



Wastewater Servicing Financing Options Study

Town of Erin

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1. Introduction

1.1 Study Purpose and Background

The Town of Erin retained Watson & Associates Economists Ltd. (Watson), to undertake a financial review of the Town's proposed Wastewater Servicing. The purpose of this report is to provide the Town with potential options for funding the proposed infrastructure and avenues for cost recovery of the capital works.

The proposed wastewater servicing for the Town has been a multi-year undertaking and was initiated in 2013 with engineering evaluations completed by B.M. Ross. This analysis was then utilized in the 2014 Servicing and Settlement Master Plan (SSMP), with Watson providing a review of the financial component. The SSMP considered servicing and planning alternatives for wastewater and identified a preferred wastewater servicing strategy for existing and future development for both the villages of Erin and Hillsburgh. Through the SSMP, it was concluded that the preferred solution for both communities is a municipal wastewater collection system conveying sewage to a single wastewater treatment plant located south east of Erin Village with treated effluent being discharged to the West Credit River. In total, the treatment plant would service a population of 6,000 people.

Following the SSMP, the Town completed the Urban Centre Wastewater Servicing Class EA (UCWS Class EA) in which the SSMP addressed Phase 1 & components of Phase 2 of the Class EA planning process (which contains a total of 5 phases). Ainley Consulting Engineers (Ainley) was retained by the Town to undertake this next phase of work. In completing Phase 2 activities within the UCWS Class EA, the preferred solution remains as established under the SSMP, however, the serviced population has been increased to 14,559 persons to account for growth in accordance with the Town's Official Plan (OP). This increase in the serviced population subsequently increased the costing for the wastewater system. To evaluate this impact, the Town retained Watson in 2018 to undertake a financial assessment of the capital works provided by Ainley.

The findings of that analysis concluded that the magnitude of the capital cost is outside the Town's financial affordability without obtaining external funding (the Town had a maximum debt capacity of approximately \$24 million at the time). For the project to proceed in its entirety, the growth-related portion of the costs must be upfront financed



by the developing landowners, while the non-growth portion must be funded through external means (e.g. grants, developer contributions, etc.).

An alternative solution was also presented where no external funding was available, which was to stage the construction of the service. The first stage may allow for the growth component of the infrastructure (which services development lands) to proceed and be funded by the developing landowners. The second stage (and possibly subsequent stages) could then allow for portions of the existing community to be serviced. This approach would allow the Town to manage its debt capacity limit and service existing properties as it is financially feasible.

Currently, the Town is undertaking a Growth Management Strategy (GMS) with Dillon Consulting Limited (Dillon) and Watson. The GMS relies on the infrastructure plans established through the Environmental Assessments, both previously and currently being undertaken by the Town and outlines a phasing strategy for growth within the two Urban Centres (Erin and Hillsburgh). This study takes into consideration land use planning, infrastructure planning and market demand factors. The GMS ultimately provides a recommended framework for growth to 2041. The information from the GMS has assisted Ainley with updating the potential development for the wastewater servicing study, which translates to updated costing requirements.

At present, this report provides for the financial analysis based on the alternative solution (staging of construction and development) as recommended in the 2018 Financial Assessment of the Town of Erin's UCWS Class EA.

2. Development and Infrastructure Costs

2.1 Summary of Development

The growth forecast provided herein has been summarized by Ainley based on their work on Phase 2 of the UCWS Class EA. The developments to be serviced by the proposed wastewater infrastructure have been provided on a single detached equivalent (SDE) basis for all residential and non-residential development for both Erin and Hillsburgh. The overall anticipated buildout is 6,740 SDEs. The forecast has been separated into two categories, new development vs. existing development. The growth-related units (including intensification) total 4,467 SDEs. The non-growth existing units to be serviced totals 2,273 SDEs. This distinction has been provided in order to assist



in staging the construction of the wastewater services to have new growth proceed first (as mentioned earlier). The new development has been further divided into seven (7) development areas, four (4) belonging to Erin and three (3) to Hillsburgh. A map of the proposed wastewater servicing areas for Erin and Hillsburgh are presented in Figures 1 and 2. A summary of the corresponding SDEs for each area is provided in Figure 3.



Figure 1
Map of the proposed Wastewater Servicing and Developments by Area for Erin

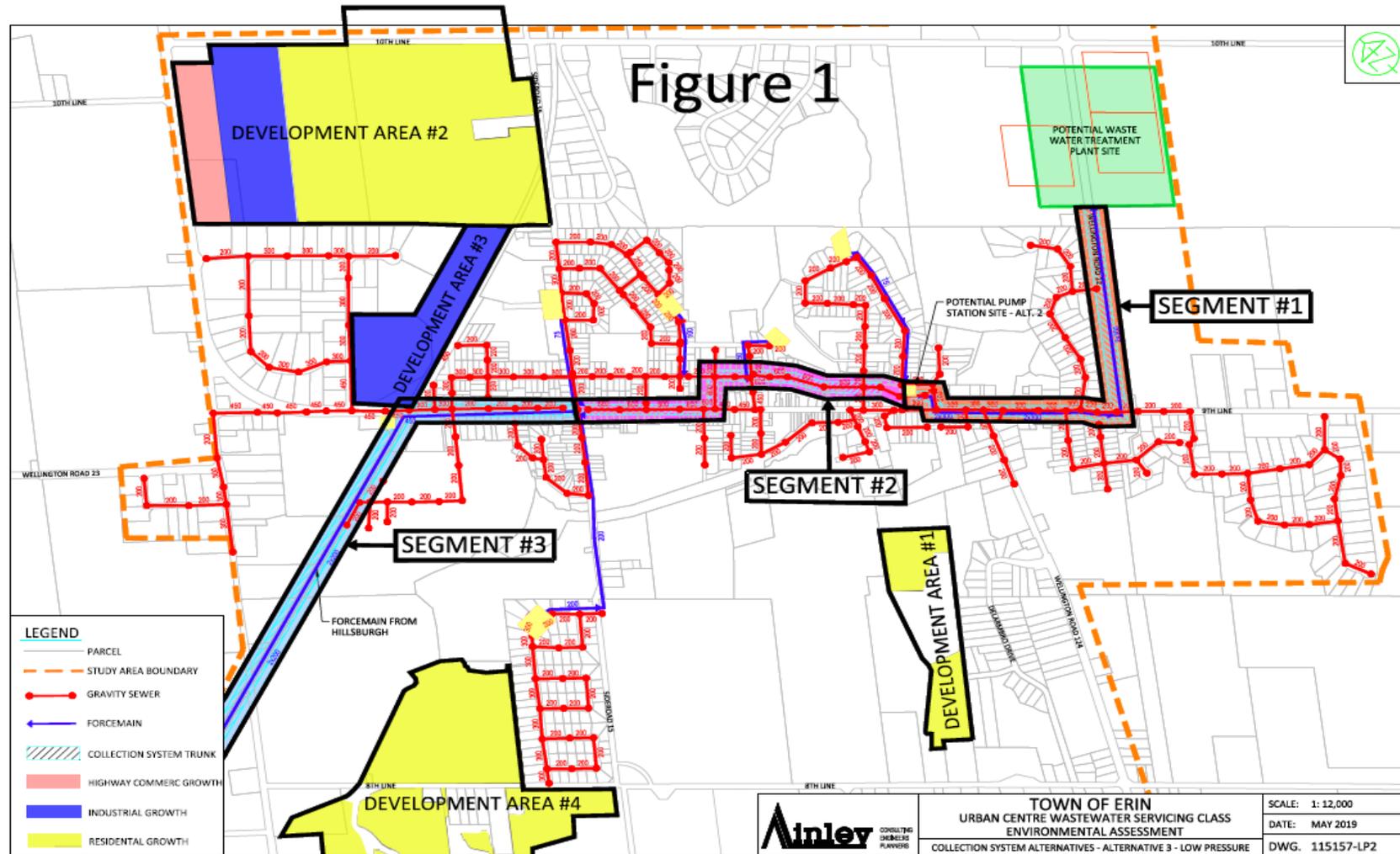




Figure 2
Map of the proposed Wastewater Servicing and Developments by Area for Hillsburgh

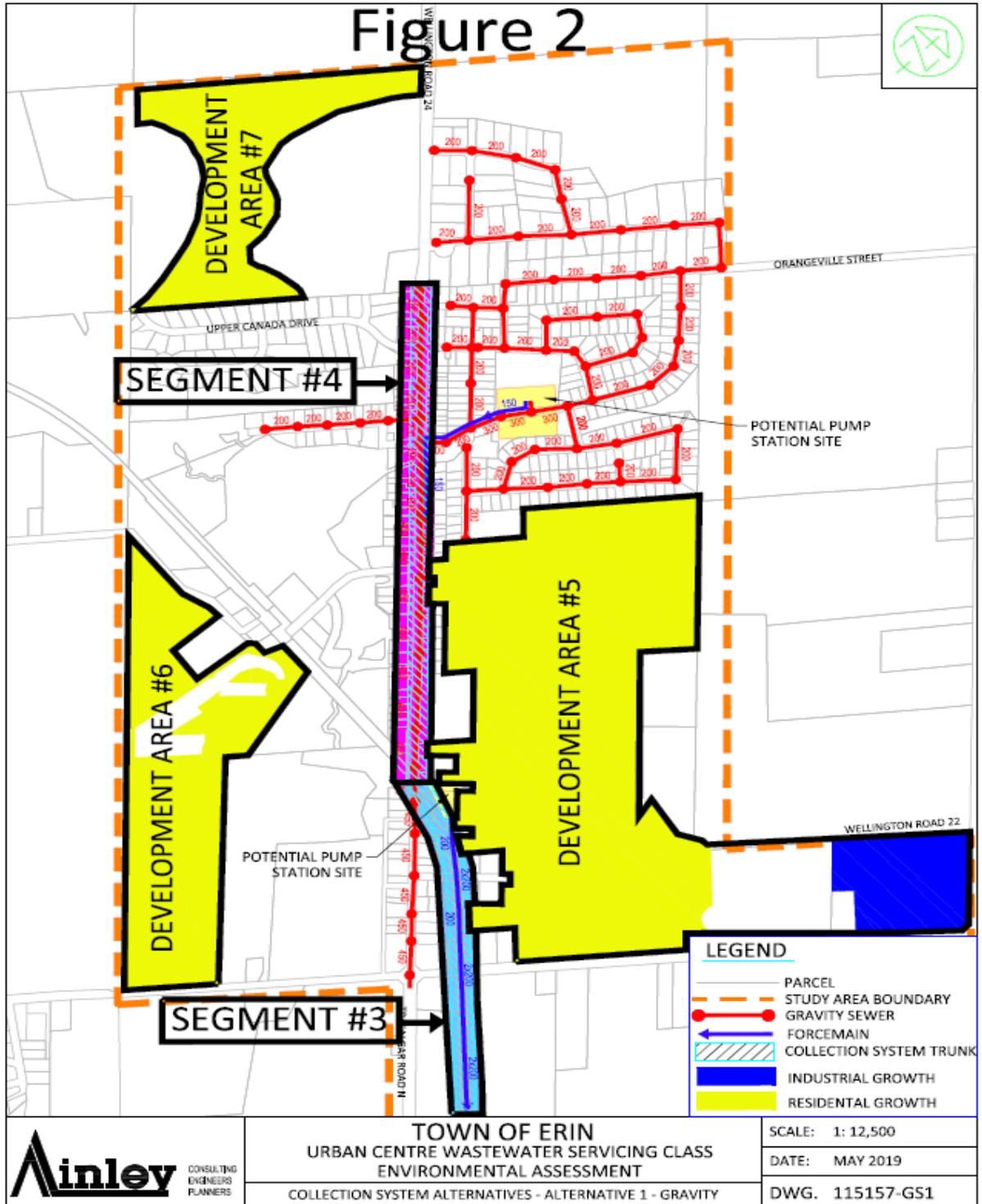




Figure 3
Erin and Hillsburgh Development Forecast for New and Existing
(Single Detached Equivalents)

	New Development in Erin					Total Existing and Intensification in Erin			Totals
	Development Area 1	Development Area 2	Development Area 3	Development Area 4	Erin Sub-Total	Infill and Intensification	Existing Communities	Total Existing and Intensification	
Residential (Assume Single Family Units / Single Detached Equivalents)	116	896	0	896	1,908	376	1051	1,427	3,335
Commercial (Equivalent Residential SDE)	0	205	0	0	205	0	682	682	887
Employment (Equivalent Residential SDE)	0	129	129	0	258	0	0	0	258
Total Equivalent Single Family Units	116	1230	129	896	2,371	376	1733	2,109	4,480

	New Development in Hillsburgh					Total Existing and Intensification in Hillsburgh			Totals
	Development Area 5	Development Area 6	Development Area 7		Hillsburgh Sub-Total	Infill and Intensification	Existing Communities	Total Existing and Intensification	
Residential (Assume Single Family Units / Single Detached Equivalents)	848	464	320		1,632	23	474	497	2,129
Commercial (Equivalent Residential SDE)	0	0	0		0	0	66	66	66
Employment (Equivalent Residential SDE)	65	0	0		65	0	0	0	65
Total Equivalent Single Family Units	913	464	320		1,697	23	540	563	2,260

Summary	Single Detached Unit Equivalent			Percentage		
	Growth (including Infill and Intensification)	Non-Growth	Total	Growth (including Infill and Intensification)	Non-Growth	Total
Erin	2,747	1,733	4,480	41%	26%	66%
Hillsburgh	1,720	540	2,260	26%	8%	34%
Total	4,467	2,273	6,740	66%	34%	100%



Utilizing the development information above, discussions were undertaken with the developing landowners of Erin and Hillsburgh regarding interest in participating in the wastewater infrastructure process. The scenario discussed was to allow development to proceed in advance of servicing existing homes and business. These discussions provided the following items for consideration:

- Consideration for the timing and costing of the major wastewater treatment, pumping and trunk mains to service development in Erin Village and Hillsburgh vs. building oversized infrastructure to service existing home/businesses in the future;
- Consider what infrastructure is needed to allow various development lands to proceed;
- Consider timing and sequencing of these works; and
- Consider the mechanisms for paying for the infrastructure and for cost recovery.

2.2 Summary of Infrastructure Costs

2.2.1 Wastewater Treatment Plant

Building on the initial analysis provided by Ainley in 2017, updated estimates have been provided based on the information discussed in the previous section. Using the 6,740 SDEs provided in Figure 3, Ainley has updated the Wastewater Treatment Plant's estimated rated capacity to 7,200 m³/d, with a total capital cost of approximately \$67.2 million. Through discussions with the developing landowners, the costs of the Wastewater Treatment Plant have been provided in four (4) phases to reflect the staging of development (i.e. new growth to proceed in advance of servicing existing homes and businesses). Figure 4 provides the Wastewater Treatment Plant's cost and capacity by phase.



Figure 4
Summary of the Wastewater Treatment Plant - Costs and Capacity by Phase

Phasing	Phase 1	Phase 2	Phase 3	Phase 4
Phase Capacity	1,800 m3/d	1,800 m3/d	1,800 m3/d	1,800 m3/d
Capacity%	25%	25%	25%	25%
Process Trains	Two each 900 m3/d	One 1,800 m3/d	One 1,800 m3/d	One 1,800 m3/d
Total Plant Capacity	1,800 m3/d	3,600 m3/d	5,400 m3/d	7,200 m3/d
Cost Component	Phase 1 Capital Cost	Phase 2 Capital Cost	Phase 3 Capital Cost	Phase 4 Capital Cost
Total Wastewater Treatment Plant Costs	\$23,191,736	\$9,336,250	\$20,271,720	\$14,408,768
Total Outfall	\$983,731	\$0	\$730,682	\$0
Total Treatment Plant and Outfall	\$ 23,191,736	\$ 9,336,250	\$ 20,271,720	\$ 14,408,768
Cumulative Expenditure	\$ 23,191,736	\$ 32,527,986	\$ 52,799,705	\$ 67,208,473

Costs are presented in 2019 \$

Total SDE's Serviced	6,740
Cost Per SDE	\$ 9,971



The four (4) phases of the wastewater treatment plant provide for an even distribution of the 7,200 m³/d capacity into 1,800 m³/d per phase. Phase 1 identifies the largest portion of the costs (\$23.2 million) as it involves the initial design, engineering, and construction of the plant, while the latter phases (combined \$44 million) provide for expansionary works required to meet the proposed rated capacity. Given the estimated 6,740 SDE to be serviced, this equals a capital charge of \$9,971 per SDE.

2.2.2 Wastewater Collection System – Trunk Mains and Pumping Stations

Similar to the wastewater treatment plant, the trunk mains and pumping stations have been updated for both cost and sizing requirements as a result of the proposed servicing development identified in Figure 3. The wastewater collection system has been separated into 4 segments, with segments 1 and 2 located in Erin, and segments 3 and 4 located within Hillsburgh. The costs provided in Figure 5 outline both the costs to service new development, as well as the costs to upsize the infrastructure once the Town is ready to accommodate the existing residents in the wastewater system.

The total costs for Erin's segments 1 and 2 are \$7.8 million for new development, with an additional \$2.9 million to upsize the infrastructure to accommodate existing users. For Hillsburgh's segments 3 and 4, the total cost for new development is \$7.4 million, with an additional \$2.2 million to upsize the infrastructure to accommodate existing users. However, it should be noted that the costs for Hillsburgh would have to include segments 1 and 2 for Erin, as those components are required for Hillsburgh to connect to the wastewater treatment plant. This provides for a total growth-related component of \$15.2 million, and a total non-growth related upsizing costs of \$5.1 million for both Erin and Hillsburgh.

Based on the SDEs identified in Figure 3, the growth-related amount of \$15.2 million calculates to an estimated charge of \$3,409 per unit (\$15.2 million divided by 4,467 SDEs).

Similarly, for the existing non-growth related SDEs, the capital costs of \$5.1 million equates to an estimated charge of \$2,251 per unit (\$5.1 million divided by 2,273 SDEs).



Figure 5
Summary of the Wastewater Collection System - Costs for New and Existing Development by Segments

Segment	System Component	Developer Costs (Infrastructure accommodates New Development Only)	Costs to Upsize the Infrastructure to accommodate Existing Residents	Total Cost
Segment No. 1	Erin SPS 1 (transmission station to the WWTP)	\$4,278,670	\$1,621,840	\$5,900,510
	Erin SPS 1 Forcemain (transmission station to the WWTP)	\$1,557,820	\$373,450	\$1,931,270
Segment No. 2	Erin Village Trunk Sewer (Dundas Street East to Water Street)	\$1,099,437	\$234,740	\$1,334,177
		\$851,466	\$192,060	\$1,043,526
	Service Connections to existing properties along the trunk sewer	\$0	\$480,150	\$480,150
Erin - Total Cost for Collection System for New Development		\$7,787,393	\$2,902,240	\$10,689,633
Segment No. 3	Hillsburgh SPS 1 (transmission to Erin)	\$2,150,005	\$613,525	\$2,763,530
	Hillsburgh SPS 1 Forcemain (transmission to Erin along ECT)	\$3,841,200	\$864,270	\$4,705,470
	Extension of the Hillsburgh SPS 1 Forcemain (along Main St, from Main & ECT to Dundas St)	\$501,490	\$117,370	\$618,860
Segment No. 4	Hillsburgh Village Trunk Sewer (Mill Street to Elora Cataract Trail)	\$672,210	\$170,720	\$842,930
	Hillsburgh Village Trunk Sewer (Queen Street to Mill Street)	\$277,420	\$64,020	\$341,440
	Service Connections to existing properties along the trunk sewer	\$0	\$384,120	\$384,120
Hillsburgh - Total Cost for Collection System for New Development		\$7,442,325	\$2,214,025	\$9,656,350
Total		\$15,229,718	\$5,116,265	\$20,345,983
% of Total Costs		75%	25%	100%

Costs are presented in 2019 \$



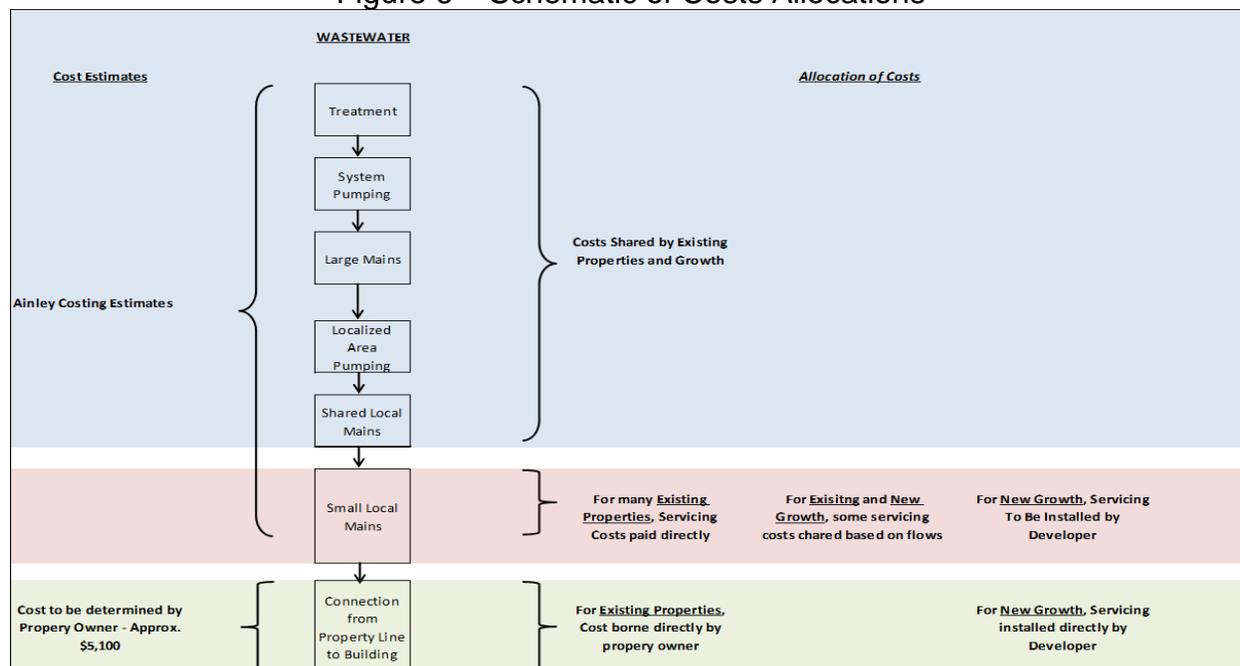
3. Allocation of Costs and Financing Alternatives

3.1 Allocation of Capital Costs

As noted in Section 2, the costs provided have been identified to service both existing and future developments, and as such, the benefit of the servicing will be allocated between the two types of properties. Allocation of cost components to benefitting properties has been discussed in the 2018 Financial Assessment of the UCWS Class EA and is being restated herein. The costs will be considered based on the following schematic where:

- Most of the broader system will be shared by both existing and future development;
- Localized mains will be constructed by the Town for existing properties;
- Localized mains for future development will be constructed by developing landowners;
- Costs to connect the house to the servicing located at the property line to be borne by existing property owners; and
- Costs to connect the new houses to the servicing located at the property line to be borne by developing landowners.

Figure 6 – Schematic of Costs Allocations





3.2 Capital Costs Financing Alternatives

The following section provides for a discussion of potential financing alternatives that could be available to the Town. These alternatives were discussed in the 2018 Financial Assessment of the UCWS Class EA and are being restated herein.

3.2.1 Overview

Historically, the powers that have been available to Ontario municipalities which allow them to raise alternative revenues to taxation to fund capital services have been restrictive. While other provinces may allow certain approaches to funding, others may restrict these approaches. An often acknowledged document in the municipal realm is a 2006 document provided by the Canadian Council of Provincial/Federal Environment Ministers which provided a detailed overview of potential funding mechanisms. Some of the methods described therein would be a direct revenue to the municipality (e.g. grants or capital charges to properties) whereas others are cashflow methods (e.g. debt and 3P agreements). An overview of the alternatives provided therein is presented below along with the potential alternatives (highlighted) which are applicable in Ontario.

Figure 7 – Potential Funding Mechanisms in Ontario

A	Alternatives	Revenue	Cashflow
	Sponsorships	X	
	Innovative Transportation Revenues & Incentives	X	
	Government Service Partnerships	X	
	Strategic Budget Allocations	X	
	Utility Models	X	
B	Bank		
	Bonds		X
	Loans		X
	Revolving Loans/Provincial State		X
	Trust Funds	X	
	Securitizations Funds	X	
C	P3		
	Public Private Partnerships		X
D	PUBLIC		
	Transfer Payments	X	
	Grants	X	
	Contributions	X	
	Taxation/Rates	X	
E	User Based		
	Special District Financing	X	
	Development Charges	X	
	Special Levies	X	



The methods of capital cost recovery available to municipalities are provided as follows:

- Development Charges Act, 1997, as amended
- Municipal Act
 - Rates
 - Sewer Area Capital Charges
 - Local Improvements
- Grants

3.2.2 Development Charges Act, 1997, as Amended

Development charges (D.C.s) are fees collected from new development, most often at the time a building permit is issued. The Development Charges Act gives authority to municipalities' D.C. By-laws for financing costs resulting from new growth.

Municipalities use these fees to help pay for the cost of infrastructure required to provide municipal services to new development, such as water, wastewater, roads, community centres and fire and police facilities. Fees are payable to both the Town and County levels of government, and the Boards of Education. Provincial Law limits the types of infrastructure costs development charges can fund. Most municipalities in Ontario use development charges to ensure that the cost of providing infrastructure to service new development is not borne by existing residents and businesses in the form of higher property taxes.

The Act allows for development to assist in cash flowing major projects in order to relieve the municipality of significant debt burdens. These types of agreements are based upon an agreement between a developer or group of developers. While a municipality cannot mandate an agreement, it may be necessary if the municipality cannot cash flow the project(s) themselves.

In certain instances, developers have assisted municipalities by also providing added contributions over and above the D.C. amount in order to assist funding the non-growth share. Bill 73 (Smart Growth for our Communities Act, 2015) has made provisions that this may not be mandated but, once again may assist in instances where the projects are unaffordable.



3.2.3 Municipal Act, 2001 – Part XII

Part XII of the *Municipal Act, 2001* provides municipalities with broad powers to impose various types of capital and operating fees and charges. These powers include imposing fees or charges for services or activities provided or done by or on behalf of the Municipality.

Restrictions are provided to ensure that the form of the charge is not akin to a poll tax. Any charges not paid under this authority may be added to the tax roll and collected in a like manner. The fees and charges imposed under this part are not appealable to the Local Planning Appeal Tribunal (L.P.A.T.).

The legislation also permits municipalities to impose charges, by by-law, on owners or occupants of land who would or might derive benefit from the construction of sewage (storm and sanitary) or water works being authorized (in a Specific Benefit Area). For a by-law imposed under this section:

- A variety of different means could be used to establish the rate and recovery of the capital costs that could be imposed by a number of methods at the discretion of Council (i.e. lot size, frontage, number of benefiting properties, single detached equivalent, etc.). For example, dividing the costs by the number of units would provide for a cost per unit for the infrastructure costs;
- Rates could be imposed in respect to costs of major capital works, even though an immediate benefit was not enjoyed;
- Non-abutting owners could be charged;
- Recovery can be authorized against existing works, where a new water or sewer main was added to such works, "notwithstanding that the capital costs of existing works has in whole or in part been paid;"
- Charges on individual parcels could be deferred; and/or
- Exemptions could be established.

3.2.4 Grant Funding Availability

Federal Gas Tax

The Federal Gas Tax is a permanent source of funding provided up front, twice-a-year, to provinces and territories, who in-turn flow this funding to their municipalities to support local infrastructure priorities. Municipalities can pool, bank and borrow against



this funding, providing significant financial flexibility. Every year, the Federal Gas Tax provides over \$2 billion and supports approximately 2,500 projects in communities across Canada. Each municipality selects how best to direct the funds with the flexibility provided to make strategic investments across 18 different project categories, which includes both water and wastewater servicing.

Ontario Government

The Province has taken steps to increase municipal infrastructure funding. The Ontario Community Infrastructure Fund (OCIF) was increased in 2016 with formula-based support growing to \$200 million, and application funding growing to \$100 million annually by 2018-19. As well, \$15 million annually will go to the new Connecting Links program to help pay for the construction and repair costs of municipal roads that connect communities to provincial highways. This is on top of the Building Ontario Up investment of \$130 billion in public infrastructure over 10 years starting in 2015.

Summary of Future Grant Funding

The Town has been in discussions with the senior levels of government relevant to servicing these communities. Generally, commitments towards specific initiatives are not granted until the project has proceeded through the environmental and the public processes. Presently, no funding guarantees have been given, however the initiatives have received positive feedback relative to assisting funding for the existing homes and businesses.

3.2.5 Debt Financing

Although it increases the overall cost to the taxpayer, debt issuance is used by municipalities to assist in cash flowing large capital expenditures. The use of debt may be used to loan existing property owners the funds to repay the capital charge over time.

The Ministry of Municipal Affairs regulates the level of debt incurred by Ontario municipalities, through its powers established under the Municipal Act. Ontario Regulations 403/02 provides the current rules respecting municipal debt and financial obligations. Through the rules established under these regulations, a municipality's debt capacity is capped at a level where no more than 25% of the municipality's own purpose revenue may be allotted for servicing the debt (i.e. debt charges). Hence, proper



management of capital spending and the level of debt issued annually, must be monitored and evaluated over the longer-term period.

3.2.6 Private/Public Partnership Agreements (3P's)

In 1993, the Province of Ontario passed legislation to amend the Municipal Act to allow municipalities to privatize municipal services (prior to which they needed special legislation). To date, there have been limited attempts at the full privatization of services; however, there are aspects of private initiatives present in many municipalities. Private contracts can range from simple construction contracts to full design/build/operate/finance contracts. Below is a summary of the more common forms of agreements.

Figure 8 - Various forms of Public-Private Partnerships

Model	Construction	Operations	Capital Investment or Financing	Ownership at End of Contract Term
Operating Maintain Manage (OMM)	N/A	Private	Public	Public
Lease		Private	Public	Public
Lease Develop Operate (LDO)		Private	Private	Public
Design Build Operate (DBO)	Private	Private	Public	Public
Design-Build-Finance-Transfer (DBFT)	Private	Public	Private	Public
Design-Build-Finance-Maintain (DBFM)	Private	Operate	Private	Public
Design-Build-Finance-Operate (DBFO)	Private	Private	Private	Public
Build-Own-Operate (BOO)	Private	Private	Private	Private
Build-Own-Operate-Transfer (BOOT)	Public	Private	Private	Public

Cost/benefit of the various forms of contracts are dependant upon the service being provided, the form of contract and the alternative methods in structuring the agreement. Generally, the borrowing costs for the private sector are higher than the borrowing costs



available to municipalities; however, there can be other aspects of the contract which can reduce other cost components and enhance the competitiveness of the contract. This form of capital financing is assessed in the same way debt financing is considered for debt capacity purposes; hence it does not mitigate the province's maximum limits on incurring long term liabilities.

3.2.7 Municipal Services Corporation (MSC)

A municipality may create a municipal services corporation for the purpose of providing a system, service or thing that the municipality itself could provide such as water or wastewater services. The service, system or thing must be within the municipality's sphere of jurisdiction under section 11 of the *Municipal Act, 2001*. To date, there is limited use of this legislative authority in Ontario.

Municipal services corporations may be established under the Business Corporations Act or the Corporations Act. The Corporations Act likely would be used if the municipal services corporation was going to be a not-for-profit organization. Before creating an MSC a municipality must prepare a business case and consult the public.

There are limitations and potential impacts which need to be considered prior to proceeding to set up an MSC. Some of the considerations are provided below:

- MSC's normally have a higher cost of borrowing (i.e. loans).
- Transferring an existing municipal service to an MSC can reduce a municipality's debt capacity;
- MSC's may not be eligible for certain grants and subsidies.
- As an MSC is a Business Corporation, they do not have to same powers as a municipality, hence there may be limitations in exercising certain authorities.

4. Landowner Engagement and Phasing Options

4.1 Landowner Engagement and Interest

During the study process, discussions were undertaken with the landowners from the villages of Erin and Hillsburgh that will potentially be part of the wastewater system. Of the seven development areas shown in Figures 1, 2, and 3, three of the landowners expressed interest in participating with the funding of the wastewater system. Two of



the landowners are located in the Village of Erin (Areas 2 and 4) and the third landowner is located in Hillsburgh (Area 6).

Some of the comments received from the various landowners were:

- Willingness to upfront some of the costs on a short-term basis;
- Require satisfactory offset to development charges (credits);
- One owner identified an upper total cashflow limit up to \$20,000 per unit;
- One owner identified the possibility to finance up to a maximum of \$25 million (subject to interest cost recovery) towards the wastewater system.

4.2 Phasing Options Considered

Based on the feedback and interest shown by the three landowners, seven options (Options A to G) for implementing the wastewater servicing were analyzed. The following figure outlines the different options analysed depending on which areas were to proceed, along with the corresponding SDEs within those areas.

Figure 9 – Development Phasing Options Considered

Options for Consideration

Option	Area			Number of SDE's Included
	2 (Erin)	4 (Erin)	6 (Hillsburgh)	
A	x			1,230
B		x		896
C			x	464
D	x		x	1,694
E		x	x	1,360
F	x	x		2,126
G	x	x	x	2,590

Denotes Area Developing in Option

Using the options presented above, the costs identified in Figure 10 represents the capital needs in order to provided servicing to Options A to G.



Figure 10
Capital Costs Requirements based on Development Phasing Options

Option	Areas Included	Wastewater Treatment		Trunk and Main Work		Total
		Treatment Phasing Needed	Cost	Segments Needed	Cost	
A	2	Phase 1	\$ 23,191,736	Segment 1, 2	\$ 10,689,633	\$ 33,881,369
B	4	Phase 1	\$ 23,191,736	Segment 1, 2	\$ 10,689,633	\$ 33,881,369
C	6	Phase 1	\$ 23,191,736	Segment 1, 2, 3	\$ 18,777,493	\$ 41,969,229
D	2, 6	Phase 1	\$ 23,191,736	Segment 1, 2, 3	\$ 18,777,493	\$ 41,969,229
E	4, 6	Phase 1	\$ 23,191,736	Segment 1, 2, 3	\$ 18,777,493	\$ 41,969,229
F	2, 4	Phase 2	\$ 32,527,986	Segment 1, 2	\$ 10,689,633	\$ 43,217,619
G	2, 4, 6	Phase 2	\$ 32,527,986	Segment 1, 2, 3	\$ 18,777,493	\$ 51,305,479

Option	Areas Included	Total Cost Per Unit Developed	DC Per Unit	Amount Cashflowed per Unit	Ranking
A	2	\$ 27,546	\$ 13,381	\$ 14,165	4
B	4	\$ 37,814	\$ 13,381	\$ 24,433	6
C	6	\$ 90,451	\$ 13,381	\$ 77,070	7
D	2, 6	\$ 24,775	\$ 13,381	\$ 11,394	3
E	4, 6	\$ 30,860	\$ 13,381	\$ 17,479	5
F	2, 4	\$ 20,328	\$ 13,381	\$ 6,504	2
G	2, 4, 6	\$ 19,809	\$ 13,381	\$ 6,428	1



The capital costs requirements presented in Figure 10 have been identified based on the capacity requirements generated by the SDEs from Figure 9.

Treatment Plant

With respect to the wastewater treatment plant, having a number of SDEs equal to Options F and G (2,126 and 2,590 respectively) triggers the requirement to construct phase 2 of the treatment plant in order to generate a rated capacity of 3,600 m³/d, while the other options only require phase 1. This translates to a treatment plant cost that equals \$23.2 million for Options A to E and \$32.5 million for Options F and G.

Collection System

Based on the matrix provided in Figure 10, the wastewater collection system (trunk mains) requirements of Options A, B, and F only require segments 1 and 2 as they are located within the Village of Erin. These options provide for a trunk main cost of \$10.7 million.

Options C, D, E, and G contain development within Hillsburgh, and as stated in Section 2 of this study, the collection system within Hillsburgh requires the completion of the works in Erin as it is the first point of contact with the treatment plant. These options provide for a trunk main cost of \$18.8 million.

Overall Costs and Rankings

Based on the information above, Option A provides for the lowest overall total cost at \$33.9 million with both treatment and collection systems combined. Conversely, Option G provides the highest overall combined cost at \$51.3 million.

However, when looking at the cost on a per unit basis, Option A becomes the highest cost per unit as the overall costs are only spread among 1,230 SDEs at \$27,546 per unit. Option G is the lowest cost per unit when spreading the \$51.3 million over 2,590 SDEs, which equals \$19,809 per unit. Further, with the assumed D.C. collections of \$13,381 per unit (combining the \$9,971 and \$3,409 recovery costs calculated in Section 2.2 of this report), the net amount to be cash flowed under Option G is \$6,428.



Other Observations

In addition to the cost summary provided, the following observations should also be considered:

- Options F and G provide unused treatment capacity to service added units (1,246 and 871 units respectively) potentially for existing homes and businesses;
- Option G allows Hillsburgh to develop along with Erin. If the two areas were split, there would be pressure by Erin landowners to treat the two areas separately, which could add higher costs to Hillsburgh;
- Option G is the only option which meets the criteria set out by all landowners however Option F may be attainable if the development is limited to Erin only.

5. Conclusions

5.1 Summary of Analysis and Next Steps

The analysis presented herein provides for the range of the costs for the capital works required to undertake the wastewater servicing needs depending on the staging of development. Building on the prior studies such as the SSMP and the UCWS Class EA, the recommended approach for the Town is to stage the construction of the wastewater system into phases.

Based on the findings of the study, in conjunction with the comments from the interested developing landowners, it is recommended that the Town consider either Option F or Option G for the capital plan. These options provide for an estimated cost of \$20,000 per unit, which also coincides with the funding thresholds the interested landowners are willing to cashflow.

The next steps would be for the Town to select an option to move forward with and begin to engage with the landowners to discuss potential financing (subject to the appropriate approvals being in place). As well, upon finalizing the option, the discussions with the Province should be undertaken to assess potential funding availability for existing businesses and residents.