2019	Traffic Signal		\$100,000	0%	0%	\$100,000	5	\$5,000	95	\$95,000
144	New Traffic Signal - Regional Road 56 at Daigliesh Road			2019	Traffic Signal		\$250,000	0%	0%	\$250,000	5	\$13,000	95	\$237,000
145	New Traffic Signal - Rymal at Canadian Tire Access			2019	Traffic Signal		\$200,000	0%	0%	\$200,000	5	\$10,000	95	\$190,000
146	New Traffic Signal - Rymal (opposite Celestial Crescent)			2019	Traffic Signal		\$100,000	0%	0%	\$100,000	5	\$5,000	95	\$95,000
147	New Traffic Signal - Drakes at North Service Road			2019	Traffic Signal		\$350,000	0%	0%	\$350,000	5	\$18,000	95	\$332,000
148	New Traffic Signal - Fifty at North Service Road			2019	Traffic Signal		\$350,000	0%	0%	\$350,000	5	\$18,000	95	\$332,000
149	Unidentified intersection improvements (excluding Traffic Signals)			2019-2031	City-Wide Program		\$3,250,000	0%	0%	\$3,250,000	5	\$163,000	95	\$3,087,000
150	Annual A and B Line Enhanced Bus Stops & Shelters			2019-2031	City-Wide Program		\$919,000	0%	0%	\$919,000	50	\$460,000	50	\$459,000
151	Annual Express Bus/Rapid Transit Enhanced Bus Stops & Shelters			2019-2031	City-Wide Program		\$5,054,000	0%	0%	\$5,054,000	50	\$2,527,000	50	\$2,527,000
152	Annual Transit Priority Measures			2019-2031	City-Wide Program		\$17,472,000	0%	0%	\$17,472,000	50	\$8,736,000	50	\$8,736,000
153	Annual Bike Parking at B/A Line Stops			2019-2031	City-Wide Program		\$46,000	0%	0%	\$46,000	50	\$23,000	50	\$23,000
154	Annual Enhanced Bike Parking at Express Bus/Rapid Transit Stops			2019-2031	City-Wide Program		\$275,000	0%	0%	\$275,000	50	\$138,000	50	\$137,000
155	Transportation Demand Management			2019-2031	City-Wide Program		\$2,000,000	0%	0%	\$2,000,000	50	\$1,000,000	50	\$1,000,000
	Studies													
156	Complete and Liveable Streets Guidelines			2019-2022	Study		\$250,000	0%	0%	\$250,000	0	\$0	100	\$250,000
157	Cycling Master Plan Review			2023-2031	Study		\$200,000	0%	0%	\$200,000	0	\$0	100	\$200,000
158	E.M.M.E Model Management			2019-2031	Monitoring		\$1,040,000	0%	0%	\$1,040,000	0	\$0	100	\$1,040,000
159	Goods Movement Study Review and Update			2019-2022	Study		\$150,000	0%	0%	\$150,000	0	\$0	100	\$150,000
160	Intelligent Transportation System Strategy			2019-2022	Study		\$250,000	0%	0%	\$250,000	0	\$0	100	\$250,000
161	Lincoln Alexander and Red Hill Valley Parkway Widening Feasibility Study			2019-2022	Study		\$500,000	0%	0%	\$500,000	0	\$0	100	\$500,000
162	Multi-modal Level of Service Guidelines			2019-2022	Study		\$250,000	0%	0%	\$250,000	0	\$0	100	\$250,000
163	Pedestrian Mobility Plan Review			2023-2031	Study		\$200,000	0%	0%	\$200,000	0	\$0	100	\$200,000
164	Revenue Tools Study			2019-2022	Study		\$250,000	0%	0%	\$250,000	0	\$0	100	\$250,000
165	Transportation Master Plan Review			2023-2031	Study		\$250,000	0%	0%	\$250,000	0	\$0	100	\$250,000
166	Truck Route Master Plan Review			2019-2022	Study		\$250,000	0%	0%	\$250,000	0	\$0	100	\$250,000
167	Escarpment Crossing People Mover Study			2023-2031	Study		\$200,000	0%	0%	\$200,000	0	\$0	100	\$200,000
	Active Transportation Projects													
168	Red Hill Pedestrian Crossing	Eugene Street	Glengrove Avenue	2019-2031	Pedestrian Crossing		\$1,750,000	30%	0%	\$1,225,000	15	\$184,000	85	\$1,041,000
169	Heritage Green Trail Link			2019-2031	Commuter Trail		\$525,000	30%	0%	\$368,000	15	\$55,000	85	\$313,000
170	Flamborough Y.M.C.A. Trail Link			2019-2031	Commuter Trail		\$565,000	30%	0%	\$396,000	15	\$59,000	85	\$337,000
171	Centre Road Link			2019-2031	Commuter Trail		\$640,000	30%	0%	\$448,000	15	\$67,000	85	\$381,000
172	Kerns Road, Waterdown South Link			2019-2031	Multi-Use Trail		\$957,000	30%	0%	\$670,000	15	\$101,000	85	\$569,000
173	Hunter	MacNab	Catharine	2019-2031	Bike Lane	0.47	\$78,000	30%	0%	\$55,000	15	\$8,000	85	\$47,000
174	Hunter	Liberty	Claremont Access	2019-2031	Bike Lane	0.23	\$31,000	30%	0%	\$22,000	15	\$3,000	85	\$19,000
175	Wilson	James	Sherman	2019-2031	Bike Lane	2.55	\$81,000	30%	0%	\$57,000	15	\$9,000	85	\$48,000
176	Ferguson	Hunter	Charlton	2019-2031	Bike Lane	0.20	\$2,000	30%	0%	\$2,000	15	\$0	85	\$2,000
177	King over Red Hill Valley Parkway	Lawrence	Potruff	2019-2031	Bike Lane	0.50	\$27,000	30%	0%	\$19,000	15	\$3,000	85	\$16,000
178	Locke	King	Hunter	2019-2031	Bike Lane	1.28	\$8,000	30%	0%	\$6,000	15	\$1,000	85	\$5,000
179	Barton	Red Hill Valley	Lake	2019-2031	Bike Lane	1.61	\$234,000	30%	0%	\$164,000	15	\$25,000	85	\$139,000
180	Wilson in Ancaster	Rousseaux	Halson	2019-2031	Bike Lane	0.85	\$20,000	30%	0%	\$14,000	15	\$2,000	85	\$12,000
181	Barton	Brockley	Fruitland	2019-2031	Bike Lane	3.95	\$123,000	30%	0%	\$86,000	15	\$13,000	85	\$73,000
182	Gage	Industrial	Lawrence	2019-2031	Bike Lane	2.96	\$115,000	30%	0%	\$81,000	15	\$12,000	85	\$69,000
183	Hunter Street - Escarpment Rail Trail Link	Hunter	West 5th at Fennell	2019-2031	Multi-Use Trail	3.50	\$3,275,000	30%	0%	\$2,293,000	15	\$344,000	85	\$1,949,000
184	Cannon	Sherman	Lottridge	2019-2031	Bike Lane	0.42	\$16,000	30%	0%	\$12,000	15	\$2,000	85	\$10,000
185	First Rd W/Whitdeer/Terryberry & Picardy/ Highbury	Glover Mtn Road/ Ridgeview Dr	Rymal/ Bellagio	2019-2031	Bike Lane	4.08	\$48,000	30%	0%	\$33,000	15	\$5,000	85	\$28,000
186	Olympic Park Twin Pad Arena Link	Chedoke Rail Trail	Old Mohawk Road	2019-2031	Multi-Use Trail	1.50	\$83,000	30%	0%	\$58,000	15	\$87,000	85	\$495,000
187	Dundas St	Main	Cootes	2019-2031	Bike Lane	0.68	\$11,000	30%	0%	\$8,000	15	\$2,000	85	\$9,000
188	Mohawk	Old Mohawk	Upper Paradise	2019-2031	Bike Lane	1.83	\$47,000	30%	0%	\$33,000	15	\$5,000	85	\$28,000
189	Hatt	Peel	Main	2019-2031	Bike Lane	0.93	\$29,000	30%	0%	\$20,000	15	\$3,000	85	\$17,000
190	Eastport Drive Lift Bridge Link			2019-2031	Multi-Use Trail		\$1,750,000	30%	0%	\$1,225,000	15	\$184,000	85	\$1,041,000
191	Beach Bike Lane	under QEW		2019-2031	Bike Lane	0.24	\$7,000	30%	0%	\$5,000	15	\$1,000	85	\$4,000
192	Beach Boulevard	lift bridge	Van Wagner's	2019-2031	Bike Lane	4.25	\$94,000	30%	0%	\$66,000	15	\$10,000	85	\$56,000
193	Van Wagner's	Beach Bike Lane	Centennial Parkway	2019-2031	Bike Lane	2.50	\$78,000	30%	0%	\$55,000	15	\$8,000	85	\$47,000
194	Montclair/ Central/ Graham/ Frederick			2019-2031	Bike Lane	3.80	\$19,000	30%	0%	\$13,000	15	\$2,000	85	\$11,000

Item #	Project Name	From	To	Estimated Timing	Improvement Type	Length	Gross Capital Cost Including E.A. (2019\$)	Post Period Benefit	Developer Responsibility	Net Capital Estimate After Deduction (2019\$)	Benefit to Existing (%)	Benefit to Existing (\$)	Benefit to Growth (%)	Benefit to Growth (\$)
195	Melvin	Strathhearne/ Shelby	Red Hill Valley Trail	2019-2031	Bike Lane	1.90	\$59,000	30%	0%	\$41,000	15	\$6,000	85	\$35,000
196	Britania	Cannon	Walter	2019-2031	Bike Lane	0.84	\$22,000	30%	0%	\$16,000	15	\$2,000	85	\$14,000
197	Creighton/ Market	Hatt/ King	Governor's	2019-2031	Bike Lane	0.95	\$25,000	30%	0%	\$17,000	15	\$3,000	85	\$14,000
198	Ogilvie/ Old Ancaster	Hatt/ King	Hamilton-Brantford Rail Trail	2019-2031	Bike Lane	0.80	\$14,000	30%	0%	\$9,000	15	\$1,000	85	\$8,000
199	Longwood	Franklin	King	2019-2031	Bike Lane	0.73	\$17,000	30%	0%	\$12,000	15	\$2,000	85	\$10,000
200	Mountain Brow in Waterdown	Mill	Burke to King Road	2019-2031	Multi-Use Trail	1.20	\$660,000	30%	0%	\$462,000	15	\$69,000	85	\$393,000
201	Golf Links/ Halson	Wilson	Southcote	2019-2031	Bike Lane	1.19	\$28,000	30%	0%	\$19,000	15	\$3,000	85	\$16,000
202	Meadowbrook			2019-2031	Bike Lane	1.00	\$16,000	30%	0%	\$11,000	15	\$2,000	85	\$9,000
203	West 5th	Mohawk College Access	Marlowe	2019-2031	Bike Lane	1.13	\$70,000	30%	0%	\$49,000	15	\$7,000	85	\$42,000
204	Limeridge	Garth/ Bonaventure	West 5th/ Hawkridge	2019-2031	Bike Lane	1.37	\$53,000	30%	0%	\$37,000	15	\$6,000	85	\$31,000
205	Scenic	Chedoke Rail Trail	Upper Paradise	2019-2031	Bike Lane	2.27	\$27,000	30%	0%	\$19,000	15	\$3,000	85	\$16,000
206	Green Mountain	First Road W	First Road E	2019-2031	Bike Lane	1.50	\$292,000	30%	0%	\$205,000	15	\$31,000	85	\$174,000
207	Walnut Grove & Sanctuary Park	Walnut Grove/ Ogilvie	Highland Park Dr	2019-2031	Multi-Use Trail	0.40	\$366,000	30%	0%	\$256,000	15	\$38,000	85	\$218,000
208	Scenic/ Denlow	Upper Paradise	Garth	2019-2031	Bike Lane	0.95	\$11,000	30%	0%	\$8,000	15	\$1,000	85	\$7,000
209	Waterdown local streets			2019-2031	Bike Lane	0.00	\$78,000	30%	0%	\$55,000	15	\$8,000	85	\$47,000
210	Frid/Chatham	Longwood	Dundurn	2019-2031	Bike Lane	1.00	\$6,000	30%	0%	\$4,000	15	\$1,000	85	\$3,000
211	Fiddler's Green	Jerseyville	Wilson	2019-2031	Bike Lane	0.25	\$6,000	30%	0%	\$4,000	15	\$1,000	85	\$3,000
212	Upper Wentworth	Fennell	East 24th	2019-2031	Bike Lane	1.03	\$40,000	30%	0%	\$28,000	15	\$4,000	85	\$24,000
213	Barton	Fruitland	Fifty	2019-2031	Multi-Use Trail	5.00	\$2,647,000	30%	0%	\$1,853,000	15	\$278,000	85	\$1,575,000
214	Queensdale	Upper Sherman	Upper Ottawa	2019-2031	Bike Lane	1.56	\$36,000	30%	0%	\$26,000	15	\$4,000	85	\$22,000
215	Old Mud	Mt Albion	Winterberry	2019-2031	Bike Lane	0.40	\$9,000	30%	0%	\$7,000	15	\$1,000	85	\$6,000
216	Charlton/ John	James	Ferguson & St Joseph's Dr	2019-2031	Bike Lane	0.80	\$84,000	30%	0%	\$59,000	15	\$9,000	85	\$50,000
217	Upper Wentworth	Concession	Fennell	2019-2031	Bike Lane	1.03	\$40,000	30%	0%	\$28,000	15	\$4,000	85	\$24,000
218	West Ave	Hunter/ Claremont	Young	2019-2031	Bike Lane	0.36	\$3,000	30%	0%	\$2,000	15	\$0	85	\$2,000
219	Frances	Grays	east of Green Road	2019-2031	Bike Lane	1.15	\$156,000	30%	0%	\$109,000	15	\$16,000	85	\$93,000
220	Nash	Bancroft	King	2019-2031	Bike Lane	2.58	\$101,000	30%	0%	\$70,000	15	\$11,000	85	\$59,000
221	Kitty Murray			2019-2031	Bike Lane	2.26	\$53,000	30%	0%	\$37,000	15	\$6,000	85	\$31,000
222	Stonehenge			2019-2031	Bike Lane	2.46	\$58,000	30%	0%	\$40,000	15	\$6,000	85	\$34,000
223	Highway 8	Bond	Hillcrest	2019-2031	Paved Shoulder	1.10	\$1,014,000	30%	0%	\$710,000	15	\$107,000	85	\$603,000
224	Queensdale	Upper Wellington	Upper Sherman	2019-2031	Bike Lane	1.68	\$39,000	30%	0%	\$28,000	15	\$4,000	85	\$24,000
225	Meadowlands/ Raymond	Golf Links	Garner	2019-2031	Bike Lane	2.10	\$49,000	30%	0%	\$34,000	15	\$5,000	85	\$29,000
226	Delawana	Kenora	Lake	2019-2031	Bike Lane	1.02	\$9,000	30%	0%	\$6,000	15	\$1,000	85	\$5,000
227	Highway 8	Brock	Hillcrest	2019-2031	Paved Shoulder	0.60	\$108,000	30%	0%	\$76,000	15	\$11,000	85	\$65,000
228	Upper Paradise	Stone Church	Rymal	2019-2031	Bike Lane	1.07	\$42,000	30%	0%	\$29,000	15	\$4,000	85	\$25,000
229	Binbrook Road	Regional Road 56	Southbrook	2019-2031	Bike Lane	0.28	\$7,000	30%	0%	\$5,000	15	\$1,000	85	\$4,000
230	Lovers Lane	Sulpher Springs	Jerseyville	2019-2031	Bike Lane	0.90	\$21,000	30%	0%	\$15,000	15	\$2,000	85	\$13,000
231	Governor's	Binkley	Creighton	2019-2031	Bike Lane	4.92	\$652,000	30%	0%	\$457,000	15	\$69,000	85	\$388,000
232	Stuart Street Rail Link			2019-2031	Multi-Use Trail		\$254,000	30%	0%	\$178,000	15	\$27,000	85	\$151,000
233	Mud Street	Mountain Brow Boulevard		2019-2031	Multi-Use Trail	0.50	\$136,000	30%	0%	\$95,000	15	\$14,000	85	\$81,000
234	William Connell Park Link	Stone Church Road	Rymal	2019-2031	Multi-Use Trail	0.70	\$689,000	30%	0%	\$483,000	15	\$72,000	85	\$411,000
235	Upper James	William Connell Park		2019-2031	Multi-Use Trail	0.38	\$225,000	30%	0%	\$158,000	15	\$24,000	85	\$134,000
236	Grays/ Gray	Confederation Park gate	King	2019-2031	Bike Lane	3.00	\$117,000	30%	0%	\$82,000	15	\$12,000	85	\$70,000
237	King in Dundas	Bond	Peel	2019-2031	Bike Lane	0.80	\$31,000	30%	0%	\$22,000	15	\$3,000	85	\$19,000
238	Warrington/ South Service/ Lake	Centennial Parkway	Delawana	2019-2031	Bike Lane	2.05	\$78,000	30%	0%	\$55,000	15	\$8,000	85	\$47,000
239	Marston	Paramount	Gordon Drummond	2019-2031	Bike Lane	0.40	\$14,000	30%	0%	\$9,000	15	\$1,000	85	\$8,000
240	Kenora/ Greenford/ Owen	Bancroft	King	2019-2031	Bike Lane	2.60	\$172,000	30%	0%	\$120,000	15	\$18,000	85	\$102,000
241	Centennial Parkway	North Service	GO station/ Kenora	2019-2031	Multi-Use Trail	1.20	\$156,000	30%	0%	\$109,000	15	\$16,000	85	\$93,000
242	Victoria	Barton	Main	2019-2031	Bike Lane	1.04	\$40,000	30%	0%	\$28,000	15	\$4,000	85	\$24,000
243	Kentley	Eugene	Kenora	2019-2031	Bike Lane	0.40	\$4,000	30%	0%	\$3,000	15	\$0	85	\$3,000
244	Whitney	Main	Emerson	2019-2031	Bike Lane	1.50	\$47,000	30%	0%	\$33,000	15	\$5,000	85	\$28,000
245	West 5th	Fennell	Mohawk Coll. Access	2019-2031	Multi-Use Trail	0.33	\$28,000	30%	0%	\$20,000	15	\$3,000	85	\$17,000
246	Millen	Shoreview	Millen/ Seaman	2019-2031	Bike Lane	0.50	\$31,000	30%	0%	\$22,000	15	\$3,000	85	\$19,000
247	King in Stoney Creek	Battlefield/ Elm	Gray	2019-2031	Bike Lane	0.74	\$16,000	30%	0%	\$11,000	15	\$2,000	85	\$9,000
248	Limeridge	Birchview	Mtn Brow	2019-2031	Bike Lane	1.98	\$70,000	30%	0%	\$49,000	15	\$7,000	85	\$42,000
249	Dewitt	Dundee	Ridge	2019-2031	Bike Lane	0.50	\$750,000	30%	0%	\$525,000	15	\$79,000	85	\$446,000
250	Claremont Access	Inverness	Main	2019-2031	Bike Lane	1.60	\$50,000	30%	0%	\$35,000	15	\$5,000	85	\$30,000
251	Inverness	Upper James	Belvidere	2019-2031	Bike Lane	0.44	\$11,000	30%	0%	\$8,000	15	\$1,000	85	\$7,000
252	Burlington Street Link	Ferguson/ Dock Service Road	Sherman	2019-2031	Bike Lane	1.88	\$104,000	30%	0%	\$73,000	15	\$11,000	85	\$62,000
253	Dundas St in Waterdown	Highway 6	Hamilton St	2019-2031	Bike Lane	2.75	\$129,000	30%	0%	\$90,000	15	\$14,000	85	\$76,000
254	Hollybush	Parkside	Dundas St	2019-2031	Bike Lane	1.10	\$16,000	30%	0%	\$11,000	15	\$2,000	85	\$9,000
255	Greenhill	Summercrest	King	2019-2031	Bike Lane	1.20	\$47,000	30%	0%	\$33,000	15	\$5,000	85	\$28,000
256	Governor's	Ogilvie	Main	2019-2031	Bike Lane	0.24	\$43,000	30%	0%	\$30,000	15	\$5,000	85	\$25,000
257	Queenston/ Highway 8	Glover	Winona/ Niagara border	2019-2031	Bike Lane	3.80	\$682,000	30%	0%	\$477,000	15	\$72,000	85	\$405,000
258	Burlington Street East Boulevard Trail	Ottawa	Parkdale to Glow	2019-2031	Multi-Use Trail	2.30	\$1,050,000	30%	0%	\$735,000	15	\$110,000	85	\$625,000
259	Queenston/ Highway 8	King	Dewitt	2019-2031	Bike Lane	1.37	\$246,000	30%	0%	\$172,000	15	\$26,000	85	\$146,000
260	Greenhill	Harrisford	Summercrest	2019-2031	Bike Lane	1.94	\$76,000	30%	0%	\$53,000	15	\$8,000	85	\$45,000
261	Mill in Waterdown	Parkside	Dundas St	2019-2031	Bike Lane	0.95	\$22,000	30%	0%	\$16,000	15	\$2,000	85	\$14,000
262	King in Stoney Creek	Gray	Queenston/ Highway 8	2019-2031	Bike Lane	1.51	\$78,000	30%	0%	\$55,000	15	\$8,000	85	\$47,000
263	Rousseau/ Mohawk	Wilson	Filman	2019-2031	Bike Lane	1.60	\$225,000	30%	0%	\$157,000	15	\$24,000	85	\$133,000
264	Baseline/ Lockport	Winona Road	Niagara border	2019-2031	Bike Lane	1.15	\$23,000	30%	0%	\$16,000	15	\$2,000	85	\$14,000

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265	Winona	Lido/ shore	Peachtree	2019-2031	Bike Lane	1.97	\$46,000	30%	0%	\$32,000	15	\$5,000	85	\$27,000
266	Cherry Beach Road Link	Millen	Dewitt	2019-2031	Multi-Use Trail	0.91	\$234,000	30%	0%	\$164,000	15	\$25,000	85	\$139,000
267	North Service Road	Dewitt	Lakeview	2019-2031	Bike Lane	0.73	\$16,000	30%	0%	\$11,000	15	\$2,000	85	\$9,000
268	North Service Road	Bellavista	Baseline	2019-2031	Bike Lane	0.98	\$23,000	30%	0%	\$16,000	15	\$2,000	85	\$14,000
269	Upper Sherman	Stone Church	Rymal to Milas	2019-2031	Bike Lane	1.00	\$179,000	30%	0%	\$126,000	15	\$19,000	85	\$107,000
270	Emperor	Brigade	Acadia	2019-2031	Bike Lane	0.44	\$16,000	30%	0%	\$11,000	15	\$2,000	85	\$9,000
271	Burlington/ Industrial	Sherman	Gage	2019-2031	Bike Lane	0.86	\$99,000	30%	0%	\$69,000	15	\$10,000	85	\$59,000
272	Birch/ Holton	Burlington St	Cannon/ King/ Delaware	2019-2031	Bike Lane	1.40	\$31,000	30%	0%	\$22,000	15	\$3,000	85	\$19,000
273	Dewitt	Barton	Dundee	2019-2031	Bike Lane	0.90	\$21,000	30%	0%	\$15,000	15	\$2,000	85	\$13,000
274	Chedmac	Southridge	Rice	2019-2031	Bike Lane	0.53	\$23,000	30%	0%	\$16,000	15	\$2,000	85	\$14,000
275	Kilbride	Upper Ottawa	Nebo	2019-2031	Bike Lane	0.38	\$9,000	30%	0%	\$6,000	15	\$1,000	85	\$5,000
276	Hamilton in Waterdown	Centre/Main	Highway 5/Dundas	2019-2031	Bike Lane	1.00	\$62,000	30%	0%	\$44,000	15	\$7,000	85	\$37,000
277	Osler/ Main	Hatt/ King	Main + 125m of Main	2019-2031	Bike Lane	2.00	\$88,000	30%	0%	\$62,000	15	\$9,000	85	\$53,000
278	Fiddler's Green	Amberly	Garner	2019-2031	Bike Lane	0.68	\$21,000	30%	0%	\$15,000	15	\$2,000	85	\$13,000
279	Shaver	Wilson	Garner	2019-2031	Bike Lane	0.52	\$12,000	30%	0%	\$9,000	15	\$1,000	85	\$8,000
280	Upper James	Twenty	Airport/ Mt Hops	2019-2031	Multi-Use Trail	4.05	\$1,153,000	30%	0%	\$807,000	15	\$121,000	85	\$686,000
281	Christie-Tewis	Christie C.A.	Harvest	2019-2031	Multi-Use Trail	2.75	\$1,124,000	30%	0%	\$787,000	15	\$118,000	85	\$669,000
282	Fennell Avenue Boulevard Trail	Garth/ West 18th	West 5th	2019-2031	Multi-Use Trail	1.20	\$412,000	30%	0%	\$288,000	15	\$43,000	85	\$245,000
283	Jones Road Link			2032-2041	Multi-Use Trail		\$222,000	100%	0%	\$0	15	\$0	85	\$0
284	Mountain Brow Boulevard Trail	Mohawk	Arbour	2019-2031	Multi-Use Trail	1.81	\$374,000	30%	0%	\$262,000	15	\$39,000	85	\$223,000
285	Mountain Brow East Path	Rendell	Oakcrest	2019-2031	Multi-Use Trail	0.81	\$1,560,000	30%	0%	\$1,092,000	15	\$164,000	85	\$928,000
286	Upper James/ Christie	Rymal	Twenty	2019-2031	Multi-Use Trail	0.80	\$197,000	30%	0%	\$138,000	15	\$21,000	85	\$117,000
287	Proposed Pipeline Trail	Museum of Steam and Technology	Mahoney Park	2019-2031	Multi-Use Trail	2.40	\$517,000	30%	0%	\$362,000	15	\$54,000	85	\$308,000
288	Existing Pipeline Trail	Main	Strathearne	2019-2031	Multi-Use Trail	2.20	\$4,679,000	30%	0%	\$3,275,000	15	\$491,000	85	\$2,784,000
289	Hydro Corridor	Barton	Lawrence	2019-2031	Multi-Use Trail	1.90	\$1,251,000	30%	0%	\$876,000	15	\$131,000	85	\$745,000
290	Hydro Corridor	Lawrence Avenue	Greenhill Avenue	2019-2031	Multi-Use Trail	1.15	\$430,000	30%	0%	\$301,000	15	\$45,000	85	\$256,000
291	Strachan Street Trail	James	Ferguson	2019-2031	Multi-Use Trail	0.66	\$337,000	30%	0%	\$236,000	15	\$35,000	85	\$201,000
292	Karst Escarpment Loop	Pritchard	Mount Albion/Winterberry	2019-2031	Multi-Use Trail	0.70	\$390,000	30%	0%	\$273,000	15	\$41,000	85	\$232,000
293	Chedoke Rail Trail	Highway 403	Dundurn	2019-2031	Multi-Use Trail	4.68	\$1,487,000	30%	0%	\$1,041,000	15	\$156,000	85	\$885,000
294	Hamilton-Brantford Rail Trail	Bridlewood Dr	Ewen	2019-2031	Multi-Use Trail	4.00	\$406,000	30%	0%	\$284,000	15	\$43,000	85	\$241,000
295	Battlefield Park - Bruce Trail Link	Greenhill to Bruce Trail to Glover Mtn	First Road W	2019-2031	Multi-Use Trail	0.75	\$533,000	30%	0%	\$373,000	15	\$56,000	85	\$317,000
296	Devil's Punchbowl Link	Mountain Ave/ Lake Ave	Ridge Road/ Devil's Punch Bowl	2032-2041	Multi-Use Trail	0.42	\$150,000	100%	0%	\$0	15	\$0	85	\$0
297	Gage Park	Cumberland	Montclair/ Maple	2019-2031	Multi-Use Trail	0.59	\$331,000	30%	0%	\$232,000	15	\$35,000	85	\$197,000
298	Iroquois Heights to Old Mohawk	Chedoke Rail Trail	Old Mohawk Road	2019-2031	Multi-Use Trail	0.85	\$318,000	30%	0%	\$223,000	15	\$33,000	85	\$190,000
299	Museum of Steam and Tech Link	Woodward	Red Hill Valley Trail	2019-2031	Multi-Use Trail	0.75	\$607,000	30%	0%	\$425,000	15	\$64,000	85	\$361,000
300	Ottawa Street South - Bruce Trail Link			2019-2031	Multi-Use Trail	0.39	\$686,000	30%	0%	\$480,000	15	\$72,000	85	\$408,000
301	Limeridge Mall Hydro Corridor Trail	Mohawk Road	South of Rymal	2019-2031	Multi-Use Trail	3.80	\$1,404,000	30%	0%	\$983,000	15	\$147,000	85	\$836,000
302	Fallsview	Sydenham	Rock Chapel Road	2019-2031	Multi-Use Trail	1.40	\$350,000	30%	0%	\$245,000	15	\$37,000	85	\$208,000
303	Hydro Corridor	Wilson/Highway 52	Regional Road 56	2019-2031	Multi-Use Trail	12.70	\$7,617,000	30%	0%	\$5,332,000	15	\$800,000	85	\$4,532,000
304	Beddoe Drive Link			2019-2031	Multi-Use Trail	0.91	\$519,000	30%	0%	\$363,000	15	\$54,000	85	\$309,000
305	Hydro Corridor	Glancaster Road	Chippewa Rail Trail	2019-2031	Multi-Use Trail	7.70	\$5,763,000	30%	0%	\$4,034,000	15	\$605,000	85	\$3,429,000
306	Hydro Corridor	Chippewa Rail Trail	Fletcher Road	2019-2031	Multi-Use Trail	2.35	\$3,685,000	30%	0%	\$2,580,000	15	\$387,000	85	\$2,193,000
307	Hydro Corridor	Trinity Road	Glancaster Road	2019-2031	Multi-Use Trail	10.00	\$7,617,000	30%	0%	\$5,332,000	15	\$800,000	85	\$4,532,000
308	Hydro Corridor	White Church Road		2019-2031	Multi-Use Trail	6.60	\$3,731,000	50%	0%	\$1,865,000	15	\$280,000	85	\$1,585,000
309	White Church Road West Airport Link			2019-2031	Multi-Use Trail		\$673,000	50%	0%	\$337,000	15	\$51,000	85	\$286,000
310	White Church Road West Link			2019-2031	Multi-Use Trail		\$1,315,000	50%	0%	\$658,000	15	\$99,000	85	\$559,000
311	Chippewa Road at Highway 6			2019-2031	Multi-Use Trail	0.02	\$125,000	30%	0%	\$87,000	15	\$13,000	85	\$74,000
312	Glancaster Road Link			2019-2031	Multi-Use Trail		\$495,000	50%	0%	\$247,000	15	\$37,000	85	\$210,000
313	Centre	Concession 8 E	Concession 7 E	2019-2031	Paved Shoulder	1.80	\$351,000	30%	0%	\$246,000	15	\$37,000	85	\$209,000
314	East Townline	Mud	Highland	2019-2031	Bike Lane	1.10	\$13,000	30%	0%	\$9,000	15	\$1,000	85	\$8,000
315	Centre	Warren/ Carlisle Road	Progreston	2019-2031	Paved Shoulder	0.78	\$151,000	30%	0%	\$106,000	15	\$16,000	85	\$90,000
316	Centre	Gristone Creek	Concession 5 E	2019-2031	Paved Shoulder	0.45	\$88,000	30%	0%	\$61,000	15	\$9,000	85	\$52,000
317	Edgewood	Safari	Highway 6	2019-2031	Bike Lane	0.90	\$11,000	30%	0%	\$7,000	15	\$1,000	85	\$6,000
318	Binbrook Road	Trinity Church	Fletcher	2019-2031	Paved Shoulder	1.26	\$246,000	30%	0%	\$172,000	15	\$26,000	85	\$146,000
319	Ridge Road	Devil Punch Bowl	Dewitt	2019-2031	Multi-Use Trail	2.91	\$780,000	30%	0%	\$546,000	15	\$82,000	85	\$464,000
320	York Road	Olympic	Valley Road	2019-2031	Paved Shoulder	1.70	\$437,000	30%	0%	\$306,000	15	\$46,000	85	\$260,000
321	York Road & York Road at Old Guelph	Valley Road	Highway 6 Interchange	2019-2031	Multi-Use Trail	2.50	\$1,433,000	30%	0%	\$1,003,000	15	\$150,000	85	\$853,000
322	Northlawn Avenue Link			2019-2031	Multi-Use Trail	1.10	\$400,000	30%	0%	\$280,000	15	\$42,000	85	\$238,000
323	Mosaic Drive	Parkside Drive	Highway 6	2019-2031	Multi-Use Trail	1.90	\$886,000	30%	0%	\$620,000	15	\$93,000	85	\$527,000
324	Valley Road	Rock Chapel	York Road	2019-2031	Paved Shoulder	1.40	\$312,000	30%	0%	\$218,000	15	\$33,000	85	\$185,000
325	Regional Road 56 south of Kirk	Southbrook	Binbrook Cons Area	2019-2031	Multi-Use Trail	3.00	\$780,000	30%	0%	\$546,000	15	\$82,000	85	\$464,000
326	Regional Road 56	Swayze Road	Cemetery	2019-2031	Multi-Use Trail	4.60	\$3,119,000	30%	0%	\$2,183,000	15	\$327,000	85	\$1,856,000
327	Old Guelph Road	Paterson	York Bike Lane	2019-2031	Paved Shoulder	3.53	\$907,000	30%	0%	\$635,000	15	\$95,000	85	\$540,000
328	Hamilton Drive Link			2032-2041	Multi-Use Trail		\$1,980,000	100%	0%	\$0	15	\$0	85	\$0
	Totals						\$1,355,640,000			\$1,048,544,000		\$219,899,000		\$828,651,000

* Indicates the project where an E.A. cost is included for multiple segments of a road to avoid duplication of E.A. costs



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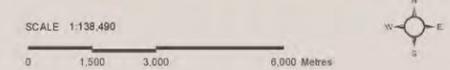
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HAMILTON DEVELOPMENT CHARGES STUDY

ROADS CAPITAL PROJECTS

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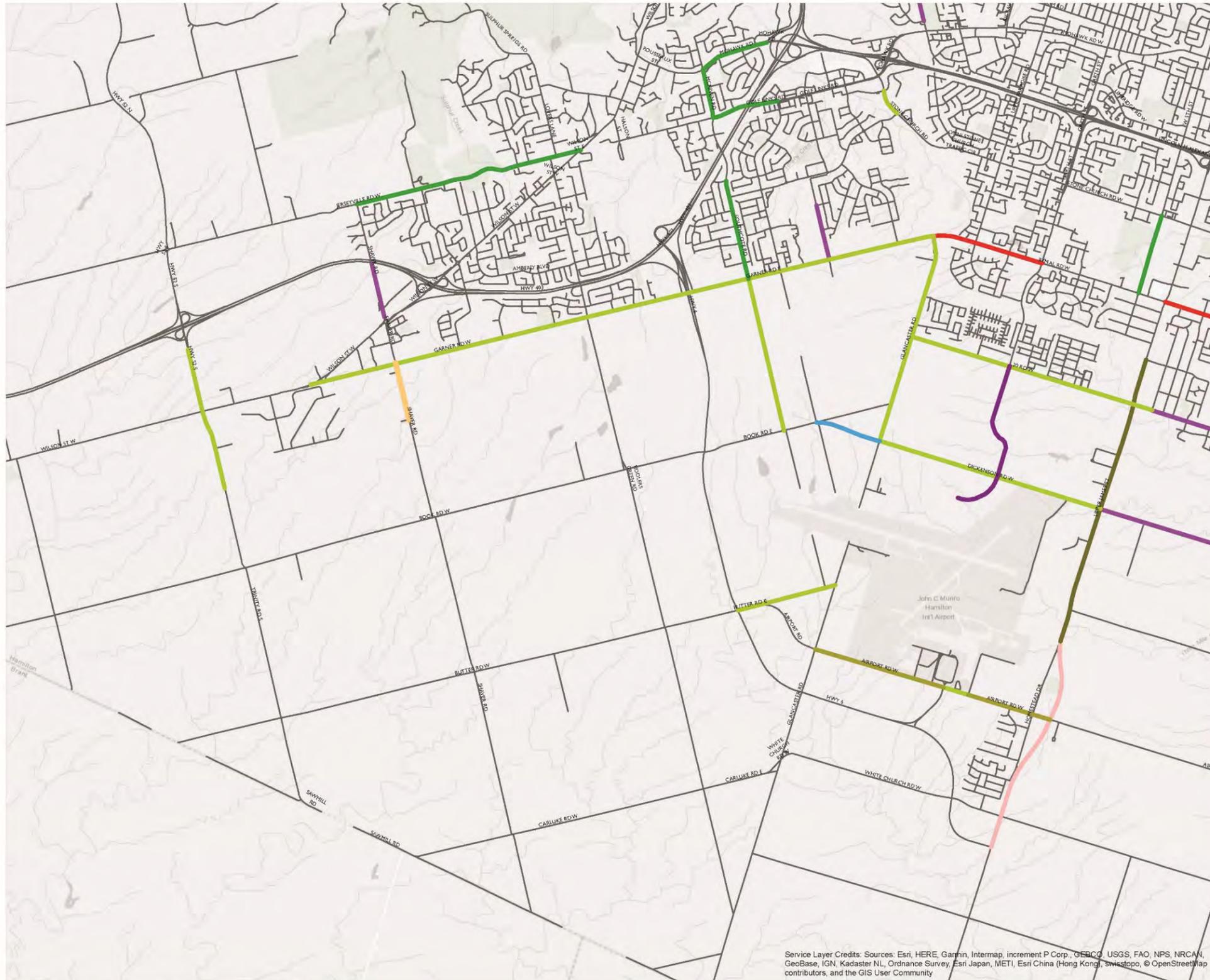
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ROADS CAPITAL PROJECTS

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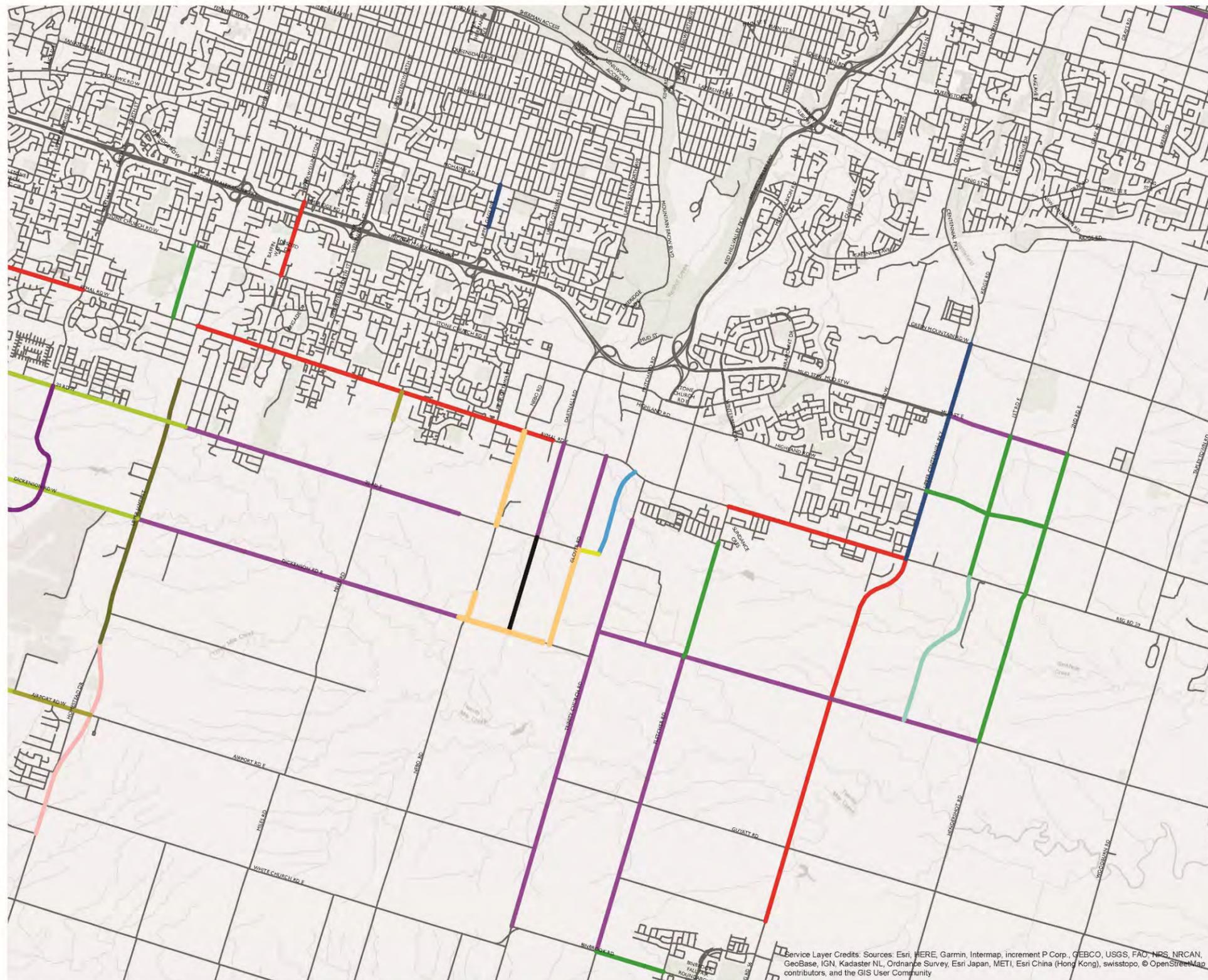
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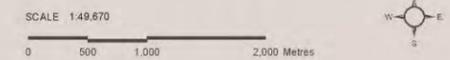
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HAMILTON DEVELOPMENT CHARGES STUDY

ROADS CAPITAL PROJECTS

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HAMILTON DEVELOPMENT CHARGES STUDY

ROADS CAPITAL PROJECTS

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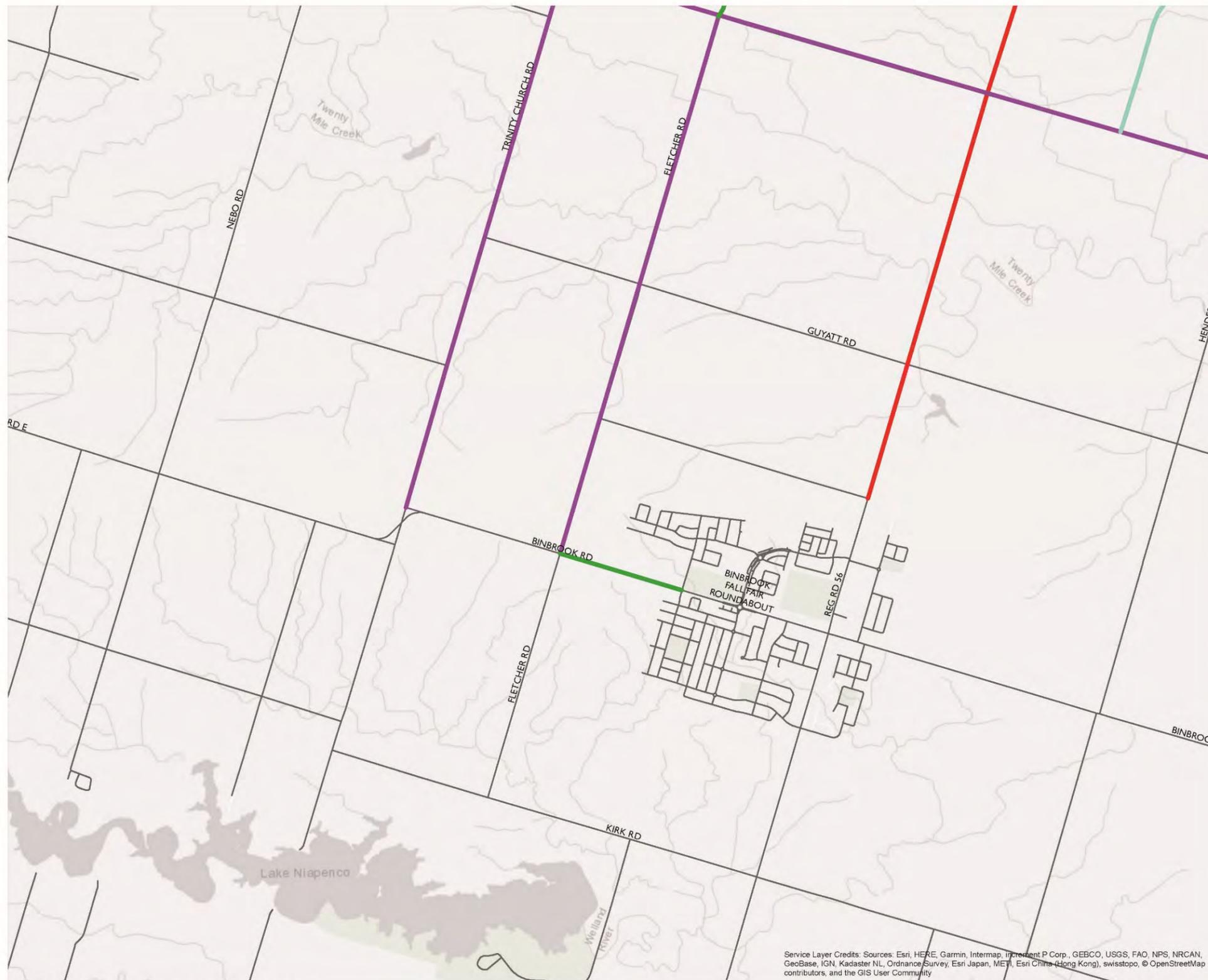


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HAMILTON DEVELOPMENT CHARGES STUDY

ROADS CAPITAL PROJECTS

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Appendix I: Transit Servicing Needs – Dillon Consulting Limited



CITY OF HAMILTON 2019 D.C. BACKGROUND REPORT

Appendix I - Transit

Final Report

March 2019 – 16-4540

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1.0 Introduction

The following report is a technical appendix to Hamilton’s 2019 Development Charges (D.C.) Background Study. The purpose of the report is to provide an overview of the changes to Hamilton’s public transit network within the D.C. study period (2019 to 2028), identify the capital costs associated with improvements and apportion the capital expenditures to existing and growth populations within the same study period.

Development Charges are a tool for municipalities to ensure that “growth pays for growth” – meaning that developments that grow the municipality cover the costs associated with extending municipal services for the new growth caused by these developments. Through the application of D.C., the development community contributes an appropriate share of infrastructure and capital costs (including those for transit) for necessary growth-related improvements over the ten-year planning period. The *Development Charges Act (D.C.A.)*, 1997, as amended regulates when and how municipalities may collect D.C.

The provincial government recently enacted changes to the D.C.A. with direct implications for how the City plans and funds future transit services. Historically, transit services could only be funded through D.C. in the following manner:

- Service costs could only be recovered at up to 90% of total capital cost due to a D.C.A. mandatory 10% reduction of eligible growth related capital cost applied to transit services; and
- Growth-related capital expenditures for transit infrastructure were limited to expenditures that supported maintaining historic service levels. This was calculated based on the average level of service over the prior ten years.

Changes in the D.C.A., which came into effect in January 2016, have resulted in alterations to the City’s growth-related transit funding mechanisms. These changes are summarized as follows:

- The mandatory 10% reduction of eligible growth-related capital costs has been removed for transit services, allowing growth related transit services to be 100% recoverable through D.C.
- The introduction of planned levels of services for transit, with the prescribed method and criteria to establish the service level (outlined in O.Reg. 428/15). This allows municipalities to be forward-looking in estimating future level of service for transit D.C. calculations and apportion them to growth accordingly. It also included new highly prescriptive reporting requirements associated with the background reporting for D.C.

The new reporting requirements that need to be outlined in the D.C. background study related to transit include:

- The calculations that were used to prepare the estimate for the planned level of service for transit services;
- An identification of the portion of the total estimated capital costs related to the transit service that would benefit the anticipated development over the ten-year D.C. period and after the ten-year D.C. period;
- An identification of the anticipated excess capacity that would exist at the end of the ten-year D.C. period;
- An assessment of ridership forecasts for all modes of transit services proposed to be funded, including whether the ridership will be from existing or planned development; and
- An assessment of the ridership capacity for all modes of transit services proposed to be funded by the D.C.

The City of Hamilton's current D.C. By-law will expire on July 6, 2019 and the City is currently in the process of preparing a new by-law. The purpose of this technical appendix is to identify the conventional and specialized transit expenditures that can be funded through D.C. in the City's 2019 D.C. Background Study for transit prepared by Watson & Associates Economists Ltd (Watson).

2.0 Growth Forecasts

Table 1 presents the population and employment growth anticipated in Hamilton. Population and employment data for mid-2011, mid-2016, early-2019, early-2029, and mid-2031 were provided by Watson. Population and employment was assumed to grow linearly between these horizon years.

Table 1: Population and Employment Historical Records and Forecasts (2011-2031)

	Mid-2011	Mid-2016	Early-2019	2028	Early-2029	Mid-2031
Population²	519,949	536,917	549,897	608,438	614,943	636,080
Employment³	178,786	187,551	192,704	227,573	231,447	244,839

¹ Population and employment for mid-2011, mid-2016, early-2019, early-2029, and mid-2031 were provided by Watson & Associates Economists Ltd., 2018. The population and employment for year's in-between were interpolated linearly using the known values.

² Population count includes institutional population, but excludes census undercount.

³ Employment count excludes no-fixed-place-of-work and work at home.

3.0 Transit Network

The following section describes the Hamilton Street Railway (H.S.R.) transit network in 2018, leading up to the start of the D.C. Study period, and the planned changes to the network within the study period (2019 to 2028).

3.1 Existing (2018)

H.S.R. currently operates 35 bus routes servicing Hamilton. **Figure 1** shows the H.S.R. network map. In addition to this, H.S.R. also operates a number of school extra services, special event buses, a TransCab service and a specialized transit service for registered clients with disabilities that cannot use the conventional service.

Within Hamilton, Burlington Transit and Metrolinx also provide inter-municipal opportunities to connect Hamilton to the rest of the Greater Toronto Area. Two combined GO Train and GO Bus stations are located in Hamilton, along with 22 GO Bus-only stations and stops.

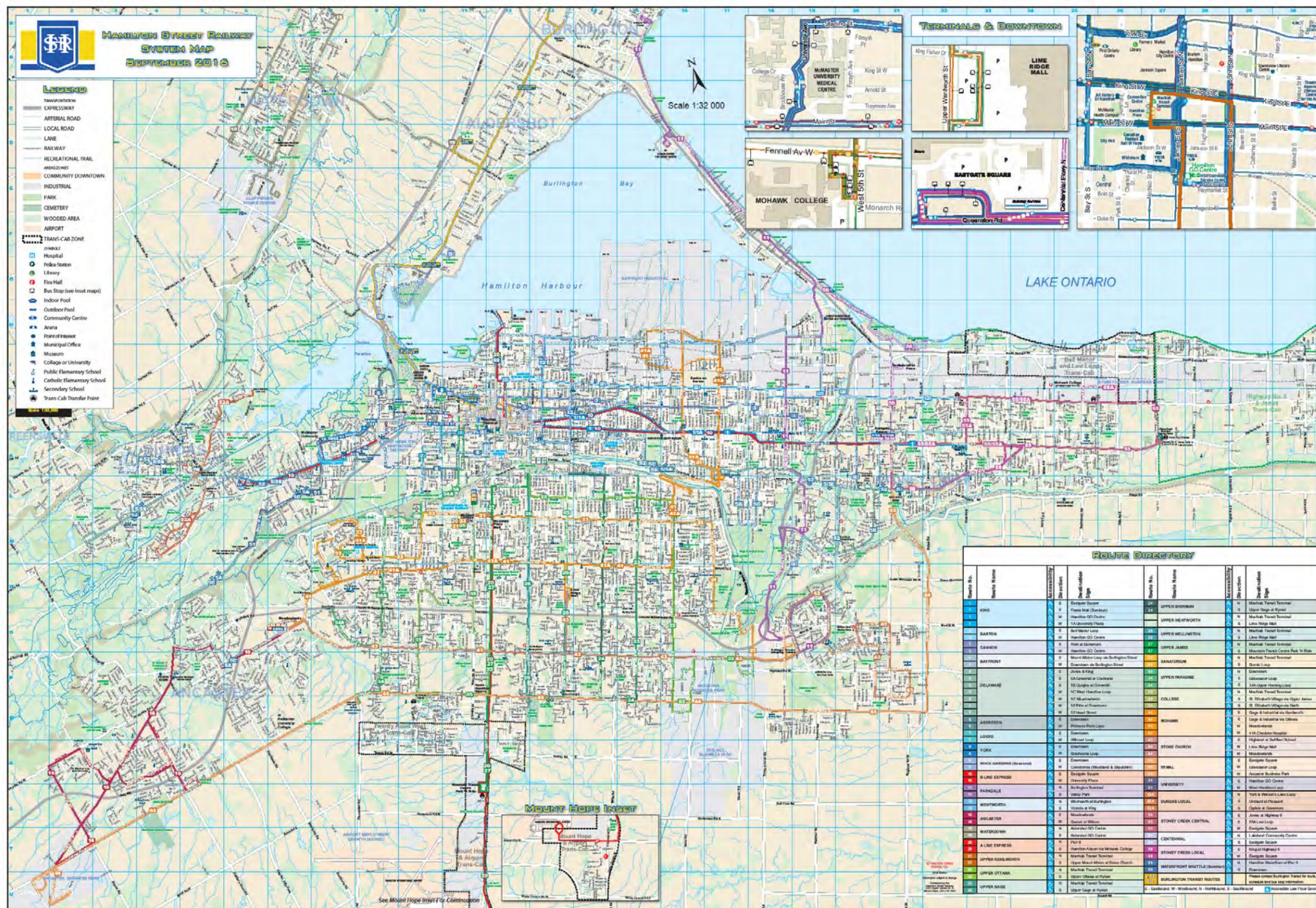


Figure 1: H.S.R. Transit Network

3.2 Planned Transit Improvements to 2028

The following sections discuss the planned changes to the H.S.R. transit network up to the end of the D.C. period (2028).

3.2.1 Ten Year Local Transit Strategy

H.S.R. is currently midway through their Ten Year Local Transit Strategy for the 2015 to 2024 period. This strategy seeks to:

- Address identified deficiencies in the services (such as system reliability and capacity);
- Implement updated Council approved service standards to address any gaps in the standards;
- Increase transit service in pace with Hamilton’s growth; and
- Increase the transit modal share in accordance with the targets identified in Hamilton’s Transportation Master Plan (T.M.P.).

Several initiatives feed into the Ten Year Strategy, including the 2017 T.M.P. update, the development of the Growth Related Integrated Development Strategy II (G.R.I.D.S. 2031 – 2041), and the continued development of the Hamilton Long Term Rapid Transit System (“B.L.A.S.T.”).

3.2.1.1 B.L.A.S.T. Network

B.L.A.S.T. is the name of H.S.R.’s long-term planned network of five BRT lines and two L.R.T. lines through Hamilton. These lines will be fed by existing local bus service. The lines (each named after one of the five letters of the B.L.A.S.T. acronym) are expected to come into service within different horizon terms – some within 15 years, others within 25 years, and others still in the future beyond 25 years. **Figure 2** shows the extent of the currently proposed B.L.A.S.T. network. Only the B-Line L.R.T. project falls within this ten year D.C. period.



Figure 2: Proposed B.L.A.S.T. Network

3.2.1.2

Introduction of the B-Line L.R.T. (2025)

The B-Line L.R.T. project, part of the B-Line component of the B.L.A.S.T. network, is scheduled for completion in 2024. The L.R.T. line will service 17 stops along Main Street and King Street, with terminals at McMaster University in the west and Eastgate Square in the east. A map of the planned L.R.T. project is shown in **Figure 3**. The capital costs associated with the B-Line project are covered fully by Metrolinx, as indicated in the Memorandum of Agreement (M.O.A.) between Metrolinx and the City of Hamilton. For this reason, the B-Line project is not eligible for funding through D.C.

Since the L.R.T. is planned for completion in 2024, it is expected to be in operation during the last years of this D.C. study period. Therefore, for the purposes of this study, the proportion of the overall transit mode share that is specific to the L.R.T. is separated from the proportion allocated to H.S.R. conventional bus service. Within the study, it was assumed that the L.R.T. will be

operational starting in 2025 so an independent mode share for the L.R.T. is calculated starting from that year in a following section.



Figure 3: Planned B-Line L.R.T. Project Map

The L.R.T. will also result in a re-routing of six existing H.S.R. routes along the Main/King corridor. This is projected to result in 18 40-foot buses being retired from service in 2025.

Once the L.R.T. corridor is in place, 18 new 40-foot buses will be required to connect to the L.R.T. corridor in 2025.

3.2.2 Capital Plan – 2015 – 2024

A capital plan was developed by H.S.R. and approved by Council for the period between 2015 and 2024. The capital plan notes both expansion buses park to address growth and to address mode share targets identified in the T.M.P. The use of this capital plan in determining bus requirements in the ten-year D.C. period is described in **Section 5.1** below.

3.2.3 Maintenance and Storage Facility (2023)

A new Maintenance and Storage Facility (M.S.F.) for H.S.R. is anticipated to be completed in 2023. The facility will contain administrative, corporate, and operational departments, including a 205,231 square foot Bus Storage Garage. The new garage is designed to house 304 40-foot

equivalent buses and will contain one tow mobile, one lift truck, and two garage equipment repair vehicles.

4.0 Ten-Year Conventional Transit Ridership and Mode Share Forecast

This section outlines the detailed calculations that were used to forecast transit ridership over the ten-year D.C. period (2019 to 2028) and over the post-period (2029 to 2031).

Transit ridership forecasts were based on achieving a transit mode share target for the 2031 period and determining the associated transit ridership required to achieve the target for each year during the ten-year D.C. period and the post-period. The number of peak vehicles required to accommodate the growing ridership was then estimated (see **Section 5.0**).

4.1 Total Person-Trips Forecast

The total A.M. peak period person-trips reflecting all modes for trips with an origin and/or destination in Hamilton were derived from Hamilton's demand forecasting model for the year's 2011 and 2031. From this model, two total person-trip values were pulled for the A.M. peak period:

- 253,124 person-trips in 2011; and
- 320,352 person-trips in 2031.

Using linear interpolation, the number of person-trips for each year between 2011 and 2031 were calculated. These values were combined with the transit existing (2016) and targeted 2031 transit mode share used to forecast transit ridership.

4.2 2016 Transit Mode Share

The existing transit mode share was derived from the City's demand forecasting model which was used to develop the 2017 Hamilton Transportation Master Plan (T.M.P.). The T.M.P. identifies an existing (2016) local transit mode share for of 6.73% (rounded to 7% in the documentation). The forecasting model for transit trips is based on the A.M. peak period. A.M. peak period ridership was determined by applying this transit mode share to A.M. period total person-trips.

4.3 2031 Transit Mode Share Target

The City of Hamilton 2017 T.M.P. is an integral piece of transportation policy meant to identify future transportation system policy direction, targets and needs as well as identify the City's strategies to achieve these objectives.

The 2017 T.M.P. update utilizes a "2031 Base Case" scenario that includes only previously approved infrastructure improvements from sub-area plans, Council approved initiatives, the capital budget, and the 2014 D.C. By-law. Within this scenario, a 12% total transit mode share target for the 2031 is identified. To achieve this mode share target, development of the B.L.A.S.T. network (discussed in a previous section) and GO Transit rail expansion to the West Harbour and Confederation Stations (all-day service) will need to take place. An increase in H.S.R. service levels to support rapid transit investment are also required.

The 12% total mode share target for 2031 represents both local H.S.R. transit and GO Transit trips to and/or from Hamilton. For H.S.R. trips, this includes transit trips projected to occur on the planned L.R.T. service (funded by Metrolinx) as well as H.S.R. bus trips. It is therefore necessary to isolate H.S.R. bus-only trips from the total transit mode share forecast by removing trips taken on GO Transit and the planned B-Line L.R.T. corridor. This will result in a modified H.S.R. bus-only 2031 transit mode share forecast.

To calculate the portion of the 12% transit mode share for GO Transit trips, transit ridership for the A.M. peak period (including GO Transit trips) for Hamilton was obtained from the 2016 Transportation Tomorrow Survey (T.T.S.). **Table 2** summarizes the existing A.M. peak period transit ridership derived from the 2016 T.T.S.¹.

¹ Note: Local transit ridership from the 2016 T.T.S. does not align with the transit ridership from the City of Hamilton demand forecasting model due to differences in data sources. The data used in this table is only used to obtain a ratio of local transit trip to GO Transit trips in the City of Hamilton. This was used to project the proportion of the 2031 mode share that is for GO Transit trips.

Table 2: 2031 A.M. Peak Period Transit Mode Share based on 2016 T.T.S. and Hamilton E.M.M.E Model

	Origin in Hamilton	Destination in Hamilton	Origin and Destination in Hamilton	Origin and/or Destination in Hamilton	Distribution of Transit Trips (H.S.R. & GO)	2031 Transit Mode Share
Local Transit Only	17,329	18,736	16,158	19,907	94.2%	11.3%
Local Transit + GO	783	435	0	1,218		
GO Only	1,288	4	0	1,292	5.8%	0.7%
Total Transit	19,400	19,175	16,158	22,417		12.0%

The 2016 T.T.S. data illustrated in **Table 2** was used to determine the percent of transit trips that use H.S.R. services and the percent that only use GO Transit during the A.M. peak period. While GO Transit trips are not included in the D.C. calculation, this is required to help estimate the future local transit mode share target. The methodology to determine existing transit mode share for local transit and GO Transit trips is described below:

Formula

2016 A.M. Peak Local Transit Only Origin and/or Destination Trips in Hamilton
 = Origin in Hamilton Trips + Destination in Hamilton Trips - Origin and Destination in Hamilton Trips

Calculation

= 17,329 + 18,736 – 16,158
 = 19,907

Formula

2016 A.M. Peak Local Transit + GO Origin and/or Destination Trips in Hamilton
 = Origin in Hamilton Trips + Destination in Hamilton Trips - Origin and Destination in Hamilton Trips

Calculation

= 783 + 435 – 0
 = 1,218

Formula

2016 A.M. Peak GO Only Origin and/or Destination Trips in Hamilton
 = Origin in Hamilton Trips + Destination in Hamilton Trips - Origin and Destination in Hamilton Trips

Calculation

= 1,288 + 4 - 0
 = 1,292

Formula

2016 A.M. Total Transit Trips with an Origin and/or Destination Trips in Hamilton
 = 2016 A.M. Peak Local Transit Only Origin and/or Destination Trips in Hamilton
 + 2016 A.M. Peak Local Transit + GO Origin and/or Destination Trips in Hamilton
 + 2016 A.M. Peak GO Only Origin and/or Destination Trips in Hamilton

Calculation

= 19,907 + 1,218 + 1,292
 = 22,471

Formula

Percent of 2016 A.M. Peak H.S.R. Transit Trips Relative to 2016 A.M. Peak Total Transit Trips
 = (2016 A.M. Peak Local Transit Only Origin and/or Destination Trips in Hamilton
 + 2016 A.M. Peak Local Transit + GO Origin and/or Destination Trips in Hamilton)
 / 2016 A.M. Total Transit Trips with an Origin and/or Destination Trips in Hamilton

Calculation

= (19,907 + 1,218)
 / 22,471
 = 94.2%

Formula

Percent of 2016 A.M. Peak GO Transit Trips Relative to 2016 A.M. Peak Total Transit Trips
 = 2016 A.M. Peak GO Only Origin and/or Destination Trips in Hamilton
 / 2016 A.M. Total Transit Trips with an Origin and/or Destination Trips in Hamilton

Calculation

$$= 1,292$$

$$/ 22,471$$

$$= 5.8\%$$

Based on the above calculations, Transit trips that use H.S.R. services for all or part of its trips represent 94.2% of all transit trips with and origin and/or destination in Hamilton. GO Transit trips represent the remaining 5.8%. This ratio was applied to the 12.0% Transit mode share target for 2031 to determine what proportion of these trips would use GO Transit service only. This is calculated using the following methodology:

Formula

$$2031 \text{ Local (H.S.R.) Transit A.M. Peak Mode Share Target}$$

$$= 2031 \text{ All Transit A.M. Peak Mode Share Target for Hamilton} \times \text{Percent of 2016 A.M. Peak H.S.R. Transit Trips Relative to 2016 A.M. Peak Total Transit Trips}$$

Calculation

$$= 12.0\% \times 94.2\%$$

$$= 11.3\%$$

Therefore, the local transit H.S.R. mode share for 2031 is 11.3%.

Since the T.M.P. update does not identify different mode share targets per land use, area of the city, neighbourhood, etc., the 11.3% target share is considered to be city-wide.

4.4 Transit Ridership and Mode Share Forecasts

4.4.1 Capital Plan Period (2019 – 2024)

H.S.R.’s existing ten-year Capital Plan (for the years 2015 to 2024, inclusive), outlines the agency’s fare policy, capital investment plan, and expected annual ridership for those years. To determine A.M. peak period ridership forecasts between 2017 and 2024, the ratio of existing annual 2016 H.S.R. ridership and 2016 A.M. peak period ridership was calculated and applied to the annual ridership forecast between 2017 and 2024. This provides A.M. peak period ridership projections for the first six years of the D.C. period (2019 to 2024).

4.4.2 Separation of H.S.R. and L.R.T. Ridership and Mode Shares (2025 – 2031)

The B-Line L.R.T. is expected to be completed at the end of 2024, resulting in ridership being split between bus and L.R.T. from 2025 onwards. Because the L.R.T. is not D.C. eligible, the mode share associated with the L.R.T. has to be separated from the total local transit mode share and ridership values for the years 2025 to 2031. This methodology is summarized below.

L.R.T. Mode Share in 2031:

- The 2017 Hamilton Transportation Master Plan update projects the 2031 L.R.T. A.M. peak period ridership to be 4,760.
- This corresponds to a 1.5% mode share for L.R.T. only in 2031, based on the total A.M. peak period person-trips for 2031 (320,352) from the transportation model.

H.S.R. Bus Mode Share in 2031:

- The H.S.R. Bus-only 2031 mode share was calculated by subtracting the L.R.T. mode share by the Local Transit mode share. This results in a H.S.R. Bus-only 2031 mode share of 9.8% (11.3% - 1.5% = 9.8%).
- This corresponds to 31,440 H.S.R. Bus-only trips made during the A.M. peak period.

Local Transit Mode Share in 2024:

- 2024 corresponds to the last year of the Capital Plan ridership forecasts conducted by H.S.R. Because the L.R.T. is not considered complete until the end of this year, the bus ridership for 2024 is equivalent to all local transit ridership for Hamilton.
- The A.M. peak period bus (and thus, local transit) ridership for 2024 is 19,992, as stated in the Capital Plan.

By linearly interpolating backwards for each year from 2031 and 2024, the ridership and mode share for both bus and L.R.T. were obtained.

4.4.3 Summary of Modes Share and Ridership

Table 3 summarizes the forecasted ridership and mode share for all local H.S.R. transit between 2016 and 2031. The ten-year D.C. period (2019 – 2028) is highlighted. Between 2019 and 2028, A.M. peak period ridership for H.S.R. Bus-only service is expected to grow from 17,974 to 26,504 (an increase from a 6.4% mode share to an 8.5% mode share) within this D.C. study period.

Table 3: Summary of Projected Local H.S.R. Transit Ridership and Mode Share

	2016																
Total A.M. Peak Period Person Trips (from Emme model)	269,931	273,292	276,654	280,015	283,377	286,738	290,099	293,461	296,822	300,184	303,545	306,906	310,268	313,629	316,991	320,352	
Total Local A.M. Peak Period Ridership	18,166	18,093	18,016	17,974	18,078	18,462	18,981	19,426	19,922	22,519	25,117	27,714	29,836	31,957	34,078	36,200	
A.M. Peak Period H.S.R. Bus Ridership	18,166	18,093	18,016	17,974	18,078	18,462	18,981	19,426	19,922	21,567	23,213	24,858	26,504	28,149	29,794	31,440	
A.M. Peak Period H.S.R. L.R.T. Ridership										952	1,904	2,856	3,332	3,808	4,284	4,760	
A.M. Peak Period H.S.R. Bus Mode Share	6.7%	6.6%	6.5%	6.4%	6.4%	6.4%	6.5%	6.6%	6.7%	7.2%	7.6%	8.1%	8.5%	9.0%	9.4%	9.8%	
A.M. Peak Period H.S.R. L.R.T. Mode Share										0.3%	0.6%	0.9%	1.1%	1.2%	1.4%	1.5%	
Total Mode Share	6.7%	6.6%	6.5%	6.4%	6.4%	6.4%	6.5%	6.6%	6.7%	7.5%	8.3%	9.0%	9.6%	10.2%	10.8%	11.3%	

5.0 Ten-Year Capital Plan for D.C. Application

A ten-year capital plan for H.S.R. was developed for the D.C. study period (2019 – 2028). This capital plan includes forecasted demands for new conventional, specialized (for persons with disabilities), and supervisor and other support vehicles for the capital plan period.

5.1 New Conventional Transit Vehicles

H.S.R. utilizes five different vehicle types within its fleet:

- 26-foot Arboc vehicles;
- 30-foot community bus;
- 40-foot standard buses,
- 35-foot trolley; and
- 60-foot articulated buses.

Since the two Trolleys that H.S.R. operates are only used during the off-peak period and are planned to be discontinued from service, these were removed from further consideration in the D.C. analysis.

To simplify the methodology presented in the following sections, all buses were converted to standard 40-foot equivalent buses based on seating capacity. The conversion factors for equivalency are shown below in **Table 4**. H.S.R. also has plans to replace part of its existing fleet within different vehicles types. The conversion factor for when this occurs is also illustrated in **Table 4**.

Table 4: 40-foot Bus Capacity Equivalency Factors

Bus Type	Seats	40-Foot Equivalency Factor
26-foot Arboc Bus	19	0.56
30-foot Community Bus	24	0.71
40-foot Standard Bus	34	1.00
60-foot Articulated Bus	53	1.56
Replace 40-foot with 60-foot	-	0.56*

Bus Type	Seats	40-Foot Equivalency Factor
Replace 40-foot with 30-foot	-	-0.29*
Replace 26-foot with 30-foot	-	0.15*

*Note: Equivalency factor for replacements notes represents the net increase or decrease in capacity

Two approaches were used to estimate future bus requirements, based on the ridership forecasts detailed in **Section 4.4**.

5.1.1 2019 – 2025 – Capital Plan

The Ten-Year (2015 to 2024) Capital Plan described in **Section 3.2.2** identifies year-by-year P.M. peak period vehicle expansion requirements required to achieve the recommended service plan. It should be noted that the implementation of the plan is one year behind schedule. Therefore, the fleet requirements noted in **Table 5** were brought forward one year from 2019 to 2025. The capital plan represents:

1. Expansion Vehicles to meet the growth targets and implementation of the local transit expansion and the B.L.A.S.T. network.
2. Replacement Upgrades, where an existing vehicle is replaced with a vehicle that has a higher capacity (e.g. 40-foot bus replaced with a 60-foot articulated bus). In these situations, the cost difference between the two vehicles is considered an eligible D.C. expense as it is adding capacity to the network.
3. In 2025, 18 of the 33 expansion buses that operate on the B-Line L.R.T. corridor will be retired. When this occurs, 18 new 40-foot buses will be purchased to feed the B-Line L.R.T. corridor.

Additionally, H.S.R. has provided a schedule of planned bus replacements for 2019. **Table 5** shows the planned new buses as well as the planned bus replacements for the 2019-2025 period.

Table 5: Planned Expansion Buses Identified in the Capital Plan

Bus Type	2019	2020	2021	2022	2023	2024	2025
New 26-foot	-	-	-	-	-	-	-
New 30-foot	-	-	-	-	-	-	-
New 40-foot	11	13	14	14	14	15	33
New 60-foot	-	-	-	-	-	-	-

Bus Type	2019	2020	2021	2022	2023	2024	2025
Replace 40-foot with 60-foot	11	-	-	-	10	-	-
Replace 40-foot with 30-foot	6	-	-	-	-	-	-
Replace 26-foot with 30-foot	5	-	-	-	-	-	-

The above represent expansion buses required for the P.M. peak period. Additional spare buses have been added to the peak period requirements to achieve the desired spare ratio.

5.1.2 2026-2031 – First Principles Approach

To calculate peak bus requirements between 2026 and 2031, a first principles approach was used based on the assumption that an increase in the level of service provided is required to achieve the 9.8% A.M. peak period 2031 H.S.R. bus-only transit mode share target (the identification of which, is discussed in **Section 4.0**).

To better understand the amount of service required to achieve the ridership growth target, a peer review of municipal transit systems that are similar to the City of Hamilton’s expected transit system in 2031 (based on forecasted service area population, ridership, and boardings per capita) was completed. This assisted in benchmarking appropriate targets for level of service and efficiency of system use.

Since no one transit system is directly comparable to Hamilton (as each system has unique contexts and characteristics), a blended average was used to estimate service level requirements needed for H.S.R. to reach the 2031 mode share target. The peer review includes systems such as Laval and London, which have slightly lower populations and transit ridership and also slightly larger systems such as Mississauga and Winnipeg that have relatively higher populations and ridership than Hamilton in 2031. A key objective was to achieve an average boardings per capita that is similar to what Hamilton is expected to achieve by 2031 (approximately 61.05 boardings per capita). **Table 6** presents the findings of this review.

Table 6: Peer Review (with values from C.U.T.A. 2016 Fact Book)

Municipality	Service Area Population	Population	Ridership	Peak Buses	Revenue Hours	Peak (40ft Equivalent) Buses per 10,000 Capita	Boardings per Revenue Hour	Ridership per Capita
Laval	430,077	430,077	22,007,127	254	628,627	5.91	40.6	51.17
London	385,100	385,100	22,574,959	174	602,694	4.51	39.2	58.62
Mississauga	764,300	764,300	38,597,356	389	1,413,963	5.09	38.8	50.50
Quebec City	595,356	595,356	44,913,861	540	1,144,937	10.91	39.2	75.44
Winnipeg	698,200	735,600	48,521,820	520	1,411,126	7.07	48.8	69.50
AVERAGE	574,607	582,087	35,323,025	375	1,040,269	6.45	41.9	61.05
Hamilton (2016)	490,673	536,917	21,495,758	222	810,410	4.53	36.0	43.81
Hamilton (2028)	556,034 ¹	608,438	31,360,972 ²	-	-	-	-	56.43
Hamilton (2031)	581,295 ¹	636,080	37,201,836	-	-	-	-	64.05

¹ Estimated by applying the ratio of the 2016 Hamilton population and the 2016 Service Area population to the 2028 and 2031 population projection

² This represents H.S.R.'s Bus-only forecasted annual 2028 and 2031 ridership. The A.M. peak period ridership was converted to annual ridership using a ratio of the 2016 A.M. peak period ridership and 2016 annual H.S.R. ridership from the Canadian Urban Transit Association (C.U.T.A.) Fact Book.

There are two key factors that can be used to determine the future peak bus requirements for the City of Hamilton:

1. Peak 40-foot equivalent buses per 10,000 capita
2. Boardings per revenue vehicle hour

Peak 40-foot equivalent buses per 10,000 capita helps define the amount of service each municipality provides based on their population. This was calculated using the conversion ratios in **Table 4**. Currently, H.S.R. provides 4.53 peak (40-foot equivalent) buses per 10,000 capita. To achieve the 2031 mode share target and ridership per capita of 61.05, H.S.R. should target providing 6.45 peak 40-foot equivalent buses per 10,000 capita by 2031.

Boarding per revenue vehicle hour reflects the effectiveness of service. In 2016, H.S.R. had 36.01 boardings per revenue service hour while the peer group operated at 41.9 boardings per revenue vehicle hour. To understand the number of peak buses required to achieve the mode share target, a balance is required to increase service levels (peak buses per capita) while improving system productivity (increasing the utilization of each in-service vehicle). The strategy employed by Hamilton was to focus service level improvements early in the D.C. period (as noted in the 2015 to 2024 capital plan to build ridership, then move towards improving system productivity to match the peer group average noted in **Table 6**.

The following provides a detailed description of how peak vehicle requirements were calculated.

2018 Level of Service and Effectiveness of Service (Productivity)

- A.M. Peak Hour ridership was converted to A.M. Peak hour boardings by applying the 2016 ratio of existing (2016) annual H.S.R. boardings and rides to the 2018 A.M peak period ridership (30% transfer rate).
- Boardings per A.M. peak revenue hour was estimated by dividing the A.M. peak period ridership by 2.5. This is a conservative estimate as the ridership during the peak period would have a peaking characteristic during one hour of service.
- Boardings per A.M. peak revenue vehicle hour in 2018 was estimated by dividing boardings per A.M. peak revenue hour by the number of A.M. peak hour 40-foot equivalent vehicles (provided by H.S.R.). Currently, on average each vehicle accommodates 46.7 boardings per revenue vehicle hour of service in the A.M. peak period.

2031 Level of Service and Efficiency of System Use

- The peer review shows that peer systems have an average of 375 40-foot equivalent peak buses to service an average population and ridership similar to those anticipated to represent H.S.R. in

2031. Since in 2016, H.S.R. had only 222 40-foot equivalent peak buses, which is far below the peer system average, growth of the number of peak buses was targeted.

- An A.M. peak hour boardings per revenue vehicle hour target was established using the peer group average identified in **Table 5**. In 2016, H.S.R. operated at 36.01 boardings per revenue vehicle hour based on annual ridership and service hours compared to 41.9 boardings per revenue vehicle hour in the peer group. The peer group represents a 14% increase in productivity which suggests there is capacity in the system to improve productivity while still focusing on service level growth (to achieve the 2031 mode share target).
- The 16% increase in productivity from the peer group was applied to the 46.7 A.M. peak hour boardings per revenue vehicle hour achieved by H.S.R. in 2018 to calculate a 2031 A.M. peak hour boardings per revenue vehicle hour target. Applying a 16% increase to the 2018 H.S.R. A.M. peak hour boardings per revenue vehicle hour performance indicator results in a 2031 target of 54.3 A.M. peak hour boardings per revenue vehicle hour.
- Fleet requirements between 2019 and 2025 are based on the approved capital plan. By the end of 2025, H.S.R. bus only ridership is anticipated to have operate at approximately 39 boarding per revenue vehicle hour during the A.M. peak hour. This is a slight reduction in productivity as ridership uptake often lag 2-3 years behind investment in service.
- To calculate peak hour bus requirements between 2026 and 2031, the annual growth in boardings was divided by a boardings per revenue vehicle hour performance indicator in each year. The strategy increased the productivity of service gradually each year from 39 boardings per revenue vehicle hour in 2025 to 54.3 in 2031.
- Since H.S.R.'s peak fleet requirements occurs in the P.M. peak period, there was a need to factor the A.M. peak period bus requirements to the P.M. peak period. In 2018, H.S.R. operated 200.5 40-foot equivalent buses during the A.M. peak period and 228.25 40-foot equivalent buses during the P.M. peak period. The ratio between the two periods was applied to any future A.M. peak hour bus requirements to understand the future fleet requirements.
- The service plan results in an increase in service levels (measured by calculating 40-foot equivalent peak buses per 10,000 capita. This grew from 4.11 P.M. peak period 40-foot equivalent buses in 2018 to 5.71 in 2031 (while also increasing the productivity of the system). It should be noted that the 2031 planned peak 40-foot equivalent buses per 10,000 capital falls below the peer average of 6.45 due to the increased focus on productivity.
- H.S.R. maintains an existing spare ratio of approximately 17.6% of its total fleet. The capital plan identifies the spare ratio reducing to 15% during this period. This is a fairly low spare ratio that will need to be increased to provide a reliable service. Beyond 2025, the spare ratio is planned to gradually increase to 20%.
- Based on the peak buses required in 2031, this yields a total fleet size of 425 buses. In total, an additional 187 new expansion buses (peak and spare) are required by 2031.

2028 Level of Service and Efficiency of System Use

- The approved H.S.R. capital plan identifies peak period bus expansion requirements between 2019 and 2025. This is illustrated in **Table 5**. The remaining three years (2026 to 2028) were forecasted through the first principles approach illustrated above.
- By 2028, productivity will increase from 36.0 A.M. peak hour boardings per revenue vehicle hour to 45.0 A.M. peak hour boardings per revenue vehicle hour. This will result in 5.77 peak 40-foot equivalent buses per 10,000 capita (representing an improvement from 2016).
- This results in a requirement of an additional 117 expansion 40-foot buses plus 32 new 40-foot spare buses between 2019 and 2028. In addition to this, a number of replacement buses will result in expansion of vehicle size, which represents a direct benefit to growth.
- H.S.R. maintains approximately 15% of its total fleet as spare buses within the Capital Plan period (2019-2025). Past this, at instruction from H.S.R., the spare ratio is gradually increased to be a minimum of 20% again by 2031. The spare ratio is 15% for 2019 - 2025, 17% in 2026, 18% in 2027, 19% in 2028, and 20% in 2029-2031.

The total expansion bus requirements for each year based on the methodology described above is illustrated in **Table 7** below.

Table 7: 2019 to 2031 Expansion Bus Forecast

Bus Type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
26'														-
30'														-
40'	11	13	14	14	14	15	15	8	6	7	6	6	0	129
60'														-
Replace 40-foot with 60-foot	11				10									21
Replace 40-foot with 30-foot	6													6
Replace 26-foot Arboc with 30ft	5													5
Replace retired 40-							18							18

Bus Type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
foot buses on L.R.T. corridor														
Spares (40-foot)	-1	0	0	2	3	3	2	8	8	7	7	1	0	40
TOTAL NEW	10	13	14	16	17	18	17	16	14	14	13	7	0	169

5.1.3 Capital Cost for Conventional Transit

The breakdown of the total costs by vehicle type in 2018 dollars is shown in **Table 8**. All costs were obtained from H.S.R. Any costs from historical years were grown annually by 2% to 2019. Information Technology Systems (I.T.S.) that are installed on each bus have also been identified in **Table 8** and added to the total bus purchase cost.

Capital costs associated with the conversion of a lower capacity vehicle a higher capacity vehicle are identified by taking the net difference in cost between the two vehicle types. Only this portion of the capital cost is included in the D.C. calculations.

Table 8: Total Costs (2019 \$) by Bus Type

	26-foot Arboc	30-foot Bus	40-foot Bus	60-foot Artic. Bus	30-foot to 40-foot Bus Replace	40-foot to 60-foot Bus Replace	40-foot to 30-foot Bus Replace	26-foot to 30-foot Bus Replace
Capital Cost of Bus	\$206,500	\$566,800	\$739,500	\$932,900	\$172,700	\$193,400	\$0	\$360,300
IT Package	\$28,000	\$28,000	\$28,000	\$28,000	-	-	-	-
Farebox	\$15,600	\$15,600	\$15,600	\$15,600	-	-	-	-
PRESTO	\$16,600	\$16,600	\$16,600	\$16,600	-	-	-	-
Cameras	\$8,300	\$8,300	\$8,300	\$8,300	-	-	-	\$8,300
Bike Racks	\$1,500	\$1,500	\$1,500	\$1,500	-	-	-	-
Wi-Fi Equipment	\$2,100	\$2,100	\$2,100	\$2,100	-	-	-	-
TOTAL	\$278,600	\$638,900	\$811,600	\$1,005,000	\$172,700	\$193,400	\$0	\$368,600

Note: Costs rounded to nearest \$100

Based on the peer group analysis and the costs above, the following conventional transit bus fleet capital plan was created.

Table 9 shows the conventional transit bus requirements between 2019 and 2028 and between 2029 and 2031 and the total cost for these anticipated conventional transit fleet expansions.

Table 9: Conventional Transit Bus Requirements by 2028 and 2031

	Unit Cost (2019\$)	2019 – 2028	2029 – 2031
TOTAL Expansion Vehicles Required		117	12
New 26-foot Arboc	\$278,600	-	-
New Peak Hour 30-foot Bus	\$638,900	-	-
New Peak Hour 40-foot Bus	\$811,600	117	12
New Peak Hour 60-foot Bus	\$1,005,000	-	-
New Spare 40-foot Bus	\$811,600	32	8
TOTAL New Vehicles Required (incl. spares)		149	20
Replacement of Retired 40-Foot buses on L.R.T. corridor	\$811,600	18	
New 40-foot to 60-foot Replacement Upgrades	\$193,400	21	-
New 40-foot to 30-foot Replacement Upgrades	\$0	6	-
New 26-foot to 30-foot Replacement Upgrades	\$368,600	5	-
TOTAL COST OF ADDITIONAL VEHICLES (= [Total Additional Vehicles +Total Replacement Upgrades] x Unit Costs)		\$141,441,600	\$16,232,000

Note: Costs rounded to nearest \$100

5.2 Specialized Transit

5.2.1 Background

Specialized Transit service is provided by D.A.R.T.S., a non-profit organization that is contracted to provide the service to registered persons with disabilities in Hamilton. D.A.R.T.S. works under contract to Accessible Transit Services (A.T.S.), a department of the H.S.R. In 2017, the system had 12,604 registrants (of which 6,153 are active) and delivered 709,721 annual trips.

A.T.S. utilizes the following vehicles types (with noted quantities) to deliver its service:

- 8 Chevy 34-foot Braun;

- 25 M.V.1. S.E.;
- 19 Dodge Promasters; and
- 100 Dodge Caravans.

Vehicles are purchased by the contractor, with the amortized cost included as part of its contract rate paid by H.S.R. The fleet includes some larger capacity accessible vehicles and some lower capacity non-accessible vans. It should be noted that the M.V.1. S.E. is no longer being produced and these will be replaced by Dodge Promaster vehicles.

D.A.R.T.S. also subcontracts some of its service to the taxi industry if the existing fleet cannot accommodate demand. This has allowed H.S.R. to maintain a low trip denial rate of 1.6%, which is below the industry standard.

Expansion vehicles required to accommodate growth in registrants and ridership will be calculated to maintain the same proportion of vehicles that are in use today.

5.2.2 Ridership Forecast

Ridership growth on D.A.R.T.S. (specialized transit) will grow as a result of three main reasons:

- Population growth in the community;
- Aging population; and
- Increase in number of trips per registrant due to improvements in the service (with use of smaller vehicles and a decrease in average travel time).

Population growth will see an increase in the number of D.A.R.T.S. registrants that will request trips on the service. This will increase the vehicle requirements over the ten-year D.C. period.

An aging population (from both the existing and growth population) will also see an increase in the number of D.A.R.T.S. registrants. Changes in demographics by age cohort from the Ontario Ministry of Finance's (O.M.F.'s) *Population Projections for 2017 to 2041* were provided by the City of Hamilton. These projections show both a growing and an aging population.

The forecasts in the report were adjusted to match the more current total population forecasts provided by Watson up to 2031 (see **Section 2.0**). The ratios of each age group to the total population provided in the O.M.F. projections were maintained and updated to reflect the updated total population forecast provided by Watson. The results of this adjustment are shown in **Table 10** below.

Table 10: Population by Age Cohort

Age Group	2018	2019	2028	2031
0-14	84,047	84,415	93,690	97,994
15-24	70,233	69,220	69,250	71,672
25-44	150,139	153,223	170,468	174,523
45-64	147,290	146,566	143,286	146,799
65-74	51,809	53,633	71,241	75,407
75+	42,052	42,839	60,503	69,685
Total	545,570	549,897	608,438	636,080
New Growth Population	--	4,327	62,868	90,510

¹ Source: Ontario Population Projections Update, 2017–2041 (Ontario Ministry of Finance - <https://www.fin.gov.on.ca/en/economy/demographics/projections/>)

The table above shows that the existing Hamilton population is aging. Stats Canada notes that approximately 13.7% of the Canadian population has a disability. The prevalence of disability rises as we age, from 4.4% of the population in the 15 to 24 year cohort to 42.5% of the population in the 75+ year cohort. With an aging population, there will be a growth in the number of D.A.R.T.S. registrants from the existing population over the 10-year D.C. period.

To calculate the growth in registrants, the prevalence of disability by each age cohort was multiplied by the number of residents in each corresponding age cohort between 2018 and 2031. This provided the potential number of persons with disabilities each year (as illustrated in **Table 11** below).

Table 11: Potential Persons with Disabilities by Age Group¹

Age Group	Prevalence of Disability ¹	2018	2019	2028	2031
15-24	4.4%	3,090	3,046	3,047	3,154
25-44	6.5%	9,759	9,960	11,080	11,344
45-64	16.1%	23,714	23,597	23,069	23,635
65-74	26.3%	13,626	14,106	18,736	19,832
75+	42.5%	17,872	18,207	25,714	29,616
Total Persons with Disabilities		68,061	68,914	81,647	87,580

¹ Source: *Prevalence of disability, by age group, aged 15 years or older, Canada, 2012* (Statistics Canada - <http://www.statcan.gc.ca/pub/89-654-x/2015001/tbl/tbl02-eng.htm>)

It should be noted that not all persons with disabilities would be eligible for D.A.R.T.S. The definition of disability is fairly broad and could include disabilities that would not prevent a resident from using the conventional bus service. Therefore, a ratio of existing (2017) D.A.R.T.S. registrants to potential persons with disabilities in 2017 was calculated and applied to each corresponding year. The formula to calculate this is noted below using 2028 as an example:

Formula

$$\begin{aligned} & 2017 \text{ D.A.R.T.S. Registrants} / 2017 \text{ Potential Persons with Disabilities} \\ & = \# \text{ of D.A.R.T.S. Registrants Trip Rate per Potential Person with a Disability} \\ & \times 2028 \text{ Potential Persons with Disabilities} \\ & = 2028 \text{ D.A.R.T.S. Registrants} \end{aligned}$$

Calculation

$$\begin{aligned} & 12,604 / 67,256 \\ & = 0.1874 \\ & \times 81,647 \\ & = 15,301 \end{aligned}$$

In addition to this, there has been a recent increase in the number of registrants due to improvements in service levels as A.T.S. has modified its practices to comply with the Accessibility for Ontarians with Disabilities Act (A.O.D.A.) legislative requirements. In addition to the typical growth in registrants that occur annually, forecasts provided by H.S.R. suggested an increase of 300 registrants in 2017 and a further increase in 100 registrants in 2018 due to changes in service as a result of A.O.D.A. legislative requirements. To account for this, 100 new registrants was added in 2018 and carried forward each year. This results in an increase of 100 registrants in 2028 (from 15,301 calculated above to 15,401).

A.T.S. also measures the number of active registrants (those that use the service at least once per year). In 2017, 49% of all registrants were considered 'active registrants'. This ratio was applied to each year to calculate the forecast the number of active registrants in the D.C. period.

The forecasted number of D.A.R.T.S. registrants and active registrants during the 10-year D.C. period is illustrated in **Table 12** below. To calculate ridership, the number of trips made by each registrant was also calculated.

In 2017, on average, 115.3 trips were made annually per active registrant on the D.A.R.T.S.

H.S.R. forecasts indicate that the number of trips per active registrant will increase from 115.3 in 2017 to 130 in 2021. This is due to improvements that were made in service levels as a result of A.O.D.A. compliance, the use of smaller vehicles and shorter travel times as a result of scheduling improvements.

To calculate ridership, the trip rate per active registrant per year was multiplied by the forecasted number of registrants. This is illustrated in **Table 12**. As illustrated, trips provided by D.A.R.T.S. is expected to grow from 731,148 in 2018 to 975,390 by 2028. This will require an increase in bus fleet to accommodate the additional demand.

Table 12: Specialized Service Registrant and Ridership Forecast

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Total Registrants	12,604	12,956	13,015	13,239	13,475	13,745	14,013	14,281	14,549	14,828	15,111	15,401	15,698	16,108	16,513
Active Registrants	6,153	6,275	6,354	6,463	6,578	6,710	6,841	6,972	7,103	7,239	7,377	7,518	7,664	7,864	8,061
Rides per Active Registrant	115.3	116.0	119.2	127.5	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
Total Annual Ridership (1000's)	710	728	757	824	855	872	889	906	923	941	959	977	996	1,022	1,048

5.2.3 Capital Costs for Specialized Transit

To forecast the expansion of the specialized vehicle fleet, the ratio of 2017 specialized fleet vehicles to the 2017 total annual ridership was calculated. This ratio was then forecasted to determine the number of future additional vehicles required based on the anticipated ridership in the future years.

The formula used to calculate this is noted below:

$$\text{Number of Specialized Vehicles Needed per Registrant} = \frac{\text{2017 H.S.R. Specialized Vehicles}}{\text{2017 Specialized Services Ridership}}$$

Based on the 2017 fleet mix and vehicle costs, **Table 13** summarizes the number of each new specialized vehicle fleet type required by 2028 and by 2031. Note that the M.V.1. S.E. mobility buses are no longer manufactured and Specialized Transit intends to buy the Dodge Promasters in their stead going forward.

Table 13: Specialized Vehicle Requirement Forecast

Vehicle Type	Existing Vehicles	2017 Vehicle to Ridership Ratio	Unit Cost** (with Presto Package cost included)	Additional Vehicles Required (2019-2028)	Additional Vehicles Required (2029-2031)
Chevy 34' Braun	8	0.0000113	\$221,300	3	1
M.V.1. S.E.*	25	0.0000352	\$108,800	9	3
Dodge Promaster	19	0.0000268	\$108,800	7	2
Dodge Caravan	100	0.0001409	\$38,100	38	10
TOTAL COST (2019 \$)				\$3,852,500	\$1,146,300

*Note: M.V.1. S.E. vehicle is no longer in production. This will be replaced by a Dodge Promaster vehicle

**Note: Unit costs rounded to the nearest 100 and reflected in 2019 \$

5.3 Support Vehicles (Operations, Administration and Facility Vehicles)

Additional non-bus support vehicles are required for on-street and/or garage supervision and servicing as ridership and service levels increase. These vehicles are used by H.S.R. to respond to support the operation of the existing maintenance facility and by administration and supervisors to respond to on-road incidents and supervise operations.

The methodology used to identify increases in support vehicles is provided below and summarized in **Table 14**.

5.3.1 Facility Vehicles

H.S.R. currently uses nine vehicles in their existing transit facility to support operations and maintenance of its bus fleet. These vehicles include two service trucks, one stock room vehicle, two garage equipment repair express vans, three forklifts, and one garage tow mobile. With the planned opening of a second H.S.R. facility in 2023 (as mentioned in **Section 3.2.2**), these same facility vehicles will be required to support operations and maintenance in this new facility. **Table 14** illustrates the expansion requirements of the facility vehicles in 2023 as well as associated costs.

5.3.2 Administration Vehicles

H.S.R. currently owns seven administration vehicles. These are seven sedans used by administrative staff to attend meetings or conduct site visits. With no considerable increase in administrative staff planned, there are no plans to expand these vehicles.

5.3.3 Operations Vehicles

Operations vehicles are used by H.S.R. supervisors for field inspection and to respond to on-road incidents. Currently, H.S.R. uses seven operations vehicles. The number of vehicles required is linked to the number of revenue service hours H.S.R. operates. To forecast the expansion of operations vehicles, the ratio of 2017 peak buses to 2017 revenue service hours was calculated and used to estimate revenue service hours for 2028 and 2031.

The 2028 and 2031 projected revenue service hours was then divided by the 2017 ratio of existing operations vehicles to 2017 revenue service hours to calculate future 2028 and 2031 operations vehicles requirements.

The formula used to calculate the ratio is noted below:

Formula

$$\begin{aligned} & \text{Number of Revenue Service Hours per Operations Vehicle} \\ & = 2017 \text{ H.S.R. Operations Vehicles} \\ & / 2017 \text{ H.S.R. Revenue Service Hours} \end{aligned}$$

Calculation

$$\begin{aligned} & = 810,410 / 7 \\ & = 115,773 \end{aligned}$$

Formula

$$\begin{aligned} & \text{Expansion Operations Vehicle Requirement by 2028} \\ & = \text{Projected 2028 Revenue Service Hours} \\ & / \text{Number of Revenue Service Hours per Operations Vehicles} \\ & - \text{Existing Number of Operations Vehicles} \end{aligned}$$

Calculation

$$\begin{aligned} & = 1,290,362 / 115,773 - 7 \\ & = 5 \end{aligned}$$

Table 14: Additional Support Vehicle Requirements

Vehicle Type	Vehicle Name	Existing	Requirement	Unit Cost*	Additional Vehicles Required (2019-2028)	Additional Vehicles Required (2029-2031)
Facility	Service Truck	2	2 per facility	\$57,200	2	0
	Stock Room Vehicle	1	1 per facility	\$34,300	1	0
	Garage Equipment Repair Walk Behind Forklift	2	2 per facility	\$83,200	2	0
	Garage Fork Lift	1	1 per facility	\$104,000	1	0
	Garage Tow Mobile	1	1 per facility	\$52,000	1	0
	Garage Equipment Repair Express Van Vehicles	2	2 per facility	\$36,400	2	0
Administration	Administration Vehicles	7	No Planned Expansion			
Operations	Operations Vehicles	7	7 per 2017 revenue service hour	\$38,500	5	0
	TOTAL COST (2019 \$)				\$736,400	\$0

*Note: Unit Costs rounded to the nearest 100 and reflected in 2019 \$

6.0 Apportioning Benefit

This section details how the D.C. eligible portion of the ten-year capital plan is determined.

6.1 In-Period Growth and Existing

The D.C.A. requires that for a cost to be eligible, the increased need for service must be reduced by the extent to which a service would benefit existing development. The in-period benefit is therefore further broken down into benefit to existing populations and benefit to growth populations.

6.1.1 Conventional Transit Vehicles

As mentioned in **Section 4.0**, the latest T.M.P. update for Hamilton does not identify mode share targets by area of Hamilton. Instead, the transit mode share target is the same for the whole city, including both rural and urban areas. So though new developments and their corresponding populations often have an increased propensity to use transit, due to changing views on sustainability, transit use, and higher density living as well as an observed increased adoption of transit-oriented design in new developments, the T.M.P. does not offer a straightforward option to determine which areas are expected to show particular mode share patterns for transit use. Therefore, the method of apportioning benefit used in the analysis assumes that the existing population would have the same propensity to use transit as growth.

Additionally, the total 2019 person-trips are assumed to represent the entire existing population. Any addition to the 2019 person-trip values is thus attributed to the growth population.

The following calculation was used to determine the existing and growth population transit trips in 2028 mode shares:

Formula

2028 A.M. Peak Transit Trips Attributed to Existing Population
 = (2019 Total A.M. Peak Person-Trips x 2028 Overall Transit Mode Share) - 2019 A.M. Peak Ridership

Calculation

= (280,015 x 8.5%) - 17,974
 = 5,945

Formula

2028 A.M. Peak Transit Trips Attributed to Growth Population
 = (2028 Total A.M. Peak Person-Trips - 2019 Total A.M. Peak Person-Trips) x 2028 Overall
 Transit Mode Share

Calculation

= (310,268 – 280,015) x 8.5%
 = 2,584

Using these values, the benefit to existing and growth populations can be calculated below:

$$\text{Benefit to Existing} = \frac{5,945 \text{ A.M. peak transit trips in 2028 by existing pop}}{8,529 \text{ A.M. peak transit trips in 2028}} = 69.7\%$$

$$\text{Benefit to Growth} = \frac{2,584 \text{ A.M. peak transit trips in 2028 by growth pop.}}{8,529 \text{ A.M. peak transit trips in 2028}} = 30.3\%$$

Therefore, the benefit to existing and growth for conventional vehicles is as follows:

69.7% benefit to existing

30.3% benefit to growth

6.1.2 Specialized Vehicles

The method used to apportion growth relating to specialized vehicles is different than conventional transit as benefits are allocated on a registrant basis instead of trips. Similarly there are benefits to both the existing population and growth. Thus, benefits are allocated to two groups of customers:

1. New registrants of specialized transit services based on the existing population (attributed to an aging population that will register for the service); and
2. New registrants of specialized transit services based on growth in population.

As mentioned in **Section 5.2**, advancements to and improved convenience of the specialized transit service are expected to result in an increase in specialized transit use by both the existing and growing population (increase in trips by active registrant). This will need to be reflected in the apportionment of capital expansion.

To calculate the apportionment of benefit, the increase in ridership could be attributed to the following reasons:

1. Increase in riders per registrants
2. Increase in rides due to new registrants

Growth of Registrants

To determine the number of new registrants that come from the existing population and those that are from the new population, the impacts of an aging population on the prevalence of disability (and thus the potential to register for Specialized Transit) was calculated.

The population with a disability as illustrated in **Table 11 (Section 5.2)** in each age cohort in 2028 was multiplied by the ratio of existing 2018 population to the total 2028 population (including growth). This provided the growth in the existing population with a disability in 2028. The net growth between 2028 and 2018 was the number of new existing residents that could potentially have a disability over the 10-year D.C. period and be eligible for D.A.R.T.S.

The growth population with a disability was calculated by multiplying the total 2028 population with a disability (**Table 11**) in each age cohort by the ratio of growth population (2028 – 2018) to the 2028 total population. This is illustrated in **Table 15** below.

Table 15: Summary of Population with Disability Growth Allocated to New and Existing Population

	Population			
	2018	2019	2028	2031
Total Population (15 years +)	461,523	465,482	514,749	538,086
% Existing	100%	99.1%	89.7%	85.8%
% New	0%	0.9%	10.3%	14.2%
Total Population with Disability	68,061	68,914	81,647	87,580
<i>Proportion resulting from population growth</i>	0	620	8,410	12,436
<i>Proportion resulting from an aging population</i>	68,061	68,294	73,237	75,144
<i>Change in existing population with a disability due to aging</i>	0	233	5,176	7,083

	Population			
	2018	2019	2028	2031
% of new registrants from existing aging population	--	27.3%	38.1%	36.3%
% of new registrants from population growth	--	72.7%	61.9%	63.7%

A different allocation was identified for the in the number of trips per registrant that would result in the improvements to the service. As identified in **Section 5.2**, improvements to the service is anticipated to increase the number of trips per active registrant from 115.3 in 2017 to 130 by 2021. This increase in trips would not only take place by new registrants to the service, but also existing registrants that currently use D.A.R.T.S. This would result in a higher allocation of cost to the existing population than identified above.

To calculate this, the 2017 trip rate per active registrant was used to calculate 2028 trips. This provides the total number of 2028 trips assuming no change in number of trips per active registrant. This was then subtracted by the total 2028 trip forecast (assuming 130 trips per registrant) to get the total number of additional trips by registrant. Between 2017 and 2028, an additional 267,619 new trips were forecasted, of which 157,447 are new trips by new registrants to the service (assuming the same 2017 trip rate) and 110,172 are increased trips per registrant (as a result of the change in the trip rate per active registrant).

To calculate the apportionment to growth and existing population, the following formula was used:

Formula

Trips attributed to new registrants by existing population in 2028
 = (Increase in rides by existing registrants by 2028 (due to increase in trips per active registrant) x percentage of existing population by 2028 as calculated in Table 15)
 + (increase in rides by new registrants by 2028 x percentage of new registrants from existing aging population with disability by 2028 as calculated in Table 15)

Calculation

$(110,172 \times 89.7\%) + (157,447 \times 38.1\%)$
 = 158,812

Formula

Trips attributed to new registrants by growth population in 2028
 = (Increase in rides by existing registrants by 2028 (due to increase in trips per active registrant) x percentage of growth population by 2028 as calculated in **Table 15**)
 + (increase in rides by new registrants by 2028 x percentage of new registrants from population growth by 2028 as calculated in **Table 15**)

Calculation

$$(110,172 \times 10.3\%) + (157,447 \times 61.9\%) \\ = 108,807$$

Therefore, the allocation of benefits to existing registrants and growth registrants can be summarized by the following formulas:

Formula

Benefit to Existing
 = (Increase in Rides by Existing Registrants in 2028)
 / (Increase in Rides by New Registrants in 2028 + Increase in Rides by Existing Registrants in 2028 due to increase in trips per active registrant)

Calculation

$$= 158,812 / (158,812 + 108,807) \\ = 59.3\%$$

Formula

Benefit to Growth
 = (Increase in Rides by New Registrants in 2028)
 / (Increase in Rides by New Registrants in 2028 + Increase in Rides by Existing Registrants in 2028 due to increase in trip rate per active registrant)

Calculation

$$= 108,807 / (158,812 + 108,807) \\ = 40.7\%$$

Therefore, the benefit to existing and growth for specialized vehicles in 2028 is as follows:

59.3% to Existing

40.7% to Growth

6.1.3 Support Vehicles

The method used to apportion benefits related to support vehicles is different from that used for the conventional transit vehicles (buses).

Expansion facility vehicles are a direct requirement from the new maintenance facility that is a requirement of growth. As such, facility vehicles should be apportioned at the same ratio as the facility itself. Based on the assessment of the new facility conducted by Watson & Associates, the benefit to existing and growth for facility vehicles in 2028 is as follows:

75.3% to Existing

24.3% to Growth

The need for additional operations vehicles is primarily related to the increased level of service (requiring additional buses and drivers), over an increased service area (incorporating new developments). While existing operations vehicles can be used within existing service areas, new vehicles are required to supervise services in growth areas. As such, operations vehicles have been fully apportioned to growth (i.e., 100% benefit to growth).

6.2 In-Period and Post-Period

The D.C.A. requires that no portion of the service intended to benefit anticipated development after the ten-year D.C. period nor to exist as excess capacity at the end of the ten-year D.C. period be included within the D.C. Therefore, the in-period is identified as the horizon year of 2019 to 2028 and the post-period is 2028 to 2031.

6.2.1 Conventional Vehicles

Vehicle capacity is based on the number of seats and room for standees on a transit vehicle. This is a fixed unit based on the size of the vehicle. H.S.R. has a mixed fleet of vehicles including 30-foot, 40-foot and 60-foot buses that is uses based on the ridership on a corridor. Decisions in the capital plan are made to adjust the composition of the vehicle fleet to reflect anticipated ridership in the network (e.g. purchase more 60-foot buses on if ridership growth is anticipated on arterial corridors). Once the most effective vehicle is placed on the route, there is little ability to adjust vehicle capacity to meet demand. If a service level trigger is reached and additional frequency is required to accommodate demand, the entire bus is needed to accommodate this demand, whether the bus is full or not. There is limited ability to right-size a bus to limit the amount of excess vehicle capacity that results in a service change.

Instead of assessing post-period benefit based on excess vehicle capacity, the analysis has considered the degree to which in-period capital investments (in this case, buses) benefit post-period population and employment.

In 2031, there are 31,467 projected H.S.R. bus trips in the A.M. peak period. These trips are a combination of:

- a) Trips taken in 2028 by in-period population and employment;
- b) Increased trips taken from 2028 to 2031, by in-period population and employment (due to increased willingness to use transit as the level of service increases); and
- c) New trips taken by post-period population and employment in 2031.

New trips taken by post-period population and employment (listed in (c) above) will at one point be taken on buses that were purchased in-period (before 2028). Riders transfer between routes, and riders in new growth areas may take new routes to connect to existing routes (using in-period resources). Because a service plan is not currently available, there is no ability to determine exactly how many post-period trips will use in-period buses. It has been assumed that all do at some point, since riders will likely take new local routes within their residential neighbourhood to an existing route, and because key arterial route frequencies will have to be increased to serve increased demand.

The post-period population and employment trips (included in (c) above) therefore represent a post-period benefit. This is shown graphically in **Figure 4**.

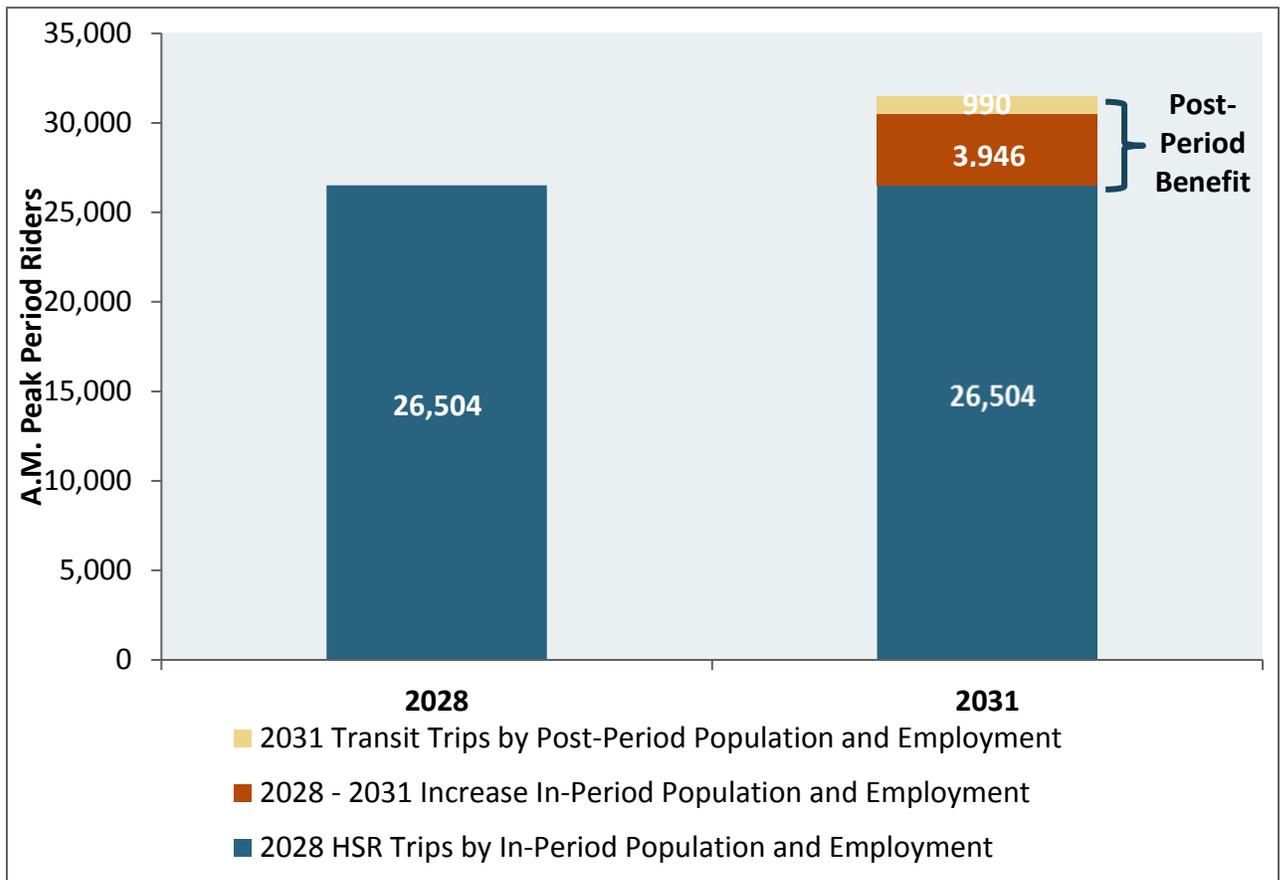


Figure 4: Transit Trips by D.C. Period

To calculate post-period benefit trips, the total A.M. peak internal person-trips in 2028 (end of in-period) is multiplied by the 2031 A.M. peak period transit mode share (end of post period). To understand the proportion of post-period benefit transit trips in the A.M. peak to all transit trips by 2031, the post-period transit trips are multiplied by the total A.M. peak period transit trips. This calculation is detailed below:

Formula

$$\begin{aligned} &\text{A.M. Peak Post-Period H.S.R. Bus-only Trips} \\ &= (\text{Total A.M. Peak Period Person Trips in 2031} - \text{A.M. Peak Period Person Trips in 2028}) \\ &\quad \times \text{2031 A.M. Peak Period H.S.R. Bus-only Mode Share} \end{aligned}$$

Calculation

$$\begin{aligned} &= (320,352 - 310,268) \times 9.8\% \\ &= 990 \end{aligned}$$

Formula

A.M. Peak In-Period H.S.R. Bus-only Trips
 = Total A.M. Peak Period Person Trips in 2028 x 2031 A.M. Peak Period H.S.R Bus-only
 Mode Share

Calculation

= 310,268 x 9.8%
 = 30,450

To calculate the proportion of trips that occur in the post-period versus the in-period, the number of trips per period is divided by the sum of all trips (in-period + post-period) by period. This is shown below:

Formula

Proportion of Post Period Trips
 = A.M. Peak Post-Period H.S.R. Bus-only Trips / (A.M. Peak Post-Period H.S.R. Bus-only
 Trips + A.M. Peak H.S.R. In-period Bus-only Trips)

Calculation

= 990 / (990 + 30,450)
 = 3.1%

Therefore, **3.1% of trips are post-period benefit and 96.9% of trips are in-period benefit.**

Since the post-period benefit in 2028 accounts for 3.1% of assumed transit trips beyond 2028, the in-period benefit to growth defined in **Section 6.1.1** will need to be adjusted. This is calculated by:

Formula

Benefit to Growth -
 Post-Period Benefit to Growth
 = Adjusted In-Period Benefit to Growth

Calculation

= 30.3% - 3.1%
 = 27.2%

Therefore:

69.7% is In-Period – Benefit to Existing

27.2% is In-Period – Benefit to Growth

3.1% is Post-Period Benefit

6.2.2 Specialized Vehicles

Unlike conventional transit, there is no post-period benefit for the purchase of the specialized fleet during the in-period. D.A.R.T.S. currently denies approximately 1.6% of trip requests, which has been identified as a reasonable target for H.S.R. The low trip denial rate has also resulted in an increase in trips per active registrant (which has been taken into consideration in the apportionment of benefit. Any increase in registrants and trips beyond 2028 will require additional capacity if the trip denial rate is to remain constant beyond that date (i.e.: 1.6%). As a result, there is no post-period benefit.

6.2.3 Support Vehicles

The method used to apportion in-period and post-period benefits related to support vehicles are different from that used for the conventional transit vehicles (buses). Additional operations vehicle needs have been determined based on the number of buses (as discussed in **Section 5.3.3**). Based on this, it was determined that 5 operations vehicles are required by 2028 (in-period), and no operations vehicles are required by 2031 (post-period). Therefore, there is no post-period benefit.

Additional facility vehicle needs have been determined based on the need for a new maintenance facility within the 10-year D.C. period (as discussed in **Section 5.3.3**). Of these, the service truck, stock room vehicle, garage equipment repair express van vehicles each have an operational life of approximately 10 years (which falls within the D.C. period). These vehicles would not have a post-period benefit.

Three vehicles (garage equipment repair walk behind forklift, garage fork lift and garage tow mobile) have an operational life of 20 years, and therefore carry a post-period benefit to growth. For these three vehicles, the same post-period benefit of 23.1% used for the new maintenance facility is used. The adjusted in-period and post-period benefit is calculated by:

Formula

Benefit to Growth -
Post-Period Benefit to Growth
= Adjusted In-Period Benefit to Growth

Calculation

= 24.7% - 23.1%
= 1.6%

Therefore:

75.3% is In-Period – Benefit to Existing
1.6% is In-Period – Benefit to Growth
23.1% is Post-Period Benefit

7.0 Summary of Key Values

Table 16 provides a summary of key values for the transit D.C. calculations. **Table 17** summarizes the total capital cost and the apportionment to in-period existing, in-period growth and post-period.

Table 16: Key Values for Transit D.C. Calculations (2018, 2028, 2031)

	2018	2028	2031
Ridership			
Annual Conventional Transit Ridership (Bus-Only)	21,317,844	31,379,129	37,233,610
A.M. Peak Period H.S.R. Ridership (Bus-Only)	18,016	29,836	36,200
A.M. Peak Period Total Person Trips by All Modes	276,654	310,268	320,352
A.M. Peak Period H.S.R. Mode Share (Bus-Only)	6.5%	8.5%	9.8%
Annual Specialized Transit (D.A.R.T.S.) Ridership	727,900	977,340	1,047,930
Additional Vehicles Required			
Additional Conventional H.S.R. Buses Required from 2018	-	167	20
<i>30-foot buses</i>	-	-	-
<i>40-foot buses</i>	-	149	20
<i>60-foot buses</i>	-	-	-
<i>Replace retired 40-foot buses on L.R.T. corridor</i>	-	18	-
<i>Convert 40-foot to 60-foot bus</i>	-	21	-
<i>Convert 40-foot to 30-foot bus</i>	-	6	-
<i>Convert 26-foot Arboc to 30-foot bus</i>	-	5	-
Additional Specialized Transit Vehicles Required from 2018	-	57	16
<i>Chevy 34' Braun</i>	-	3	1
<i>Dodge Promaster</i>	-	16	5
<i>Dodge Caravan</i>	-	38	10
Additional Operations Vehicles Required from 2018	-	14	0
<i>Facility Vehicles</i>	-	9	0
<i>Supervisor Vehicles</i>	-	5	0

Table 17: Apportionment of Capital Costs (10-Year D.C. Period)

	Allocation (%)	Allocated Cost (2019 \$)
Local Conventional Transit		\$141,441,600
In-Period Benefit to Existing	69.7%	\$98,584,800
In-Period Benefit to Growth	27.2%	\$38,472,100
Post-Period Benefit	3.1%	\$4,384,700
Specialized Transit (D.A.R.T.S.)		\$3,852,500
In-Period Benefit to Existing	59.3%	\$2,284,500
In-Period Benefit to Growth	40.7%	\$1,568,000
Post-Period Benefit	0%	\$0
Facility Vehicles – 10-Year Operational Life		\$221,500
In-Period Benefit to Existing	75.3%	\$166,800
In-Period Benefit to Growth	24.7%	\$54,700
Post-Period Benefit	0%	\$0
Facility Vehicles – 20-Year Operational Life		\$322,500
In-Period Benefit to Existing	75.3%	\$242,800
In-Period Benefit to Growth	1.60%	\$5,200
Post-Period Benefit	23.10%	\$74,500
Supervisor Vehicles		\$736,400
In-Period Benefit to Existing	0%	\$0
In-Period Benefit to Growth	100%	\$192,500
Post-Period Benefit	0%	\$0
Total		\$146,030,600
In-Period Benefit to Existing	--	\$101,278,900
In-Period Benefit to Growth	--	\$40,292,500
Post-Period Benefit	--	\$4,459,200

Note: Numbers have been rounded to nearest 100



Appendix J: Asset Management Plan



Appendix J: Asset Management Plan

The recent changes to the D.C.A. (new section 10(2) (c.2)) require that the background study must include an asset management plan (A.M.P.) related to new infrastructure. Section 10 (3) of the D.C.A. provides:

“The asset management plan shall,

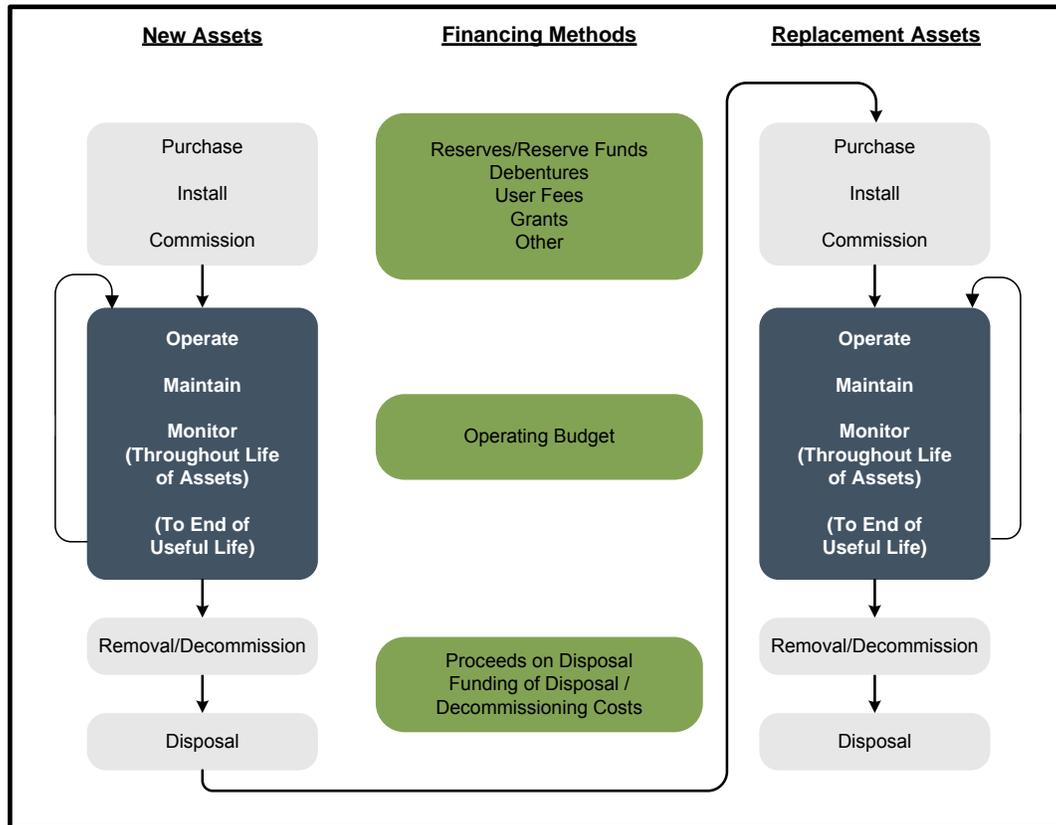
- (a) deal with all assets whose capital costs are proposed to be funded under the development charge by-law;
- (b) demonstrate that all the assets mentioned in clause (a) are financially sustainable over their full life cycle;
- (c) contain any other information that is prescribed; and
- (d) be prepared in the prescribed manner.”

In regard to the above, O.Reg. 428/15 amends O.Reg. 82/92, section 8 to include subsections (2), (3) and (4) which set out for specific detailed requirements for transit (only). For all services except transit, there are no prescribed requirements at this time thus requiring the municipality to define the approach to include within the background study. For transit, the amended regulations provide for a prescriptive evaluation (as discussed later in this Appendix).

At a broad level, the A.M.P. provides for the long-term investment in an asset over its entire useful life along with the funding. The schematic below identifies the costs for an asset through its entire lifecycle. For growth related works, the majority of capital costs will be funded by the D.C. Non-growth-related expenditures will then be funded from non-D.C. revenues as noted below. During the useful life of the asset, there will be minor maintenance costs to extend the life of the asset along with additional program related expenditures to provide the full services to the residents. At the end of the life of the asset, it will be replaced by non-D.C. financing sources.



Figure G-1
Summary of A.M.P. Schematic



In 2012, the Province developed Building Together: Guide for municipal asset management plans which outlines the key elements for an A.M.P., as follows:

State of local infrastructure: asset types, quantities, age, condition, financial accounting valuation and replacement cost valuation.

Desired levels of service: defines levels of service through performance measures and discusses any external trends or issues that may affect expected levels of service or the municipality's ability to meet them (for example, new accessibility standards, climate change impacts).

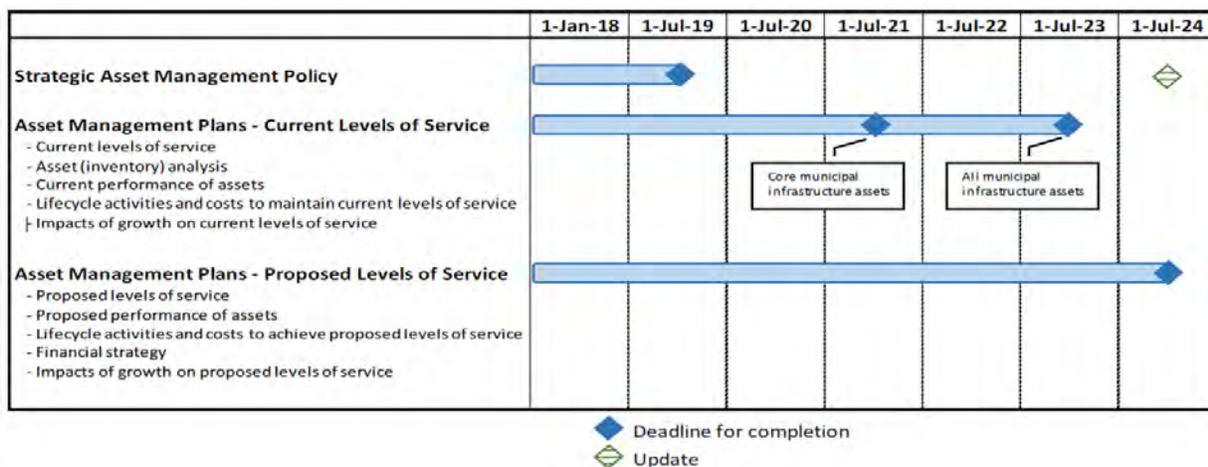
Asset management strategy: the asset management strategy is the set of planned actions that will seek to generate the desired levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost.



Financing strategy: having a financial plan is critical for putting an A.M.P. into action. By having a strong financial plan, municipalities can also demonstrate that they have made a concerted effort to integrate the A.M.P. with financial planning and municipal budgeting and are making full use of all available infrastructure financing tools.

The above provides for the general approach to be considered by Ontario municipalities. Currently, there is not a mandated approach for municipalities hence leaving discretion to individual municipalities as to how they plan for the long-term replacement of their assets. However, on June 4, 2015, the Province passed the Infrastructure for Jobs and Prosperity Act (I.J.P.A.) which, over time, will require municipalities to undertake and implement asset management plans for all infrastructure they own. On December 27, 2017, the Province of Ontario released Ontario Regulation 588/17 under I.J.P.A. which has 3 phases that municipalities must meet:

Figure G-2
Timeline of I.J.P.A. Requirements



Every municipality in Ontario will have to prepare a strategic asset management policy by July 1, 2019. Municipalities will be required to review their strategic asset management policies at least every five years and make updates as necessary. The subsequent phases are as follows:

- Phase 1 – Asset Management Plan (by July 1, 2021):
 - For core assets – Municipalities must have the following:
 - Inventory of assets;



- Current levels of service measured by standard metrics; and
- Costs to maintain levels of service.
- Phase 2 – Asset Management Plan (by July 1, 2023):
 - Same steps as Phase 1 but for all assets.
- Phase 3 – Asset Management Plan (by July 1, 2024):
 - Builds on Phase 1 and 2 by adding:
 - Proposed levels of service; and
 - Lifecycle management and Financial strategy.

Once the requirements of I.J.P.A. are implemented, the requirement for an asset management plan in the D.C. process will be removed.

In recognition to the schematic above, the following table (presented in 2019 \$) has been developed to provide the annualized expenditures and revenues associated with new growth. Note that the D.C.A. does not require an analysis of the non-D.C. capital needs or their associated operating costs so these are omitted from the table below. As well, as all capital costs included in the D.C. eligible capital costs are not included in the City's Asset Management Plan, the present infrastructure gap and associated funding plan have not been considered at this time. Hence the following does not represent a fiscal impact assessment (including future tax/rate increases) but provides insight into the potential affordability of the new assets:

1. The non-D.C. recoverable portion of the projects which will require financing from municipal financial resources (i.e. taxation, rates, fees, etc.). This amount has been presented on an annual debt charge amount based on 15-year financing.
2. Lifecycle costs for the 2019 D.C. capital works have been presented based on a sinking fund basis. The assets have been considered over their estimated useful lives.
3. Incremental operating costs for the D.C. services (only) have been included.
4. The resultant total annualized expenditures are \$490 million.
5. Consideration was given to the potential new taxation and user fee revenues which will be generated as a result of new growth. These revenues will be available to finance the expenditures above. The new operating revenues are



\$176.42 million. This amount, totalled with the existing operating revenues of \$1.958 billion, provide annual revenues of \$2.134 billion by the end of the period.

6. In consideration of the above, the capital plan is deemed to be financially sustainable.

Table G-1
Asset Management – Future Expenditures and Associated Revenues
2019\$

	2031 (Total)
Expenditures (Annualized)	
Annual Debt Payment on Non-Growth Related Capital ¹	41,571,787
Annual Debt Payment on Post Period Capital ²	49,057,253
Lifecycle:	
Annual Lifecycle - Town Wide Services	\$285,621,743
Incremental Operating Costs (for D.C. Services)	\$163,162,823
Total Expenditures	\$490,356,354
Revenue (Annualized)	
Total Existing Revenue ³	\$1,958,073,490
Incremental Tax and Non-Tax Revenue (User Fees, Fines, Licences, etc.)	\$176,420,258
Total Revenues	\$2,134,493,748

¹ Non-Growth Related component of Projects including 10% mandatory deduction on soft services

² Interim Debt Financing for Post Period Benefit

³ As per Sch. 10 of F.I.R.



Regarding the D.C.A. requirements for asset management for the Transit Service, Ontario Regulation 82/98 (as amended) provides the following:

8 (3) If a council of a municipality proposes to impose a development charge in respect of transit services, the asset management plan referred to in subsection 10 (2) (c.2) of the Act shall include the following in respect of those services:

The following table and accompanying information provide the individual items prescribed by subsection 8 (3) of the Regulation (as amended) and provides how these items have been address for this D.C. background study by the City:



Table G-2
Summary of Transit Asset Management Plan Requirements
As per O.Reg. 82/98, as amended

Ontario Regulation 82/98, as amended subsection 8(3) Requirements	Compliance	Link
<p>1. A section that sets out the state of local infrastructure and that sets out:</p> <p>i. the types of assets and their quantity or extent,</p> <p>ii. the financial accounting valuation and replacement cost valuation for all assets,</p> <p>iii. the asset age distribution and asset age as a proportion of expected useful life for all assets, and</p> <p>iv. the asset condition based on standard engineering practices for all assets.</p>	<p>See State of the Infrastructure Report (S.O.T.I.), chapters 11 (for transit facilities) and 13 (for fleet vehicles and other associated infrastructure)</p> <p>See S.O.T.I. Table 11.1 & Table 13.1</p> <p>The accounting valuation is based on PSAB 3150 reporting requirements for Tangible Capital Assets and is depreciated using a straight-line amortization method based on the expected useful life of the asset.</p> <p>For the replacement cost valuation, see S.O.T.I. Table 11.2 and 13.2</p> <p>See S.O.T.I. Table 11.5, 13.5 & 13.6</p> <p>See S.O.T.I. Table 11.4 & 13.4</p>	<p>https://d3fplf1m7bbt3.cloudfront.net/sites/default/files/media/browser/2017-08-24/pw-soti-report-2016.pdf</p>
<p>2. A section that sets out the proposed level of service and that:</p> <p>i. defines the proposed level of service through timeframes and performance measures,</p> <p>ii. discusses any external trends or issues that may affect the proposed level of service or the municipality's ability to meet it, and</p> <p>iii. shows current performance relative to the targets set out.</p>	<p>See Dillon Consulting's Transit D.C. Background Study (Appendix I) Section 5 - Ten-Year Capital Plan for D.C. Application for level of service for Conventional Transit as well as Specialized Transit. Also see proposed HSR Service Standards in link provided.</p> <p>See Page 265 of the 2019-2022 Public Works Multi Year Business Plan</p> <p>See Page 10 of the Ten Year Local Transit Strategy</p>	<p>https://d3fplf1m7bbt3.cloudfront.net/sites/default/files/media/browser/2015-07-19/ts-appendix_g-proposed-service-standards.pdf</p> <p>https://d3fplf1m7bbt3.cloudfront.net/sites/default/files/media/browser/2018-12-06/2019-2022-pw-multi-year-business-plans-12062018.pdf</p> <p>https://www.hamilton.ca/sites/default/files/media/browser/2015-07-19/transit-strategy-report-march-6-2015.pdf</p>



Ontario Regulation 82/98, as amended subsection 8(3) Requirements	Compliance	Link
3. An asset management strategy that:		
i. sets out planned actions that will enable the assets to provide the proposed level of service in a sustainable way, while managing risk, at the lowest life cycle cost,	See Table G-3 below	
ii. is based on an assessment of potential options to achieve the proposed level of service, which assessment compares,	See Table G-3 below	
A. life cycle costs,	Fleet - Operating - Page 279 (breakdown) & Page 207 (Transit total) of 2019-2022 Public Works Multi Year Business Plan	https://d3fplf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2018-12-06/2019-2022-pw-multi-year-business-plans-12062018.pdf
	M.T.C. Facility Capital Needs Capital Cost Forecast - Page 17 & 115 of 2019 Tax Supported Preliminary Capital Budget	See Table G-4 Below https://d3fplf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2018-11-30/2019-preliminary-tax-capital-budget-book-1.pdf
B. all other relevant direct and indirect costs and benefits, and	See page 207 of the Public Works Multi-Year Business Plan for the overall operating budget increase and Page 279 for a breakdown of the direct and indirect costs.	https://d3fplf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2018-12-06/2019-2022-pw-multi-year-business-plans-12062018.pdf
C. the risks associated with the potential options,	The risk of not following this Asset Management Plan may result in: <ul style="list-style-type: none"> • increased lifecycle costs of capital infrastructure and rolling fleet due to unplanned repairs. • increased operating and maintenance costs due to unplanned equipment failure. • risk of violation of Provincial and Federal Regulations including Occupational Health and Safety Act, Ontario Fire Code and Ontario Building Code. • reduced procurement efficiency. • risk of compromised security (vault and fare media). • increased contractual and reputation risks. 	
iii. contains a summary of, in relation to achieving the proposed level of service, (not defined clearly) A. non-infrastructure solutions, B. maintenance activities, C. renewal and rehabilitation activities, D. replacement activities, E. disposal activities, and F. expansion activities,	See Table G-3 below Capital Costs - see page 453-463 of 2019 Tax Supported Preliminary Capital Budget Book 2 Corporate Facilities - see page 111 of Tax Supported Preliminary Capital Budget Book 1	https://d3fplf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2018-11-30/2019-preliminary-tax-capital-budget-book-2-v2.pdf https://d3fplf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2018-11-30/2019-preliminary-tax-capital-budget-book-1.pdf



Ontario Regulation 82/98, as amended subsection 8(3) Requirements	Compliance	Link
<p>iv. discusses the procurement measures that are intended to achieve the proposed level of service, and</p>	<p>See Procurement Policy By-law</p> <p>Goals and objectives of the Procurement Policy</p> <ul style="list-style-type: none"> • Procures the necessary quality and quantity of Goods and/or Services in an efficient, timely and cost effective manner, while maintaining the controls necessary for a public agency, in accordance with the Procurement Policy as approved by Council. • Encourages an open and competitive bidding process for the acquisition and disposal of Goods and/or Services, and the objective and equitable treatment of all vendors. • Ensures the best value of an acquisition is obtained. This may include, but not be limited to, the determination of the total cost of performing the intended function over the lifetime of the task, acquisition cost, installation, disposal value, disposal cost, training cost, maintenance cost, quality of performance and environmental impact. • Procures Goods and/or Services with due regard to the preservation of the natural environment and to encourage the use of “environmentally friendly” products and services, as supported by Vision 2020 goals and strategies. 	<p>https://d3fplf1m7bbf3.cloudfront.net/sites/default/files/mediabrowser/2017-04-13/procurement-policy-bylaw17064.pdf</p>
<p>v. includes an overview of the risks associated with the strategy and any actions that will be taken in response to those risks.</p>	<p><u>Changing technology:</u> Investment in Transit assets are high cost, long term commitments. With rapidly changing technology such as electric vehicles and autonomous vehicles, the City may be required to quickly modify, remove and/or add fleet and facility assets in order to accommodate emerging trends.</p> <p><u>Funding from Senior Government:</u> Senior levels of Government have recognized gridlock costs Canada’s economy billions of dollars in lost productivity and damage to the environment. In recent years, the Government of Canada has provided stimulus money (Public Transit Infrastructure Fund) to improve and expand transit service that provided the City with the necessary funds for fleet and facility maintenance. The Federal and Provincial Governments have indicated future long-term funding announcements can be expected which the City will be reliant on for continued asset management. Cancellation of funding programs will result in budget shortfalls.</p> <p><u>Regional Fare Integration:</u> The Big Move, the Greater Toronto and Hamilton Area (GTHA) regional transportation plan, called for the implementation of an integrated regional fare structure. Determining an optimal fare structure is a critical component of developing the overall structure. As the City of Hamilton has the lowest fare in the GTHA there may be impacts to service delivery not contemplated in this plan.</p> <p><u>Skilled Labour:</u> The Canadian Trucking Alliance has reported the growing shortage of attracting and retaining heavy duty mechanics is near “crisis”. The impact of retiring baby boomers and changing educational values that allowed the mechanic occupation to seem an unappealing career choice for parents to encourage children has significantly impacted the availability of qualified mechanics. The inability to acquire skilled staff to meet growing fleet needs may have financial and service impacts.</p>	



Ontario Regulation 82/98, as amended subsection 8(3) Requirements	Compliance	Link
<p>4. A financial strategy that:</p> <p>i. shows the yearly expenditure forecasts that are proposed to achieve the proposed level of service, categorized by,</p> <p>A. non-infrastructure solutions, B. maintenance activities, C. renewal and rehabilitation activities, D. replacement activities, E. disposal activities, and F. expansion activities,</p>	<p>Capital Costs - see page 453-463 of 2019 Tax Supported Preliminary Capital Budget Book 2</p> <p>Facilities has annual capital programs through the City's Tax Capital Budget for maintaining and upgrading corporate facilities. While the annual amount is not sufficient to fulfill all needs in a given year, facilities prioritizes based on condition and urgency of works. The MTC works will be prioritized alongside all corporate facilities and will receive upgrades once they are high enough in the priority list. The trend of declining facility condition has been communicated through the 2016 State of the Infrastructure - SOTI report and other facilities reports (Capital Lifecycle Renewal - Strategic Renewal of Facilities -PW18065; dated July 12, 2018). Grant funding will be sought to mitigate any potential decline of facilities.</p>	<p>https://d3fpllf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2018-11-30/2019-preliminary-tax-capital-budget-book-2-v2.pdf</p> <p>https://www.hamilton.ca/city-initiatives/strategies-actions/asset-management-plan</p> <p>https://pub-hamilton.escribemeetings.com/filestream.ashx?DocumentId=160096</p>
<p>ii. provides actual expenditures in respect of the categories set out in sub-subparagraphs i A to F from the previous two years, if available, for comparison purposes,</p>	<p>2017 - See page 246 of the 2018-2021 Business Plans</p> <p>2018 - See page 279 of the Public Works Multi Year Business Plan</p> <p>For replacement and expansion capital costs: 2017 - See Page 65 2018 - See Page 21 & 58</p>	<p>https://d3fpllf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2017-12-19/multi-year-business-plans-2018-2021-book2-02082018v2.pdf</p> <p>https://d3fpllf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2018-12-06/2019-2022-pw-multi-year-business-plans-12062018.pdf</p> <p>https://d3fpllf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2017-10-25/2017-approved-operating-capital-budgets.pdf</p> <p>https://d3fpllf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2018-02-20/2018-tax-supported-final-capital-budget-book1.pdf</p>
<p>iii. gives a breakdown of yearly revenues by source,</p>	<p>Capital Costs - see page 453-463 of 2019 Tax Supported Preliminary Capital Budget Book 2</p> <p>Operating - Fleet - Page 279 (breakdown) & Page 207 (Transit total) of 2019-2022 Public Works Multi Year Business Plan</p> <p>Note that as the Transit mode share increases over the forecast period, additional operating revenue will be included in future budgets.</p>	<p>https://d3fpllf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2018-11-30/2019-preliminary-tax-capital-budget-book-2-v2.pdf</p> <p>https://d3fpllf1m7bbt3.cloudfront.net/sites/default/files/mediabrowser/2018-12-06/2019-2022-pw-multi-year-business-plans-12062018.pdf</p>



Table G-3
Planned Action Summary Table
Transit Asset Management Plan

Planned Action	Current Activity Notes	Opportunity
Non-Infrastructure Solutions	<ul style="list-style-type: none"> - 10 Year Local Transit Strategy - Annual Transit Service Review - City Wide Transportation Master Plan - Automatic Passenger Counters to confirm areas of growth 	<ul style="list-style-type: none"> - Transit network review, (Re)-Envision - review and confirm expansion service areas.
Maintenance Activities	<ul style="list-style-type: none"> - Maintenance completed as per manufacturer guidelines and Ministry of Transportation Motor Vehicle Inspection Station Standards, recommendations of licenced fleet maintenance staff. - Maintenance tracking via Trapeze and Avantis Asset Management software systems. 	<ul style="list-style-type: none"> - Continued tracking of asset maintenance and renewal. - Funding opportunities from senior levels of Government for capital improvements to supplement municipal funding gaps.
Replacement Activities	<ul style="list-style-type: none"> - 12 Year Revenue vehicle replacement cycle 	<ul style="list-style-type: none"> - Review annual cycle based on updated cost benefit and technology improvements.
Renewal/Rehabilitation Activities	<ul style="list-style-type: none"> - Capital rehabilitation occurs as funding from senior levels of Government become available. - Infrastructure renewal plan is contained in Asset Planner software. Identified deficiencies are monitored and addressed through Capital Budget process. 	<ul style="list-style-type: none"> - None identified
Disposal Activities	<ul style="list-style-type: none"> - Vehicles retired at end of 12 year life cycle and condition evaluated. If unit is undamaged and in fair shape it is auctioned. Non-usable units are sold for scrap value. 	<ul style="list-style-type: none"> - None identified
Expansion Activities	<ul style="list-style-type: none"> - Expansion vehicles and new Transit Maintenance and Storage Facility identified in 10 Year Local Transit Strategy. - Incorporation of recommendations of Annual Service Reviews 	<ul style="list-style-type: none"> - Service levels and fleet needs derived from 10 Year Local Transit Strategy and approved during Capital budget process. Continue long range forecasting by adopting a 10 Year rolling transit plan. - Construction of additional Maintenance & Storage Facility in lower city dependent on funding from senior levels of Government.



Table G-4
Mountain Transit Centre (M.T.C.) Capital Needs (2019 to 2029)

<i>cost per year by type of work</i>	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total 2019-2029
Interior	5,593,436.54	336,319.28	270,121.44	17,864.11	423,242.66	103,062.33	-	34,354.09	-	-	929,180.15	\$ 7,707,580.60
Exterior	1,112,985.56	-	294,463.82	-	-	-	164,899.72	-	441,695.75	-	-	\$ 2,014,044.85
	\$ 6,706,422.10	\$ 336,319.28	\$ 564,585.26	\$ 17,864.11	\$ 423,242.66	\$ 103,062.33	\$ 164,899.72	\$ 34,354.09	\$ 441,695.75	\$ -	\$ 929,180.15	\$ 9,721,625.45



Appendix K: Proposed D.C. By- law



CITY OF HAMILTON

BY-LAW NO.

Being a By-law respecting development charges on lands within The City of Hamilton

WHEREAS the *Development Charges Act, 1997*, S.O.1997, c.27 (hereinafter referred to as the “Act”) authorizes municipalities to pass a By-law for the imposition of development charges against land to pay for increased capital costs required because of increased needs for services arising from development of the area to which the said By-law applies;

WHEREAS the City of Hamilton, as required by section 10 of the Act, has undertaken and completed a development charge background study regarding the anticipated amount, type and location of development; the increase in needs for services; estimated capital costs to provide for such increased needs, including the long term capital and operating costs for capital infrastructure required for the services;

WHEREAS as required by section 11 of the Act, this By-law is being enacted within one year of the completion of the said development charge background study, titled “*City of Hamilton 2019 Development Charge Background Study*” prepared by Watson & Associates, dated March XX, 2019;

WHEREAS in advance of passing this By-law the Council of the City of Hamilton has given notice of and held a public meeting on _____, 2019 in accordance with section 12 of the Act regarding its proposals for this development charges By-law;

WHEREAS the Council of the City of Hamilton, through its General Issues Committee, has received written submissions and heard all persons who applied to be heard no matter whether in objection to, or in support of, the said By-law;

WHEREAS Council intends that development-related 2019 – 2031 capacity will be paid for by development charges;



WHEREAS the Council of the City of Hamilton, at its meeting of _____, 2019, has adopted and approved the said background study and the development charges and policies recommended by the General Manager of the Finance and Corporate Services Department to be included in this By-law and determined that no further public meetings are required under section 12 of the Act; and

WHEREAS Council approved report FCSXXXXX respecting “2019 City of Hamilton Development Charge By-law”, thereby updating its capital budget and forecast where appropriate and indicating that it intends that the increase in the need for services to service anticipated development will be met.

NOW THEREFORE the Council of the City of Hamilton enacts as follows:

Interpretation

1. In this By-law,
 - (a) “**Act**” means the *Development Charges Act, 1997*, S.O. 1997, c.27.
 - (b) “**Adaptive Reuse**” means the alteration of an existing Building on a Protected Heritage Property for compliance of its continuing or resumed use(s) with current Building Code requirements; or, for compliance of its proposed new use(s) with current building code requirements; or, for ensuring its structural integrity; or for optimizing its continued, resumed or new use(s); while maintaining the cultural heritage value or interests of the subject building; and in compliance with the conditions of any Heritage Permit required for the subject alterations.
 - (c) “**Agricultural Land**” means land which is zoned for an Agricultural Use in the zoning By-law of the predecessor municipality in which the land is located, and any subsequent amendment or replacement thereof, and used for a bona fide Agricultural Use.
 - (d) “**Agricultural Use**” means the use of lands and Buildings by a Farming Business outside of the Urban Area Boundary for apiaries, fish farming, dairy farming, fur farming, the raising or exhibiting of livestock, or the



cultivation of trees, shrubs, flowers, grains, sod, fruits, vegetables and any other crops or ornamental plants, excluding:

- (i) Residential Uses, including Farm Help Houses;
 - (ii) non-agriculture uses, including but not limited to banquet halls, Commercial Greenhouses and retail stores; and
 - (iii) Cannabis Production Facilities.
- (e) **“Apartment Dwelling”** means a building containing more than two Dwelling Units where the Dwelling Units are connected by an interior corridor, but does not include a Residential Facility Dwelling or a Lodging House.
- (f) **“Apartment Dwelling Unit”** means a Dwelling Unit within an Apartment Dwelling.
- (g) **“Artist Studio”** means a non-residential Building, or any part thereof, used as a workplace of an artist and shall include but not limited to a painter, sculptor or photographer.
- (h) **“Back-to-back Townhouse Dwelling”** means a building containing four or more dwelling units vertically by a common wall, including a rear common wall, that do not have rear yards.
- (i) **“Back-to-back Townhouse Dwelling Unit”** means a Dwelling Unit within a Back-to-back Townhouse Dwelling.
- (j) **“Bedroom”** means a habitable room larger than seven square metres, including a den, study, or other similar area, but does not include a living room, dining room or kitchen.
- (k) **“Board of Education”** means a board as defined in Subsection 1(1) of the *Education Act 1997*, S.O. 1997, c.E.2.
- (l) **“Building”** means any structure or building as defined in the Building Code but does not include a vehicle.



- (m) “**Building Code**” means Ontario Regulation 332/12 as amended or any successor thereto made under the *Building Code Act, 1992*, S.O. 1992, c.23, as amended.
- (n) “**Business Improvement Areas**” or “**B.I.A.s**” means the areas identified as Business Improvement Areas within Schedule “H”.
- (o) “**By-law**” means, unless the context requires otherwise, this City of Hamilton By-law Number 19-XXX, including with all Schedules hereto, as amended from time to time.
- (p) “**Cannabis**” means:
- (i) a cannabis plant;
 - (ii) any part of a cannabis plant, including the phytocannabinoids produced by, or found in, such a plant, regardless of whether that part has been processed or not;
 - (iii) any substance or mixture of substances that contains or has on it any part of such a plant; and
 - (iv) any substance that is identical to any phytocannabinoid produced by, or found in, such a plant, regardless of how the substance was obtained.
- (q) “**Cannabis Plant**” means a plant that belongs to the genus *Cannabis*.
- (r) “**Cannabis Production Facilities**” means a Building, or part thereof, designed, used, or intended to be used for one or more of the following: cultivation, propagation, production, processing, harvesting, testing, alteration, destruction, storage, packaging, shipment or distribution of cannabis where a licence, permit or authorization has been issued under applicable federal law but does not include a Building or part thereof solely designed, used, or intended to be used for retail sales of cannabis.
- (s) “**Class A Office Development**” means an Office Development with a minimum of 20,000 square feet of Gross Floor Area.



- (t) **“Combined Sewer System”** shall mean the area within the City of Hamilton that is depicted as the Combined Sewer System in Schedule “D”.
- (u) **“Commercial Greenhouse”** means a Building, that is made primarily of translucent building material, used, designed or intended to be used for the sale and display of plants products grown or stored therein gardening supplies and equipment, or landscaping supplies and equipment.
- (v) **“Commercial Parking”** means a Building, or part thereof, used for the parking of motor vehicles for compensation, but shall not include any parking spaces provided for Residential, Non-residential or Mixed Use Development required or permitted by the applicable City Zoning By-law.
- (w) **“Communications Establishment”** means a Building, or any part thereof, used for the broadcasting and production of information through various media, and shall include but not be limited to print, television, radio and electronic media and which may include facilities for the printing or broadcasting of information but shall not include a call centre.
- (x) **“Community Improvement Project Areas”** or **“C.I.P.A.s”** means the areas identified and B.I.A.s within Schedule “H”.
- (y) **“Council”** means the Council of the City of Hamilton.
- (z) **“Development”** means the construction, erection, or placing of one or more buildings or structures on land or the making of an addition or alteration to a building or structure that has the effect of increasing the size or usability thereof or any development requiring any of the actions described in section 12, and includes redevelopment.
- (aa) **“Development Charge”** or **“Development Charges”** means the charges imposed by this By-law against land to pay for increased capital costs required because of increased needs for services arising from development of the area to which this By-law applies.
- (bb) **“Downtown Hamilton Community Improvement Project Area”** or **“Downtown C.I.P.A.”** means the area shown on Schedule “E”.



- (cc) “**Downtown Public Art Reserve**” means a public art reserve established and administered by the City of Hamilton that may fund public art in the Downtown C.I.P.A.
- (dd) “**Duplex**” means a Building containing two Dwelling Units, but shall not include a Semi-detached Dwelling.
- (ee) “**Dwelling Unit**” means a room or suite of rooms used, or designed or intended for use by one or more persons living together as a single housekeeping unit in which culinary and sanitary facilities are provided for the exclusive use of such person or persons.
- (ff) “**Existing Industrial Building**” shall have the same meaning as that term is defined under Ontario Regulation 82/98 under the Act, but, for clarity, shall only include buildings for which a final inspection by a City building inspector has been conducted and passed, resulting in a finalized building permit.
- (gg) “**Farm Help House**” means a Dwelling Unit constructed on Agricultural Land and not attached to any other Building, with sleeping, cooking, living and sanitary facilities, and used for seasonal, interim or occasional residential uses by farm labourers.
- (hh) “**Farming Business**” means a business operating on Agricultural Land with a current Farm Business Registration Number issued pursuant to the *Farm Registration and Farm Organizations Funding Act*, 1993, S.O. 1993, c.21, and assessed in the Farmland Realty Tax Class by the Municipal Property Assessment Corporation.
- (ii) “**First Use**” has the meaning ascribed to it in Section 31.
- (jj) “**Full Kitchen**” means a kitchen which contains a fridge, stove and sink.
- (kk) “**Garden Suite**” has the same meaning as it has in subsection 39.1(2) of the *Planning Act*.



- (ll) “**Grade**” means the average level of proposed or finished ground adjoining a Building at all exterior walls.
- (mm) “**Gross Floor Area**” means:
- (i) in the case of a Non-residential Development, the total area of all Building floors above Grade measured between the outside surfaces of the exterior walls or between the outside surfaces of exterior walls, and includes the floor area of a mezzanine; or
 - (ii) in the case of a Mixed Use Development including both Residential Uses and Non-residential Uses, the total area of the Non-residential Use portion including all Building floors above Grade measured between the outside surfaces of the exterior walls or between the outside surfaces of exterior walls and the centre line of party walls dividing a Non-residential Use and a Residential Use; or
 - (iii) in the case of a Live/Work Unit, the total area of the Non-residential Use portion of the unit including all Building floors above Grade measured between the outside surfaces of the exterior walls or between the outside surfaces of exterior walls and the centre line of party walls dividing the Live/Work Unit from any other Live/Work Unit, Dwelling unit, Non-residential Use or Mixed Use Development.
- (nn) “**Hangar**” means a covered or enclosed Building used for housing and repairing aircraft within one thousand (1000) metres of an aerodrome as that term is defined in the *Aeronautics Act*, R.S.C., 1985, c.A-2. For the purposes of this By-law, hangars will be considered an industrial development.
- (oo) “**Industrial Development**” means a Building used, designed or intended for use for, or in connection with,
- (i) manufacturing, producing, processing, storing or distributing something;



- (ii) research or development in connection with manufacturing, producing or processing, something;
- (iii) retail sales by a manufacturer, producer or processor of something they manufactured, produced or processed, if the retail sales are at the site which the manufacturing, production or processing takes place;
- (iv) office, administrative, clerical, management, consulting, advisory or training purposes, if they are, carried out with respect to manufacturing, producing, processing, storage or distributing of something, and, in or attached to the Building used for that manufacturing, producing or processing, storage or distribution; and
- (v) any use inside the Urban Area, that would, except for its location inside the Urban Area Boundary, be considered an Agricultural Use under this By-law.

Without limiting the generality of the foregoing, for the purpose of this By-law, Industrial Development also includes a Building used as a Commercial Greenhouse which is not an Agricultural Use as defined herein, a warehouse, a Hangar, an Artist Studio and a Production Studio but not a Communications Establishment.

- (pp) “**Laneway**” means a public highway or road allowance having a width of less than 12.0 metres.
- (qq) “**Laneway House**” means a dwelling unit abutting a Laneway on the same lot or parcel of land as another Single Detached Dwelling or Semi-detached Dwelling, physically detached from and secondary to the Single Detached Dwelling or Semi-detached Dwelling.
- (rr) “**Live/Work Unit**” means a Building, or part of thereof, which contains, or is intended to contain, both a Dwelling Unit and Non-residential areas and which is intended for both Residential Use and Non-residential Use concurrently, and shares a common wall or floor with or without direct access between the Residential and Non-residential areas.



- (ss) “**Local Board**” means any municipal service board, municipal business corporation, transportation commission, public library board, board of health, police services board, planning board, or any other board, commission, committee, body or local authority established or exercising any power under any act with respect to the affairs or purposes of the City, excluding a school board, a conservation authority, any municipal business corporation not deemed to be a local board under O. Reg 168/03 under the *Municipal Act*, 2001, S.O. 2001, c.25.
- (tt) “**Lodging House**” means a building that is used or designed to provide four or more lodging units, which may share common areas of the building other than the lodging unit and do not appear to function as a single housekeeping unit and does not include a residential facility.
- (uu) “**Lodging Unit**” means a room or set of rooms located in a lodging house designed or intended to be used for sleeping and living accommodation, which:
- (i) is designed for the exclusive use of the resident or residents of the unit;
 - (ii) is not normally accessible to persons other than the resident or residents of the unit; and,
 - (iii) may contain either a bathroom or Full Kitchen but does not contain both for the exclusive use of the resident or residents of the unit.
- (vv) “**Lot**” means a lot, block or parcel of land which can be legally and separately conveyed pursuant to section 50 of the *Planning Act* and includes a development having two or more lots consolidated under a single ownership.
- (ww) “**Medical Clinic**” means a Building, or part thereof, which is used by health professionals for the purpose of consultation, diagnosis and/or treatment of persons and shall include but not be limited to laboratories, dispensaries or other similar facilities, but shall not include overnight accommodation for in-patient care resulting from surgery.



- (xx) “**Mixed Use Development**” means a Building used, designed or intended for use for both Residential and Non-residential Uses.
- (yy) “**Mobile Home**” means a Building recognized in the Building Code as a “Mobile Home” in accordance with the standard for mobile homes in CSA Z240.2.1 “Structural requirements for Manufactured Homes” or CSA A277 “Procedures for Factory Certification of Buildings”.
- (zz) “**Multiple Unit Dwelling**” means a Building consisting of two or more Dwelling Units attached by a vertical or horizontal wall or walls other than a Single Detached Dwelling, Semi-detached Dwelling, Apartment Dwelling, Stacked Townhouse Dwelling, Residential Facility Dwelling or Lodging House. Multiple Unit Dwelling includes, but is not limited to, Townhouse Dwelling, Back-to-back Townhouse Dwelling, Duplex, and the portion of a Live/Work Unit intended to be used exclusively for living accommodations for one or more individuals.
- (aaa) “**Non-industrial Development**” means any non-residential Building which is not an Industrial Development and without limiting the generality of the foregoing, Non-industrial Development includes commercial and retail buildings, Office Development, the portion of a Live/Work Unit that is not intended to be used exclusively for living accommodations for one or more individuals, a hospital that is approved under *Public Hospitals Act*, R.S.O. 1990, c. P. 40, and R.R.O. 1990, Regulation 964 as a public hospital, and Short Term Accommodation.
- (bbb) “**Non-residential Development**” or “**Non-residential Use**” is any development other than a Residential Development or Residential Use.
- (ccc) “**Office Development**” means a Building, or part thereof, in which management, clerical, administrative, consulting, advisory or training services are offered or performed, but shall not include a Medical Clinic or any part of an Industrial Development
- (ddd) “**Place of Worship**” means a Building, or any part thereof, owned and occupied by a church or religious organization used for religious services,



ceremonies or other religious practices, or for the purposes of a the burial or entombment of the remains of deceased individuals and which is which is or would be classified as exempt from taxation in accordance with paragraph 3 of subsection 3(1) of the *Assessment Act*, R.S.O. 1990, Chapter A.31, but does not include a Building or any part thereof , owned by a church or religious organization and used for any other purpose including without limiting the generality of the foregoing any uses which generate revenue for the church or religious organization.

(eee) “**Planning Act**” means the *Planning Act*, R.S.O. 1990, c. P. 13.

(fff) “**Production Studio**” means a Building, or any part thereof, used for the creation and production of motion pictures or audio or video recordings and the associated warehousing, prop and set design and storage or used for digital media uses such as animation studio, and associated software development and processing, but shall not include the mass reproduction of film.

(ggg) “**Protected Heritage Property**” means a property that is designated under Part IV of the *Ontario Heritage Act*, subject to a Heritage Easement under Part II of the *Ontario Heritage Act*, subject to a Heritage Easement under Part IV of the *Ontario Heritage Act*, or subject to a covenant or agreement on title held between the property owner and a conservation authority or level of government in the interest of conserving built heritage.

(hhh) “**Redevelopment**” means the construction, erection or placing of one or more Buildings on land where all or part of a Building has previously been demolished on such land, or changing the use of a Building from a Residential Development to a Non-residential Development or from a Non-residential Development to a Residential Development, or changing a Building from one form of Residential Development to another form of Residential Development or from one form of Non-residential Use to another form of Non-residential Use and including any development or redevelopment requiring any of the actions described in Section 12.

(iii) “**Regulation**” means Ontario Regulation 82/98 under the Act.



(jjj) **“Residential Development”** or **“Residential Use”** means:

- (i) a Single Detached Dwelling;
- (ii) a Semi-detached Dwelling;
- (iii) a Residential Facility;
- (iv) a Lodging House;
- (v) a Mobile Home;
- (vi) a Garden Suite;
- (vii) a Laneway House;
- (viii) a Multiple Unit Dwelling;
- (ix) a Stacked Townhouse Dwelling;
- (x) an Apartment Dwelling; or
- (xi) the portion of a Mixed-use Development comprised of any Dwelling Units and any areas intended to be used exclusively by the occupants of the Dwelling Units,

but does not include any Buildings used or designed to be used for use as Short Term Accommodation.

(kkk) **“Residential Facility”** means a Building or part thereof containing four or more rooms or suites of rooms designed or intended to be used for sleeping and living accommodation that have a common entrance from street level and:

- (i) where the occupants have the right to use, in common, halls, stairs, yards, common rooms and accessory buildings;
- (ii) which may or may not have exclusive sanitary facilities for each occupant;



- (iii) which does not have exclusive Full Kitchen facilities for each occupant;
 - (iv) where support services such as meal preparation, grocery shopping, laundry; and
 - (v) housekeeping, nursing, respite care and attendant services may be provided at various levels.
- (III) **“Semi-detached Dwelling”** means a Building consisting of two Dwelling Units attached by a vertical wall or walls, each of which has a separate entrance or access to grade.
- (mmm) **“Separated Sewer System”** shall mean the area within the City of Hamilton that contained inside the area depicted as the Urban Area Boundary in Schedule “D” and outside the area depicted as the Combined Sewer System in Schedule “D”.
- (nnn) **“Services”** means services designated in Schedule “A” and Schedule “B” of this By-law; or designated in an agreement under section 44 of the Act.
- (ooo) **“Short Term Accommodation”** means a Building designed or used or designed or intended for use as a temporary rental sleeping accommodation for travellers and shall include but not be limited to a motel, motor hotel, hotel or an apartment hotel.
- (ppp) **“Single Detached Dwelling”** means a Building containing one Dwelling Unit and not attached to another Building, whether or not the Single Detached Dwelling is situated on a single lot.
- (qqq) **“Stacked Townhouse Dwelling”** means a Building containing four or more Dwelling Units which are horizontally and vertically separated in a split level or stacked manner, where each dwelling unit egresses directly outside to grade (no egress to a common corridor).
- (rrr) **“Stacked Townhouse Dwelling Unit”** means a Dwelling Unit within a Stacked Townhouse Dwelling.



- (sss) “**Student Residence**” means a Residential Development that is solely owned by a university, college of applied arts and technology or other accredited post-secondary institution, designed or intended to be used for sleeping and living accommodations by students of the university, college of applied arts and technology or other accredited post-secondary institution that owns the Residential Development.
- (ttt) “**Temporary Building or Structure**” means a non-residential Building without a foundation which is constructed, erected or placed on land for a continuous period of time not exceeding one year, or a like addition or alteration to an existing Building or an existing structure that has the effect of increasing the usability thereof for a continuous period not exceeding one year.
- (uuu) “**Townhouse Dwelling**” means a Building divided vertically into three or more Dwelling Units, by common walls which prevent internal access between units where each Dwelling Unit egresses directly outside to grade.
- (vvv) “**Townhouse Dwelling Unit**” means a Dwelling Unit within a Townhouse Dwelling.
- (www) “**Urban Area Boundary**” shall mean the area within the City of Hamilton that is depicted as the Urban Area Boundary in Schedule “D”.
2. Any defined term in the Act or Regulation that has not been defined in Section 1 of this By-law, shall have the meaning given to it in the Act or Regulation.
 3. Any reference in this By-law to any statute or regulation or any section of any statute or regulation shall, unless otherwise expressly stated, be deemed to be a reference to such statute, regulation or section as amended, restated or re-enacted from time to time and to any successor legislation or regulation.
 4. Unless otherwise indicated, references in this By-law to Sections, Schedules are to, Sections and Schedules of this By-law.



5. In this By-law "herein", "hereof", "hereto" and "hereunder" and similar expressions refer to this By-law.

Schedules

6. The following schedules to this By-law form an integral part of this By-law:
 - Schedule "A": Municipal Wide Development Charges
 - Schedule "B": Stormwater, Water and Wastewater Development Charges
 - Schedule "C": Special Area Charges
 - Schedule "D": Map of the Combined Sewer System Area and Urban Area Boundary of the City of Hamilton
 - Schedule "E": Downtown Hamilton Community Improvement Project Area (Downtown C.I.P.A.)
 - Schedule "F": Height Restrictions for Downtown C.I.P.A. Exemption
 - Schedule "G": Dundas/Waterdown Special Area Charge (S.A.C.) Map
 - Schedule "H": Community Improvement Project Areas (C.I.P.A.s) and Business Improvement Project Areas (B.I.A.s) Maps

Lands Affected

7. This By-law applies to all land within the City of Hamilton.

Amount of Charge

8. The development of land in the City of Hamilton is also subject to City of Hamilton By-law 11-174, as amended, and any additional Development Charges By-laws that may be enacted by the Council of the City of Hamilton during the life of this By-law.



9.

- (a) Where there is Development of land within the Urban Area Boundary, the Development Charges payable pursuant to this By-law shall be the Development Charges set out in both Schedule “A” and Schedule “B” to this By-law.
- (b) Where a building permit is issued for a Building located on land outside of the Urban Area Boundary the Development Charges payable pursuant to this By-law shall be the Development Charges set out in Schedule “A” and, where a connection of that Building to any or all of the water, wastewater, and stormwater services in Schedule “B” is proposed, the applicable charge set out in Schedule “B” shall also be applied to the said Development as a Development Charge.
- (c) The Development Charge for Industrial Development shall be calculated based on the percentages outlined in Table 1 below, of the full Non-residential Development Charge set out in Schedules “A” and “B” to this By-law:



Table 1 - Industrial Development Charges to be Imposed

Service	Combined Sewer System	Separated Sewer System
	Effective July 6, 2019	Effective July 6, 2019
Water Services	0%	0%
Wastewater Facilities	100%	100%
Wastewater Linear Services	100%	100%
Stormwater Drainage and Control Service	100%	100%
Services Related to a Highway	80%	69%
Public Works	0%	0%
Police Services	0%	0%
Fire Protection Services	0%	0%
Transit Services	0%	0%
Parkland Development Services	0%	0%
Recreation Facilities	0%	0%
Library Services	0%	0%
Administrative Studies	0%	0%
Paramedic Services	0%	0%
Social and Child Services	0%	0%
Social Housing	0%	0%
Health Services	0%	0%
Long-Term Care	0%	0%
Provincial Offenses Administration	0%	0%
Airport Services	0%	0%
Parking Services	0%	0%
Waste Diversion	0%	0%

- (d) Subject to any applicable exemption set out in this By-Law, where there is development of land within those areas of Dundas and Waterdown delineated on Schedule "G" to this By-law, the Development Charges payable pursuant to this By-law shall be the Development Charges set out in Schedule "A" and Schedule "B" and the Special Area Charge as shown on Schedule "C" to this By-law.

Designation of Services

10. All Development of land within the area to which this By-law applies will increase the need for Services.



11. The Development Charges applicable to a Development as determined pursuant to this By-law shall apply without regard to the Services required or used by an individual Development.

Approvals for Development

12. The Development of land is subject to a Development Charge where the Development requires the following:
 - (a) the passing of a zoning by-law or an amendment thereto under section 34 of the *Planning Act*;
 - (b) the approval of a minor variance under section 45 of the *Planning Act*;
 - (c) a conveyance of land to which a by-law passed under sub-section 50(7) of the *Planning Act* applies;
 - (d) the approval of a plan of subdivision under section 51 of the *Planning Act*;
 - (e) a consent under section 53 of the *Planning Act*;
 - (f) the approval of a description under section 9 of the *Condominium Act* 1998, S.O. 1998, c.19; or
 - (g) the issuance of a permit under the *Building Code Act*, 1992, S.O. 1992, c.23, as amended, or successor legislation, in relation to a building or structure.
13. Where two or more of the actions described in Section 12 of this By-law occur at different times, or a second or subsequent building permit is issued resulting in increased, additional or different Development, then additional Development Charges shall be imposed in respect of such increased, additional, or different Development permitted by that action.
14. Where a Development requires an approval described in Subsections 12(a) to 12(f) of this By-law after the issuance of a building permit and no Development Charges have been paid, then the Development Charges shall be paid prior to



the granting of any approval required under Subsections 12(a) to 12(f) of this By-law.

15. Where a Development does not require a building permit but does require one or more of the approvals described in Subsection 12(a) to 12(f) of this By-law, then, notwithstanding Section 33 of this By-law, Development Charges shall be payable and paid prior to the granting of any approval required under Subsections 12(a) to 12(f) of this By-law.
16. Nothing in this By-law prevents Council from requiring, in a condition of an approval or an agreement respecting same under Section 51 of the Planning Act or as a condition of consent or an agreement respecting same under Section 53 of the Planning Act that the owner, at his or her own expense, shall install such local services related to or within a plan of subdivision, as Council may require, in accordance with the City's applicable local services policies in effect at this time.

Calculation of Development Charges

17. A Development Charge imposed pursuant to this By-law shall, subject to any other applicable provision hereof, be calculated as follows:
 - (a) Subject to (i), (ii) and (iii) below, in the case of Residential Development or the residential portion of Mixed Use Development, or the residential portion of a Live/Work Unit, based on the number and type of Dwelling Units:
 - (i) in the case of a Residential Facility, Lodging House, or Garden Suite based upon the number of bedrooms;
 - (ii) subject to (iii) below, in the case of a Dwelling Unit containing six or more Bedrooms, the sixth and any additional Bedroom shall be charged at the applicable Residential Facility rate; or
 - (iii) in the case of an Apartment Dwelling containing six or more Bedrooms, then the following applies: (A) the applicable "apartment 2 bedroom +" rate shall apply to the Dwelling Unit and the first five



Bedrooms; and (B) the applicable Residential Facility rate shall apply to the sixth Bedroom and each additional Bedroom;

- (b) in the case of Non-residential Development based upon the Gross Floor Area of such Development measured in square feet;
- (c) in the case of the Non-residential Use portion of a Mixed Use Development, based upon the Gross Floor Area of the Non-residential Use component measured in square feet; and
- (d) in the case of the Non-residential Use portion of a Live/Work Unit, based upon the Gross Floor Area of the Non-residential Use component of such Development measured in square feet.

18. Subject to the provisions of this By-law, Development Charges against land are to be calculated and collected in accordance with the Services and rates set out in Schedule “A”, Schedule “B”, and Schedule “C” to this By-law.

Exemptions for Intensification of Existing Housing

19.

- (a) No Development Charge shall be imposed where the only effect of an action referred to in Section 12 of this By-law is to:
 - (i) permit an enlargement to an existing Dwelling Unit;
 - (ii) permit the creation of one or two additional Dwelling Units within an existing Single Detached Dwelling; or
 - (iii) permit one additional Dwelling Unit in any Semi-detached Dwelling, a Townhouse Dwelling or any other existing Residential Dwelling.
- (b) Notwithstanding (a) above, Development Charges shall be imposed if the total Gross Floor Area of the additional one or two units exceeds the Gross Floor Area of the existing Dwelling Unit.



- (c) Notwithstanding (a) above, Development Charges shall be imposed if the additional Dwelling Unit has a Gross Floor Area greater than:
 - (i) in the case of a Semi-detached Dwelling or Townhouse Dwelling Unit, the Gross Floor Area of the existing Dwelling Unit; and
 - (ii) in the case of any other Residential Building, the Gross Floor Area of the smallest Dwelling Unit contained in the said residential Building.
 - (d) The exemption to Development Charges in (a) above shall only apply to the first instance of intensification in an existing dwelling.
 - (e) Subject to (b), (c) and (d) above, any exemption under (a) above shall apply to the smallest Dwelling Unit, as determined by applicable rates under this By-law.
20. No Development Charge shall be imposed on any Building owned by and used for the purposes of:
- (a) the City of Hamilton;
 - (b) a Board of Education; or,
 - (c) a local board.
21. No Development Charge shall be imposed on:
- (a) one or more enlargements of an Existing Industrial Building, up to a maximum of fifty percent (50%) of the Gross Floor Area of the Existing Industrial Building.
 - (b) one or more industrial Buildings on the same lot or parcel of land as one or more Existing Industrial Buildings, up to a maximum of fifty percent (50%) of the combined Gross Floor Area of the Existing Industrial Buildings.



22. Where a proposed enlargement exceeds fifty percent (50%) of the Gross Floor Area of an Existing Industrial Building, Development Charges are payable on the amount by which the proposed enlargement exceeds fifty percent (50%) of the Gross Floor Area before the enlargement.
23. The cumulative total of the Gross Floor Area previously exempted hereunder shall be included in the determination of the amount of the exemption applicable to any subsequent enlargement.
24. Where:
 - (a) a subdivision of a lot or parcel of land subsequent to any enlargement or additional industrial Building previously exempted hereunder results in the existing industrial Building being on a lot or parcel separate from the Development previously, further exemptions, if any, pertaining to the existing industrial Building shall be calculated on the basis of the lot or parcel of land as it exists at the time of said enlargement or additional industrial Building.
 - (b) lands are merged or otherwise added to a lot or parcel of land after July 16, 2018, the exemption in 17 (b) shall only be available to Development on the lot or parcel of land as it existed as of July 16, 2018 and the exemption in subsection 17(b) shall not apply to any Development on lands that were merged with or added to a lot or parcel of land after July 16, 2018.

Other Exemptions from Development Charges

25. Notwithstanding any other provision of this By-law, no Development Charges are imposed under this By-law respecting;
 - (a) a Building, or part thereof, used for parking but excluding a building or part thereof used for Commercial Parking;
 - (b) an Agricultural Use;
 - (c) a Place of Worship;



- (d) a Laneway House; and
- (e) a Temporary Building or Structure, subject to Section 32.

Downtown C.I.P.A. Partial Exemption

26. Notwithstanding any other provision of this By-law, the Development Charges payable under this By-law respecting Class A Office Development within the boundaries of the Downtown C.I.P.A. shall be reduced by 70% after all credits are applied under this By-law, for only the portion of the Class A Office Development that is within the height restrictions as shown in Schedule “F”.
27. Notwithstanding any other provision of this By-law, the Development Charges payable under this By-law respecting all Development, other than Class A Office Development, within the boundaries of the Downtown C.I.P.A. shall:
- (a) be reduced by the following percentages, after all other credits are applied, under this By-law for only the portion of the Building that is within the height restrictions as shown in Schedule “F” based on the later of the date on which Development Charges are payable or the date all applicable Development Charges were actually paid:

Date	Percentage of Exemption (%)	Percentage of development charge payable (%)
July 6, 2019 to July 5, 2020	60	40
July 6, 2020 to July 5, 2020 ¹	50	50
July 6, 2021 to July 5, 2022	40	60
July 6, 2022 to July 5, 2023	40	60
July 6, 2023 to July 6, 2024	40	60

Schedule “F” shall not be amended by any decision by the Local Planning Appeal Tribunal relating to the City’s Zoning By-law Amendment 18-114; or by any amendments, including site specific or area specific, to the City’s Zoning By-law 05-200 either through Local Planning Appeal Tribunal decisions or by Council.



For clarity, any Development in excess of the height restrictions as shown in Schedule “F” shall be subject to the full calculated Development Charge and only be reduced if there are any credits or exemptions remaining after applying any and all other credits or exemptions to the portion of the building that is within the height restrictions as shown in Schedule “F”.

- (b) for each year this By-law is in effect an additional exemption will apply as follows:
 - (i) a dollar for dollar exemption on any remaining Development Charges payable equal to any amount of contribution by the payer of the Development Charges to the Downtown Public Art Reserve in an amount not to exceed ten percent of the Development Charges otherwise payable on the height that is within the height restrictions as shown as Schedule “F”; and
 - (ii) the amount of all exemption provided in Subsection 27(b) shall be limited to \$250,000 annually and any single exemption shall be reduced by the amount it would exceed the \$250,000 limit.

28. The exemptions in Section 26 and 27 shall not apply in addition to the exemptions in Sections 19, 25 and 29. The exemptions provided in Section 26 and 27 shall only apply if the amount of exemption is greater than that provided under Sections 19, 25 and 29, individually or cumulatively. If the exemptions under Sections 19, 25 and 29 are greater, individually or cumulatively, than that which could be provided under Section 26 and 27, no exemption pursuant to Section 26 and 27 shall apply. For the purpose of this Section, the Residential Use and Non-residential Use portion of a Mixed Use Development may be viewed as independent of one another and the exemption under this By-law that provides the greatest reduction in Development Charges payable shall be applied to each use.

Other Partial Exemptions

29. Notwithstanding any other provision of this By-law , the Development Charges payable under this By-law respecting the following types of Development will be



partially exempt from Development Charges under this By-law in the manner and to the extent set out below:

- (a) for any Non-industrial Development other than an expansion, within the boundaries of the C.I.P.A.s or B.I.A.s, and for any Office Development other than an expansion anywhere in the City, Development Charges shall be imposed as follows:
 - (i) 50% of the applicable Development Charge on the first 5,000 square feet;
 - (ii) 75% of the applicable Development Charge for each square foot in excess of 5,000 square feet and under 10,000 square feet;
 - (iii) 100% of the applicable Development Charge on the amount of Development exceeding 10,000 square feet.

Where Development has been exempted pursuant to this Subsection, the exemption set out in Subsection (b) below does not apply to any subsequent expansion on such Development.

- (b) the initial 5,000 square feet of Gross Floor Area of an Office Development expansion, whether attached or unattached to an existing Office Development, shall be exempted from the payment of Development Charges provided that:
 - (i) the office development has not had the exemption in Subsection 29(a) previously applied to it under this By-law;
 - (ii) the Office Development has not been the subject of any exemptions or partial exemptions from the payment of Development Charges under any other Development Charges By-laws which are no longer in force;
 - (iii) where unattached to an existing Office Development, the expansion must be situated on the same site as the existing Office Development; and,



- (iv) where, subsequent to an unattached expansion exempted hereunder, the Lot is further subdivided such that the original existing Office Development and the unattached expansion thereof are no longer situated on the same Lot, further exemptions pursuant to this Section, if any, shall only be calculated on the basis of the Office Development and the Lot as they existed on the date of the first exemption.
- (c) Until June 30, 2020 Development of a Student Residence is exempt from 50% of the Development Charge otherwise payable pursuant to this By-law according to the type of Residential Development. After June 30, 2020 no exemption shall be provided for Development of a Student Residence and the Development of a Student Residence will be subject to the payment of Development Charges payable pursuant to this By-law.
- (d) Redevelopment of an existing Residential Development for the purpose of creating Residential Facilities or Lodging Houses within the existing building envelope is exempt from 50% of the Development Charge otherwise payable pursuant to this By-law.
- (e) Redevelopment of an existing Residential Facility or Lodging House for the purpose of creating additional bedrooms in a Residential facility or Lodging House within the existing building envelope shall be exempt from 50% of the Development Charge payable pursuant to this By-law. Notwithstanding anything else contained in this By-law, save and except Subsection 30(d) and Subsection 31(d), the credit applicable to any such Redevelopment shall be based on 100% of the applicable Residential Facility rate or Lodging House rate in effect at the time of receipt by the Chief Building Official of a complete building permit application for the said redevelopment within the meaning of Section 32 of this By-law.
- (f) the Adaptive Reuse of the part of a building on a Protected Heritage Property that contains:
- (i) heritage attributes that are the subject of designation under Part IV of the *Ontario Heritage Act*;



- (ii) features subject to a Heritage Easement under Part II of the *Ontario Heritage Act*,
- (iii) features subject to a Heritage Easement under Part IV of the *Ontario Heritage Act*, or
- (iv) features subject to a covenant or agreement on title held between the property owner and a conservation authority or level of government in the interest of conserving,

is exempted from Development Charges.

Rules with Respect to Redevelopment - Demolitions

30. In the case of the demolition of all or part of a Building:

- (a) a credit shall be allowed against the Development Charges otherwise payable pursuant to this By-law, provided that a building permit has been issued for the Redevelopment within five years of the issuance date of the demolition permit on the same land and may be extended by the General Manager of Finance and Corporate Services either for Developments located outside the Urban Area Boundary or for Developments where it has been determined by the General Manager of Planning & Economic Development that significant development delays were not the responsibility of the developer, or may be otherwise extended by Council;
- (b) the credit shall be calculated at the time Development Charges are due for the Redevelopment as follows:
 - (i) for the portion of the Building used for Residential Uses, by multiplying the applicable Development Charge under Section 9 of this By-law by the number, according to type, of the Dwelling Units have been or will be demolished as supported by a demolition agreement; and
 - (ii) for the portion of the Building used for Non-residential Uses, by multiplying the applicable Development Charge under Section 9 of



this By-law, according to type of Non-residential Use, by the Gross Floor Area that has been or will be demolished as supported by a demolition agreement;

- (c) without limiting the generality of the foregoing, no credit shall be allowed where the demolished Building or part thereof would have been exempt pursuant to this By-law, including Buildings, or parts thereof, that would have been exempted pursuant to Section 29(f); and
- (d) the amount of any credit pursuant to this Section shall not exceed, in total, the amount of the Development Charges otherwise payable pursuant to this By-law with respect to the Redevelopment.

Rules with Respect to Redevelopment - Conversions

31. Where an existing Building is converted in whole or in part from one use (hereinafter referred to in this Section as the “First Use”) to another use,
- (a) the amount of Development Charges payable shall be reduced by the amount, calculated pursuant to this By-law at the current Development Charges rates in respect of the First Use;
 - (b) the First Use shall be the use as confirmed through the City’s Building Division and related permit records;
 - (c) for greater certainty, and without limiting the generality of the foregoing, no credit shall be allowed where the converted Building or part thereof would have been exempt pursuant to this By-law; and
 - (d) the amount of any credit pursuant to this Section shall not exceed, in total, the amount of the Development Charges otherwise payable pursuant to this By-law with respect to the Redevelopment.

Temporary Buildings or Structures

32. Where an application is made for the issuance of a permit under the *Building Code Act* in relation to a Temporary Building or Structure, the Chief Building Official, or his or her delegate, may, as a condition of the issuance of the said



permit, require that the owner of the land enter into an agreement with the City pursuant to section 27 of the Act and Section 34 of this By-law and submit security satisfactory to the General Manager of Finance and Corporate Services and the City Solicitor, to be realized upon in the event that the Temporary Building or Structure remains on the land for more than one year, or any other time as may be set out in the said agreement or security, from the date of the construction or erection thereof. A Temporary Building or Structure that has not been removed or demolished by the first anniversary of its construction or erection on the land, or by the date specified in an agreement, shall be deemed not to be, nor ever to have been, a Temporary Building or Structure and Development Charges under this By-law shall become due and payable forthwith and the City may draw upon any security as payment for the Development Charges payable.

Collection of Development Charges

33. Subject to the provisions of Section 34, Development Charges are payable at the time a building permit is issued with respect to a Development.

Prepayment or Deferral Agreements

- 34.
- (a) Save as otherwise specified in this By-law, and for Non-residential Development, a Mixed Use Development, a Residential Facility, a Lodging House or an Apartment Dwelling only, the General Manager of Finance and Corporate Services may authorize in writing, in accordance with section 27 of the Act, an agreement with a person to permit, on such terms as the General Manager of Finance and Corporate Services may require, including the payment of interest by such person, and for an initial term no longer than five years, the payment of the Development Charge before or after it is otherwise payable under this By-law. The General Manager of Finance and Corporate Services may, on such terms as the General Manager of Finance and Corporate Services may require, including the payment of interest by such person, extend the initial term by no more than two years.



- (b) Notwithstanding (a) above, for any Development that has been approved by the City for an E.R.A.S.E. Redevelopment Grant, or any successor thereof, the General Manager of Finance and Corporate Services may authorize in writing, in accordance to section 27 of the Act, an agreement with a person to permit, on such terms as the General Manager of Finance and Corporate Services may require, without interest, the payment of a portion or all of the Development Charge after it is otherwise payable under this By-law for an amount not to exceed the amount of the approved E.R.A.S.E. Grant and for a period of time not to exceed the date on which the final payment of the approved E.R.A.S.E. Redevelopment Grant will be made.
- (c) Notwithstanding (a) above, the General Manager of Finance and Corporate Services may, relating to a Development that consists of one building that requires more than one building permit, authorize in writing, in accordance with section 27 of the Act, an agreement to permit, on such terms as the General Manager of Finance and Corporate Service may require, including the payment of instalments related to subsequent building permits and interest by such person and for a term no longer than five years, the payment of the Development Charge after it is otherwise payable under this By-law.
- (d) Notwithstanding (a) above, Council may authorize an agreement with a hospital that is approved under *Public Hospitals Act*, R.S.O. 1990, c. P. 40, and R.R.O. 1990, Regulation 964 as a public hospital to permit, on such conditions as Council may require, including the payment of interest, and for a term no longer than 10 years, the payment of the Development Charge after it is otherwise payable under this By-law.
- (e) Notwithstanding (a) above, Council may authorize an agreement with a university or other post-secondary school offering a degree or diploma recognized by the Province of Ontario, on such conditions as Council may require, including the payment of interest, and for a term no longer than 30 years, the payment of the Development Charge after it is otherwise payable under this By-law.



- (f) The General Manager of Finance and Corporate Services shall have the authority to execute any agreements authorized by Section 34 and any ancillary or subsidiary documentation related to any such agreement or necessary to give effect to the authority delegated in Section 34.
- (g) The General Manager of Finance and Corporate Services be authorized to direct the City Solicitor to commence legal proceedings and enter into agreements to ensure the collection of amounts deferred under Section 34 of this By-law and under section 27 of the Act and the General Manager of Finance and Corporate Service be authorized to execute any such agreements and ancillary documentation.

Credit for Services-in-lieu Agreement

- 35. In accordance with Sections 38, 39, 40 and 41 of the Act, a person may perform work that relates to a service to which this By-law applies, in return for a credit towards the Development Charges payable by the said person, by way of an agreement. No such credit shall exceed the total Development Charges payable by the person.

Front-Ending Agreements

- 36. Council may authorize a front-ending agreement in accordance with the provisions of Part III of the Act, upon such terms as Council may require, in respect of the Development of land.

Administration of By-law

- 37. This By-law shall be administered by the Corporate Services Department of the City of Hamilton.

Indexing

- 38. The Development Charges set out in Schedule “A” and Schedule “B” of this By-law shall be adjusted annually without amendment to this By-law by the percentage change during the preceding year, as recorded in the Statistics Canada’s Building Construction price index, by type of building (non-residential



building) (Table 18-10-0135-01) for the City of Toronto, as may be amended or replaced from time to time. This adjustment shall take place as follows:

- (a) the initial adjustment shall be one year from the effective date of this By-law, and
- (b) thereafter, adjustment shall be made each year on the anniversary of the effective date of this By-law.

Reserve Fund Report

- 39. The General Manager of Finance and Corporate Services shall, in each year prior to June 30 thereof, commencing June 30, 2020 for the 2019 year, furnish to Council a statement in respect of the reserve funds required by the Act for the services to which this By-law relates, for the prior year, containing the information set out in Section 43 of the Act and Section 12 of the Regulation.

Transition

- 40. The Development Charge rates payable are the rates in effect at the time of building permit issuance subject to any exceptions in Section 41 of this By-law.
- 41. The Development Charge rates payable are the rates in effect on the date a complete building permit application is received and accepted by the City's Chief Building Official, provided that the permit is issued within 6 months of the effective date of the first Development Charge rate increase following said building permit application. Where the said building permit is lawfully revoked by the Chief Building Official on or after the date of the said Development Charge rate increase, any subsequent application for a building permit on the lands or site will be subject to the Development Charge rate in effect on the date of building permit issuance. For the purposes of this Section, a "complete application" shall mean an application with all information and plans required as per the Ontario Building Code.



Refund Without Interest

42. Except as expressly required otherwise in the Act, the Regulation or this By-law, any refund by the City of Hamilton shall be without interest.

General

43. This By-law may be referred to as the “*City of Hamilton Development Charges By-law, 2019.*”

Date By-law Effective

44. This By-law shall come into force and take effect at 12:01 a.m. on July 06, 2019.

Date By-law Expires

45. This By-law expires five years after the date on which it comes into force.

By-law Registration

46. A certified copy of this By-law may be registered in the Land Titles Office as against title to any land to which this By-law applies.

Headings for Reference Only

47. The headings inserted in this By-law are for convenience of reference only and shall not affect the construction or interpretation of this By-law.

Severability

48. If, for any reason, any provision, Section, Subsection, Paragraph or clause of this By-law is held invalid, it is hereby declared to be the intention of Council that all the remainder of this By-law shall continue in full force and effect until repealed, re-enacted or amended, in whole or in part or dealt with in any other way.

Repeal

49. By-law 14-153, as amended, is hereby repealed effective as of the date and time of this By-law coming into effect.



Non-binding Nature

50. Nothing in this By-law shall be construed so as to commit or require the City or its Council to authorize or proceed with any specific capital project at any specific time.

PASSED this _____, _____, _____

F. Eisenberger
Mayor

J. Pilon
Acting City Clerk



SCHEDULE A-1 TO BY-LAW 19-XXX
Municipal Wide Development Charges – Effective June 13, 2019 - July 5, 2019

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Municipal Wide "Soft" Services:						
Parkland Development	2,352	1,683	1,377	942	760	0.11
Indoor Recreation Services	4,430	3,171	2,594	1,775	1,431	0.20
Library Services	1,045	748	612	419	338	0.05
Administrative Studies - Community Based Studies	330	236	193	132	107	0.17
Long Term Care	125	89	73	50	40	0.01
Health Services	1	1	1	-	-	0.00
Social & Child Services	15	11	9	6	5	0.00
Social Housing	648	464	379	260	209	0.00
Airport lands	419	300	245	168	135	0.21
Parking services	490	351	287	196	158	0.25
Provincial Offences Administration	40	29	23	16	13	0.02
Total Municipal Wide "Soft" Services	9,895	7,083	5,793	3,964	3,196	1.02
Municipal Wide "Hard" Services:						
Services Related to a Highway	2,867	2,174	2,234	1,750	950	8.05
Public Works Facilities, Vehicles & Equipment	784	561	459	314	253	0.41
Police Services	524	375	307	210	169	0.26
Fire Protection Services	462	331	271	185	149	0.23
Paramedics	137	98	80	55	44	0.03
Transit Services	1,917	1,372	1,123	768	619	0.98
Administrative Studies - Engineering Services Studies	166	119	97	66	54	0.08
Waste Diversion	657	470	385	263	212	0.13
Total Municipal Wide "Hard" Services	7,514	5,500	4,956	3,611	2,450	10.16
GRAND TOTAL MUNICIPAL WIDE (SOFT AND HARD)	17,409	12,583	10,749	7,575	5,646	11.18



SCHEDULE A-2 TO BY-LAW 19-XXX
Municipal Wide Development Charges – Effective July 6, 2019

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Municipal Wide "Soft" Services:						
Parkland Development	2,352	1,683	1,377	942	760	0.11
Indoor Recreation Services	4,430	3,171	2,594	1,775	1,431	0.20
Library Services	1,045	748	612	419	338	0.05
Administrative Studies - Community Based Studies	330	236	193	132	107	0.17
Long Term Care	125	89	73	50	40	0.01
Health Services	1	1	1	-	-	0.00
Social & Child Services	15	11	9	6	5	0.00
Social Housing	648	464	379	260	209	0.00
Airport lands	419	300	245	168	135	0.21
Parking services	490	351	287	196	158	0.25
Provincial Offences Administration	40	29	23	16	13	0.02
Total Municipal Wide "Soft" Services	9,895	7,083	5,793	3,964	3,196	1.02
Municipal Wide "Hard" Services:						
Services Related to a Highway	10,769	7,708	6,306	4,314	3,479	8.05
Public Works Facilities, Vehicles & Equipment	784	561	459	314	253	0.41
Police Services	524	375	307	210	169	0.26
Fire Protection Services	462	331	271	185	149	0.23
Paramedics	137	98	80	55	44	0.03
Transit Services	1,917	1,372	1,123	768	619	0.98
Administrative Studies - Engineering Services Studies	166	119	97	66	54	0.08
Waste Diversion	657	470	385	263	212	0.13
Total Municipal Wide "Hard" Services	15,416	11,034	9,028	6,175	4,979	10.16
GRAND TOTAL MUNICIPAL WIDE (SOFT AND HARD)	25,311	18,117	14,821	10,139	8,175	11.18



SCHEDULE B-1 TO BY-LAW 19-XXX
Stormwater, Water and Wastewater Development Charges – Effective June 13, 2019 - July 5, 2019

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Water and Wastewater Services						
Wastewater Facilities	4,048	2,897	2,371	1,622	1,308	1.95
Wastewater Linear Services	5,029	3,697	3,171	2,169	1,644	2.61
Water Services	4,767	3,412	2,792	1,910	1,540	2.29
Stormwater Services - Combined Sewer System (Area as per Schedule D)						
Stormwater Drainage and Control Services	7,065	5,106	4,313	3,001	2,293	1.41
Stormwater Services - Separated Sewer System (All areas outside of Combined Sewer System Area identified on Schedule D)						
Stormwater Drainage and Control Services	7,065	5,106	4,313	3,001	2,293	1.41
Total Urban Services - Combined Sewer System	20,909	15,112	12,647	8,702	6,785	8.26
Total Urban Services - Separated Sewer System	20,909	15,112	12,647	8,702	6,785	8.26



SCHEDULE B-2 TO BY-LAW 19-XXX
Stormwater, Water and Wastewater Development Charges – Effective July 6, 2019

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Water and Wastewater Services						
Wastewater Facilities	4,048	2,897	2,371	1,622	1,308	1.95
Wastewater Linear Services	5,415	3,876	3,171	2,169	1,749	2.61
Water Services	4,767	3,412	2,792	1,910	1,540	2.29
Stormwater Services - Combined Sewer System (Area as per Schedule D)						
Stormwater Drainage and Control Services	3,948	2,826	2,312	1,582	1,275	0.00
Stormwater Services - Separated Sewer System (All areas outside of Combined Sewer System Area identified on Schedule D)						
Stormwater Drainage and Control Services	10,462	7,488	6,127	4,191	3,380	2.16
Total Urban Services - Combined Sewer System	18,178	13,011	10,646	7,283	5,872	6.85
Total Urban Services - Separated Sewer System	24,692	17,673	14,461	9,892	7,977	9.01



SCHEDULE C-1 TO BY-LAW 19-XXX
 Special Area Charges – Effective June 13, 2019 - July 5, 2019

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Additional Special Area Charges Dundas/Waterdown	1,588	1,147	970	674	515	1.04

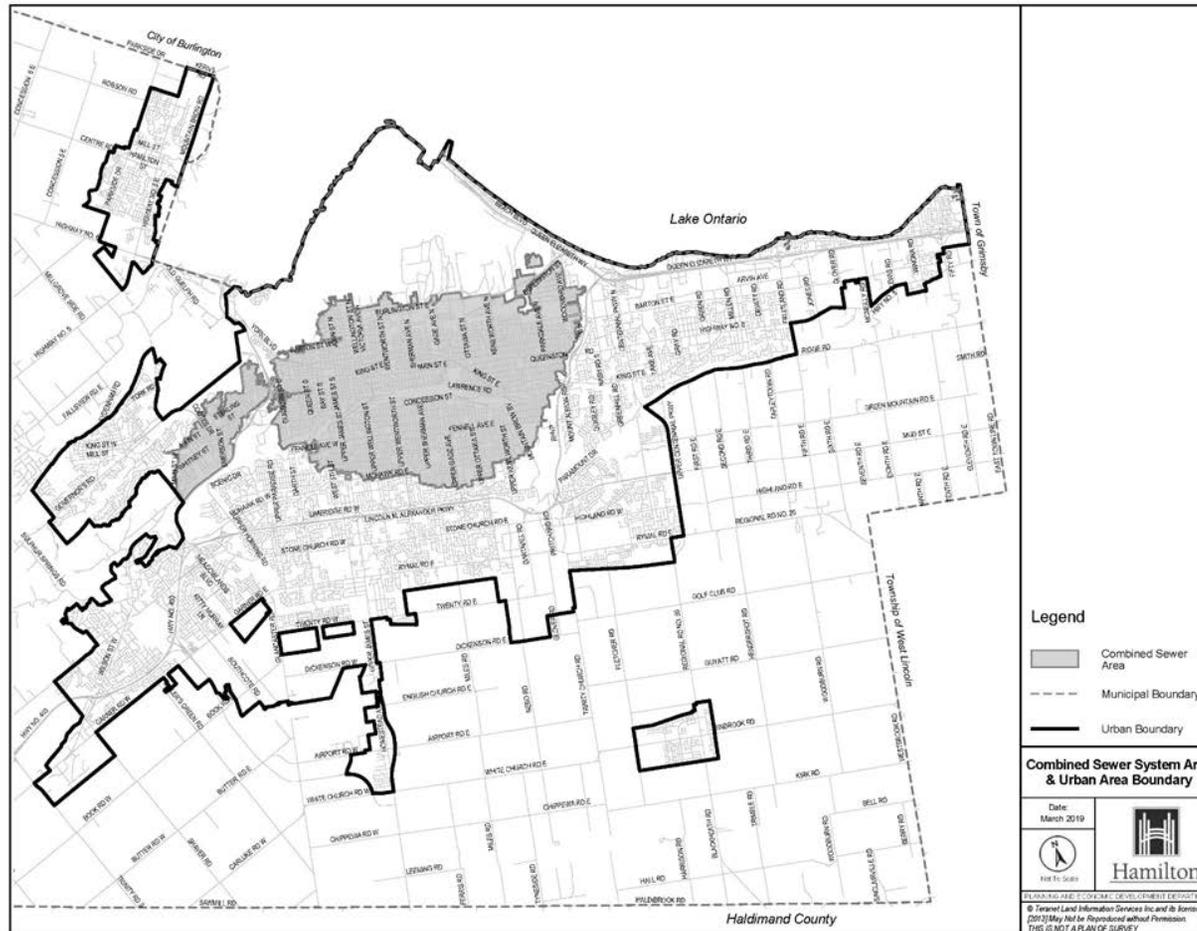


SCHEDULE C-2 TO BY-LAW 19-XXX
Special Area Charges – Effective July 6, 2019

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Additional Special Area Charges Dundas/Waterdown	1,971	1,410	1,154	789	637	1.04

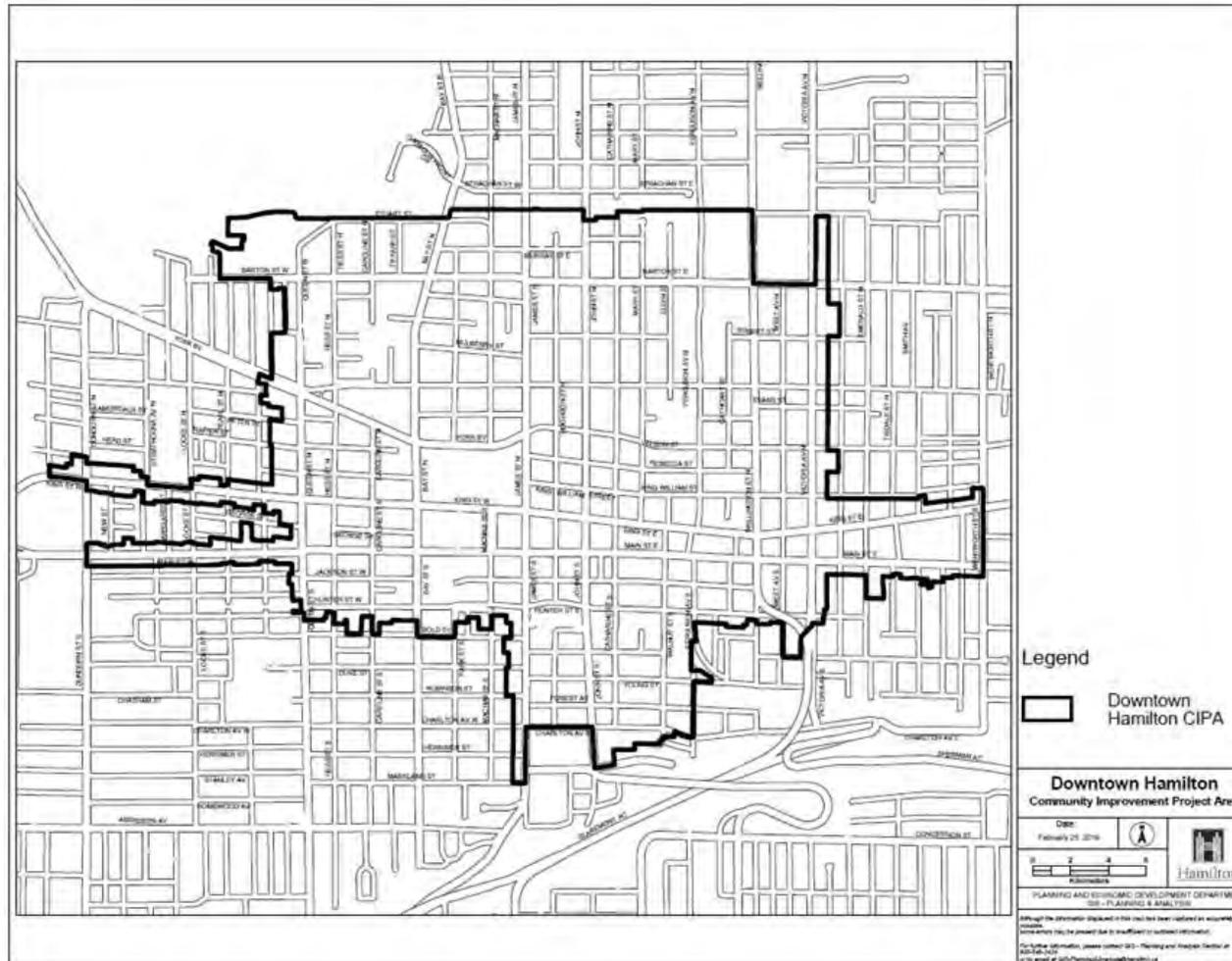


SCHEDULE D TO BY-LAW 19-XXX Combined Sewer System Area & Urban Area Boundary Map





SCHEDULE E TO BY-LAW 19-XXX
Downtown Hamilton Community Improvement Project Area (Downtown C.I.P.A.)



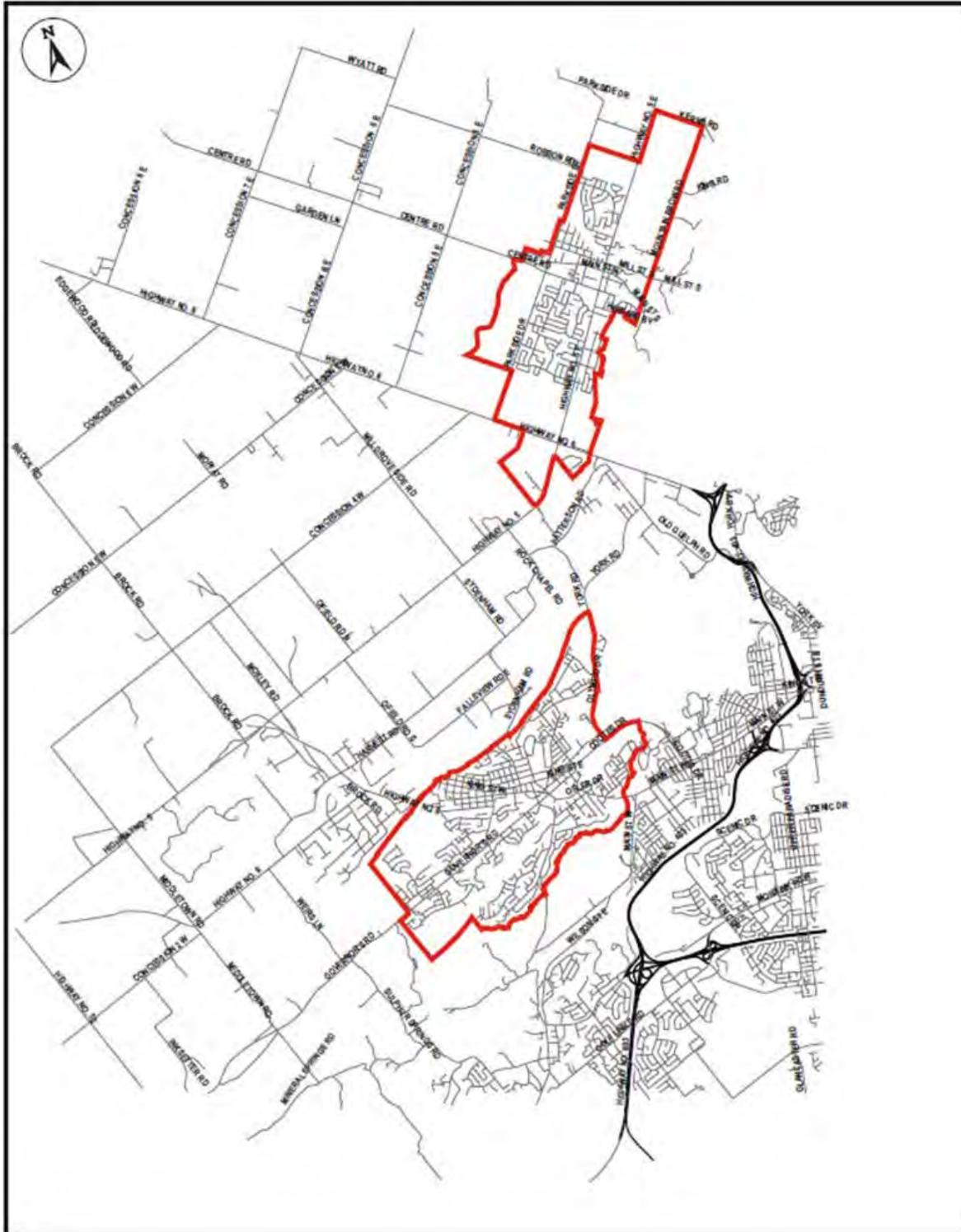


SCHEDULE F TO BY-LAW 19-XXX
Height Restrictions for Downtown C.I.P.A. Exemption





SCHEDULE G TO BY-LAW 19-XXX
Dundas/Waterdown Special Area Charge Map



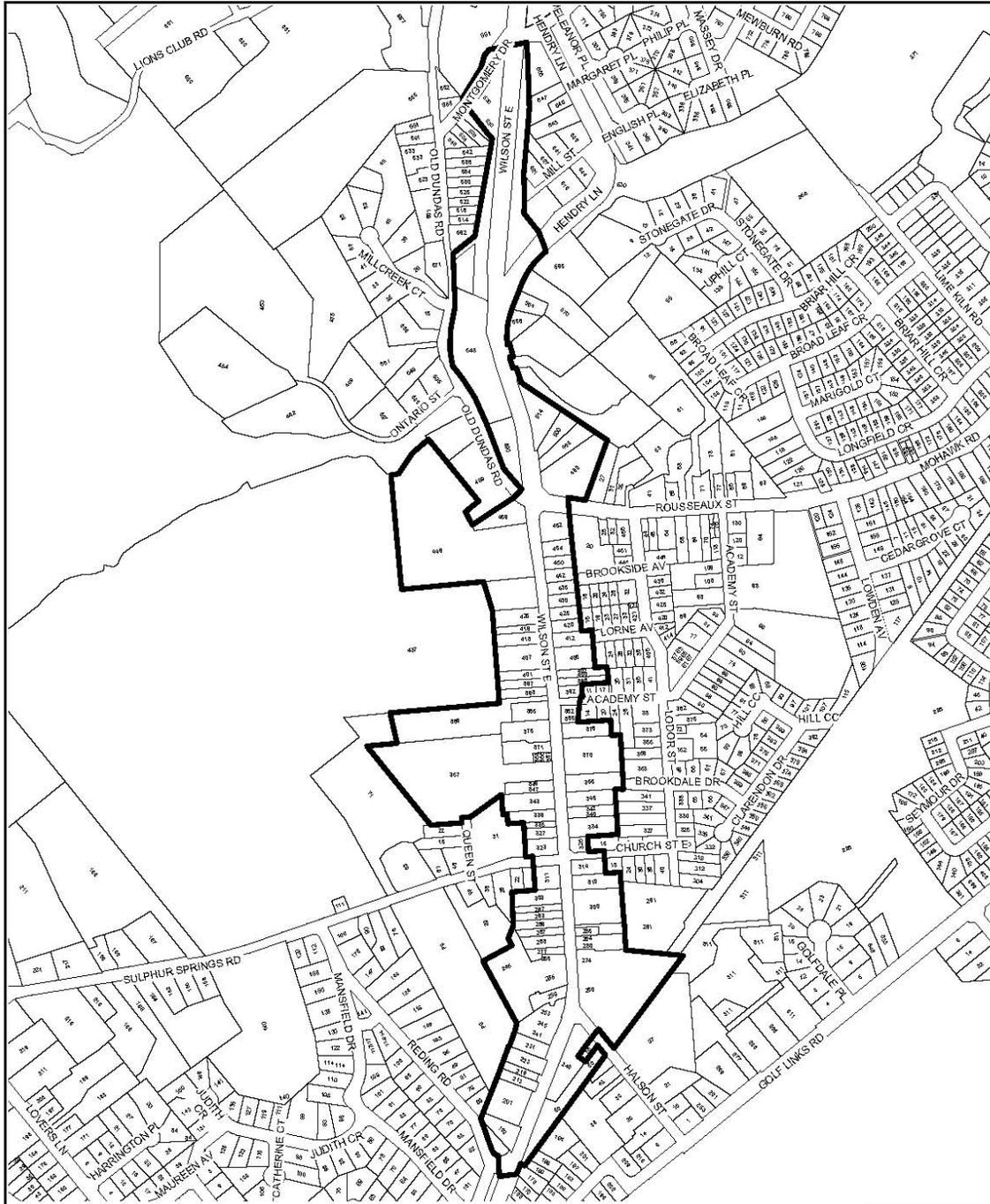
SCHEDULE H TO BY-LAW 19-XXX
COMMUNITY IMPROVEMENT PROJECT
AREAS (C.I.P.A.S) & BUSINESS
IMPROVEMENT AREAS (B.I.A.S)

**MAPS FOR COMMUNITY IMPROVEMENT PROJECT AREAS (C.I.P.A.s) &
BUSINESS IMPROVEMENT AREAS (B.I.A.s)**

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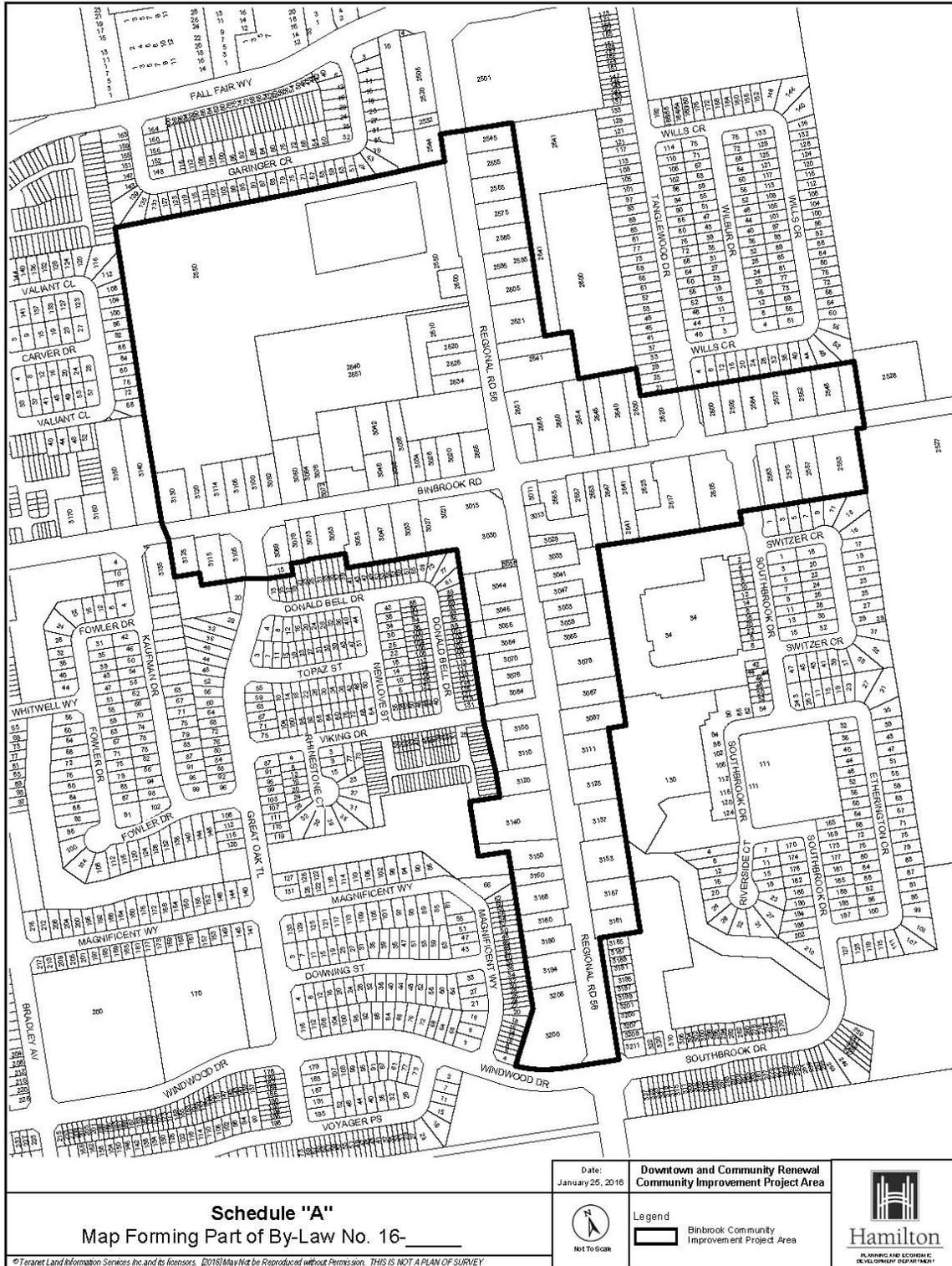
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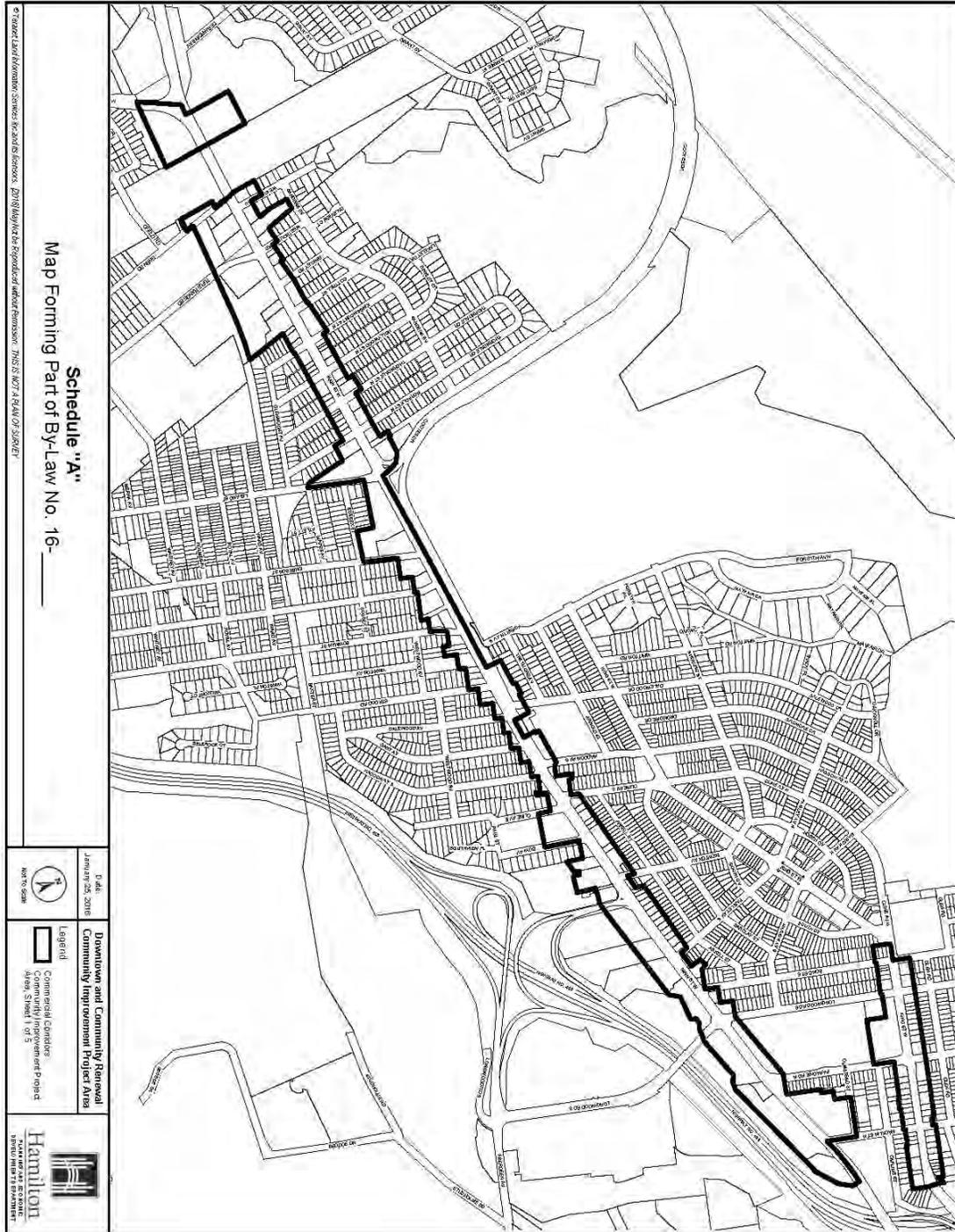


<p>Date: January 25, 2018</p>	<p>Downtown and Community Renewal Community Improvement Project Area</p>	 <p>Hamilton PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT</p>
<p align="center">Schedule "A" Map Forming Part of By-Law No. 16-_____</p> <p><small>© Torontor Land Information Services Inc. and its licensors. [2018] May/Not be Reproduced without Permission. THIS IS NOT A PLAN OF SURVEY</small></p>	<p>Not To Scale</p> <p>Legend</p> <p> Ancaster Village Community Improvement Project Area</p>	

Binbrook C.I.P.A.



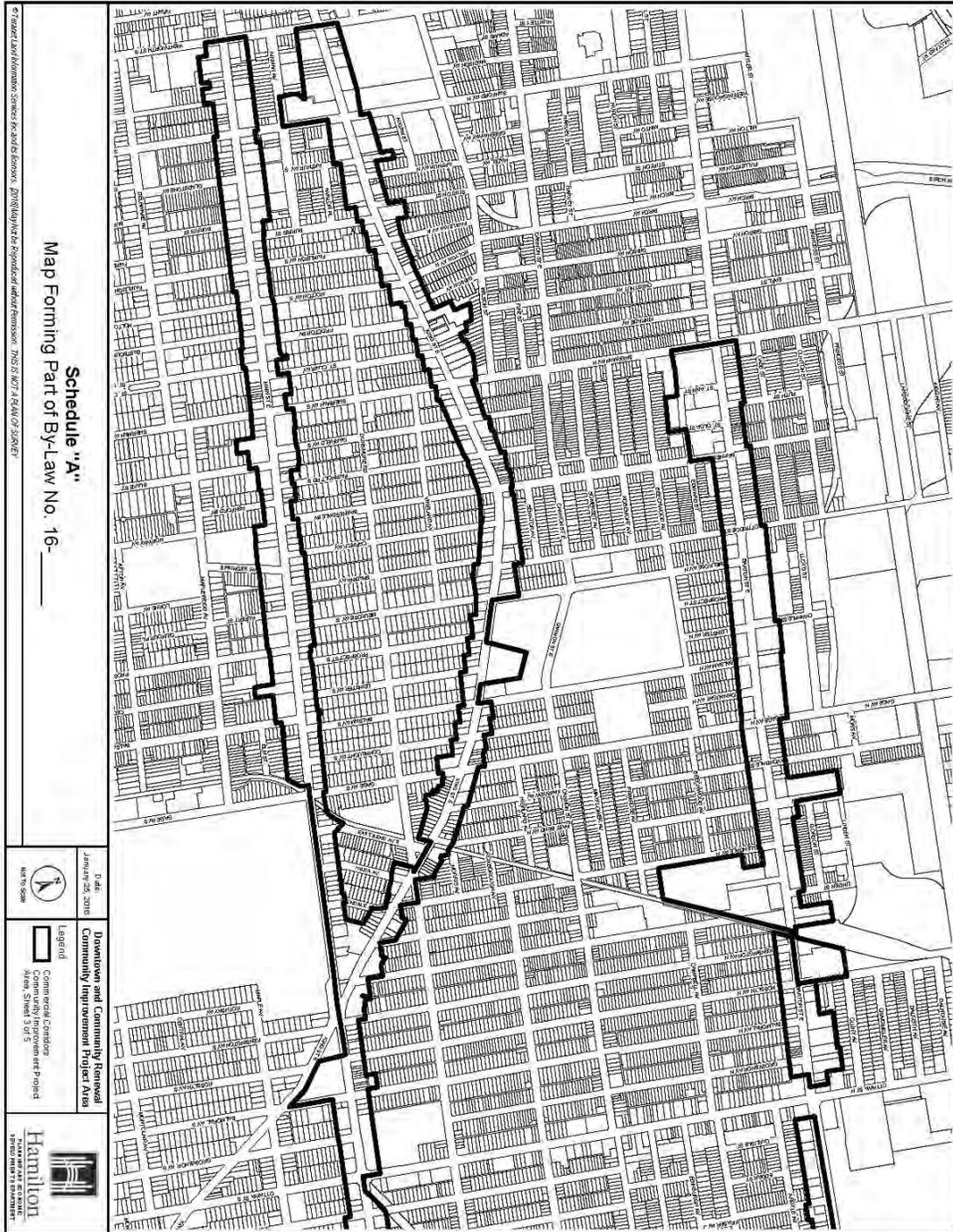
Commercial Corridors C.I.P.A. (1 of 5)



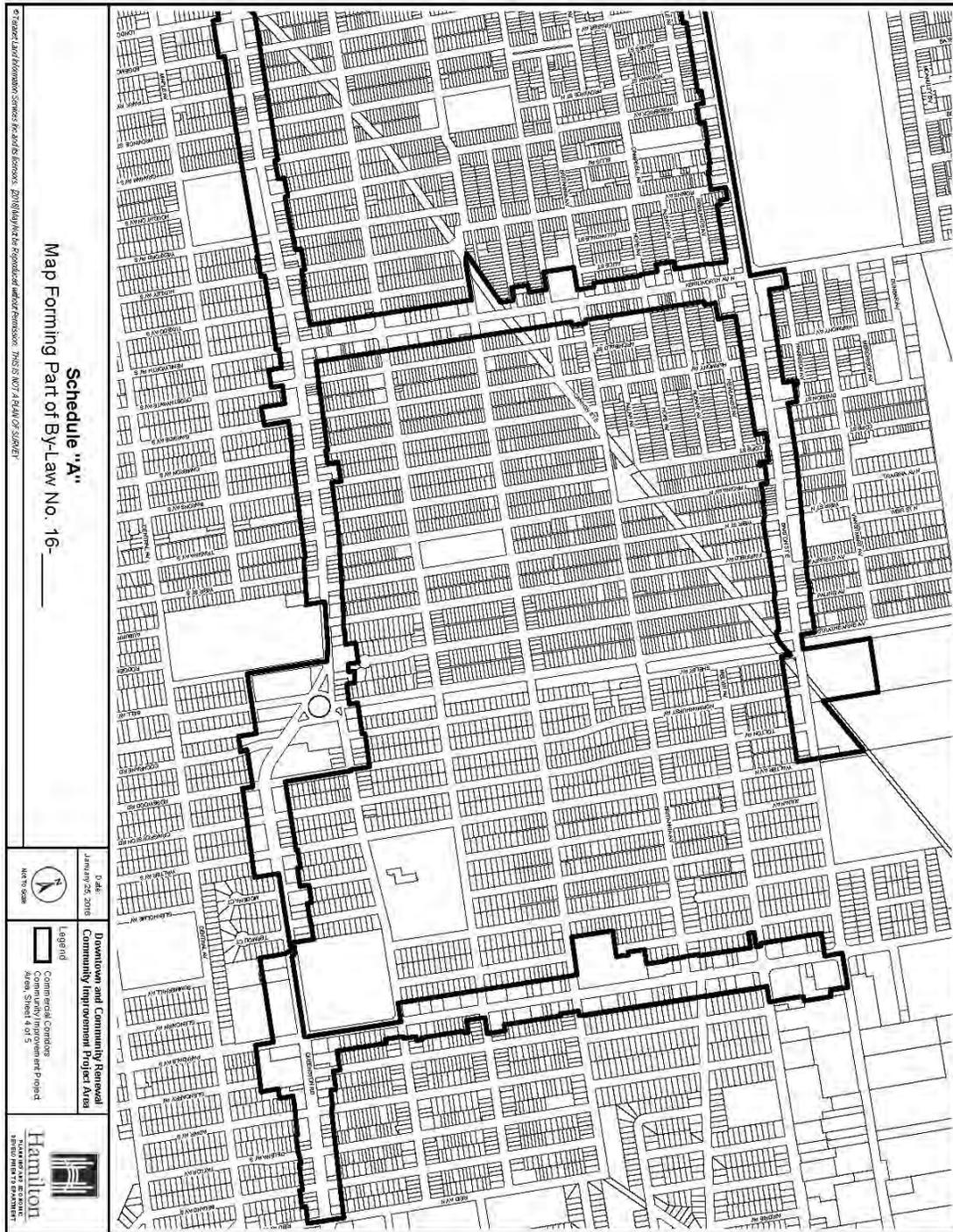
Commercial Corridors C.I.P.A. (2 of 5)



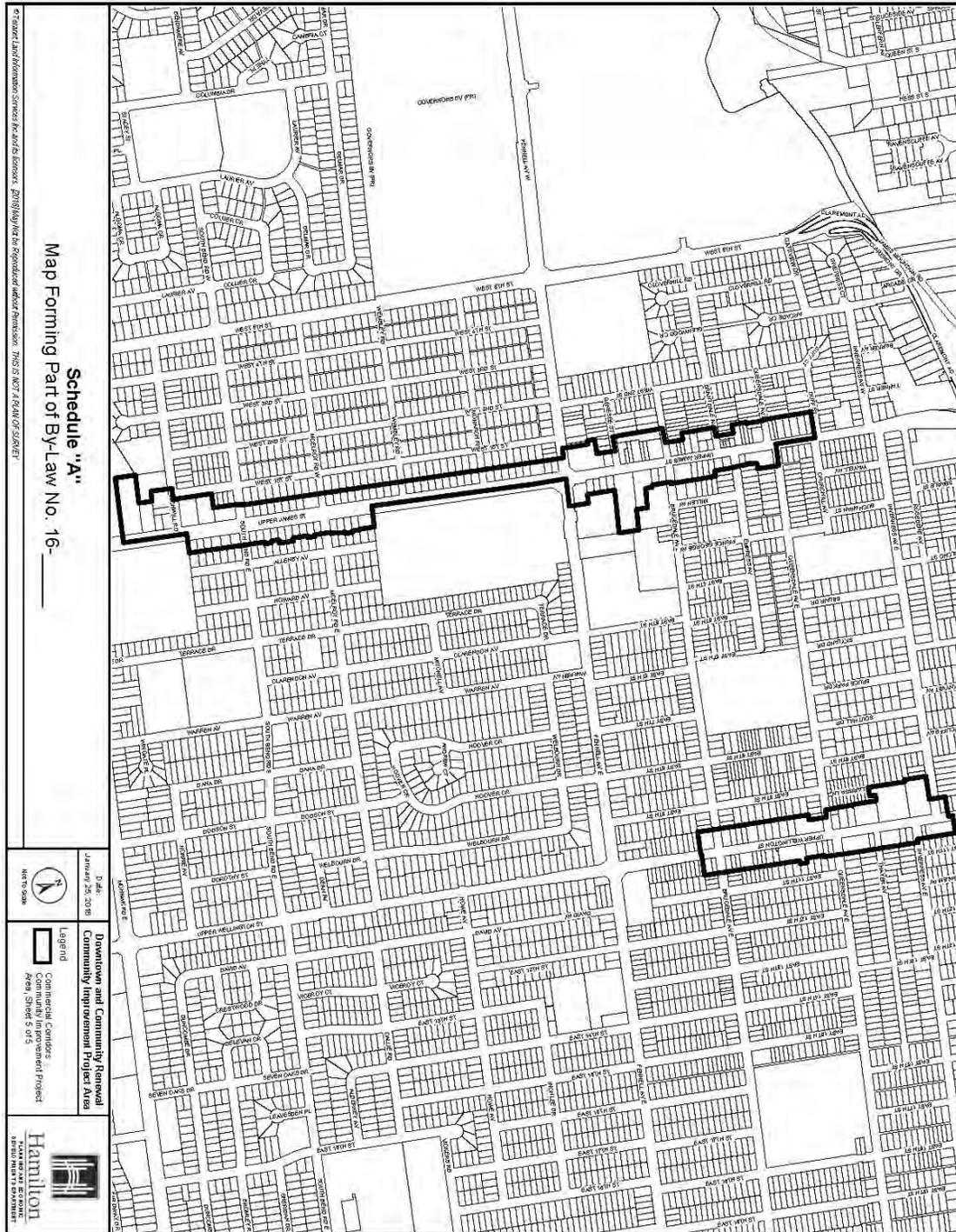
Commercial Corridors C.I.P.A. (3 of 5)



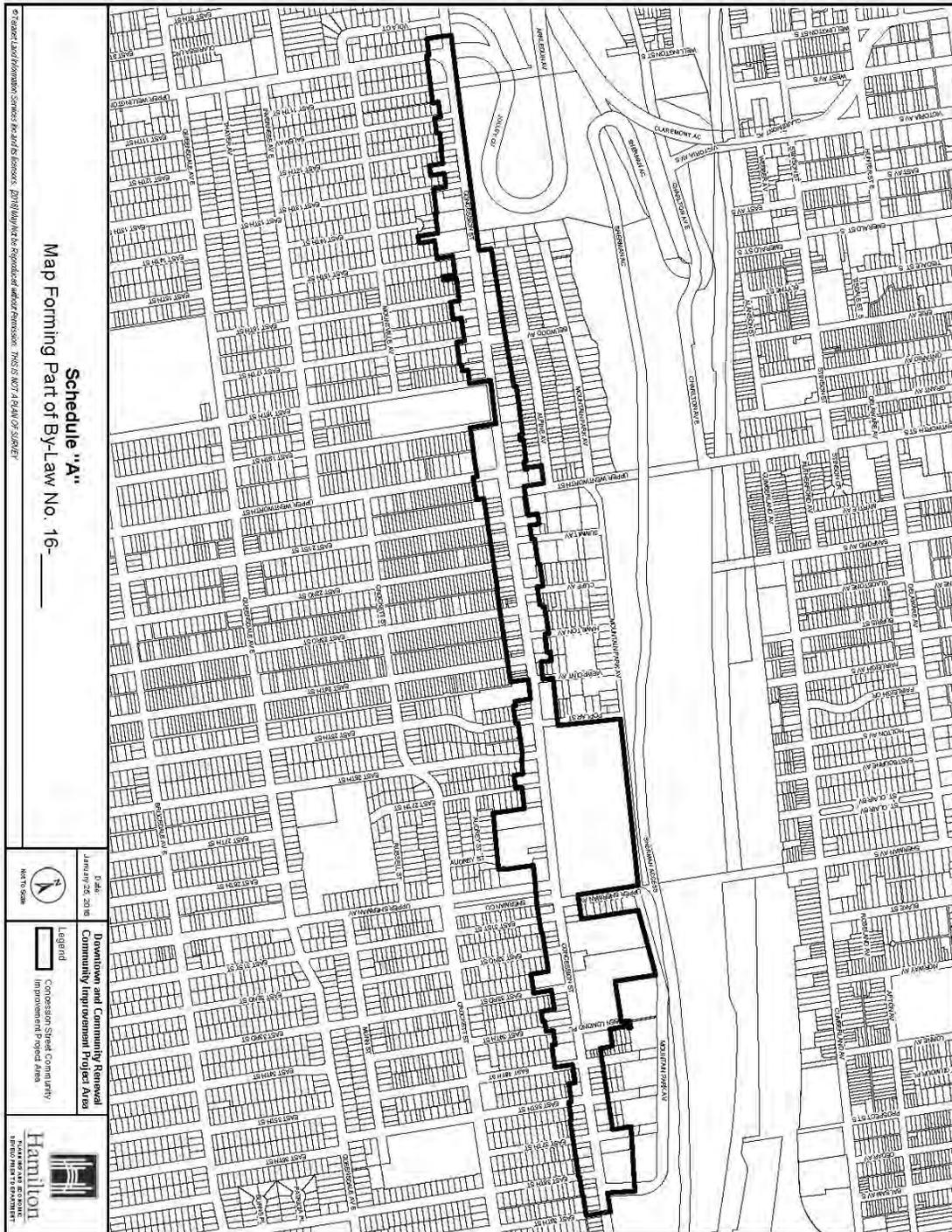
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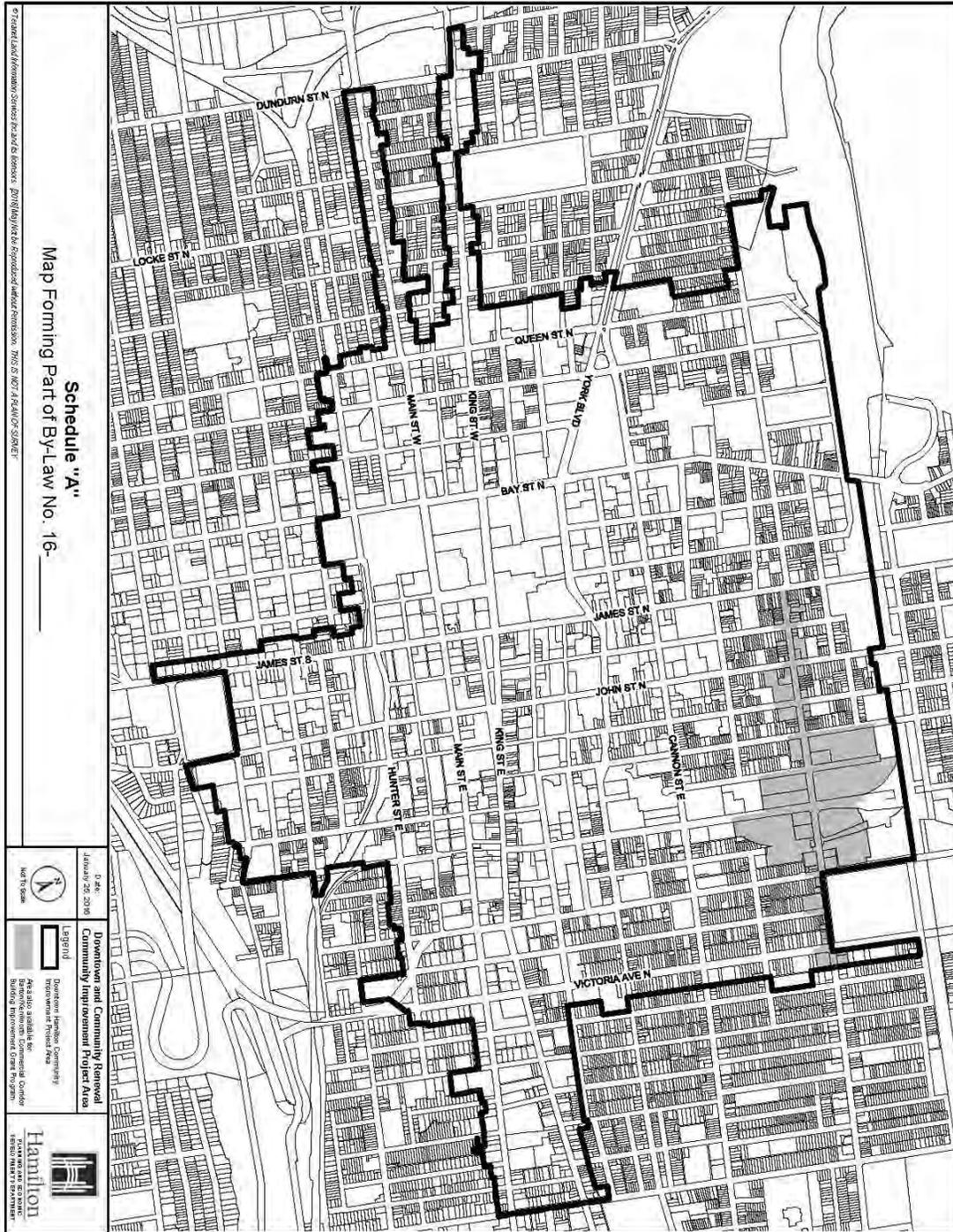
Commercial Corridors C.I.P.A. (5 of 5)



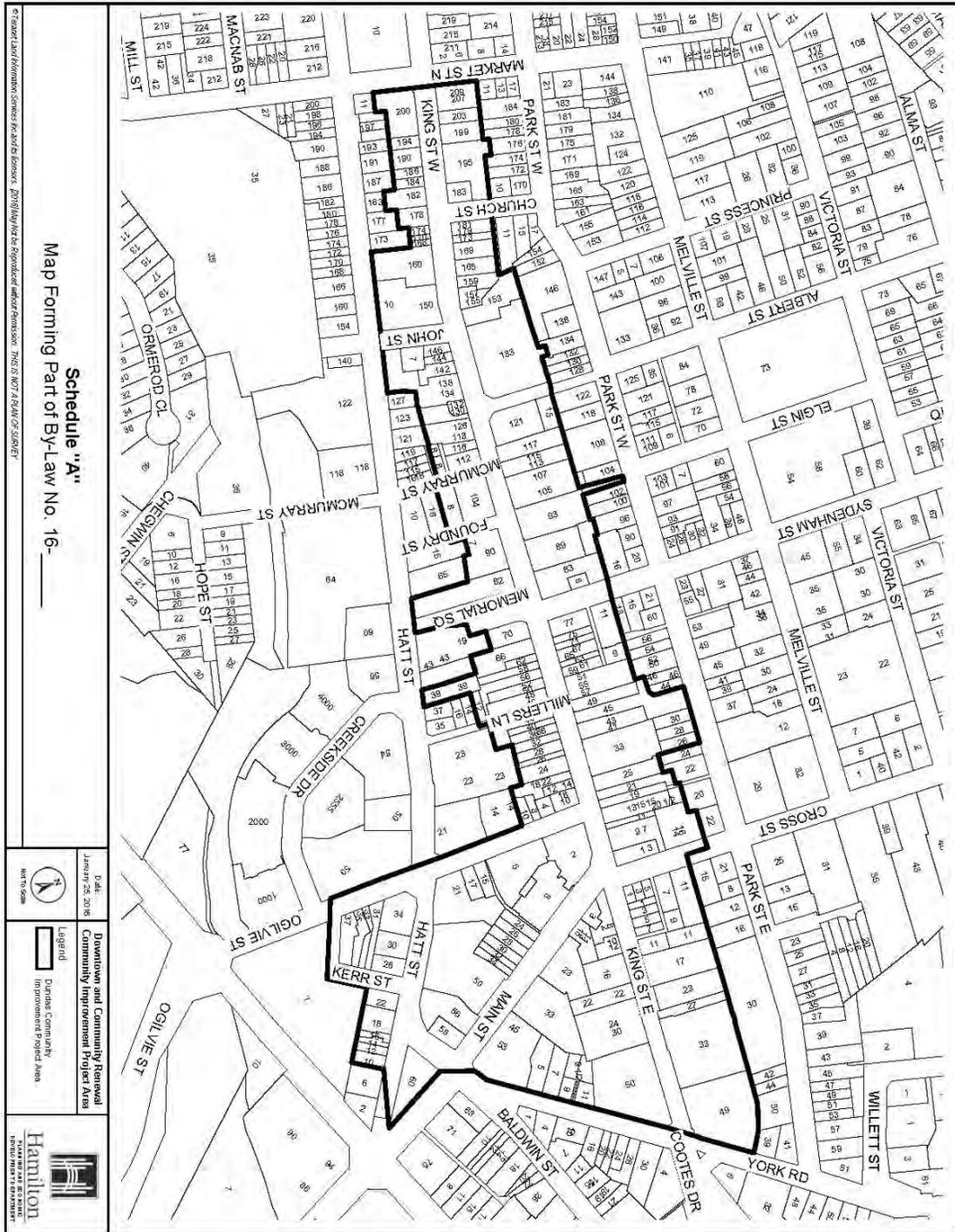
Concession Street C.I.P.A.



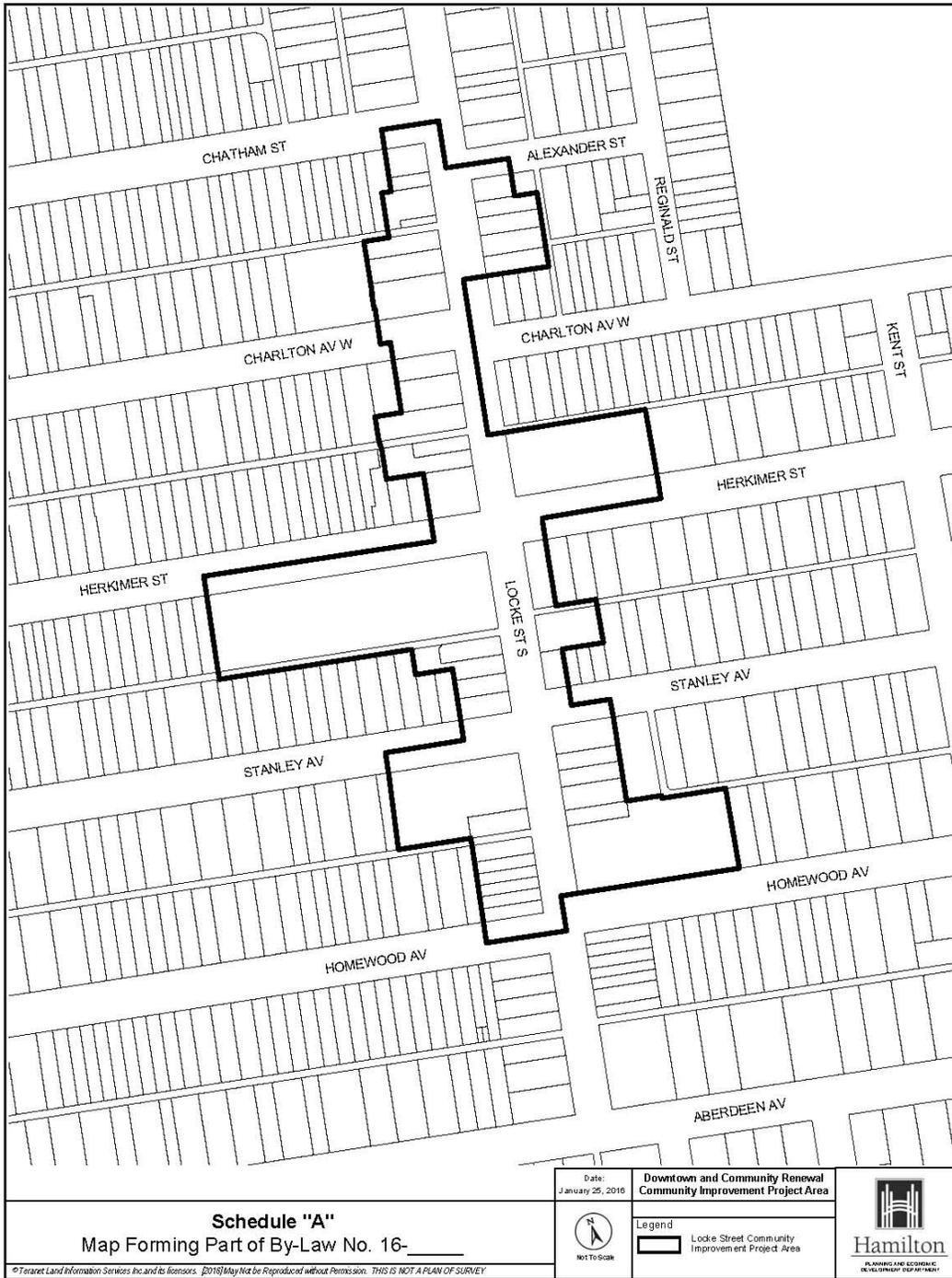
Downtown Hamilton C.I.P.A.



Dundas C.I.P.A.



Locke Street C.I.P.A.



Schedule "A"
Map Forming Part of By-Law No. 16-

Date:
January 25, 2016

**Downtown and Community Renewal
Community Improvement Project Area**



Legend

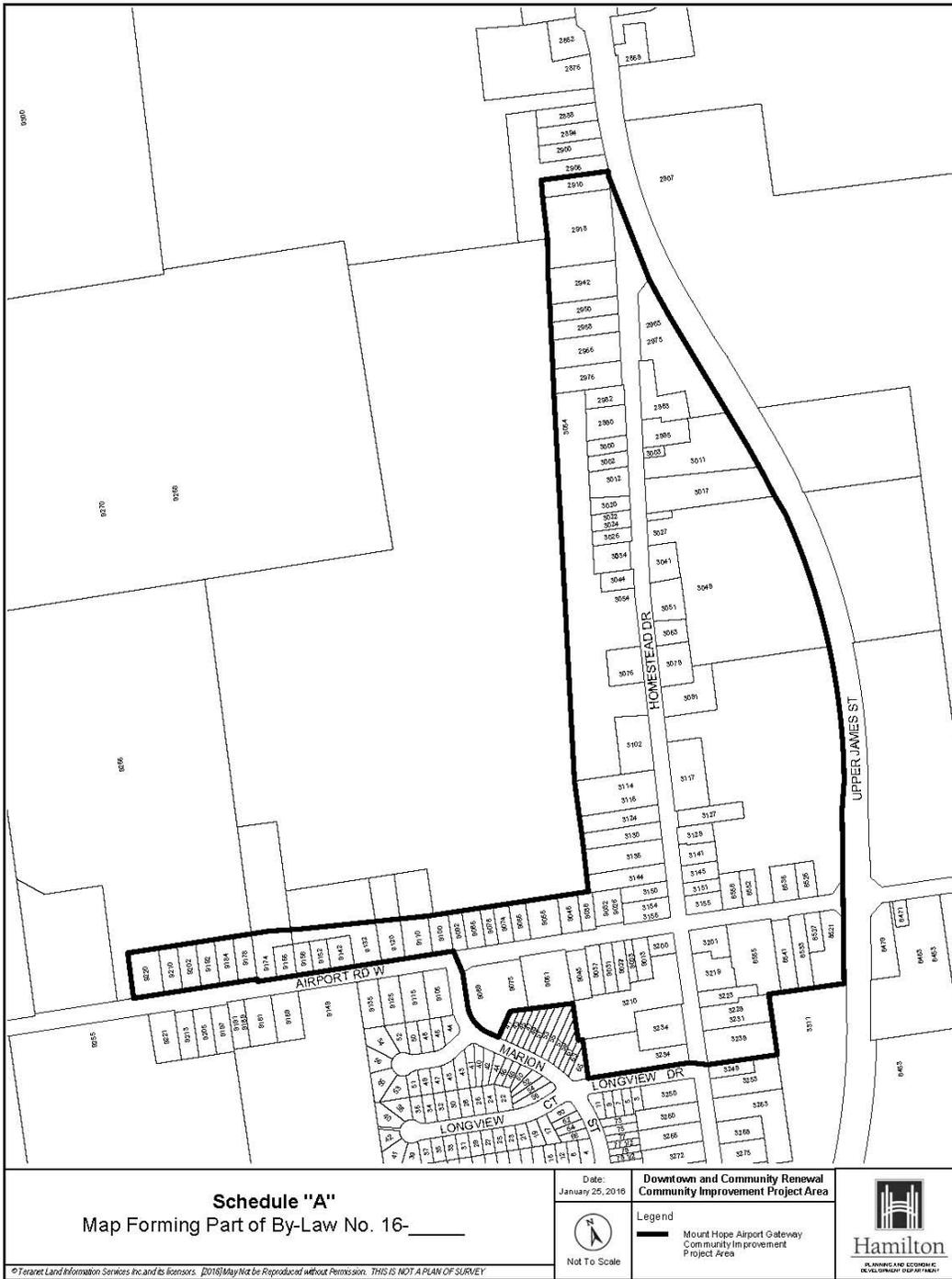
Locke Street Community Improvement Project Area



Hamilton
PLANNING AND ECONOMIC
DEVELOPMENT DEPARTMENT

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Mount Hope Airport Gateway C.I.P.A.



Schedule "A"
Map Forming Part of By-Law No. 16-_____

Date:
January 25, 2016

**Downtown and Community Renewal
Community Improvement Project Area**



Not To Scale

Legend

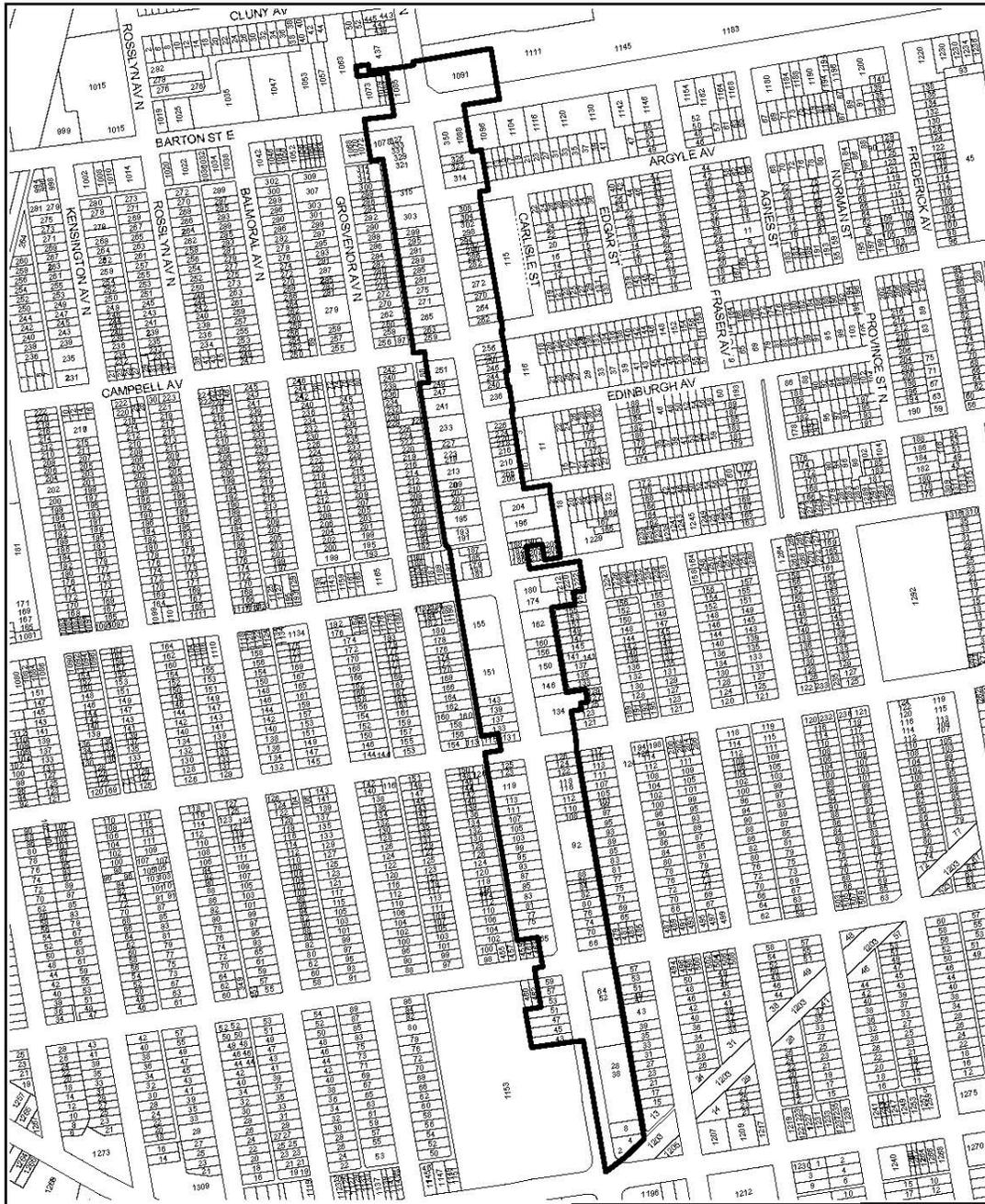
- Mount Hope Airport Gateway
- Community Improvement Project Area



Hamilton
PLANNING AND ECONOMIC
DEVELOPMENT DEPARTMENT

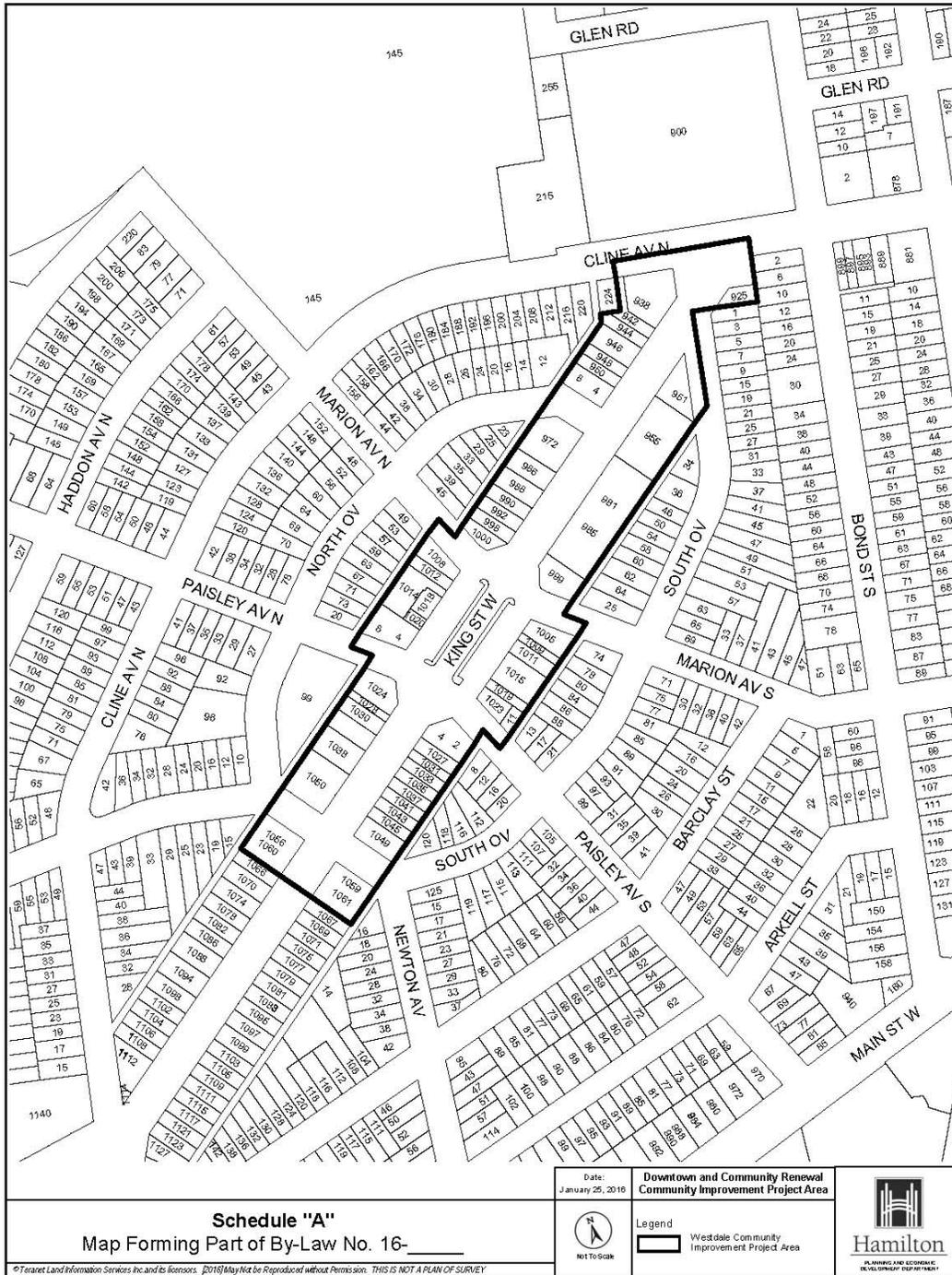
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Ottawa Street C.I.P.A.

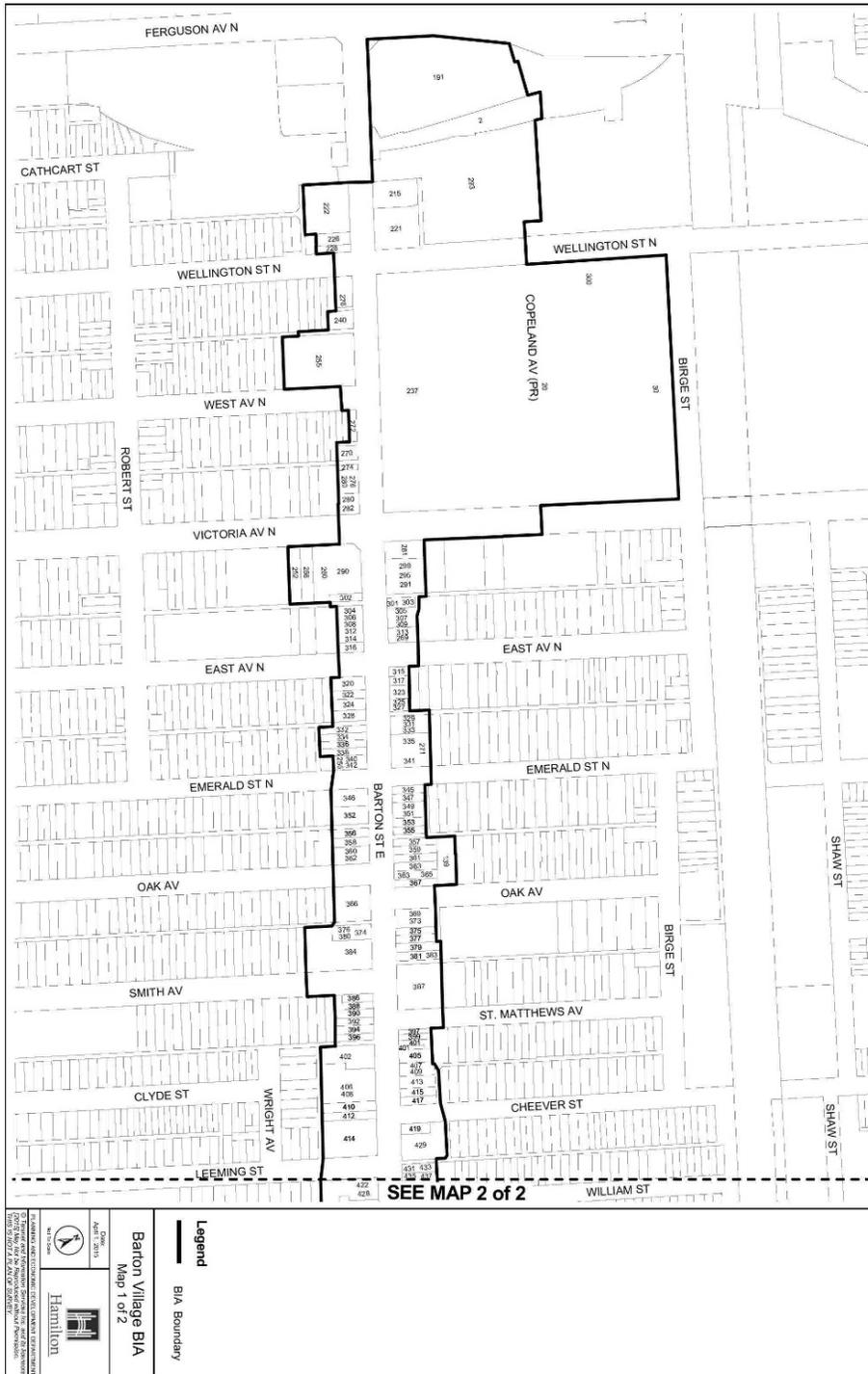


<p align="center">Schedule "A" Map Forming Part of By-Law No. 16-</p> <p><small>© Teracast Land Information Services Inc. and its licensors. 2016. May not be reproduced without permission. THIS IS NOT A PLAN OF SURVEY.</small></p>	<p>Date: January 25, 2016</p> <p>Downtown and Community Renewal Community Improvement Project Area</p> <p>Legend</p> <p> Ottawa Street Community Improvement Project Area</p>	 <p>Hamilton PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT</p>
---	--	---

Westdale C.I.P.A.



Barton Village B.I.A. (1 of 2)



Barton Village B.I.A. (2 of 2)



Concession Street B.I.A. (1 of 2)



SEE MAP 2 of 2

DATE: 10/11/2018
DRAWN BY: [unintelligible]
CHECKED BY: [unintelligible]
SCALE: 1:1000
PROJECT: CONCESSION STREET B.I.A.
MAP 1 OF 2

Legend
— B.I.A. Boundary

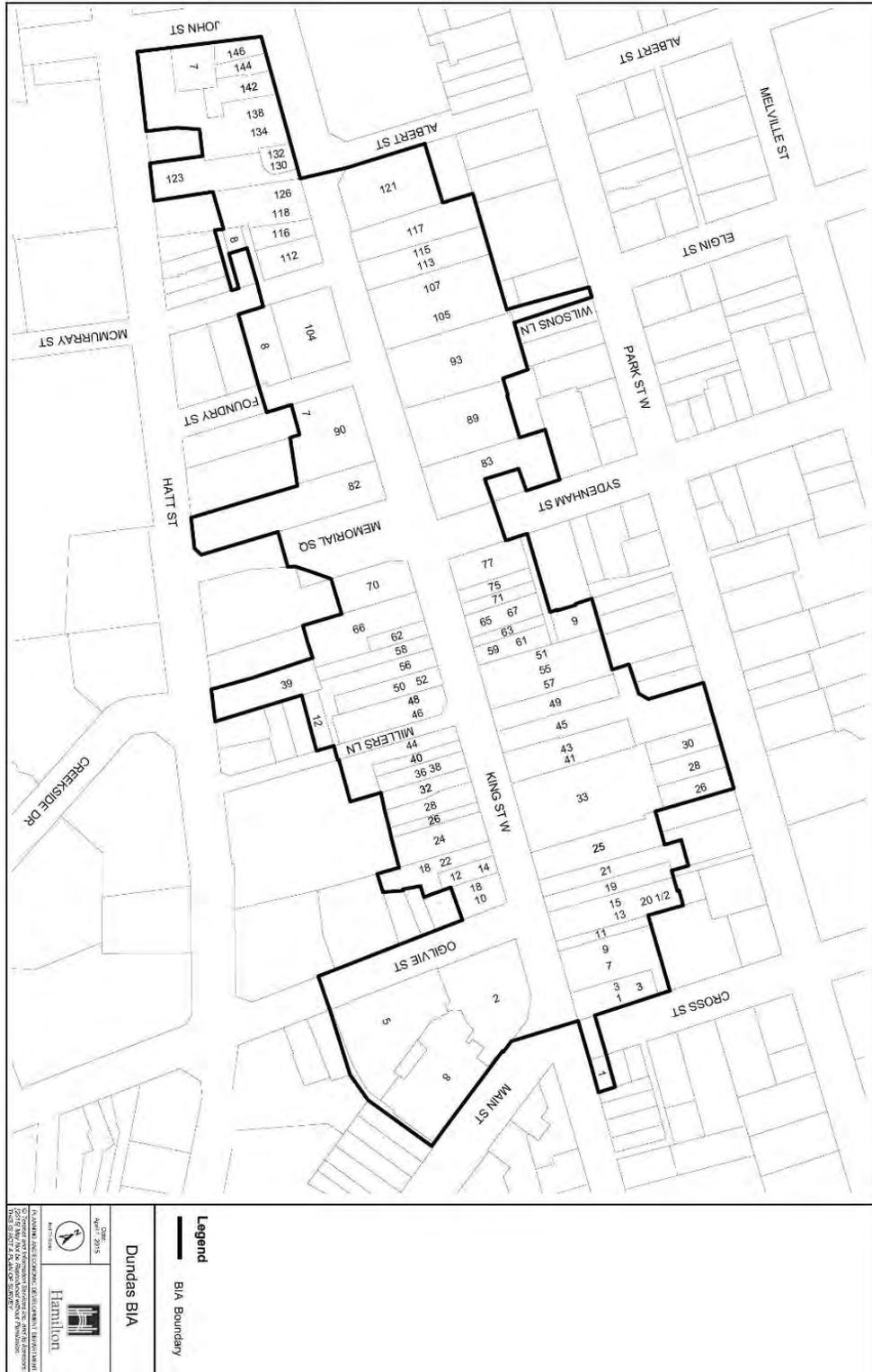
Concession Street B.I.A. (2 of 2)



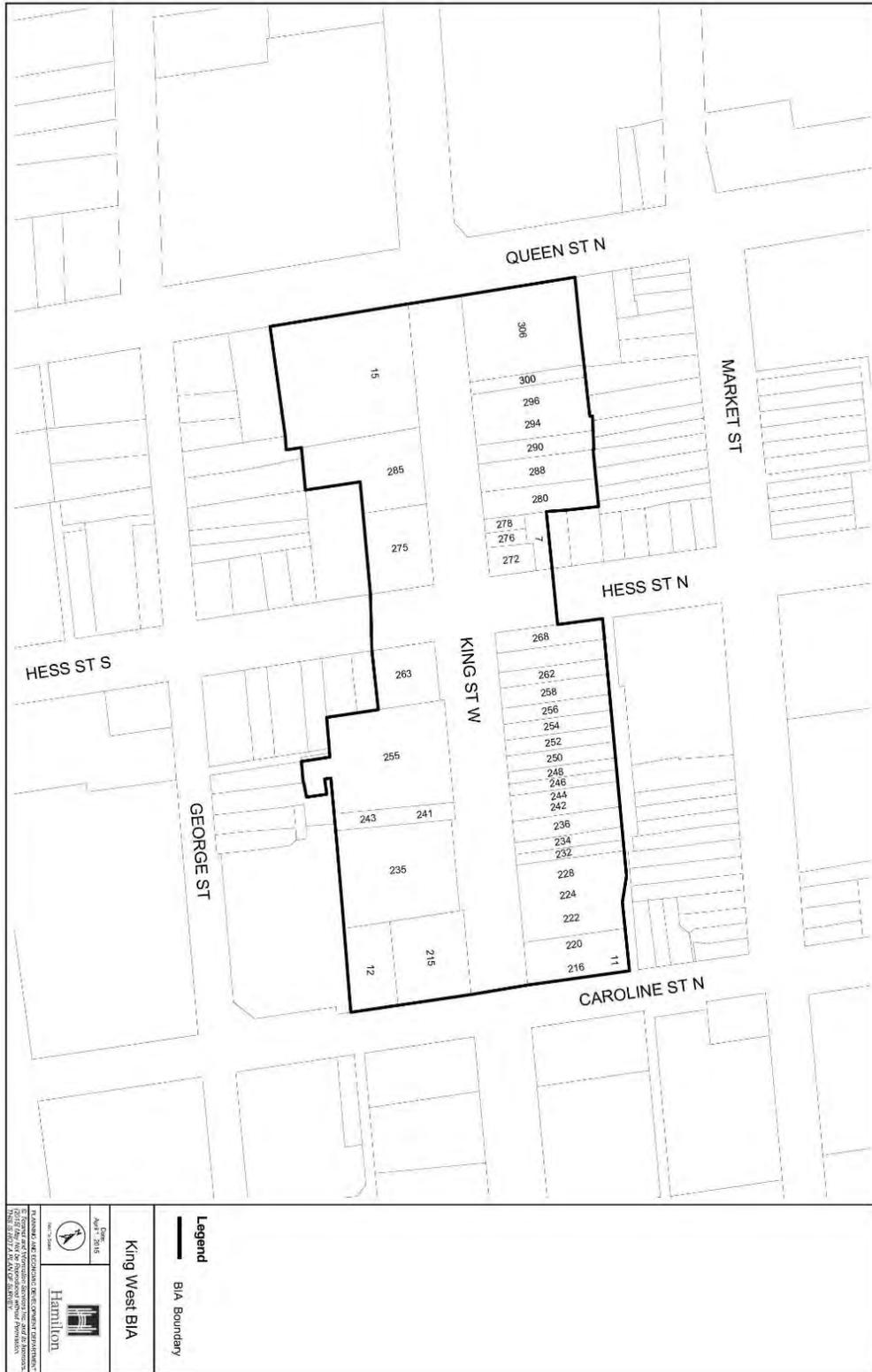
Downtown Hamilton B.I.A.



Dundas B.I.A.



King West B.I.A.



Locke Street B.I.A.



Main West B.I.A.



APR 1, 2018

 PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT
 100 KING ST W, 5TH FLOOR, HAMILTON, ONTARIO L8N 3Z5

**Main West Esplanade
B.I.A.**

Legend
 B.I.A. Boundary

Ottawa Street B.I.A.



Stoney Creek B.I.A.





Addendum #1 to the March 13, 2019 Development Charges Background Study

City of Hamilton

May 15, 2019

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info@watsonecon.ca



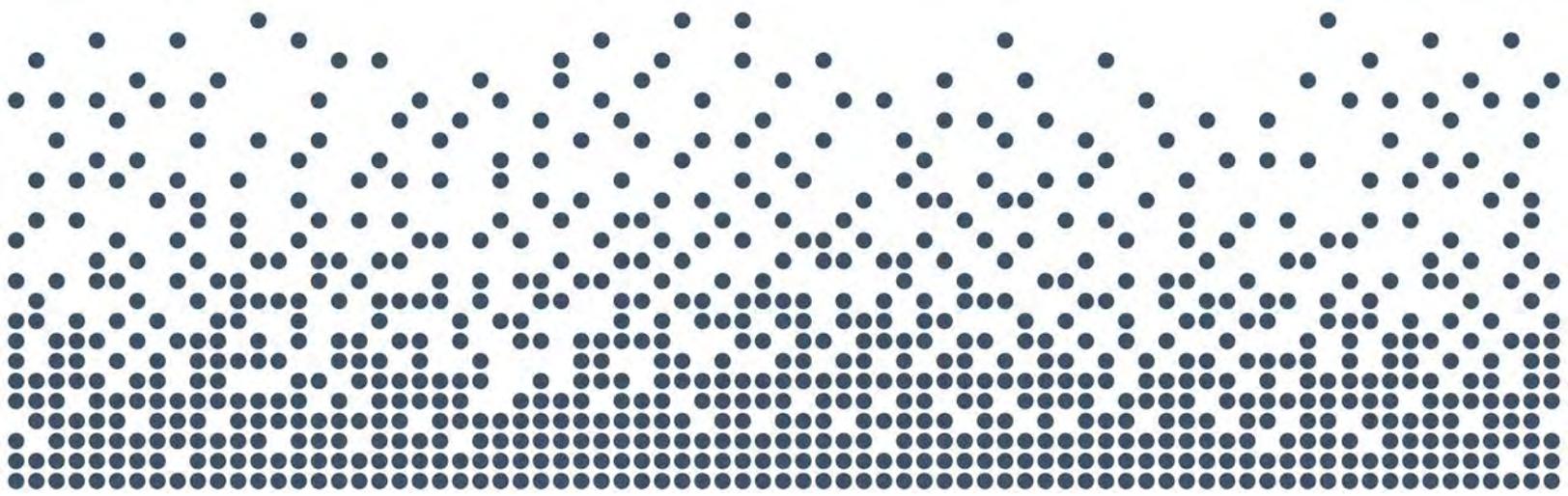
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List of Acronyms and Abbreviations

Acronym	Full Description of Acronym
D.C.	Development Charges
D.C.A.	Development Charges Act
L.S.P.	Local Service Policy



Addendum Report to
the March 13, 2019
Development
Charges Background
Study



1. Background

Commensurate with the provisions of the Development Charges Act, 1997, as amended (D.C.A.), the City has undertaken a Development Charges (D.C.) Background Study and released the study in accordance with the D.C.A. The following provides a summary of the key dates in the development charge by-law process:

March 1, 2018, June 14, 2018, September 13, 2018, January 28, 2019, February 19, 2019 & March 25, 2019 – Stakeholder Meetings

March 13, 2019 – Release of the D.C. Background Study and draft by-law

April 18, 2019 – Public Meeting of Council

May 15, 2019 – Addendum to March 13th report released

June 6, 2019 – Audit, Finance & Administration Committee considers adoption of background study and by-law

June 12, 2019 – Passage of Development Charges By-law

Through further discussions with staff and the City's engineering stormwater consultant, Wood PLC (Wood) refinements have been made to the local service policy (L.S.P.) related to Stormwater Drainage Systems in order to increase transparency and provide clarification to the policy. These refinements to the L.S.P. do not result in changes to the capital projects included in the D.C. calculations. This refined policy has been provided as part of this addendum report.

In addition to the L.S.P. refinements, it was recognized that a post period benefit (P.P.B.) deduction was not made against stormwater projects in the Elfrida Boundary Area similar to P.P.B. deductions made against other capital projects identified in this developing area. As such, the D.C. calculations have now been refined to identify the appropriate P.P.B. deduction for stormwater projects.

Further, City staff, along with Wood, have continued to review projects and costing identified by developing landowners and recognize that a number of updates to capital costs for a few projects are required. In addition, a couple projects that were initially missed have been identified and are now included in the calculations.

A revised report has been prepared by Wood to explain the post period benefit deduction and to update the capital project listing and related costing for the growth-



related stormwater program. This report as well as the updated capital project lists have been provided as part of this addendum report.

As a result of discussion with stakeholders, it was identified the project related to the Ancaster Tennis Bubble in Indoor Recreation Services is to receiving fundraising/grant funding. Fundraising from the Ancaster Tennis Club will provide for the costs of this project and as such the \$1 million is removed from the D.C. calculation. This results in a decrease in the Indoor Recreation Services charge by \$34 per single/semi detached dwelling.

Since the release of the Background Study, the Province has introduced Bill 108, an Act to amend various statutes with respect to housing, other development and various other matters, which includes proposed amendments to the D.C.A. One of the proposed amendments includes removal of “soft” services (e.g. library, paramedic, airport, etc.) from the D.C.A. As a result and in anticipation of the possible changes to the D.C.A., this addendum report has split the Administrative studies into two categories, Engineering Studies which include those service studies which are proposed to continue under the D.C.A. and Community Based Studies which are proposed to be removed from the D.C.A. and would subsequently be considered under a Community Benefit Charge through the Planning Act.

These refinements will form part of the D.C. background study provided prior to by-law adoption.

2. Discussion

This section of the addendum report provides an explanation for the above-noted refinements.

2.1 Refinements to Appendix E Local Service Policy

Based on further review by city staff and Wood, the L.S.P. related to Stormwater Services has been refined to further enhance understanding and transparency. The refinements include the correction of an error in the conversion of per acre to per hectare land values (under section E.1.4 “Land for Stormwater Management Facilities”). This error was only in the written portion of the policy and as such, does not change the overall calculated rates provided by Wood as per Appendix G.



The refinement to the L.S.P. has been updated in the amended pages provided herein.

2.2 Refinements to Stormwater Drainage Systems Capital Project List and Post-Period Benefit Deductions

The capital project listings for Stormwater are provided on Page 5-71 to 5-77 of the March 13, 2019 D.C. background study as well as the report prepared by Wood PLC in Appendix G. Refinements have been made to the project listing to update capital costs of several projects based on further review by staff and Wood and to include a few projects that were initially missed in the listing.

Further, during the additional staff review, it was recognized that projects within the Elfrida Boundary Area required a post period deduction equal to two-thirds (2/3) of the growth-related costs identified. As only one-third of the growth in the Elfrida Boundary Area is anticipated to take place by 2031, this P.P.B. deduction is required to recognize the benefit that the capital infrastructure will have to support future growth post 2031. This deduction is also consistent with the deductions made against other services included in the D.C. that require growth-related capital infrastructure to support this development area.

These changes resulted in a decrease in the charge for stormwater services from \$12,986 (per single/semi detached dwelling) to \$10,462 within the separated sewer system area. There have been no changes to the D.C. charge within the combined system for stormwater.

2.3 Funding Adjustment for an Indoor Recreation Services Capital Project

During the stakeholder review, it was identified that the Ancaster Tennis Bubble project at an amount of \$1,000,000 has been anticipated to receive fundraising and/or grants from the Ancaster Tennis Club. As such, D.C.s are not required for this project and the \$1 million is removed from the D.C. calculation. This results in a decrease in the charge for indoor recreation services from \$4,464 to \$4,430 per single/semi detached dwelling. The updated capital listing has been provided in the amended pages section of this report.



2.4 Refinements to Administrative Studies

As noted in Section 1, the Province has introduced Bill 108, An Act to amend various statutes with respect to housing, other development and various other matters, which includes proposed amendments to the D.C.A. One of the proposed amendments includes deeming “soft” services ineligible for inclusion in D.C. By-laws.

For the City the soft services currently identified in the Background Study include parkland development, indoor recreation services, library services, paramedics, long term care, health services, social & child services, social housing, airport lands, parking services, provincial offences administration, along with some studies identified under the Administrative Studies category.

If Bill 108 receives royal assent, any studies related to the “soft” services would also be deemed ineligible for inclusion in the D.C. By-law. As such, this addendum report has broken out the Administrative Studies category into “Administrative Studies - Community Based Studies”, this category will include the studies related to proposed ineligible services and “Administrative Studies - Engineering Services Studies”, which includes studies related to services proposed to continue as eligible.

This breakdown does not change the overall calculated rates provided for Council’s consideration.

2.5 Overall Changes in the D.C. Calculation

Based on the changes noted above, the calculated development charge (single/semi-detached unit) has decreased from \$52,561 to \$50,003 in the separated sewer system area. The calculated charges within the combined sewer system area have decreased from \$43,523 to \$43,489. In regard to the non-residential charges, the calculated development charge (per sq.ft.) has decreased from \$20.30 to \$20.18 in the separated sewer system area. The charges within the combined sewer system area remain unchanged.

The above changes have been incorporated into the calculations. The summary below outlines the current charges vs. the charges as calculated in the March 13, 2019 D.C. background study and the charges calculated in this addendum report.



Residential (Single Detached) Comparison

Service	Current	Calculated for March 13, 2019 Report	Calculated for Addendum Report
City Wide Services:			
Services Related to a Highway	8,939	10,769	10,769
Public Works Facilities, Vehicles & Equipment	333	784	784
Police Services	421	524	524
Fire Protection Services	371	462	462
Transit Services	544	1,917	1,917
Parkland Development	1,479	2,352	2,352
Indoor Recreation Services	2,271	4,464	4,430
Library Services	642	1,045	1,045
Administrative Studies - Community Based Studies	795	496	335
Administrative Studies - Engineering Services Studies			161
Paramedics	39	137	137
Long Term Care	257	125	125
Health Services	28	1	1
Social & Child Services	31	15	15
Social Housing	583	648	648
Airport lands	261	419	419
Parking services	366	490	490
Provincial Offences Administration	25	40	40
Hamilton Conservation Authority	24	-	-
Waste Diversion	Previously Ineligible	657	657
Total City Wide Services	17,409	25,345	25,311
Water and Wastewater Urban Area Charges:			
Wastewater Facilities	4,090	4,048	4,048
Wastewater Linear Services	5,151	5,415	5,415
Water Services	4,603	4,767	4,767
Total Water and Wastewater Urban Area Services	13,844	14,230	14,230
Stormwater Charges:			
Stormwater Drainage and Control Services (Combined Sewer System)	7,065	3,948	3,948
Stormwater Drainage and Control Services (Separated Sewer System)	7,065	12,986	10,462
GRAND TOTAL CITY WIDE	17,409	25,345	25,311
GRAND TOTAL URBAN AREA COMBINED SEWER SYSTEM	38,318	43,523	43,489
GRAND TOTAL URBAN AREA SEPARATED SEWER SYSTEM	38,318	52,561	50,003

Non-Residential (per sq.ft.) Comparison

Service	Current	Calculated for March 13, 2019 Report	Calculated for Addendum Report
City Wide Services:			
Services Related to a Highway	9.10	8.05	8.05
Public Works Facilities, Vehicles & Equipment	0.19	0.41	0.41
Police Services	0.23	0.26	0.26
Fire Protection Services	0.21	0.23	0.23
Transit Services	0.34	0.98	0.98
Parkland Development	0.11	0.11	0.11
Indoor Recreation Services	0.16	0.20	0.20
Library Services	0.04	0.05	0.05
Administrative Studies - Community Based Studies	0.48	0.25	0.17
Administrative Studies - Engineering Services Studies			0.08
Paramedics	0.02	0.03	0.03
Long Term Care	0.04	0.01	0.01
Health Services	-	-	-
Social & Child Services	-	-	-
Social Housing	-	-	-
Airport lands	0.16	0.21	0.21
Parking services	0.22	0.25	0.25
Provincial Offences Administration	0.01	0.02	0.02
Hamilton Conservation Authority	0.02	-	-
Waste Diversion		0.13	0.13
Total City Wide Services	11.33	11.18	11.18
Water and Wastewater Urban Area Charges:			
Wastewater Facilities	2.30	1.95	1.95
Wastewater Linear Services	2.90	2.61	2.61
Water Services	2.60	2.29	2.29
Total Water and Wastewater Urban Area Services	7.80	6.85	6.85
Stormwater Charges:			
Stormwater Drainage and Control Services (Combined Sewer System)	1.41	-	-
Stormwater Drainage and Control Services (Separated Sewer System)	1.41	2.28	2.16
GRAND TOTAL CITY WIDE	11.33	11.18	11.18
GRAND TOTAL URBAN AREA COMBINED SEWER SYSTEM	20.54	18.02	18.02
GRAND TOTAL URBAN AREA SEPARATED SEWER SYSTEM	20.54	20.30	20.18



2.6 Changes to the Background Report

Based upon the above, the following revisions are made to the pages within the background study (new pages are appended to this report):

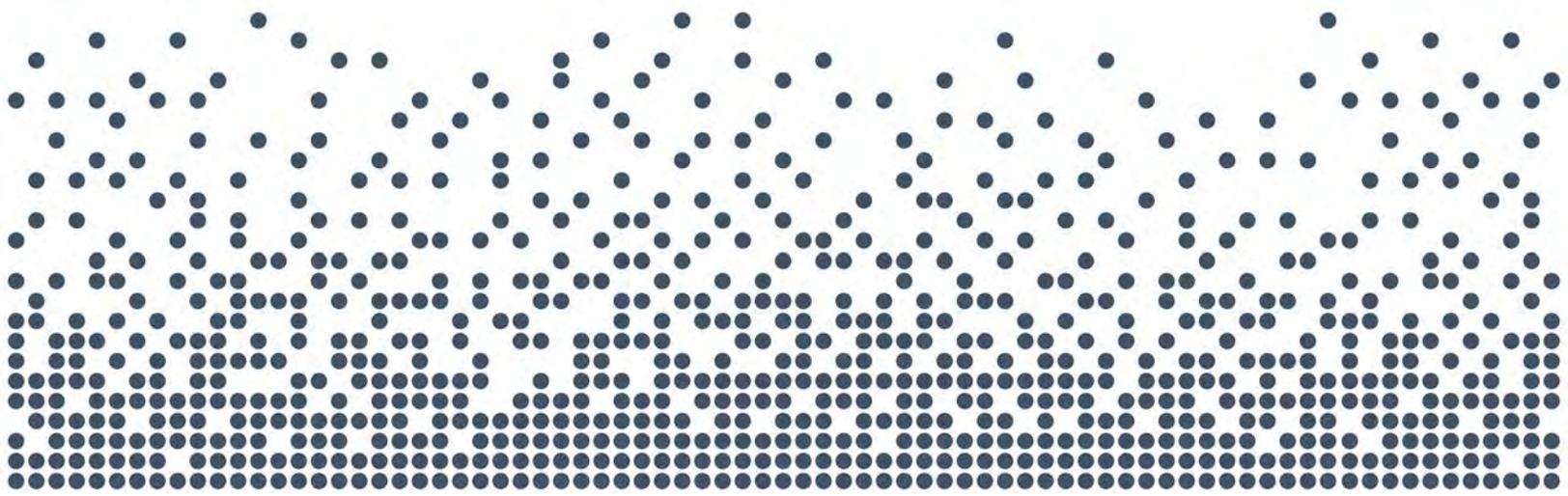
Page Reference	Description of Revisions
ES (iii)	Update to item 6 related to the updated calculated charge.
ES (iv)	Update to item 8 related to the updated summary of gross capital costs and recovery of costs over the life of the by-law.
ES (v to vi)	Updated item 9 to reflect the breakout of administrative studies into the two new categories.
ES (vii)	Updates to Table ES-1 to reflect the recalculated charge for Stormwater Services in the separated sewer system area as well as the breakout of the administrative studies category.
1-3	Revised Figure 1-1 to include the release of this addendum report.
5-20 to 5-22	Updates to remove the Ancaster Tennis Bubble project.
5-28 to 5-29	Updates to reflect the breakdown of Administrative Studies into two categories, Engineering Studies and Community Based Studies.
5-30 to 5-31	Table split into two tables for the breakdown of Administrative Studies.
5-71 to 5-78	Updates to reflect the updated capital costs and post period benefit deductions to projects in the Elfrida Boundary Area.
6-4	Table 6-2 updated to reflect the calculated charges for Stormwater Drainage and Control Services within the separated sewer system area.
6-7 to 6-8	Table 6-5 updated to reflect the calculated charges for the two Administrative Studies categories as well as the update to Indoor Recreation Services.
6-9	Table 6-6 updated to reflect the changes to the D.C. calculation.
6-10 to 6-11	Table 6-7 updated to reflect the two Administrative Studies categories as well as changes in costs to Stormwater and Indoor Recreation.
7-3	Updates to section 7.3.2 item 2 to identify the two Administrative Studies categories.
7-8	Updated section 7.4.1 Categories for reserve funds to identify the breakdown of the Administrative Studies category into two.



Appendix C C-4	Update Table to reflect the two Administrative Studies categories as well as changes to costs related to Stormwater and Indoor Recreation Services.
Appendix D D-5	Update Table to reflect the two Administrative Studies categories in the example Treasurer's annual D.C. reserve fund statement.
Appendix E	Revised local service policy related to Stormwater Drainage Systems in order to enhance transparency and clarification.
Appendix G	Updated capital project lists to reflect changes in project costs and post-period benefits. Additional wording added to provide clarification where required

3. Process for the Adoption of the Development Charges By-law

Sections 1 & 2 provide for a summary of the revisions to the City's D.C. Background Study. If Council is satisfied with the above changes to the Background Study and based on the public submissions made at the public meeting, this addendum report #1 will be considered for approval by Council along with the Background Study.



Amended Pages

(Inserted Throughout Body of Report)



Addendum #2 to the March 13, 2019 Development Charges Background Study

City of Hamilton

June 10, 2019

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info@watsonecon.ca



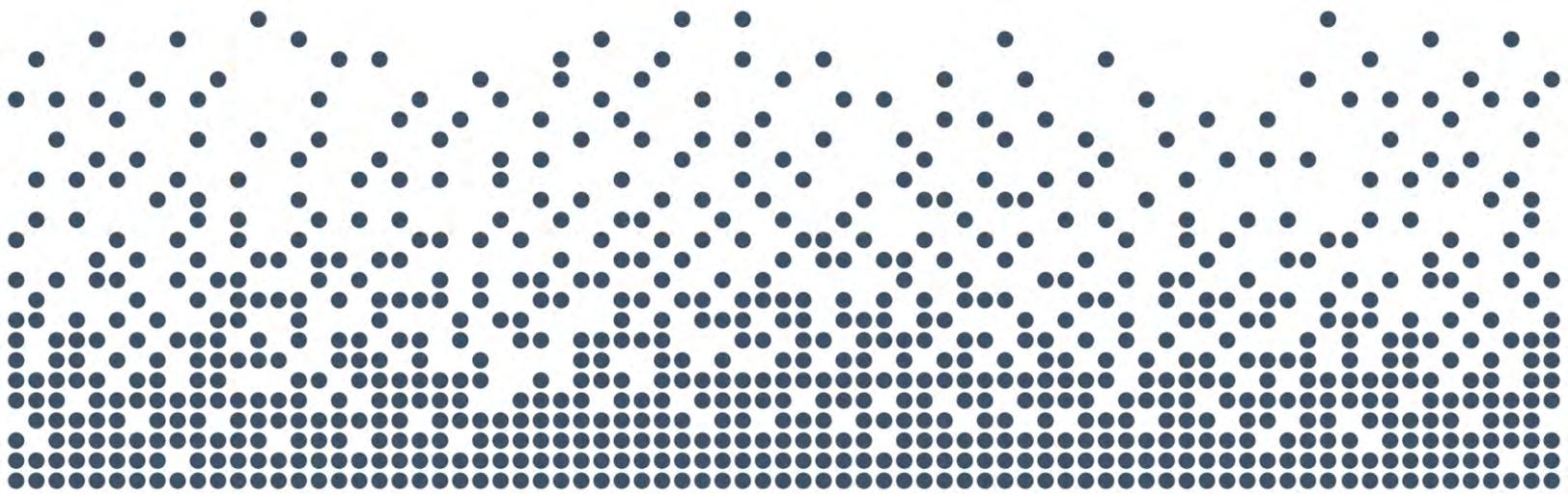
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List of Acronyms and Abbreviations

Acronym	Full Description of Acronym
C.B.C.	Community Benefits Charge
D.C.	Development Charges
D.C.A.	Development Charges Act



Addendum #2
Report to the March
13, 2019
Development
Charges Background
Study



1. Background

Commensurate with the provisions of the Development Charges Act, 1997, as amended (D.C.A.), the City has undertaken a Development Charges (D.C.) Background Study and released the study in accordance with the D.C.A. Through the consultation process, there were various refinements identified which resulted in an addendum report being released. The following provides a summary of the key dates in the development charge by-law process:

March 1, 2018, June 14, 2018, September 13, 2018, January 28, 2019, February 19, 2019 & March 25, 2019 – Stakeholder Meetings

March 13, 2019 – Release of the D.C. Background Study and draft by-law

April 18, 2019 – Public Meeting of Council

May 15, 2019 – Addendum to March 13th report released

June 6, 2019 – Audit, Finance & Administration Committee considers adoption of background study and by-law

June 10, 2019 – Addendum #2 to March 13th report released

June 12, 2019 – Passage of Development Charges By-law

As mentioned in the first Addendum Report, dated May 15, 2019, subsequent to the release of the Background Study, the Province introduced Bill 108, an Act to amend various statutes with respect to housing, other development and various other matters, which includes proposed amendments to the D.C.A. One of the proposed amendments included removal of “soft” services (e.g. library, ambulance (paramedic), airport, etc.) from the D.C.A. As a result and in anticipation of the possible changes to the D.C.A., the first addendum report split the Administrative studies into two categories, Engineering Studies which include those service studies which were proposed to continue under the D.C.A. and Community Based Studies which were proposed to be removed from the D.C.A. and would subsequently be considered under a Community Benefit Charge through the Planning Act.

As of June 6, 2019, Bill 108 received Royal Assent. Through the process between 1st and 3rd reading of the Bill, there was an amendment to the services that would continue to be included in the D.C.A. with ambulance (paramedic) being identified as an eligible service (initially it was identified as ineligible). In addition to this refinement, the amendments included the provision for Non-Profit Housing to be eligible for an



extended installment payment period, from the originally proposed six installments to twenty-one installments.

2. Discussion

At Audit, Finance and Administration Committee on June 6, 2019, Gary Scandlan from Watson & Associates Economists Ltd. discussed with the Committee that Bill 108 would receive 3rd reading and royal assent over the next day or so. As noted above, both actions occurred during the Committee meeting. One significant area of discussion was when the changes resulting from the Bill would take effect and could the soft services rates be implemented. Based on discussions with the City's Legal Department, the following perspective is provided:

- A. New section 2(4) of the Act sets out what services can be part of a D.C. and it excludes the soft services. This section comes into force upon proclamation. Therefore, going forward after proclamation a new D.C. By-law cannot include soft services.
- B. A new section 9.1(1) added to the D.C.A., comes into force on royal assent. It provides that for by-laws expiring after May 2, 2019, the by-laws remain in force as they apply to soft services until the earlier of:
 - i. when the by-law is repealed;
 - ii. the day the City passes a Community Benefits Charge (C.B.C.) By-law; or
 - iii. the prescribed date (unknown).
- C. The City's proposed 2019 D.C. By-law is scheduled to be passed June 12, 2019 but as currently drafted would not come into effect until July 6th. This provides a gray area where, if proclamation occurs prior to July 6th, is it a by-law that falls under 9.1(1) since it would not be in effect and the question becomes can a by-law take effect in regards to soft services if s.2(4) of the Act is in effect saying a by-law cannot apply to soft services.
- D. A potential solution is to make the by-law take effect prior to the proclamation date (unknown), i.e. as soon as possible. This would result in the by-law becoming effective as of midnight the day the by-law is scheduled to be passed.



As noted in item C, the City has advised during the public process that the new rates would come into effect on July 6th. The present rates are \$38,318 for a single detached unit with the recommended rates increasing to \$43,489 in the Combined Sewer Area and \$50,003 in Separated Sewer Area. Staff are recommending that these new charges still transition as advised during the public process however that this transition include the updated rates for the soft services in order to preserve the higher soft service charges. The rate difference is approximately \$3,600 per single detached unit.

To meet the direction of Committee, the following adjustments are necessary:

- Pass the new D.C. by-law on June 12th;
- For the period of June 13th to July 5th, provide schedules of charges that reflect the existing total quantum for residential but implement the higher charges for the soft services (note that for non-residential charges and both the residential apartment categories, there is a slight decline which will be implemented immediately); and
- Effective July 6th, the new calculated rates will take effect.

The background study, as amended, undertook the necessary calculations to provide for the calculated rates. The following table summarizes the current and calculated rates for all services for single detached units. The soft services are highlighted on the table with the increase in these calculated rates of just under \$3,600 provided at the bottom of the table.



Residential (Single Detached) Comparison

Service	Current	Calculated for Addendum Report (May 15, 2019)
City Wide Services:		
Services Related to a Highway	8,939	10,769
Public Works Facilities, Vehicles & Equipment	333	784
Police Services	421	524
Fire Protection Services	371	462
Transit Services	544	1,917
Parkland Development	1,479	2,352
Indoor Recreation Services	2,271	4,430
Library Services	642	1,045
Administrative Studies - Community Based Studies	335	330
Administrative Studies - Engineering Services Studies	460	166
Paramedics	39	137
Long Term Care	257	125
Health Services	28	1
Social & Child Services	31	15
Social Housing	583	648
Airport lands	261	419
Parking services	366	490
Provincial Offences Administration	25	40
Hamilton Conservation Authority	24	-
Waste Diversion	Previously Ineligible	657
Total City Wide Services	17,409	25,311
Water and Wastewater Urban Area Charges:		
Wastewater Facilities	4,090	4,048
Wastewater Linear Services	5,151	5,415
Water Services	4,603	4,767
Total Water and Wastewater Urban Area Services	13,844	14,230
Stormwater Charges:		
Stormwater Drainage and Control Services (Combined Sewer System)	7,065	3,948
Stormwater Drainage and Control Services (Separated Sewer System)	7,065	10,462
GRAND TOTAL CITY WIDE	17,409	25,311
GRAND TOTAL URBAN AREA COMBINED SEWER SYSTEM	38,318	43,489
GRAND TOTAL URBAN AREA SEPARATED SEWER SYSTEM	38,318	50,003
Additional Special Area Charges		
Dundas/Waterdown	1,588	1,971
Potential Services to be moved to Community Benefit Charge	6,302	9,895
Difference		3,593



There are four areas that need to be adjusted to provide the transitional charges, they include refinements to:

- Municipal Wide Services;
- Water and Wastewater Services;
- Stormwater Services; and
- Additional Special Area Charges for Dundas/Waterdown.

The following sections describe the steps to implement this direction.

2.1 Refinements to the Municipal Wide Services

There are two areas that require refinements to the Municipal Wide Services, the first relates to the calculated Administrative Studies categories and the second relates to the D.C.s to be imposed for the transition period.

2.1.1 Refinements to Administrative Studies

As per Addendum # 1, dated May 15, 2019, the Administrative Studies component of the charge was broken down into two categories, “Administrative Studies – Engineering Services Studies” and “Administrative Studies – Community Based Studies”. This breakdown grouped studies related to services that were anticipated to continue to be eligible for inclusion in the D.C. vs. those related to services that were anticipated to become ineligible for inclusion in the D.C.

This addendum report has revised the calculations for both Administrative Studies categories to move the paramedic studies, as this service is to remain eligible under the D.C.A., resulting in an increase to the Engineering Services Studies of \$5 per single/semi-detached unit and an equal decrease to the Community Based Studies.

2.1.2 Transition Period Development Charges

In order to provide transitional charges for the period of June 13th to July 5th, 2019, that reflect the current total quantum for residential but implement the higher calculated charges for the soft services, the Services Related to a Highway category has been reduced. For other hard services, the calculated rates are also anticipated to be



implemented for the transition period, including the introduction of the waste diversion category. The table below provides a summary of the transitional charges compared to the current and calculated charges.

Residential (Single Detached) Comparison

Service	Current	Calculated for Addendum Report (May 15, 2019)	Transition Rates (June 13 - July 5, 2019)
Municipal Wide Services:			
Services Related to a Highway	8,939	10,769	2,867
Public Works Facilities, Vehicles & Equipment	333	784	784
Police Services	421	524	524
Fire Protection Services	371	462	462
Transit Services	544	1,917	1,917
Parkland Development	1,479	2,352	2,352
Indoor Recreation Services	2,271	4,430	4,430
Library Services	642	1,045	1,045
Administrative Studies - Community Based Studies	335	330	330
Administrative Studies - Engineering Services Studies	460	166	166
Paramedics	39	137	137
Long Term Care	257	125	125
Health Services	28	1	1
Social & Child Services	31	15	15
Social Housing	583	648	648
Airport lands	261	419	419
Parking services	366	490	490
Provincial Offences Administration	25	40	40
Hamilton Conservation Authority	24	-	-
Waste Diversion	Previously Ineligible	657	657
Total Municipal Wide Services	17,409	25,311	17,409

Similar transitional calculations have been made for the other types of residential units and for non-residential (see By-law Schedule A-1). Note that for non-residential charges there is a slight decline which will be implemented immediately.

2.2 Refinements to Water and Wastewater Charges for the Transition Period

Similar to the Municipal Wide Charges, in order to provide transitional charges for water and wastewater services in the urban areas, the calculated charges related to Wastewater Facilities and Water Services are recommended to be implemented. For Wastewater Linear Services, a reduction for the transition period is recommended to ensure that the current quantum of charges continues. The following tables provides for the transitional rates for single detached units.



Residential (Single Detached) Comparison

Service	Current	Calculated for Addendum Report (May 15, 2019)	Transition Rates (June 13 - July 5, 2019)
Water and Wastewater Services:			
Wastewater Facilities	4,090	4,048	4,048
Wastewater Linear Services	5,151	5,415	5,029
Water Services	4,603	4,767	4,767
Total Water and Wastewater Services	13,844	14,230	13,844

Similar transitional calculations have been made for the other types of residential units and for non-residential (see By-law Schedule B-1). Note that for non-residential charges there is a slight decline in the calculated rates, which will be implemented immediately.

2.3 Refinements to Stormwater Charges for the Transition Period

The 2014 D.C. by-law provided for one stormwater charge for all urban areas within the city. Through the 2019 D.C. process, the stormwater charges were calculated on an area specific basis for the combined sewer system and the separate sewer system. This differentiation of the charges resulted in a calculated rate for single and semi-detached units of \$3,948 in the combined sewer system and \$10,462 in the separated sewer system.

If the 2019 D.C. study had continued with the 2014 methodology of one rate for stormwater, the single detached charge would be \$9,489 as summarized in the following table.



**Stormwater Services (Urban)
2019-2031**

SERVICE	2019\$ D.C.-Eligible Cost		2019\$ D.C.-Eligible Cost	
	Residential	Non-Residential	SDU	per ft ²
1. <u>Stormwater Drainage and Control Services</u>	\$	\$	\$	\$
1.1 Channels, drainage and studies	52,199,588	66,435,840	1,645	1.71
1.2 Residential Ponds	230,212,280	-	7,255	-
1.3 Stormwater Facilities	18,706,374	-	589	-
	301,118,242	66,435,840	9,489	1.71
TOTAL	301,118,242	\$66,435,840	\$9,489	\$1.71
D.C.-Eligible Capital Cost	301,118,242	\$66,435,840		
Urban (13 Year) Gross Population/GFA Growth (sq.ft.)	108,049	38,758,400		
Cost Per Capita/Non-Residential GFA (sq.ft.)	\$2,786.87	\$1.71		
By Residential Unit Type	P.P.U.			
Single and Semi-Detached Dwelling	3.41	\$9,489		
Apartments - 2 Bedrooms +	1.99	\$5,557		
Apartments - Bachelor and 1 Bedroom	1.36	\$3,801		
Other Multiples	2.44	\$6,792		
Residential Facility	1.10	\$3,066		

For the transitional period, it is recommended that the current stormwater charge be continued for all developments in the urban area. As of July 5th, the calculated differentiated rates would come into effect. The table below provides the transitional rates compared to the current rates and calculated differentiated rates.

Residential (Single Detached) Comparison

Service	Current	Calculated for Addendum Report (May 15, 2019)	Transition Rates (June 13 - July 5, 2019)
Stormwater Services:			
Stormwater Drainage and Control Services (Combined Sewer System)	7,065	3,948	7,065
Stormwater Drainage and Control Services (Separated Sewer System)	7,065	10,462	7,065

Similar transitional calculations have been made for the other types of residential units and for non-residential (see By-law Schedule B-1).

2.4 Refinements to Additional Special Area Charges for Dundas/Waterdown for the Transition Period

The City imposes a Special Area Charge for the Dundas/Waterdown area. These charges were updated along with all other charges as per the background study. The calculated charges provide for an increase to the current rate however, for the transition



period, it is recommended that the current rate continue. The table below provides a summary of the current, calculated and transitional charges.

Residential (Single Detached) Comparison			
Service	Current	Calculated for Addendum Report (May 15, 2019)	Transition Rates (June 13 - July 5, 2019)
Additional Special Area Charges Dundas/Waterdown	1,588	1,971	1,588

Similar transitional calculations have been made for the other types of residential units and for non-residential (see By-law Schedule C-1).

3. Recommended D.C. Charges

As noted above in Section 2 item D, due to the unknown timing of proclamation of Bill 108, it is recommended that the City provides interim D.C. rates for the transitional period of June 13th through to July 5th.

The transitional rates are based on ensuring the quantum of the current rates are not exceeded. Where the calculated rates provide a proposed decrease from the current rates, the new calculated rate has been included. Where the calculated rates provide a proposed increase from the current rates, the calculated rates have been included for all services except Services Related to a Highway and Wastewater Linear Services, where the calculated rates have been decreased to ensure the current rate quantum is not exceeded.

With the introduction of the transitional rates, Schedules A, B and C to the draft 2019 D.C. By-law has been updated to reflect two schedules each:

- Schedule A-1, B-1 and C-1 provide for transitional rates to be effective June 13th – July 5th, 2019
- Schedule A-2, B-2 and C-2 provide for rates to be effective July 6th, 2019

These Schedules are provided below.

Note that once Bill 108 is proclaimed and amended regulations to the D.C. and regulations related to the C.B.C. are available, the City will undertake a review and required public process to amend the D.C. by-law and new C.B.C. by-law.



SCHEDULE "A-1"
BY-LAW NO. 2019 - _____
EFFECTIVE JUNE 13 TO JULY 5, 2019
SCHEDULE OF DEVELOPMENT CHARGES

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Municipal Wide "Soft" Services:						
Parkland Development	2,352	1,683	1,377	942	760	0.11
Indoor Recreation Services	4,430	3,171	2,594	1,775	1,431	0.20
Library Services	1,045	748	612	419	338	0.05
Administrative Studies - Community Based Studies	330	236	193	132	107	0.17
Long Term Care	125	89	73	50	40	0.01
Health Services	1	1	1	-	-	0.00
Social & Child Services	15	11	9	6	5	0.00
Social Housing	648	464	379	260	209	0.00
Airport lands	419	300	245	168	135	0.21
Parking services	490	351	287	196	158	0.25
Provincial Offences Administration	40	29	23	16	13	0.02
Total Municipal Wide "Soft" Services	9,895	7,083	5,793	3,964	3,196	1.02
Municipal Wide "Hard" Services:						
Services Related to a Highway	2,867	2,174	2,234	1,750	950	8.05
Public Works Facilities, Vehicles & Equipment	784	561	459	314	253	0.41
Police Services	524	375	307	210	169	0.26
Fire Protection Services	462	331	271	185	149	0.23
Paramedics	137	98	80	55	44	0.03
Transit Services	1,917	1,372	1,123	768	619	0.98
Administrative Studies - Engineering Services Studies	166	119	97	66	54	0.08
Waste Diversion	657	470	385	263	212	0.13
Total Municipal Wide "Hard" Services	7,514	5,500	4,956	3,611	2,450	10.16
GRAND TOTAL MUNICIPAL WIDE (SOFT AND HARD)	17,409	12,583	10,749	7,575	5,646	11.18



SCHEDULE "B-1"
BY-LAW NO. 2019 - _____
EFFECTIVE JUNE 13 TO JULY 5, 2019
SCHEDULE OF DEVELOPMENT CHARGES

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Water and Wastewater Services						
Wastewater Facilities	4,048	2,897	2,371	1,622	1,308	1.95
Wastewater Linear Services	5,029	3,697	3,171	2,169	1,644	2.61
Water Services	4,767	3,412	2,792	1,910	1,540	2.29
Stormwater Services - Combined Sewer System (Area as per Schedule D)						
Stormwater Drainage and Control Services	7,065	5,106	4,313	3,001	2,293	1.41
Stormwater Services - Separated Sewer System (All areas outside of Combined Sewer System Area identified on Schedule D)						
Stormwater Drainage and Control Services	7,065	5,106	4,313	3,001	2,293	1.41
Total Urban Services - Combined Sewer System	20,909	15,112	12,647	8,702	6,785	8.26
Total Urban Services - Separated Sewer System	20,909	15,112	12,647	8,702	6,785	8.26



SCHEDULE "C-1"
BY-LAW NO. 2019 - _____
EFFECTIVE JUNE 13 TO JULY 5, 2019
SPECIAL AREA CHARGES

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Additional Special Area Charges Dundas/Waterdown	1,588	1,147	970	674	515	1.04



SCHEDULE "A-2"
BY-LAW NO. 2019 - _____
EFFECTIVE JULY 6, 2019
SCHEDULE OF DEVELOPMENT CHARGES

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Municipal Wide "Soft" Services:						
Parkland Development	2,352	1,683	1,377	942	760	0.11
Indoor Recreation Services	4,430	3,171	2,594	1,775	1,431	0.20
Library Services	1,045	748	612	419	338	0.05
Administrative Studies - Community Based Studies	330	236	193	132	107	0.17
Long Term Care	125	89	73	50	40	0.01
Health Services	1	1	1	-	-	0.00
Social & Child Services	15	11	9	6	5	0.00
Social Housing	648	464	379	260	209	0.00
Airport lands	419	300	245	168	135	0.21
Parking services	490	351	287	196	158	0.25
Provincial Offences Administration	40	29	23	16	13	0.02
Total Municipal Wide "Soft" Services	9,895	7,083	5,793	3,964	3,196	1.02
Municipal Wide "Hard" Services:						
Services Related to a Highway	10,769	7,708	6,306	4,314	3,479	8.05
Public Works Facilities, Vehicles & Equipment	784	561	459	314	253	0.41
Police Services	524	375	307	210	169	0.26
Fire Protection Services	462	331	271	185	149	0.23
Paramedics	137	98	80	55	44	0.03
Transit Services	1,917	1,372	1,123	768	619	0.98
Administrative Studies - Engineering Services Studies	166	119	97	66	54	0.08
Waste Diversion	657	470	385	263	212	0.13
Total Municipal Wide "Hard" Services	15,416	11,034	9,028	6,175	4,979	10.16
GRAND TOTAL MUNICIPAL WIDE (SOFT AND HARD)	25,311	18,117	14,821	10,139	8,175	11.18



SCHEDULE "B-2"
BY-LAW NO. 2019 - _____
EFFECTIVE JULY 6, 2019
SCHEDULE OF DEVELOPMENT CHARGES

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Water and Wastewater Services						
Wastewater Facilities	4,048	2,897	2,371	1,622	1,308	1.95
Wastewater Linear Services	5,415	3,876	3,171	2,169	1,749	2.61
Water Services	4,767	3,412	2,792	1,910	1,540	2.29
Stormwater Services - Combined Sewer System (Area as per Schedule D)						
Stormwater Drainage and Control Services	3,948	2,826	2,312	1,582	1,275	0.00
Stormwater Services - Separated Sewer System (All areas outside of Combined Sewer System Area identified on Schedule D)						
Stormwater Drainage and Control Services	10,462	7,488	6,127	4,191	3,380	2.16
Total Urban Services - Combined Sewer System	18,178	13,011	10,646	7,283	5,872	6.85
Total Urban Services - Separated Sewer System	24,692	17,673	14,461	9,892	7,977	9.01



SCHEDULE "C-2"
BY-LAW NO. 2019 - _____
EFFECTIVE JUNE 13 TO JULY 5, 2019
SPECIAL AREA CHARGES

Service	RESIDENTIAL					NON-RESIDENTIAL
	Single-Detached Dwelling & Semi-Detached Dwelling (per dwelling unit)	Townhouses & Other Multiple Unit Swellings (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes 2-Bedrooms+ (per dwelling unit)	Apartments & Stacked Townhouses & Mobile Homes Bachelor & 1-Bedrooms+ (per dwelling unit)	Residential Facility Dwelling & Lodging House & Garden Suite (per bedroom)	(per sq.ft. of Gross Floor Area)
Additional Special Area Charges Dundas/Waterdown	1,971	1,410	1,154	789	637	1.04



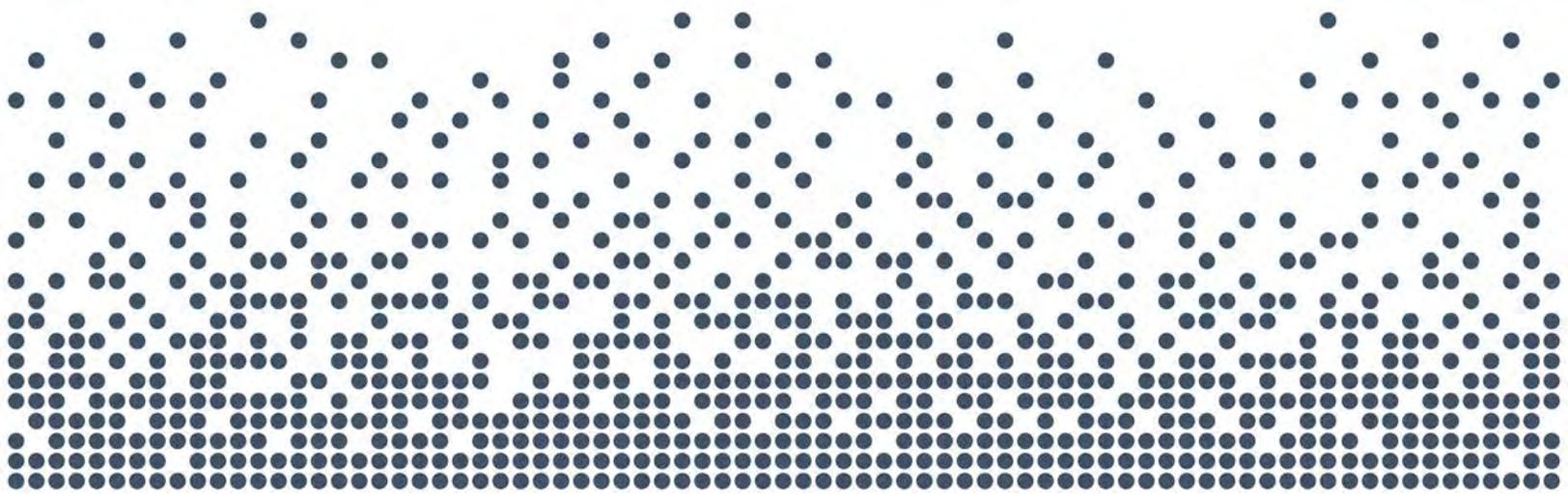
3.1 Changes to the Background Report

Based upon the above, the following revisions are made to the pages within the background study (new pages are appended to this report):

Page Reference	Description of Revisions
ES (vii)	Updates to Table ES-1 to reflect the recalculated charges for both categories of Administrative Studies
1-3	Revised Figure 1-1 to include the release of this addendum #2 report.
5-28 to 5-32	Updated to reflect the refinement to the costs in the calculated charges for the two Administrative Studies categories.
6-7 to 6-8	Table 6-5 updated to reflect the refinements to the costs in the calculated charges for the two Administrative Studies categories.
6-10 to 6-11	Table 6-7 updated to reflect the refinements to the costs included in each of the two Administrative Studies categories.
Appendix C C-4	Update Table to reflect the refinements to the costs included in the two Administrative Studies categories.
Appendix K	Updated Schedule of Development Charges and addition of additional Interim Schedule of Development Charges.

4. Process for the Adoption of the Development Charges By-law

Sections 1 & 2 provide for a summary of the revisions to the City's D.C. Background Study. If Council is satisfied with the above changes to the Background Study and based on the public submissions made at the public meeting, this addendum report #2 will be considered for approval by Council along with the Background Study as amended by addendum report #1.



Amended Pages

(Inserted Throughout Body of Report)