

DEVELOPMENT CHARGES BACKGROUND STUDY

Township of Essa

HEMSON Consulting Ltd.

April 20, 2018

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EXECUTIVE SUMMARY

Hemson Consulting Ltd. was retained by the Township of Essa to complete a Development Charges (DC) Background Study. This Background Study provides the basis and background to update the Township's development charges to accurately reflect the servicing needs of new development in the Township.

STUDY CONSISTENT WITH DEVELOPMENT CHARGES LEGISLATION

- This study calculates development charges for the Township of Essa in compliance with the provisions of the Development Charges Act, 1997 (DCA) and its associated regulation O. Reg. 82/98 and the recently amended provisions of the legislation.
- The Township's current Development Charges By-Law 2013-60 expires on September 19, 2018 and Council must pass a new by-law in order to continue to levy development charges.
- The Township needs to continue implementing development charges to help fund capital projects related to development throughout Essa so that development continues to be serviced in a fiscally responsible manner.
- The *DCA* and *O. Reg. 82/98* require that a development charges background study be prepared in which development charges are determined with reference to:
 - A forecast of the amount, type and location of residential and non-residential development anticipated in the Township;
 - The average capital service levels provided in the Township over the ten-year period immediately preceding the preparation of the background study;
 - A review of future capital projects, including an analysis of gross expenditures, funding sources, and net expenditures incurred or to be incurred by the Township to provide for the expected development, including the determination of the DC eligible and non-DC-eligible components of the capital projects;

- An examination of the long-term capital and operating costs for the capital infrastructure required for each service to which the development charges by-laws would relate; and
- An asset management plan to deal with all assets whose capital costs are proposed to be funded under the DC by-law are financially sustainable over their full life-cycle.
- This report identifies the development-related capital costs which are attributable to development that is forecast to occur in the Township. The costs are apportioned to types of development (residential, non-residential) in a manner that reflects the increase in the need for each service attributable to each type of development.

ALL SERVICES WITH DEVELOPMENT-RELATED COSTS INCLUDED IN THE ANALYSIS

- The following services have been included in the development charge analysis:
 - Library Services;
 - Fire Services;
 - Police Services;
 - Parks and Recreation;
 - Public Works and Fleet;
 - General Government;
 - Roads and Related;
 - Area-Specific Water, and
 - Area-Specific Sewer
- Development charges for the General and Roads and Related services are calculated on a Township-wide basis. Area-specific charges for water and sewer are calculated for the service areas of Angus, Thornton, and Baxter.

DEVELOPMENT FORECAST

- In collaboration with Township staff, a development forecast has been derived for the purposes of this Development Charges Background Study. The residential and non-residential growth projections are based on historical trends in the number of building permits issued in the last ten years and

predictions of what is anticipated to occur in the future relative to available land.

- The Township is forecast to add approximately 1,000 new households in the 10-year planning period from 2018-2027. This translates into a population of roughly 2,990 in the newly constructed units. In the same ten-year time frame, it is anticipated that the Township will see an increase of 827 new employees that can be accommodated in roughly 47,000 square metres of new non-residential building space.
- The residential forecast for the Service Areas of Angus and Thornton vary between the settlement areas and services. The Angus Sewer Service Area (which includes the unit potential in Baxter) has a unit potential of nearly 920 units with a population growth of 2,730 in these new units. The unit potential in the Angus Water Service Area is about 670 units that can accommodate 1,950 persons in those newly constructed units. The unit potential in Thornton is only 37 units which can accommodate 120 persons.
- The non-residential forecast for the Angus Service Area for both water and sewer will see an increase of about 1,140 new employees that can be accommodated in approximately 65,000 square metres of new non-residential building space. In Thornton, it is anticipated that there will be an increase of 16 new employees in 810 square metres of new non-residential floor space.
- The following is a summary of the projected growth for the Township:

Table 1
Development Forecast

	2018 - 2027	2018 - Build-out		
	Township-Wide Growth	Angus Sewer Service Area	Angus Water Service Area	Thornton Water Service Area
Service Areas	Angus, Thornton, Baxter and Rural Areas	Angus and Baxter	Angus	Thornton
Household Growth	1,000	917	667	37
Population Growth in New Households	2,990	2,730	1,950	116
Employment Growth	827	1,141	1,141	16
New Non-residential Building Space (sq.m)	47,000	64,991	64,991	809

THE TOWNSHIP HAS A WIDESPREAD DEVELOPMENT-RELATED CAPITAL PROGRAM FOR THE PROVISION OF ELIGIBLE SERVICES

General and Roads and Related Services 2018 – 2027

- Township staff, in collaboration with Hemson Consulting, has developed a development-related capital program setting out projects that are required to service the anticipated growth.
- The gross cost of the Township's development-related capital program for General and Roads and Related Services amounts to \$39.07 million and provides for a wide range of infrastructure additions. Of the \$39.07 million, approximately \$16.49 million has been identified as eligible for recovery through development charges over the 2018–2027 planning period.
- The *DCA* requires that development-related net capital costs for general services be reduced by 10 per cent when calculating the applicable development charges for these services. The 10 per cent share of development-related net capital costs not included in the development charges calculations must be funded from non-development charges sources. In total, about \$767,600 is identified as the required 10 per cent reduction.
- Non-development charges funding for replacement portions of the capital program and for portions of development-related capital projects that benefit existing development have been identified. Replacement or benefit to existing shares amount to \$8.35 million.
- A share of the capital program is for portions of projects that relate to development in the post-2027 period and will be considered for recovery in future development charges studies subject to service level considerations. In total, about \$2.05 million falls within this definition.
- Available DC reserve funds, in the amount of \$11.42 million, have been identified in each of the capital programs to fund development-related infrastructure.
- The following is a summary of the development-related capital program for General and Roads and Related Services.

Table 2
Summary of Capital Forecast for Township-Wide Services

Service	Gross Cost (\$000)	DC Eligible Cost For Recovery (\$000)
Library Services	\$435.1	\$336.9
Fire Services	\$6,238.6	\$2,512.6
Police Services	\$247.6	\$28.0
Parks and Recreation	\$7,574.0	\$2,138.9
Public Works and Fleet	\$1,065.0	\$755.9
General Government	\$229.0	\$20.4
Roads and Related	\$23,280.0	\$10,693.1
Total	\$39,069.3	\$16,485.9

- Details regarding the capital programs for each individual service are provided in Appendix B of this report.
- It is estimated that net operating costs will increase by about \$1.05 million by the year 2027 as the facilities and infrastructure embodied in the capital forecast are operated and maintained.

Engineered Services 2018 – Build-out

- The development-related capital program for water and wastewater services is based on a build-out planning period from 2018. Build-out is assumed to be 2031 for the purposes of this study.
- The capital program for the Angus Service Area for Water and Sewer Services amounts to \$11.98 million, of which \$3.83 million is recoverable through development charges. Full details regarding the water and sewer system for the Angus Service Area can be found in Appendix C.
- The total estimated amount for the Thornton Service Area for water services amounts to is \$885,000, of which, \$427,500 is identified as recoverable through development charges. Appendix C displays further details regarding the Thornton water service area charge.

DEVELOPMENT CHARGES ARE CALCULATED WITH REFERENCE TO THE *DCA*

- Development charges rates have been established under the parameters and limitations of the *DCA*. This study provides the rationale and basis for the calculated rates.
- The calculated charges are the maximum charges the Township may adopt. Lower charges can be approved; however, this will require a reduction in the capital plan and reduced service levels or financing from other sources, most likely property taxes or utility rates.
- The fully calculated residential charges are recommended to vary by unit type, reflecting the difference in occupancy patterns expected in various unit types and the associated differences in demand that would be placed on Township services.
- The following is a summary of the fully calculated development charges:

Table 3
Calculated Residential Development Charges

Service	Residential Charge By Unit Type (1)				Percentage of Charge
	Singles & Semis	Rows & Other Multiples	Apartments 2+ Bedrooms	Apartments Bachelor or 1 Bedroom	
Library Services	\$372	\$333	\$226	\$166	2.7%
Fire Services	\$2,209	\$1,976	\$1,341	\$988	15.9%
Police Services	\$22	\$19	\$13	\$10	0.2%
Parks And Recreation	\$2,201	\$1,969	\$1,336	\$984	15.8%
Public Works And Fleet	\$634	\$567	\$385	\$284	4.6%
General Government	\$16	\$14	\$10	\$7	0.1%
Subtotal General Services	\$5,454	\$4,878	\$3,311	\$2,439	39.2%
Roads And Related	\$8,471	\$7,578	\$5,142	\$3,789	60.8%
Total Township-wide Charge	\$13,925	\$12,456	\$8,453	\$6,228	100.0%
Angus Service Area					
Township-wide Charge	\$13,925	\$12,456	\$8,453	\$6,228	79.8%
Angus Sewer	\$1,361	\$1,218	\$826	\$609	7.8%
Angus Water	\$2,154	\$1,927	\$1,308	\$964	12.4%
Total Serviced Charge in Angus	\$17,440	\$15,601	\$10,587	\$7,801	100.0%
Thornton Service Area					
Township-wide Charge	\$13,925	\$12,456	\$8,453	\$6,228	61.3%
Thornton Water	\$8,794	\$7,867	\$5,338	\$3,933	38.7%
Total Serviced Charge in Thornton	\$22,719	\$20,323	\$13,791	\$10,161	100.0%
Baxter Service Area					
Township-wide Charge	\$13,925	\$12,456	\$8,453	\$6,228	91.1%
Baxter Sewer (provided by Angus)	\$1,361	\$1,218	\$826	\$609	8.9%
Total Serviced Charge in Baxter	\$15,286	\$13,674	\$9,279	\$6,837	100.0%
(1) Based on Persons Per Unit Of:	3.13	2.80	1.90	1.40	

Table 4
Calculated Non-Residential Development Charges

Service	Non-Residential Adjusted Charge per Square Metre	Percentage of Charge
Library Services	\$0.00	0.0%
Fire Services	\$12.67	19.5%
Police Services	\$0.13	0.2%
Parks And Recreation	\$0.00	0.0%
Public Works And Fleet	\$3.64	5.6%
General Government	\$0.10	0.2%
Subtotal General Services	\$16.54	25.4%
Roads And Related	\$48.56	74.6%
Total Township-wide Charge	\$65.10	100.0%

Angus Service Area		
Township-wide Charge	\$65.10	76.5%
Angus Sewer	\$7.83	9.2%
Angus Water	\$12.13	14.3%
Total Serviced Charge in Angus	\$85.06	100.0%

Thornton Service Area		
Township-wide Charge	\$65.10	34.0%
Thornton Water	\$126.14	66.0%
Total Serviced Charge in Thornton	\$191.24	100.0%

Baxter Service Area		
Township-wide Charge	\$65.10	89.3%
Baxter Sewer (provided by Angus)	\$7.83	10.7%
Total Serviced Charge in Baxter	\$72.93	100.0%

NEWLY CALCULATED DC RATES ARE LOWER THAN CURRENT RATES

- The fully calculated residential charge for a single or semi-detached unit in the Angus Service Area is \$17,440, which represents an eleven per cent decrease from the Township's current charge of \$19,612.
- The calculated non-residential charge in the Angus Service Area of \$85.06 per square metre of gross floor area and represents a fourteen per cent decrease from the Township's current non-residential charge of \$99.01 per square metre.

CONSIDERATION FOR AREA RATED SERVICES

- In accordance with the recent changes to s.10(2) of the *DCA*, a development charge background study must give consideration for "*the use of more than one development charge by-law to reflect the different needs for services in different areas*".
- Following consultation with Township staff, and in review of the Township's relevant plans and documents, it was determined that both an area-specific and municipal-wide approach should continue to be used for the nature of the works and services provided in Township. A Township-wide charge has been calculated for General and Roads and Related Services while an area-specific approach is used for Water and Sewer services.

ASSET MANAGEMENT PLAN

- A key function of the Asset Management Plan is to demonstrate that all assets proposed to be funded under the development charges by-law are financially sustainable over their full life cycle.
- By 2028, the Township will need to fund an additional \$886,000 per annum in order to properly fund the full life cycle costs of the new general service assets supported under the 2018 Development Charges by-law.
- In addition to the general services asset management requirements, the utility rate area-specific supported program would result in additional annual contributions of \$130,000 when this infrastructure comes online. The additional contributions are anticipated to be supported through future utility rates.

- It is determined that all assets proposed to be funded under this by-law are financially sustainable over their full life cycle.

DEVELOPMENT CHARGES BY-LAW PRACTICES AND COLLECTION POLICIES

- As required under the *DCA*, the Township should codify any rules regarding application of the by-laws and any exemptions within the development charges by-laws proposed for adoption.
- The proposed draft by-law sets out the rules to determine development charges applicable in any particular case. Rules for exemptions are also outlined in the proposed draft by-law.
- It is recommended that Council adopt the development-related capital program included in this background study, subject to annual review through the Township's normal capital budget process.

I INTRODUCTION

The *Development Charges Act, 1997 (DCA)* and its associated *Ontario Regulation 82/98 (O. Reg. 82/98)* allow municipalities in Ontario to recover development-related capital costs from new development. The Township of Essa Development Charges Background Study is presented as part of a process to establish development charges by-law that complies with this legislation.

The anticipated growth in Essa will increase demand on all Township services. The Township wishes to continue imposing development charges to fund capital projects related to growth in Essa so that development continues to be serviced in a fiscally responsible manner.

When a development charges by-law is proposed, the *DCA* and *O. Reg. 82/98* require that a development charges background study be prepared in support of the proposed changes with reference to:

- A forecast of the amount, type and location of development anticipated in the Township;
- The average capital service levels provided in the Township over the ten-year period immediately preceding the preparation of the background study;
- A review of future capital projects, including an analysis of gross expenditures, funding sources, and net expenditures incurred, or to be incurred, by the Township or its local boards to provide for the expected development, including the determination of the growth and non-growth-related components of the capital projects;
- An examination of the long-term capital and operating costs for the capital infrastructure required for each service to which the development charges by-laws would relate; and
- An asset management plan to deal with all assets whose capital costs are proposed to be funded under the DC By-law are financially sustainable over their full life cycle.

This study identifies the development-related net capital costs attributable to development that is forecast to occur in the Township. The costs are apportioned to types of development (residential and non-residential) in a manner that reflects the

increase in the need for each service attributable to each type of development. The study therefore calculates development charges for each type of development.

The *DCA* provides for a period of public review and comment regarding the calculated development charges. This process includes considering and responding to comments received by members of the public about the calculated charges. Following completion of this process, and in accordance with the *DCA* and Council's review of this study, it is intended that Council will pass new development charges for the Township.

The remainder of this study sets out the information and analysis upon which the calculated development charges are based.

Section II designates the services for which the development charges are calculated and the areas within the Township to which the development charges will apply. It also briefly reviews the methodologies that have been used in this background study.

Section III presents a summary of the forecast residential and non-residential development which is expected to occur within the Township over two planning periods; a ten-year period from 2018 to 2027, and the period from 2018 to build-out.

Section IV summarizes the ten-year historical average capital service levels that have been attained in the Township which form the basis for the development charges calculations.

In Section V, the development-related capital forecast that has been developed by various Township departments is reviewed.

Section VI summarizes the calculation of applicable development charges and the resulting calculated development charges by class and type of development. This section also provides a comparison of calculated total development charges rates for the Township with those rates currently imposed.

Section VII provides an examination of the long term capital and operating costs for each service included in the development charge calculation.

Section VIII presents an Asset Management Plan for the City, demonstrating financial sustainability of assets over the life cycle of the 2018 Development Charges By-law and satisfying the new requirements implicated by the amendment to the *Development Charges Act*.

Section IX provides a discussion of other issues and considerations including by-law rules and policies, and the Township's local service definitions.

II THE METHODOLOGY USES A TOWNSHIP-WIDE AND AN AREA-SPECIFIC APPROACH TO ALIGN DEVELOPMENT-RELATED COSTS AND BENEFITS

Several key steps are required when calculating any development charge. However, specific circumstances arise in each municipality which must be reflected in the calculation. In this study, therefore, we have tailored our approach to the Township of Essa's unique circumstances. The approach to the calculated development charges is focused on providing a reasonable alignment of development-related costs with the growth that necessitates them. This study combines a Township-wide approach for certain services and an area-specific approach for water and wastewater services. The approach used herein is consistent with Essa's 2013 Development Charges Background Study.

A. BOTH TOWNSHIP-WIDE AND AREA-SPECIFIC DEVELOPMENT CHARGES ARE PROPOSED

The *DCA* provides municipalities with flexibility to define services that will be included in the development charges by-laws, provided that its other provisions, as well as those of *O. Reg. 82/98*, are met. The *DCA* also requires that the by-laws designate the areas within which they shall be imposed. The development charges may apply to all lands in a municipality or to other designated development areas as specified in the by-laws.

1. Services Based on a Township-Wide Approach

For the general and roads and related services, a range of capital infrastructure is available throughout the Township. All Township residents and employees have access to this infrastructure. As new development occurs, new infrastructure will need to be added so that overall service levels in the Township do not decline. A widely accepted method of sharing the development-related capital costs for such Township services is to apportion them over all new growth anticipated in the Township.

The following services are included in the Township-wide development charges calculations:

- Library Services
- Fire Services
- Police Services
- Parks and Recreation
- Public Works and Fleet

- General Government
- Roads and Related

These services form a reasonable basis in which to plan and administer the Township-wide development charges. It is noted that the analysis of each of these services examines the individual capital facilities and equipment that constitute it. The resulting development charges for these services would be imposed against all development anywhere in the Township.

2. Area-Specific Charges Are Proposed

For some services, the Township provides, the need for growth-related capital additions to support anticipated development is more localized. For such services where costs and benefits are more localized, an alternative technique – the area-specific approach – is employed. The area-specific charges relate to the provision of water supply and distribution, and sewage treatment collection in Angus, and also water supply and distribution in Thornton. It should also be noted that the Angus sewer charge will apply to new development in the Baxter Service Area. The area-specific charges are consistent with the Township’s existing development charges for such works. The water distribution and sewage collection systems require different additional, identifiable and independent projects in order to provide for anticipated growth. The area-specific approach is applied to water and sewer services to more closely align the capital costs for these services with the particular areas that will be serviced by the required infrastructure.

Special area-specific development charges are therefore calculated for:

- Water and Sewer Services (Angus)
- Water Services (Thornton)
- Sewer Services (Angus charge in Baxter)

The area-specific approach for these services reflects the fact that the demand for, and benefit from, the projects is much more localized than that for other Township services. Area-specific charges result in a more accurate distribution of costs among developers than the Township-wide approach. The included geographic areas coincide with the specific services areas for each water and sewer project. The area-specific approach also facilitates front-end financing arrangements for the designated services if the Township chooses to use the front-ending provisions of the *DCA*. As an alternative, the area-specific charges also facilitate the use of developer group agreements.

B. KEY STEPS WHEN DETERMINING DEVELOPMENT CHARGES FOR FUTURE DEVELOPMENT-RELATED PROJECTS

Several key steps are required when calculating development charges for future development-related projects. They are summarized below.

1. Development Forecast

The first step in the methodology requires that a development forecast be prepared for the ten-year study period from 2018 to 2027, and to build-out or ultimate development in 2031. The forecast of the future residential and non-residential development used in this study is based on available land and discussions with Township staff.

For the residential portion of the forecast, the total Census change in population determines the need for additional facilities and provides the foundation for the development-related capital forecast.

The non-residential portion of the forecast estimates the amount of building space to be developed in the Township over the planning periods. The forecast is based on the projected increase in employment levels and the anticipated amount of new building space required to accommodate it.

2. Service Categories and Historical Service Levels

The *DCA* states that the increase in the need for service attributable to anticipated development:

... must not include an increase that would result in the level of service exceeding the average level of that service provided in the Township over the 10-year period immediately preceding the preparation of the background study...(s. 5. (1) 4.)

Historical ten-year average service levels thus form the basis for the development charges calculation. A review of the Township's capital service levels for buildings, land, vehicles, equipment and others has therefore been prepared as a reference for the calculation so that the portion of future capital projects that may be included in the development charges can be determined. The historical service levels used in this study have been calculated based on the period from 2008 to 2017.

For the engineered services of water and wastewater, historical service levels are less applicable and reference is made to the Township's engineering standards as well as provincial health or environmental requirements.

3. Development-Related Capital Forecast and Analysis of Net Capital Costs to Be Included in the Development Charges

A development-related capital forecast has been prepared by Township staff as part of the study. The forecast identifies development-related projects and their gross and net costs, after allowing for capital grants, subsidies or other contributions as required by the *DCA* s.5.(2). The capital forecast provides another cornerstone upon which development charges are based. The *DCA* requires that the increase in the need for service attributable to the anticipated development may include an increase:

... only if the council of the Township has indicated that it intends to ensure that such an increase in need will be met. (s. 5. (1) 3.)

In conjunction with *DCA* S. 5. (1) 4. and s. 5. (2)., these sections have the effect of requiring that the development charges be calculated on the lesser of the historical ten-year average service levels or the service levels embodied in the future plans of the Township. The development-related capital forecast prepared for this study ensures that development charges are only imposed to help pay for projects that have been or are intended to be purchased or built in order to accommodate future anticipated development. It is not sufficient in the calculation of development charges merely to have had the service in the past. There must also be a demonstrated commitment to continue to emplace facilities or infrastructure in the future. In this regard, *Ontario Regulation 82/98*, s. 3 states that:

For the purposes of paragraph 3 of subsection 5 (1) of the Act, the council of a Township has indicated that it intends to ensure that an increase in the need for service will be met if the increase in service forms part of an official plan, capital forecast or similar expression of the intention of the council and the plan, forecast or similar expression of the intention of the council has been approved by the council.

For some projects in the development-related capital forecast, a portion of the project may confer benefits to existing residents. As required by the *DCA*, s. 5. (1) 6., these portions of projects and their associated net costs are the funding responsibility of the Township from non-development charges sources. The amount of funding for such non-growth shares of projects is also identified as part of the preparation of the development-related capital forecast.

There is also a requirement in the *DCA* to reduce the applicable development charges by the amount of any “uncommitted excess capacity” that is available for a service. Such capacity is available to partially meet the future servicing requirements. Adjustments are made in the analysis to meet this requirement of the Act.

Finally, in calculating development charges, the development-related net capital costs must be reduced by 10 per cent for all services except engineered services, emergency services and services related to a highway (*DCA*, s. 5. (1) 8). The 10 per cent discount is applied to the other services, e.g. Library, Parks and Recreation, General Government and the resulting financing responsibility from non-development charges sources is identified.

4. Attribution to Types of Development

The next step in the determination of development charges is the allocation of the development-related net capital costs between the residential and the non-residential sectors. In the Township of Essa, the allocation is based on the projected changes in population and employment over the planning periods, anticipated demand for services and other relevant factors.

The residential component of the development charges is applied to different housing types based on average occupancy factors. The non-residential component is applied on the basis of gross building space in square metres.

The area-specific development charges in Thornton are apportioned based on those shares identified through the Thornton capacity review and servicing documents.

5. Final Adjustment

The final determination of the development charges results from adjustments made to development-related net capital costs for each service and sector resulting from a cash flow analysis that takes account of the timing of projects and receipt of development charges. Interest earnings or borrowing costs are therefore accounted for in the calculation as allowed under the *DCA*.

III DEVELOPMENT FORECAST

The *Development Charges Act (DCA)* requires the Township to estimate “the anticipated amount, type and location of development” for which development charges may be imposed. The development forecast must cover both residential and non-residential development and be specific enough with regards to quantum, type, location and timing of development to allow the Township to prepare a reasonable development-related capital program.

The ten-year Township-wide forecast is utilized for the “general” and roads and related services. It is anticipated that the Township will add roughly 100 new residential units per year (1,000 units to 2027), which can accommodate a population of 2,990 in these new dwelling units. In the same planning horizon, it is anticipated that the Townships will see a total GFA growth of 47,000 square metres of new non-residential building space with an accompanying employment growth of 827.

The residential forecast for the Angus Sewer Service Area is also shown on Table and represents a build-out scenario. The growth in households includes the unit potential in Angus and Baxter, but excludes those in Thornton and the Rural areas of the Township. The new development in Baxter will be benefitting from the existing sewer capacity in the Angus wastewater treatment plant and therefore are included in the Angus Sewer Service Area forecast. In summary, it is anticipated that there is a unit potential of 917 residential units that will develop in either Angus or Baxter. It is also anticipated that a population of 2,730 persons will be accommodated within those new units.

The residential forecast for the Angus Water Service Area has the same build-out time frame as the Angus Sewer Service Area. The difference is this service area excludes the unit potential in Baxter (in addition to Thornton and the Rural areas of the Township). Therefore, only the unit potential in Angus is included in this forecast. It is anticipated that the Angus Water Service Area has a unit potential of 667 units that will accommodate a population growth of 1,950 persons in those units.

There is relatively little remaining land supply for Thornton, though there remains a residential supply of 37 single or semi-detached units, which translates into a population in new units of 116 persons.

Table 1 provides a summary of the residential and non-residential growth forecast used in this analysis.

TABLE 1

**TOWNSHIP OF ESSA
SUMMARY OF RESIDENTIAL AND NON-RESIDENTIAL
DEVELOPMENT FORECAST**

	2018 - 2027	2018 - Build-out		
	Township-Wide Growth	Angus Sewer Service Area	Angus Water Service Area	Thornton Water Service Area
Service Areas	Angus, Thornton, Baxter and Rural Areas	Angus and Baxter	Angus	Thornton
Household Growth	1,000	917	667	37
Population Growth in New Households	2,990	2,730	1,950	116
Employment Growth	827	1,141	1,141	16
New Non-residential Building Space (sq.m)	47,000	64,991	64,991	809

IV SUMMARY OF HISTORICAL CAPITAL SERVICE LEVELS

The *DCA* and *O. Reg. 82/98* require that the development charges be set at a level no higher than the average service level provided in the Township over the ten-year period immediately preceding the preparation of the background study, on a service-by-service basis.

For non-engineered services (Library Services, Parks and Recreation, etc.) the legislative requirement is met by documenting service levels for the preceding ten years, in this case, for the period 2008 to 2017. Typically, service levels for non-engineered services are measured as a ratio of inputs per capita or inputs per population and employment. With engineered services such as water and sewer, engineering standards are used in lieu of inputs per capita.

O. Reg. 82/98 requires that when defining and determining historical service levels both the quantity and quality of service be taken into consideration. In most cases, the service levels are initially established in quantitative terms. For example, service levels for buildings are presented in terms of square feet per unit. The qualitative aspect is introduced by consideration of the monetary value of a facility or service. In the case of buildings, for example, the cost would be shown in terms of dollars per square foot to replace or construct a facility of the same quality. This approach helps to ensure that the development-related capital facilities that are to be charged to new growth reflect not only the quantity (number and size) but also the quality (value or cost) of services provided by the Township in the past. Both the quantitative and qualitative aspects of service levels used in the current analysis are based on information provided by Township staff. This information is generally based on historical records and the Township's and surrounding municipalities' experience with costs to acquire or construct similar facilities, equipment and infrastructure.

Table 2 summarizes service levels for all services included in the development charges calculations. Appendix B provides detailed historical inventory data upon which the calculation of service levels is based for the general and roads and related services.

TABLE 2

**TOWNSHIP OF ESSA
SUMMARY OF AVERAGE HISTORIC SERVICE LEVELS 2008 - 2017**

Service	2008 - 2017 Service Level Indicator
1.0 LIBRARY SERVICES	\$288.04 per capita
Buildings	\$121.46 per capita
Land	\$42.08 per capita
Materials	\$109.51 per capita
Furniture And Equipment	\$14.99 per capita
2.0 FIRE SERVICES	\$675.50 per pop. & emp.
Buildings	\$222.07 per pop. & emp.
Land	\$47.18 per pop. & emp.
Furniture & Equipment	\$37.12 per pop. & emp.
Vehicles	\$369.13 per pop. & emp.
3.0 POLICE SERVICES	\$66.56 per pop. & emp.
Buildings	\$34.53 per pop. & emp.
Land	\$19.41 per pop. & emp.
Furniture & Equipment	\$12.62 per pop. & emp.
4.0 PARKS AND RECREATION	\$2,045.54 per capita
Major Facilities & Land	\$1,762.35 per capita
Parkland	\$82.60 per capita
Park Facilities	\$181.86 per capita
Vehicles and Special Facilities	\$18.73 per capita
5.0 PUBLIC WORKS AND FLEET	\$367.68 per pop. & emp.
Buildings	\$136.42 per pop. & emp.
Land	\$19.03 per pop. & emp.
Furniture & Equipment	\$0.11 per pop. & emp.
Fleet & Equipment	\$212.12 per pop. & emp.
6.0 ROADS AND RELATED	\$4,063.34 per pop. & emp.
Roads	\$3,692.75 per pop. & emp.
Bridges & Culverts	\$370.59 per pop. & emp.

V DEVELOPMENT-RELATED CAPITAL FORECAST

The *DCA* requires that the Council of a Township express its intent to provide future capital facilities at the level incorporated in the development charges calculation. As noted above in Section II, *Ontario Regulation 82/98, s. 3* states that:

For the purposes of paragraph 3 of subsection 5 (1) of the Act, the council of a Township has indicated that it intends to ensure that an increase in the need for service will be met if the increase in service forms part of an official plan, capital forecast or similar expression of the intention of the council and the plan, forecast or similar expression of the intention of the council has been approved by the council.

A. DEVELOPMENT-RELATED CAPITAL FORECAST IS PROVIDED FOR COUNCIL'S APPROVAL

Based on the development forecasts summarized in Section III and detailed in Appendix A, Township staff, in collaboration with the consultant has developed a development-related capital forecast which sets out those projects that are required to service anticipated growth. For all general and roads and related services, the capital plan covers the ten-year period from 2018 to 2027. As permitted by the *DCA* s. 5(1) 4., the development charge for the engineering services is based on a longer planning horizon.

One of the recommendations contained in this background study is for Council to adopt the development-related capital forecast developed for the purposes of the development charges calculation. It is assumed that future capital budgets and forecasts will continue to bring forward the capital projects presented here as they will be needed to service the anticipated growth in the Township. It is, however, acknowledged that changes to the forecast presented here may occur through the Township's normal capital budget process.

B. THE DEVELOPMENT-RELATED CAPITAL FORECAST FOR GENERAL AND ROADS AND RELATED SERVICES

A summary of the development-related capital forecast for general services is presented in Table 3. The table shows that the gross cost of the Township's capital forecast is estimated to be \$39.07 million. No upper-tier government grants are

anticipated in the ten-year planning period and, thus, the full amount of the capital program is brought forth for the development charges consideration.

Of this \$39.07 million net capital cost, approximately 60 per cent, or \$23.28 million is related to capital works for Roads and Related projects. Capital projects include urbanization to various roads, intersection signalizations, development-related studies, as well as a replacement and widening of Bridge nine.

The next largest capital program belongs to Parks and Recreation. This capital program totals \$7.57 million and includes the expansion of space at the Thornton arena, a provision for new recreation space in Angus and additional parks and outdoor recreation amenities.

The capital program for Fire Services includes for the expansion of space at Stations 1 and 2. Additional vehicles and associated equipment are also included for a total capital program of \$6.24 million.

The capital program associated with Public Works amounts to \$1.07 million to provide for the addition of various fleet.

The Library Services capital program amounts to \$435,100, which includes collection material acquisitions, the repayment of debt associated with the Angus Branch as well as the expansion of space at the Thornton Branch.

The portion of the Township's program which relates to the provision of development-related studies is referred to as General Government which amounts to \$229,000. The remainder of the Township's development-related capital program consists of \$247,600 for Police Services.

The capital forecast incorporates those projects identified to be related to development anticipated in the next ten years. It is not implied that all of these costs are to be recovered from new development by way of development charges (see the following Section VI). Portions of the capital forecast may be related to replacement of existing facilities, shares of projects that benefit the existing population, or growth anticipated to occur beyond the 2018 – 2027 planning period. In addition to these reductions, the amounts shown in Table 3 have not been reduced by ten per cent as required by *s. 5 (1)* of the *DCA*.

After these reductions, the remaining development-related capital costs are brought forward to the development charges calculation. Further details on the capital plans for each individual service category are available in Appendix B.

C. THE DEVELOPMENT-RELATED CAPITAL FORECAST FOR WATER AND SEWER SERVICES

Table 4 provides the development-related capital recoveries for water and sewer services. The development-related costs associated with water and sewer servicing are recovered on an area-specific basis; the two areas being Angus and Thornton.

The water and sewer area-specific costs for Angus are identified in the first section of Table 4. The Angus Servicing Area gross costs are made up of the water supply and distribution costs of \$4.11 million and sewage treatment of \$7.87 million, for a total of \$11.98 million. The sewer works are largely comprised of the repayment of the debt related to the Angus wastewater treatment plant expansion, and for new sludge management. The Thornton Servicing Area amounts to \$885,000 in costs.

The bottom section of Table 4 provides a summary of the engineered services capital program of \$12.86 million.

Details of the Water and Sewer capital program are included in Appendix C.

TOWNSHIP OF ESSA
SUMMARY OF DEVELOPMENT-RELATED CAPITAL PROGRAM
FOR TOWNSHIP-WIDE SERVICES 2018 - 2027
(in \$000)

Service	Gross Cost	Grants/ Subsidies	Municipal Cost	Total Net Capital Program									
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
1.0 LIBRARY SERVICES	\$435.1	\$0.0	\$435.1	\$38.4	\$38.4	\$63.4	\$235.0	\$10.0	\$10.0	\$10.0	\$10.0	\$10.0	\$10.0
1.1 Buildings, Land & Furnishings	\$335.1	\$0.0	\$335.1	\$28.4	\$28.4	\$53.4	\$225.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
1.2 Material Acquisitions	\$100.0	\$0.0	\$100.0	\$10.0	\$10.0	\$10.0	\$10.0	\$10.0	\$10.0	\$10.0	\$10.0	\$10.0	\$10.0
2.0 FIRE SERVICES	\$6,238.6	\$0.0	\$6,238.6	\$27.0	\$123.2	\$2,134.4	\$1,936.0	\$27.0	\$27.0	\$1,943.0	\$7.0	\$7.0	\$7.0
2.1 Buildings, Land & Furnishings	\$4,705.2	\$0.0	\$4,705.2	\$0.0	\$0.0	\$1,586.2	\$1,183.0	\$0.0	\$0.0	\$1,936.0	\$0.0	\$0.0	\$0.0
2.2 Vehicles	\$1,200.0	\$0.0	\$1,200.0	\$0.0	\$50.0	\$450.0	\$700.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
2.3 Equipment & Other	\$333.4	\$0.0	\$333.4	\$27.0	\$73.2	\$98.2	\$53.0	\$27.0	\$27.0	\$7.0	\$7.0	\$7.0	\$7.0
3.0 POLICE SERVICES	\$247.6	\$0.0	\$247.6	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8
3.1 Equipment	\$247.6	\$0.0	\$247.6	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8	\$24.8
4.0 PARKS AND RECREATION	\$7,574.0	\$0.0	\$7,574.0	\$1,050.0	\$424.0	\$200.0	\$450.0	\$950.0	\$575.0	\$3,325.0	\$200.0	\$200.0	\$200.0
4.1 Angus Arena and Recreation Centre	\$3,875.0	\$0.0	\$3,875.0	\$0.0	\$0.0	\$0.0	\$100.0	\$650.0	\$0.0	\$3,125.0	\$0.0	\$0.0	\$0.0
4.2 Thornton Arena and Recreation Centre	\$375.0	\$0.0	\$375.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$375.0	\$0.0	\$0.0	\$0.0	\$0.0
4.3 Equipment	\$64.0	\$0.0	\$64.0	\$0.0	\$64.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
4.4 Parks, Outdoor Recreation Facilities	\$3,260.0	\$0.0	\$3,260.0	\$1,050.0	\$360.0	\$200.0	\$350.0	\$300.0	\$200.0	\$200.0	\$200.0	\$200.0	\$200.0
5.0 PUBLIC WORKS AND FLEET	\$1,065.0	\$0.0	\$1,065.0	\$0.0	\$180.0	\$300.0	\$180.0	\$225.0	\$0.0	\$0.0	\$180.0	\$0.0	\$0.0
5.1 Fleet	\$1,065.0	\$0.0	\$1,065.0	\$0.0	\$180.0	\$300.0	\$180.0	\$225.0	\$0.0	\$0.0	\$180.0	\$0.0	\$0.0
6.0 GENERAL GOVERNMENT	\$229.0	\$0.0	\$229.0	\$74.0	\$15.0	\$45.0	\$10.0	\$45.0	\$5.0	\$0.0	\$0.0	\$0.0	\$35.0
6.1 Development-Related Studies	\$229.0	\$0.0	\$229.0	\$74.0	\$15.0	\$45.0	\$10.0	\$45.0	\$5.0	\$0.0	\$0.0	\$0.0	\$35.0
7.0 ROADS AND RELATED	\$23,280.0	\$0.0	\$23,280.0	\$2,000.0	\$1,450.0	\$4,660.0	\$930.0	\$1,390.0	\$1,900.0	\$1,700.0	\$2,900.0	\$400.0	\$5,950.0
7.1 Road Projects	\$19,005.0	\$0.0	\$19,005.0	\$1,200.0	\$1,400.0	\$1,660.0	\$730.0	\$1,365.0	\$1,700.0	\$1,700.0	\$2,900.0	\$400.0	\$5,950.0
7.2 Other Works	\$4,275.0	\$0.0	\$4,275.0	\$800.0	\$50.0	\$3,000.0	\$200.0	\$25.0	\$200.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL - 10 YEAR TOWNSHIP-WIDE SERVICES	\$39,069.3	\$0.0	\$39,069.3	\$3,214.1	\$2,255.3	\$7,427.5	\$3,765.8	\$2,671.8	\$2,541.8	\$7,002.8	\$3,321.8	\$641.8	\$6,226.8

TABLE 4

**TOWNSHIP OF ESSA
SUMMARY OF DEVELOPMENT-RELATED CAPITAL PROGRAM
FOR ENGINEERED SERVICES 2018 - BUILD-OUT
(in \$000)**

Service	Gross Cost	Grants/ Subsidies	Municipal Cost
1.0 ANGUS SERVICING AREA¹	\$11,977.8	\$0.0	\$11,977.8
1.1 Water Supply and Distribution	\$4,111.3	\$0.0	\$4,111.3
1.2 Sewage Treatment and Collection	\$7,866.6	\$0.0	\$7,866.6
2.0 THORNTON SERVICING AREA	\$885.0	\$0.0	\$885.0
2.1 Water Supply and Distribution	\$885.0	\$0.0	\$885.0
TOTAL - ENGINEERED SERVICES CAPITAL PROGRAM	\$12,862.8	\$0.0	\$12,862.8

1. New Development in Baxter will benefit from existing capacity available in the Angus Waste Water Treatment Plant. New units in Baxter will be levied the Angus Sewer charge.

VI DEVELOPMENT CHARGES ARE CALCULATED IN ACCORDANCE WITH THE *DEVELOPMENT CHARGES ACT*

This section summarizes the calculation of development charges for each service category and the resulting total development charge by type of development. For all services, the calculation of the “unadjusted” per capita (residential) and per square metre (non-residential) charges is reviewed. Adjustments to these amounts resulting from a cash flow analysis that accounts for interest earnings and borrowing costs are also discussed.

For residential development, an adjusted total per capita amount is applied to different housing types on the basis of average occupancy factors. For non-residential development, the calculated development charges rates are based on gross floor area (GFA) of building space.

It is noted that the calculation of the development charges does not include any provision for exemptions required under the *DCA*, for example, the exemption for enlargements of up to 50 per cent on existing industrial buildings. Such legislated exemptions, or other exemptions which Council may choose to provide, will result in a loss of development charges revenue for the affected types of development. Any such revenue loss may not be offset by increasing other portions of the calculated charge.

A. DEVELOPMENT CHARGES CALCULATION

A summary of the “unadjusted” residential and non-residential development charges for the Township-wide services is presented in Table 5. Further details of the calculation for each individual general service category are available in Appendix B.

1. Township-Wide Services

The capital forecast for general and roads and related services incorporates those projects identified to be related to growth anticipated in the next ten years. However, not all of the capital costs are to be recovered from new development by way of development charges. Table 5 shows that \$8.35 million of the capital forecast relates to replacement of existing capital facilities or to shares of projects that provide benefit to the existing community. These portions of capital costs would have to be funded from fundraising, property taxes and other non-development charges revenue sources.

An additional share of \$11.42 million has been identified as prior growth and represents the revenues collected from previous development charges. This portion has been netted out of the chargeable capital costs. Another share of the forecast, \$2.05 million, is either attributable to growth beyond the 2027 period (and can therefore only be recovered under future development charges studies) or represents a service level increase in the Township.

The *DCA, s. 5 (1) 8*, requires that development-related net capital costs for “soft” services be reduced by 10 per cent in calculating the applicable development charges for these services. The 10 per cent share of development-related net capital costs not included in the development charges calculations must be funded from non-development charges sources. In total, about \$767,600 is identified as the required 10 per cent reduction.

The remaining \$16.49 million is carried forward to the development charges calculation as a development-related cost. Of the development-related cost, \$13.40 million has been allocated to new residential development, and \$3.08 million has been allocated to new non-residential development. This results in a charge of \$4,482.82 per capita and \$65.58 per square metre for the provision of Township-wide services.

2. Area-Specific Services

Table 6 displays the development-related capital forecast for Water and Sewer Services in Angus and Thornton from 2018 to build-out. The net cost of the water and sewer capital program amounts to \$12.86 million; however, the Township has \$8.18 million in available DC reserve funds to offset the cost of the program and is removed from the development charges calculation. In addition, \$434,300 of the works is deemed to benefit the existing population and, as such, is also removed from the development charges calculation. The net capital cost after these deductions is \$4.25 million, of which \$2.85 million is allocated to benefit the future residential population and \$1.40 million is allocated to non-residential development.

For sewer service in Angus, the net development-related capital cost brought forward to the development charges calculation amounts to \$1.70 million. The capital cost is allocated 70 per cent, or \$1.19 million, against residential development, and 30 per cent, or \$508,800, against non-residential development. The resulting unadjusted development charge is \$434.83 per capita and \$7.83 per square metre. It should be noted that the Angus sewer charge will be levied upon new development in the Baxter Service Area.

Water service in Angus is calculated in a similar manner. The development-related costs of \$2.13 million are allocated 63 per cent, or \$1.34 million against residential development, and 37 per cent, or \$788,200 against non-residential development. This yields a charge per capita of \$688.22 per capita and \$12.13 per square metre.

Table 6 also displays the water servicing costs in Thornton. The total cost of the works is \$885,000, of which \$427,500 is considered development-related. The costs associated with the capital program are allocated 76 per cent, or \$325,400 against residential development and 24 per cent, or \$102,100 against non-residential development. This results in development charges of \$2,809.58 per capita and \$126.14 per square metre. Full details regarding water and sewer service can be found in Appendix C.

3. Adjusted Residential and Non-Residential Development Charge Rates

Final adjustments to the “unadjusted” development charges rates are made through a cash flow analysis. The analysis, details of which are included in Appendix B for general and roads and related services, Appendix C for water and wastewater services, considers the borrowing cost and interest earnings associated with the timing of expenditures and development charges receipts for each service category. Table 7 summarizes the results of the cash flow adjustments for the residential development charges rates. As shown, the adjusted per capita rate in the Angus Service Area decreases by \$34.27, from \$5,605.87 per capita to \$5,571.60 per capita after the cash flow analysis. Table 7 also provides the calculated rates by residential unit with the total charge per unit ranging from a high of \$17,440 per unit for a fully serviced single- and semi-detached unit in Angus to a low of \$7,801 for a bachelor or 1 bedroom apartment unit. The charge for singles and semi-detached units in Thornton is \$22,719 for a single/semi detached unit receiving water service.

As illustrated in Table 8, the non-residential charge also experiences a slight decrease after cash flow considerations from \$85.54 to \$85.06 per square metre.

B. COMPARISON OF 2018 NEWLY CALCULATED DEVELOPMENT CHARGES WITH CHARGES CURRENTLY IN FORCE IN ESSA

Tables 9 and 10 present a comparison of the newly calculated residential and non-residential development charges with currently imposed development charge rates. It demonstrates that the residential development charge rate for a single- or semi-detached unit in Angus decreases by \$2,172 per unit, or 11 per cent. For the same sized unit in Thornton, the charge increased by \$5,309 per unit, or by 30%. The increase in Thornton can be attributed to the additional infrastructure costs required to service the new development.

The current development charges rate for non-residential development in Angus decreases by \$13.95 per square metre, or 14 per cent to and increases in Thornton by \$94.37 per square metre, or 97 per cent to \$191.24 per square metre.

TOWNSHIP OF ESSA
SUMMARY OF UNADJUSTED RESIDENTIAL AND NON-RESIDENTIAL DEVELOPMENT CHARGES
10-YEAR CAPITAL PROGRAM FOR TOWNSHIP-WIDE SERVICES

10 Year Growth in Population in New Units	2,990
10 Year Growth in Square Metres	47,000

Service	Development-Related Capital Program (2018 - 2027)						Residential Share		Non-Residential Share	
	Net Municipal Cost	Replacement & Benefit to Existing	Required Service Discount	Available DC Reserves	Post-2027 Benefit	Total DC Eligible Costs for Recovery	%	(\$000)	%	(\$000)
	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)				
1.0 LIBRARY SERVICES	\$435.1	\$0.0	\$43.5	\$54.6	\$0.0	\$336.9	100%	\$336.9	0%	\$0.00
Unadjusted Development Charge Per Capita								\$112.68		
Unadjusted Development Charge Per Sq.M										\$0.00
2.0 FIRE SERVICES	\$6,238.6	\$1,046.0	\$0.0	\$632.3	\$2,047.7	\$2,512.6	78%	\$1,959.8	22%	\$552.77
Unadjusted Development Charge Per Capita								\$655.46		
Unadjusted Development Charge Per Sq.M										\$11.76
3.0 POLICE SERVICES	\$247.6	\$0.0	\$0.0	\$219.5	\$0.0	\$28.0	78%	\$21.9	22%	\$6.17
Unadjusted Development Charge Per Capita								\$7.32		
Unadjusted Development Charge Per Sq.M										\$0.13
4.0 PARKS AND RECREATION	\$7,574.0	\$550.0	\$702.4	\$4,182.7	\$0.0	\$2,138.9	100%	\$2,138.9	0%	\$0.00
Unadjusted Development Charge Per Capita								\$715.35		
Unadjusted Development Charge Per Sq.M										\$0.00
5.0 PUBLIC WORKS AND FLEET	\$1,065.0	\$0.0	\$0.0	\$309.1	\$0.0	\$755.9	78%	\$589.6	22%	\$166.29
Unadjusted Development Charge Per Capita								\$197.18		
Unadjusted Development Charge Per Sq.M										\$3.54
6.0 GENERAL GOVERNMENT	\$229.0	\$12.0	\$21.7	\$174.9	\$0.0	\$20.4	78%	\$15.9	22%	\$4.49
Unadjusted Development Charge Per Capita								\$5.32		
Unadjusted Development Charge Per Sq.M										\$0.10
7.0 ROADS AND RELATED	\$23,280.0	\$6,745.0	\$0.0	\$5,841.9	\$0.0	\$10,693.1	78%	\$8,340.6	22%	\$2,352.49
Unadjusted Development Charge Per Capita								\$2,789.51		
Unadjusted Development Charge Per Sq.M										\$50.05
TOTAL 10 YEAR TOWNSHIP-WIDE SERVICES	\$39,069.3	\$8,353.0	\$767.6	\$11,415.1	\$2,047.7	\$16,485.9		\$13,403.6		\$3,082.2
Unadjusted Development Charge Per Capita								\$4,482.82		
Unadjusted Development Charge Per Sq.M										\$65.58

TOWNSHIP OF ESSA
SUMMARY OF UNADJUSTED RESIDENTIAL AND NON-RESIDENTIAL DEVELOPMENT CHARGES
CAPITAL PROGRAM FOR ENGINEERED SERVICES

Angus Water	
Build-Out Growth in Population in New Units	1,950
Build-Out Growth in Square Metres	64,991
Angus Sewer	
Build-Out Growth in Population in New Units	2,730
Build-Out Growth in Square Metres	64,991
Thornton Water	
Build-Out Growth in Population in New Units	116
Build-Out Growth in Square Metres	809

Service	Development-Related Capital Program (2018 - Build-Out)					Residential Share		Non-Residential Share	
	Net Municipal Cost (\$000)	Replacement & Benefit to Existing (\$000)	Available DC Reserves (\$000)	Post-Period Benefit (\$000)	Total DC Eligible Costs for Recovery (\$000)	%	(\$000)	%	(\$000)
1.0 ANGUS WATER	\$4,111.3	\$0.0	\$1,981.1	\$0.0	\$2,130.2	63%	\$1,342.0	37%	\$788.17
Unadjusted Development Charge Per Capita							\$688.22		
Unadjusted Development Charge Per Sq.M									\$12.13
2.0 ANGUS SEWER¹	\$7,866.6	\$3.9	\$6,166.9	\$0.0	\$1,695.9	70%	\$1,187.1	30%	\$508.76
Unadjusted Development Charge Per Capita							\$434.83		
Unadjusted Development Charge Per Sq.M									\$7.83
3.0 THORNTON WATER	\$885.0	\$430.4	\$27.1	\$0.0	\$427.5	76%	\$325.4	24%	\$102.10
Unadjusted Development Charge Per Capita							\$2,809.58		
Unadjusted Development Charge Per Sq.M									\$126.14
TOTAL ENGINEERED SERVICES	\$12,862.8	\$434.3	\$8,175.0	\$0.0	\$4,253.5		\$2,854.5		\$1,399.0

1. New Development in Baxter will benefit from existing capacity available in the Angus Waste Water Treatment Plant. New units in Baxter will be levied the Angus Sewer charge.

TABLE 7

**TOWNSHIP OF ESSA
2018 DEVELOPMENT CHARGES STUDY
RESIDENTIAL DEVELOPMENT CHARGES BY UNIT TYPE**

Service	Unadjusted Charge Per Capita	Adjusted Charge Per Capita	Residential Charge By Unit Type (1)			
			Singles & Semis	Rows & Other Multiples	Apartments 2+ Bedrooms	Apartments Bachelor or 1 Bedroom
Library Services	\$112.68	\$118.85	\$372	\$333	\$226	\$166
Fire Services	\$655.46	\$705.65	\$2,209	\$1,976	\$1,341	\$988
Police Services	\$7.32	\$6.92	\$22	\$19	\$13	\$10
Parks And Recreation	\$715.35	\$703.15	\$2,201	\$1,969	\$1,336	\$984
Public Works And Fleet	\$197.18	\$202.62	\$634	\$567	\$385	\$284
General Government	\$5.32	\$5.05	\$16	\$14	\$10	\$7
Subtotal General Services	\$1,693.31	\$1,742.24	\$5,454	\$4,878	\$3,311	\$2,439
Roads And Related	\$2,789.51	\$2,706.31	\$8,471	\$7,578	\$5,142	\$3,789
Total Township-wide Charge	\$4,482.82	\$4,448.55	\$13,925	\$12,456	\$8,453	\$6,228

Angus Service Area						
Township-wide Charge	\$4,482.82	\$4,448.55	\$13,925	\$12,456	\$8,453	\$6,228
Angus Sewer	\$434.83	\$434.83	\$1,361	\$1,218	\$826	\$609
Angus Water	\$688.22	\$688.22	\$2,154	\$1,927	\$1,308	\$964
Total Serviced Charge in Angus	\$5,605.87	\$5,571.60	\$17,440	\$15,601	\$10,587	\$7,801

Thornton Service Area						
Township-wide Charge	\$4,482.82	\$4,448.55	\$13,925	\$12,456	\$8,453	\$6,228
Thornton Water	\$2,809.58	\$2,809.58	\$8,794	\$7,867	\$5,338	\$3,933
Total Serviced Charge in Thornton	\$7,292.41	\$7,258.13	\$22,719	\$20,323	\$13,791	\$10,161

Baxter Service Area						
Township-wide Charge	\$4,482.82	\$4,448.55	\$13,925	\$12,456	\$8,453	\$6,228
Baxter Sewer (provided by Angus)	\$434.83	\$434.83	\$1,361	\$1,218	\$826	\$609
Total Serviced Charge in Baxter	\$4,917.66	\$4,883.38	\$15,286	\$13,674	\$9,279	\$6,837

(1) Based on Persons Per Unit Of:	3.13	2.80	1.90	1.40
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TABLE 8

**TOWNSHIP OF ESSA
2018 DEVELOPMENT CHARGES STUDY
NON-RESIDENTIAL DEVELOPMENT CHARGES PER SQUARE METRE**

Service	Unadjusted Charge Per Square Metre	Adjusted Charge Per Square Metre
Library Services	\$0.00	\$0.00
Fire Services	\$11.76	\$12.67
Police Services	\$0.13	\$0.13
Parks And Recreation	\$0.00	\$0.00
Public Works And Fleet	\$3.54	\$3.64
General Government	\$0.10	\$0.10
Subtotal General Services	\$15.53	\$16.54
Roads And Related	\$50.05	\$48.56
Total Township-wide Charge	\$65.58	\$65.10

Angus Service Area		
Township-wide Charge	\$65.58	\$65.10
Angus Sewer	\$7.83	\$7.83
Angus Water	\$12.13	\$12.13
Total Serviced Charge in Angus	\$85.54	\$85.06

Thornton Service Area		
Township-wide Charge	\$65.58	\$65.10
Thornton Water	\$126.14	\$126.14
Total Serviced Charge in Thornton	\$191.72	\$191.24

Baxter Service Area		
Township-wide Charge	\$65.58	\$65.10
Baxter Sewer (provided by Angus)	\$7.83	\$7.83
Total Serviced Charge in Baxter	\$73.41	\$72.93

TABLE 9

**TOWNSHIP OF ESSA
COMPARISON OF CURRENT AND CALCULATED
RESIDENTIAL DEVELOPMENT CHARGES**

Service	Residential (\$/Single or Semi-Detached Unit)		
	Current Residential Charge	Calculated Residential Charge	Difference in Charge
Library Services	\$307	\$372	\$65
Fire Services	\$507	\$2,209	\$1,702
Police Services	\$97	\$22	(\$75)
Parks And Recreation	\$3,280	\$2,201	(\$1,079)
Public Works And Fleet	\$371	\$634	\$263
General Government	\$105	\$16	(\$89)
Subtotal General Services	\$4,668	\$5,454	\$786
Roads And Related	\$7,223	\$8,471	\$1,248
Total Township-wide Charge	\$11,891	\$13,925	\$2,034
Angus Service Area			
Township-wide Charge	\$11,891	\$13,925	\$2,034
Angus Sewer	\$3,785	\$1,361	(\$2,424)
Angus Water	\$3,936	\$2,154	(\$1,782)
Total Serviced Charge in Angus	\$19,612	\$17,440	(\$2,172)
Thornton Service Area			
Township-wide Charge	\$11,891	\$13,925	\$2,034
Thornton Water	\$5,519	\$8,794	\$3,275
Total Serviced Charge in Thornton	\$17,410	\$22,719	\$5,309
Baxter Service Area			
Township-wide Charge	\$11,891	\$13,925	\$2,034
Baxter Sewer (provided by Angus)	\$3,785	\$1,361	(\$2,424)
Total Serviced Charge in Baxter	\$15,676	\$15,286	(\$390)

TABLE 10

**TOWNSHIP OF ESSA
COMPARISON OF CURRENT AND CALCULATED
NON-RESIDENTIAL DEVELOPMENT CHARGES**

Service	Non-Residential (\$/Square Metre)		
	Current Non-Residential Charge	Calculated Non-Residential Charge	Difference in Charge
Library Services	\$0.00	\$0.00	\$0.00
Fire Services	\$3.13	\$12.67	\$9.54
Police Services	\$0.61	\$0.13	(\$0.48)
Parks And Recreation	\$0.00	\$0.00	\$0.00
Public Works And Fleet	\$2.29	\$3.64	\$1.35
General Government	\$0.65	\$0.10	(\$0.55)
Subtotal General Services	\$6.68	\$16.54	\$9.86
Roads And Related	\$44.57	\$48.56	\$3.99
Total Township-wide Charge	\$51.25	\$65.10	\$13.85
Angus			
Township-wide Charge	\$51.25	\$65.10	\$13.85
Angus Sewer	\$23.41	\$7.83	(\$15.58)
Angus Water	\$24.35	\$12.13	(\$12.22)
Total Serviced Charge in Angus	\$99.01	\$85.06	(\$13.95)
Thornton			
Township-wide Charge	\$51.25	\$65.10	\$13.85
Thornton Water	\$45.62	\$126.14	\$80.52
Total Serviced Charge in Thornton	\$96.87	\$191.24	\$94.37
Baxter			
Township-wide Charge	\$51.25	\$65.10	\$13.85
Baxter Sewer (provided by Angus)	\$23.41	\$7.83	(\$15.58)
Total Serviced Charge in Baxter	\$74.66	\$72.93	(\$1.73)

VII LONG-TERM CAPITAL AND OPERATING COSTS

This section provides a brief examination of the long-term capital and operating costs for the capital facilities and infrastructure to be included in the development charges by-law. This examination is required as one of the features of the *Development Charges Act, 1997*.

A. NET OPERATING COSTS FOR THE TOWNSHIP'S SERVICES TO INCREASE OVER THE FORECAST PERIOD

Table 11 summarizes the estimated increase in net operating costs that the Township will experience for additions associated with the planned capital program. The estimated changes in net operating costs are based on the financial information from the Township (additional details are included in Appendix E).

As shown in Table 11, by 2027 the Township's net operating costs are estimated to increase by about \$1.05 million. The most significant portion of this increase relates to the addition of parks and recreation indoor and outdoor facilities as well as the roads and related servicing.

B. LONG-TERM CAPITAL FINANCING FROM NON-DEVELOPMENT CHARGES SOURCES TOTALS \$9.12 MILLION

As discussed in Section VI, Table 11 also summarizes the components of the growth-related capital forecast that will require funding from non-development charges sources. Of the \$39.07 million net capital forecast, about \$9.12 million will need to be funded from non-development charges sources over the next 10 years. This includes about \$767,600 in respect of the 10 per cent discount required by the *DCA* for "soft" services and about \$8.35 million for shares of projects related to capital replacement and for non-growth shares of projects that provide benefit to the existing community. In addition, \$2.05 million in interim financing may be required for projects related to general service level increases and to growth in the post-2027 period. It is likely that most of these monies could be recovered from future development charges as the by-laws are revisited at least every five years.

TABLE 11

TOWNSHIP OF ESSA
SUMMARY OF LONG TERM CAPITAL AND
OPERATING COST IMPACTS FOR GENERAL SERVICES
(in thousands of constant dollars)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total
Net Operating Impacts (1)											
Library Services	\$0.0	\$0.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0
Fire Services	\$0.0	\$0.0	\$93.0	\$93.0	\$93.0	\$93.0	\$204.0	\$204.0	\$204.0	\$204.0	\$204.0
Police Services	\$2.5	\$5.0	\$7.4	\$9.9	\$12.4	\$14.9	\$17.3	\$19.8	\$22.3	\$24.8	\$24.8
Parks And Recreation	\$105.0	\$141.0	\$161.0	\$196.0	\$226.0	\$246.0	\$376.0	\$396.0	\$416.0	\$436.0	\$436.0
Public Works And Fleet	\$0.0	\$18.0	\$48.0	\$66.0	\$88.5	\$88.5	\$88.5	\$106.5	\$106.5	\$106.5	\$106.5
Roads and Related	\$25.0	\$50.0	\$75.0	\$100.0	\$125.0	\$150.0	\$175.0	\$200.0	\$225.0	\$250.0	\$250.0
NET OPERATING IMPACTS	\$132.5	\$214.0	\$414.4	\$494.9	\$574.9	\$622.4	\$890.8	\$956.3	\$1,003.8	\$1,051.3	n/a
Long-term Capital Impact (1)											
Total Net Cost	\$3,214.1	\$2,255.3	\$7,427.5	\$3,765.8	\$2,671.8	\$2,541.8	\$7,002.8	\$3,321.8	\$641.8	\$6,226.8	\$39,069.3
Net Cost From Development Charges	\$251.2	\$306.6	\$1,661.0	\$1,859.4	\$623.8	\$1,461.2	\$2,898.1	\$2,441.2	\$389.5	\$4,593.9	\$16,485.9
Prior Growth Share from DC Reserve Balances (2)	\$2,076.4	\$1,498.7	\$3,330.1	\$872.6	\$1,548.5	\$469.0	\$1,386.9	\$83.3	\$80.0	\$69.7	\$11,415.1
Portion for Post-2027 Development (3)	\$0.0	\$0.0	\$0.0	\$333.3	\$0.0	\$0.0	\$1,714.4	\$0.0	\$0.0	\$0.0	\$2,047.7
Funding From Non-DC Sources											
Discount Portion	\$111.2	\$42.3	\$25.8	\$64.2	\$90.2	\$53.9	\$328.5	\$16.0	\$16.0	\$19.5	\$767.6
Replacement	\$755.3	\$427.8	\$2,430.6	\$616.3	\$389.3	\$577.8	\$674.9	\$781.3	\$156.3	\$1,543.8	\$8,353.0
FUNDING FROM NON-DC SOURCES	\$866.5	\$470.0	\$2,456.5	\$680.5	\$479.5	\$631.6	\$1,003.4	\$797.3	\$172.3	\$1,563.3	\$9,120.6
TOTAL NET OPERATING & CAPITAL IMPACTS	\$999.0	\$684.0	\$2,870.9	\$1,175.4	\$1,054.3	\$1,254.0	\$1,894.2	\$1,753.6	\$1,176.0	\$2,614.5	n/a

Notes:

(1) See Appendix E

(2) Existing development charge reserve fund balances collected from growth prior to 2018 are applied to fund initial projects in development-related capital forecast

(3) Post-2027 development-related net capital costs may be eligible for development charge funding in future DC by-laws

VIII ASSET MANAGEMENT PLAN

The *Development Charges Act* was amended in late 2015 and, effective January 1st 2016, municipalities are required to complete an Asset Management Plan before the passing of a development charges by-law. A key function of the Asset Management Plan is to demonstrate that all assets proposed to be funded under the development charges by-law are financially sustainable over their full life cycle.

ANNUAL CAPITAL PROVISIONS WILL REACH \$886,000 BY 2028

Table 12 summarizes the annual capital provisions required to replace the capital infrastructure proposed to be funded under the development charges by-law. This estimate is based on information obtained through discussions with municipal staff regarding useful life assumptions and the capital cost of acquiring and/or emplacing each asset.

Table 12 illustrates that, by 2028, the Township will need to fund an additional \$886,000 per annum in order to properly fund the full life cycle costs of the new assets supported under this development charges by-law.

Service	2018-2027 Capital Program		Calculated AMP Annual Provision by 2028	
	DC Recoverable	Non-DC Funded	DC Related	Non-DC Related
Library Services	\$ 392,000	\$ 43,000	\$ 16,000	\$ -
Fire Services	\$ 3,145,000	\$ 3,094,000	\$ 102,000	\$ 68,000
Police Services	\$ 248,000	\$ -	\$ 27,000	\$ -
Parks And Recreation	\$ 6,322,000	\$ 1,252,000	\$ 225,000	\$ 31,000
Public Works And Fleet	\$ 1,065,000	\$ -	\$ 76,000	\$ -
General Government	\$ -	\$ 265,000	\$ -	\$ -
Roads And Related	\$ 2,265,000	\$ 20,940,000	\$ 440,000	\$ 162,000
Total 2028 Provision	\$ 13,437,000	\$ 25,594,000	\$ 886,000	\$ 261,000

* Non-DC funding includes projects that are replacement shares, post-period shares and associated 10% discount etc.

In addition to the general services asset management requirements, the utility rate area-specific supported program would result in additional annual contributions of \$130,000 when this infrastructure comes online. The additional contributions are anticipated to be supported through future utility rates.

The calculated annual funding provision should be considered within the context of the Township's projected growth. Over the next ten years (to 2027) the Township is projected to increase by approximately 1,000 households, which represents a 14 per cent increase over the existing base. In addition, the Township will also add nearly 830 new employees that will result in approximately 47,000 square metres of additional non-residential building space.

The calculated annual provisions identified are considered to be financially sustainable as it is expected that the increased capital asset management requirements can be absorbed by the tax and user base over the long-term.

IX OTHER ISSUES AND CONSIDERATIONS

A. DEVELOPMENT CHARGES ADMINISTRATION

Many of the administrative requirements of the *DCA* will be similar to those presently followed by the Township in terms of collection practices. However, changes will likely be required in the use of and reporting on the new development charges. In this regard:

- It is recommended that the present practices regarding collection of development charges and by-law administration continue to the extent possible;
- As required under the *DCA*, the Township should codify any rules regarding application of the by-laws and any exemptions within the development charges by-laws proposed for adoption;
- It is recommended that the Township develop reporting policies consistent with the requirements of the *DCA*;
- It is recommended that the by-laws permit the payment of a development charge in cash or through services-in-lieu agreements. The municipality is not obligated to enter into services-in-lieu agreements;
- It is recommended that no exemptions, other than those required in the *DCA*, be formally adopted in the by-laws;
- It is recommended that Council adopt the development-related capital forecast included in this background study, subject to annual review through the Township's normal capital budget process.

B. LOCAL SERVICE DEFINITIONS

The following provides the definition of "local service" under the *DCA* for a number of services provided by the Township of Essa. The purpose in establishing these definitions is to determine the eligible capital costs for inclusion in the development charges calculation for the Township. The functions or services deemed to be local in nature are not to be included in the determination of the development charges rates. The provision of local services is considered to be a direct developer responsibility under s.59 of the *DCA* and will (or may) be recovered under other agreement(s) with the landowner or developer. The issue of "local service" is being specifically considered for the services of:

- Roads
- Stormwater Management (SWM) Facilities
- Water and Sewer
- Parkland Development

1. Roads

- Local Roads

All roads and share of roads identified as local are to be treated as a local service under the *DCA* and the associated costs are not to be included in the development charges calculation. Generally, a local residential road is deemed to have a right-of-way of 20 metres and a non-residential road a right-of-way of 23 metres.

- Road Oversizing

If a local road is oversized to accommodate additional traffic needs external to the subject lands, the oversized share of the roads is to be included in the development charges calculation.

2. Stormwater Management (SWM) Facilities

The costs of stormwater management facilities internal to a subdivision and related to a plan of a subdivision are considered to be a local service under the *DCA* and the associated costs are not included in the development charges calculation. Local SWM facilities would typically include:

- Stormwater management facilities servicing local drainage areas;
- Storm sewer oversizing associated with local drainage areas; and
- Storm sewer works on existing roads.

A municipality may recover these costs as a direct developer contribution (or by way of service provision) or alternatively may fund these works directly and recoup the costs through the assessment of a local charge against each unit or land area (holding) within the defined befitting area, based on proportionate shares. This may be facilitated by the Municipal Draining Act or applicable legislation.

3. Water and Sewer

- Major external trunk watermains and sanitary sewers (i.e. those with sizes over 300mm and major pumping stations) may be included within the development charges. Oversizing within subdivisions may also be included in the DC above 300mm for watermains and 300mm for sanitary sewers.
- Connections to trunk mains and minor pumping stations to service specific areas are to be a direct developer responsibility as a local service provision

(s.59 of DCA). Minor pumping stations are those that service a single subdivision, or adjacent or adjoining subdivisions.

4. Parkland Development

For the purpose of parkland development, local services include the requirement for the owner to undertake preparation of the park plan, retaining necessary consultants to prepare design and grading plans for the park, prior to development. In addition, the owner is required to provide stripping and stockpiling, levelling, top soiling, seeding and stormwater servicing including all appurtenances (consistent with the plan), fencing the property perimeter, and provide municipal water and waste water services to the lot line. These requirements are part of the conditions of s.51 and 53 of the Planning Act agreements. The municipality also requires the owner to dedicate parkland or provide cash-in-lieu, consistent with the Planning Act provisions. All of these costs are deemed a direct responsibility of the developer and have not been included in the development charges calculation.

With respect to other parkland development costs, the municipality has included all other components of parkland development in the development charges calculation, including parking, park furniture, signage, landscaping and walkways/trails, in addition to the necessary fields, diamonds, playground equipment, lighting, irrigation and field houses.

APPENDIX A

DEVELOPMENT FORECAST

APPENDIX A

DEVELOPMENT FORECAST

This appendix provides the details of the development forecast used to prepare the 2018 Development Charges (DC) Background Study for the Township of Essa. The forecast method and key assumptions are discussed. The results of the forecasts are presented in the following thirteen tables:

- A.1 Historical Population, Households and Employment
- A.2 Historical Residential Building Permits
- A.3 Historical Households by Period of Construction Showing Household Size
- A.4 Population, Household & Employment Forecast Summary
- A.5 Forecast Population & Household Growth Summary
- A.6 Ten-Year Township-Wide Growth in Households by Unit Type
- A.7 Ten-Year Township-Wide Forecast Population in New Households by Unit Type
- A.8 Growth in Households by Unit Type in the Angus Sewer Service Area
- A.9 Population in New Households by Unit Type in the Angus Sewer Service Area
- A.10 Growth in Households by Unit Type in the Angus Water Service Area
- A.11 Population in New Households by Unit Type in the Angus Water Service Area
- A.12 Historical Non-Residential Building
- A.13 Township-wide Non-Residential Space Forecast

A. FORECAST APPROACH AND KEY ASSUMPTIONS

The *Development Charges Act (DCA)* requires the Township to estimate “the anticipated amount, type and location of development” for which development charges may be imposed. The development forecast must cover both residential and non-residential development and be specific enough with regards to quantum, type, location and timing of development to allow the Township to prepare a reasonable development-related capital program.

The forecast is based on Census years and is translated into the time periods required for DC purposes, generally pro-rating the census periods to the DC time period. A ten-year development forecast, from mid-year 2018 to mid-year 2027, has been used for all the development charge eligible soft and roads and related services in the Township. The planning period from mid-year 2018 to 2031 (built-out) has been utilized for the water and sewer services.

B. HISTORICAL DEVELOPMENT IN THE TOWNSHIP

Historical growth and development figures presented here are based on Statistics Canada Census data and municipal building permit data. A “Census-based” definition of population is used for the purpose of the development charges study. This definition does not include the Census net undercoverage, which is typically included in the definition of “total” population commonly used in municipal planning documents. For development charges purposes, a ten-year historical period of 2008 to 2017 is used for calculating historical service levels.

The Township of Essa has experienced significant population growth over the last ten years, and in particular during the most recent Census period of 2011 to 2016. Household growth has also been strong. As shown in Table A.1, the Township’s population increased from approximately 17,210 people in 2007 to an estimated 21,600 in 2017. This represents an increase of 25 per cent. The number of private occupied dwelling units in the Township also increased during the ten-year historical period from approximately 5,820 to 7,355 in 2017 – a 26 per cent increase. The difference between the rates of population and occupied dwelling unit growth is the result of a decline in the average number of persons residing in housing units.

Historical employment figures are also shown in Table A.1 and are based on Statistics Canada place of work data. Place of work data records where people work rather than the place of residence. The employment figures used for development charge calculations include workers with no fixed place of work, but exclude *work at home* employment. Overall, the Township’s employment growth has increased over the last ten years from approximately 6,840 in 2007 to 8,190 employees in 2017, this represents an increase of 20 per cent.

Details on historical residential building permits is outlined in Table A.2. This information is sourced from Statistics Canada building permit data. Overall, the dominant type of new housing in Essa constructed since 2007 has been single- and semi-detached housing.

Table A.3 provides details on historical occupancy patterns in the Township. The overall average occupancy level in Essa for all units is 2.73 persons per housing unit (PPU). Occupancy levels for recently constructed units, between 2006 and 2016 are higher than the overall average and are generally used in the development charges calculation since they better reflect the number of people that are likely to reside in new development. For singles and semis, the 2006-2016 average PPU of 3.13 is used in the development charges calculation as a large sample size of data is available for these recently constructed units. For rows, the 2006-2016 average PPU of 2.80 is used. Finally, the development charges calculation for apartments uses the total average PPU of 1.57.

B. FORECAST RESULTS

Development charges are levied on residential development as a charge per new unit and on non-residential development as a charge per unit of gross floor area (GFA).

1. Residential Development Forecast

The residential development forecast is based on lands designated for development as provided by Township planning staff. The number of units anticipated is determined by settlement area (Angus, Thornton, Baxter, or Rural) which can be accommodated within the approved land areas. Tables A.4 and A.5 summarize the population and household growth forecast. The tables show that the Township's population is forecast to increase by roughly 2,900 over the ten-year planning period. The number of occupied dwellings will increase by 1,000 over the ten-year period and employment by 830.

Tables A.6 and A.7 summarize the ten-year Township-wide household growth forecast by unit type, and the anticipated population growth in new households by unit type. This ten-year Township-wide forecast is utilized for the "general" and roads and related services. The forecast of "population in new units" that will result from the addition of new housing units has been made. Population growth in new units is estimated by applying the following PPUs to the housing unit forecast: 3.13 for single and semi-detached units; 2.80 for rows and other multiples; and 1.57 for apartments. The forecasted persons in newly constructed units are based upon the historical time series of population growth in housing in the last ten year census period (2006-2016). In total, 2,990 is the forecasted population in new dwelling units over the ten-year planning period. Over this period, it is anticipated that single and semi-detached dwelling units continue to be the dominant form of constructed units.

The residential forecast for the Angus Sewer Service Area is shown on Tables A.8 and A.9. The planning horizon is considered to be to build-out. The growth in households includes the unit potential in Angus and Baxter, but excludes those in Thornton and the Rural areas of the Township. The new development in Baxter will be benefitting from the existing sewer capacity in the Angus wastewater treatment plant and therefore are included in the Angus Sewer Service Area forecast. In summary, it is anticipated that there is a unit potential of about 920 residential units that will develop in either Angus or Baxter. It is also anticipated that a population of 2,730 persons will be accommodated within those new units.

The residential forecast for the Angus Water Service Area (Table A.10 and A.11) has the same build-out time frame as the Angus Sewer Service Area. The difference is this service area excludes the unit potential in Baxter (in addition to Thornton and the Rural areas of the Township). Therefore, only the unit potential in Angus is included in this forecast. It is anticipated that the Angus Water Service Area has a unit potential of nearly 670 units that will accommodate a population growth of 1,950 persons in those units.

There is relatively little remaining land supply for Thornton, though there remains a residential supply of 37 single or semi-detached units, which translates into a population in new units of 116 persons.

2. Non-Residential Development Forecast

Non-residential development charges are calculated on a per unit of gross floor area (GFA) basis. Therefore, as per the *DCA*, a forecast of non-residential building space has been developed. The forecast was developed utilizing non-residential building permit data for new buildings and additions.

Table A.12 provides historic building permit values by the major non-residential types. The upper part of the table provides data for new construction either in the form of a full new building or as a building expansion. The middle table provides estimated historic building space construction derived from the new build and expansion permit values. The permit values are translated into space using standard construction cost ratios by building type, adjusted for inflation. The lower portion of the tables provides the annual averages for each sector type. The last table, however, are the averages utilized in the non-residential forecast as it excludes the exceptional years in which a large amount of building space was constructed. A similar approach

was used in the 2013 DC Study and this approach reflects the total anticipated amount of new space to be constructed over the planning period of this study.

As with the residential forecast, a ten-year development forecast, from mid-year 2018 to mid-year 2027, has been used for all the development charge eligible soft and roads and related services in the Township. The planning period from mid-year 2018 to mid-year 2031 (or Official Plan built-out) has been utilized for the Water and Sewer services in Angus.

Employment densities have been used to convert the space forecast into employment estimates. The following densities, by employment type, have been utilized in this study:

Population-Related:	50.0 square metres per employee
Employment Land:	80.0 square metres per employee
Rural Based:	0.0 square metres per employee

The GFA forecasts are provided in Table A.13. The total GFA growth is forecast at 47,000 square metres over the ten-year period with an accompanying employment growth of 830. Over the longer planning period to 2031, it is forecasted that 1,160 new employees will be accommodated in 65,800 square metres of new non-residential GFA.

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TABLE A.1

TOWNSHIP OF ESSA
HISTORICAL POPULATION, HOUSEHOLDS & EMPLOYMENT

Mid-Year	Census Population	Growth	Total Occupied Dwellings	Growth	HH Size	Employment by Place of Work	Growth	Activity Rate
2006	16,901		5,683		2.97	6,758		40.0%
2007	17,210	309	5,821	138	2.96	6,842	84	39.8%
2008	17,525	315	5,962	141	2.94	6,927	85	39.5%
2009	17,846	321	6,107	145	2.92	7,013	86	39.3%
2010	18,173	327	6,255	148	2.91	7,100	87	39.1%
2011	18,505	332	6,408	153	2.89	7,190	90	38.9%
2012	18,994	489	6,555	147	2.90	7,344	154	38.7%
2013	19,496	502	6,706	151	2.91	7,502	158	38.5%
2014	20,011	515	6,860	154	2.92	7,663	161	38.3%
2015	20,540	529	7,018	158	2.93	7,828	165	38.1%
2016	21,083	543	7,179	161	2.94	7,997	169	37.9%
2017	21,598	515	7,355	176	2.94	8,192	195	37.9%
Total 10-yr Growth		4,388			1,534			1,350

Source: Statistics Canada, Census of Canada
Employment excludes work at home

TOWNSHIP OF ESSA

HISTORICAL RESIDENTIAL BUILDING PERMITS				
Year	Building Permits			
	Singles/Semis	Rows	Apts.	Total
2003	148	0	0	148
2004	124	6	0	130
2005	187	8	0	195
2006	120	42	0	162
2007	96	57	0	153
2008	177	20	0	197
2009	85	34	0	119
2010	109	79	30	218
2011	94	46	6	146
2012	115	0	0	115
2013	94	7	4	105
2014	141	21	0	162
2015	232	17	1	250
2016	271	16	9	296
2017	44	96	2	142
Total	2,037	449	52	2,538
<i>Average '03-'17</i>	<i>136</i>	<i>30</i>	<i>3</i>	<i>169</i>
<i>Average '08-'17</i>	<i>136</i>	<i>34</i>	<i>5</i>	<i>175</i>
<i>Average '12-'17</i>	<i>150</i>	<i>26</i>	<i>3</i>	<i>178</i>

HISTORICAL BUILDING PERMITS - SHARES BY UNIT TYPE				
Year	Building Permits			
	Singles/Semis	Rows	Apts.	Total
2003	100%	0%	0%	100%
2004	95%	5%	0%	100%
2005	96%	4%	0%	100%
2006	74%	26%	0%	100%
2007	63%	37%	0%	100%
2008	90%	10%	0%	100%
2009	71%	29%	0%	100%
2010	50%	36%	14%	100%
2011	64%	32%	4%	100%
2012	100%	0%	0%	100%
2013	90%	7%	4%	100%
2014	87%	13%	0%	100%
2015	93%	7%	0%	100%
2016	92%	5%	3%	100%
2017	31%	68%	1%	100%
Total	80%	18%	2%	100%

DC Assumption	75%	20%	5%	100%
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Source: Planning Department, Township of Essa

TABLE A.3

TOWNSHIP OF ESSA
HISTORICAL HOUSEHOLDS BY PERIOD OF CONSTRUCTION SHOWING HOUSEHOLD SIZE

Dwelling Unit Type	Period of Construction										Pre 2006	2006-2016	Total	
	Pre 1945	1946-1960	1961-1970	1971-1980	1981-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2016				
Singles & Semis														
Household Population	1,600	1,635	1,505	2,535	2,355	1,665	1,180	1,590	1,970	1,865		14,065	3,835	17,900
Households	595	660	630	925	830	580	365	505	640	585		5,090	1,225	6,315
Household Size	2.69	2.48	2.39	2.74	2.84	2.87	3.23	3.15	3.08	3.19		2.76	3.13	2.83
Rows														
Household Population	0	0	30	0	0	0	60	130	520	320		220	840	1,060
Households	10	10	20	10	10	10	25	40	175	125		135	300	435
Household Size	0.00	0.00	1.50	0.00	0.00	0.00	2.40	3.25	2.97	2.56		1.63	2.80	2.44
Apartments														
Household Population	60	65	110	35	225	120	0	0	30	45		615	75	690
Households	55	30	55	55	135	45	10	0	25	30		385	55	440
Household Size	1.09	2.17	2.00	0.64	1.67	2.67	0.00	#DIV/0!	1.20	1.50		1.60	1.36	1.57
All Units														
Household Population	1,660	1,700	1,645	2,570	2,580	1,785	1,240	1,720	2,520	2,230		14,900	4,750	19,650
Households	660	700	705	990	975	635	400	545	840	740		5,610	1,580	7,190
Household Size	2.52	2.43	2.33	2.60	2.65	2.81	3.10	3.16	3.00	3.01		2.66	3.01	2.73

Source: Statistics Canada, 2016 Census Special Run

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TABLE A.4

TOWNSHIP OF ESSA
POPULATION, HOUSEHOLD & EMPLOYMENT FORECAST SUMMARY

Mid-Year	Census Population	Total Occupied Dwellings	Employment by POW*	HH Size	Activity Rate
2017	21,598	7,355	8,192	2.93	37.9%
2018	21,890	7,455	8,275	2.92	37.8%
2019	22,182	7,555	8,357	2.91	37.7%
2020	22,472	7,655	8,440	2.91	37.6%
2021	22,762	7,755	8,523	2.90	37.4%
2022	23,052	7,855	8,605	2.89	37.3%
2023	23,341	7,955	8,688	2.89	37.2%
2024	23,629	8,055	8,771	2.88	37.1%
2025	23,916	8,155	8,854	2.88	37.0%
2026	24,203	8,255	8,937	2.87	36.9%
2027	24,490	8,355	9,019	2.87	36.8%

Note*: Excludes Work at Home Employment

Source: Hemson Consulting Ltd., 2018

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TABLE A.5

**TOWNSHIP OF ESSA
 FORECAST POPULATION & HOUSEHOLD GROWTH SUMMARY**

Mid-Year	Census Population Growth	Total Occupied Dwellings Growth	Employment by POW Growth
2017	515	176	195
2018	292	100	83
2019	291	100	83
2020	291	100	83
2021	290	100	82
2022	289	100	83
2023	289	100	83
2024	288	100	83
2025	288	100	83
2026	287	100	83
2027	287	100	82
2018-2027	2,892	1,000	827
2018-2031	3,507	1,215	1,157

Source: Hemson Consulting Ltd., 2018

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TABLE A.6

**TOWNSHIP OF ESSA
 TEN-YEAR TOWNSHIP-WIDE GROWTH
 GROWTH IN HOUSEHOLDS BY UNIT TYPE**

Mid-Year	Singles & Semis	Rows & Other Multiples	Apartments	Total New HH
2018	75	20	5	100
2019	75	20	5	100
2020	75	20	5	100
2021	75	20	5	100
2022	75	20	5	100
2023	75	20	5	100
2024	75	20	5	100
2025	75	20	5	100
2026	75	20	5	100
2027	75	20	5	100
2018-2027	750	200	50	1,000

Source: Hemson Consulting Ltd., 2018

TABLE A.8

**TOWNSHIP OF ESSA
GROWTH IN HOUSEHOLDS BY UNIT TYPE IN THE ANGUS SEWER SERVICE AREA
(INCLUDES UNIT POTENTIAL IN ANGUS AND BAXTER)**

Mid-Year	Singles & Semis	Rows & Other Multiples	Apartments	Total New HH
2018	67	20	5	92
2019	67	20	5	92
2020	67	20	5	92
2021	67	20	5	92
2022	67	20	5	92
2023	67	20	5	92
2024	67	20	5	92
2025	67	20	5	92
2026	67	20	5	92
2027	67	20	5	92
2018-2027	667	200	50	917

Source: Hemson Consulting Ltd., 2018

TABLE A.9

TOWNSHIP OF ESSA

FORECAST POPULATION IN NEW HOUSEHOLDS BY UNIT TYPE*

Mid-Year	Singles & Semis	Rows & Other Multiples	Apartments	Total Population in New HH
2018	209	56	8	273
2019	209	56	8	273
2020	209	56	8	273
2021	209	56	8	273
2022	209	56	8	273
2023	209	56	8	273
2024	209	56	8	273
2025	209	56	8	273
2026	209	56	8	273
2027	209	56	8	273
2018-2027	2,090	560	80	2,730

*Based on PPU's

3.13

2.80

1.57

Source: Hemson Consulting Ltd., 2018

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TABLE A.10

**TOWNSHIP OF ESSA
 GROWTH IN HOUSEHOLDS BY UNIT TYPE IN THE ANGUS WATER SERVICE AREA
 (INCLUDES UNIT POTENTIAL IN ANGUS ONLY)**

Mid-Year	Singles & Semis	Rows & Other Multiples	Apartments	Total New HH
2018	42	20	5	67
2019	42	20	5	67
2020	42	20	5	67
2021	42	20	5	67
2022	42	20	5	67
2023	42	20	5	67
2024	42	20	5	67
2025	42	20	5	67
2026	42	20	5	67
2027	42	20	5	67
2018-2027	417	200	50	667

Source: Hemson Consulting Ltd., 2018

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TABLE A.11

TOWNSHIP OF ESSA

FORECAST POPULATION IN NEW HOUSEHOLDS BY UNIT TYPE*

Mid-Year	Singles & Semis	Rows & Other Multiples	Apartments	Total Population in New HH
2018	131	56	8	195
2019	131	56	8	195
2020	131	56	8	195
2021	131	56	8	195
2022	131	56	8	195
2023	131	56	8	195
2024	131	56	8	195
2025	131	56	8	195
2026	131	56	8	195
2027	131	56	8	195
2018-2027	1,310	560	80	1,950

*Based on PPU's

3.13

2.80

1.57

TABLE A.12
Historical Non-Residential Building Permit Values

Year	Estimated Value of Non-Residential Permits for New Buildings and Additions (000s)			
	Commercial	Industrial	Institutional	Total
2000	\$1,141	\$1,156	\$0	\$2,297
2001	\$4,866	\$3,549	\$511	\$8,927
2002	\$2,844	\$9,303	\$0	\$12,148
2003	\$3,265	\$1,263	\$0	\$4,528
2004	\$1,160	\$436	\$0	\$1,595
2005	\$6,932	\$631	\$0	\$7,563
2006	\$2,068	\$594	\$127	\$2,789
2007	\$1,141	\$587	\$2,784	\$4,512
2008	\$1,565	\$2,226	\$0	\$3,791
2009	\$1,204	\$775	\$0	\$1,978
2010	\$1	\$168	\$24,505	\$24,674
2011	\$672	\$8,725	\$122	\$9,519
2012	\$2,430	\$5,416	\$22	\$7,868
2013	\$2,651	\$973	\$122	\$3,746
2014	\$908	\$4,709	\$154	\$5,771
2015	\$2,209	\$1,688	\$2,369	\$6,266
2016	\$5,085	\$7,577	\$155	\$12,818
2017	\$2,855	\$2,683	\$2,050	\$7,588

Year	Estimated Space Construction, New and Additions (m ²)			
	Commercial	Industrial	Institutional	Total
2000	864	1,168	-	2,032
2001	3,687	3,585	257	7,529
2002	2,155	9,397	-	11,552
2003	2,473	1,276	-	3,749
2004	879	440	-	1,319
2005	5,251	637	-	5,889
2006	1,567	600	64	2,230
2007	864	593	1,399	2,856
2008	1,185	2,249	-	3,434
2009	912	782	-	1,694
2010	1	169	12,314	12,484
2011	509	8,813	61	9,383
2012	1,841	5,471	11	7,323
2013	2,008	983	62	3,053
2014	688	4,757	77	5,522
2015	1,674	1,705	1,190	4,569
2016	3,852	7,654	78	11,584
2017	2,163	2,710	1,030	5,903

17- Year Annual Average in m²	1,810	2,944	919	5,673
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17- Year Annual Average in m² (outliers excl)	1,800	2,900	250	4,950
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Source: Statistics Canada, Hemson Consulting Ltd.

TABLE A.13
TOWNSHIP OF ESSA
TOWNSHIP-WIDE NON-RESIDENTIAL SPACE FORECAST

Employment Density

Population-Related Employment 50.0 m² per employee
 Employment Land Employment 80.0 m² per employee
 Other Rural Based - m² per employee

Mid-Year	Population-Related			Employment Land			Other Rural Based			Total for DC Study			Work at Home Employment			Total with Work at Home Employment		
	Total Emp	Emp Growth	Space (m ²)	Total Emp	Empl Growth	Space (m ²)	Total Emp	Empl Growth	Space (m ²)	Total Emp	Empl Growth	Space (m ²)	Total Emp	Empl Growth	Space (m ²)	Total Emp	Empl Growth	Space (m ²)
2017	2,281			5,102			809			8,192			737			8,929		
2018	2,317	36	1,800	5,138	36	2,900	820	11	0	8,275	83	4,700	745	7	0	9,019	90	4,700
2019	2,353	36	1,800	5,174	36	2,900	831	11	0	8,357	83	4,700	752	7	0	9,110	90	4,700
2020	2,389	36	1,800	5,210	36	2,900	842	11	0	8,440	83	4,700	760	7	0	9,200	90	4,700
2021	2,425	36	1,800	5,246	36	2,900	852	10	0	8,523	82	4,700	767	7	0	9,290	90	4,700
2022	2,461	36	1,800	5,282	36	2,900	863	11	0	8,605	83	4,700	774	7	0	9,380	90	4,700
2023	2,497	36	1,800	5,318	36	2,900	874	11	0	8,688	83	4,700	782	7	0	9,470	90	4,700
2024	2,533	36	1,800	5,354	36	2,900	884	11	0	8,771	83	4,700	789	7	0	9,560	90	4,700
2025	2,569	36	1,800	5,390	36	2,900	895	11	0	8,854	83	4,700	797	7	0	9,650	90	4,700
2026	2,605	36	1,800	5,426	36	2,900	906	11	0	8,937	83	4,700	804	7	0	9,741	90	4,700
2027	2,641	36	1,800	5,462	36	2,900	916	10	0	9,019	82	4,700	812	7	0	9,831	90	4,700
2028	2,677	36	1,800	5,498	36	2,900	927	10	0	9,102	82	4,700	819	7	0	9,921	90	4,700
2029	2,713	36	1,800	5,534	36	2,900	937	10	0	9,184	82	4,700	827	7	0	10,011	90	4,700
2030	2,749	36	1,800	5,570	36	2,900	948	10	0	9,267	82	4,700	834	7	0	10,100	90	4,700
2031	2,785	36	1,800	5,606	36	2,900	958	10	0	9,349	82	4,700	841	7	0	10,190	90	4,700
2018 - 2027		360	18,000		360	29,000		107	0		827	47,000		74	0		902	47,000
2018 - 2031		504	25,200		504	40,600		149	0		1,157	65,800		104	0		1,262	65,800

Source: Hemson Consulting Ltd., 2018

APPENDIX B

***TOWNSHIP-WIDE SERVICES
TECHNICAL APPENDIX***

APPENDIX B

TOWNSHIP-WIDE SERVICES TECHNICAL APPENDIX INTRODUCTION AND OVERVIEW

The following appendix provides the detailed analysis undertaken to establish the development charge rates for each of the services in the Township of Essa. Seven services have been analysed as part of the development charges study:

Appendix B.1	Library Services
Appendix B.2	Fire Services
Appendix B.3	Police Services
Appendix B.4	Parks and Recreation
Appendix B.5	Public Works and Fleet
Appendix B.6	General Government
Appendix B.7	Roads and Related

Every service, with the exception of General Government, contains a set of three tables. The tables provide the background data and analysis undertaken to arrive at the calculated development charge rates for that particular service. An overview of the content and purpose of each of the tables is given below.

TABLE 1 HISTORICAL SERVICE LEVELS

Table 1 presents the data used to determine the ten-year historical service level. The *DCA* and *O. Reg. 82/98* require that development charges be set at a level no higher than the average service level provided in the Township over the ten-year period immediately preceding the preparation of the background study, on a service-by-service basis. For the purpose of this study, the historical inventory period has been defined as 2008 to 2017.

O. Reg. 82/98 requires that, when defining and determining historical service levels, both the quantity and quality of service be taken into consideration. In most cases, the service levels are initially established in quantitative terms. For example, service levels for buildings are presented in terms of square feet. The qualitative aspect is introduced by considering the monetary value of the facility or service. In the case of buildings, for example, the cost would be shown in terms of cost per square foot to replace or

construct a facility of the same quality. This approach helps to ensure that the development-related capital facilities that are to be funded by new growth reflect not only the quantity (number and size) but also the quality (replacement value or cost) of service provided by the Township in the past. Both the quantitative and qualitative aspects of service levels used in the current analysis are based on information provided by municipal staff. This information is generally based on historical records and experience with costs to acquire or construct similar facilities, equipment and infrastructure.

The final page of Table 1 shows the calculation of the “maximum allowable”, net of uncommitted excess capacity and the legislated ten per cent reduction (for all applicable services). The maximum allowable is defined as the ten-year historical service level (expressed as either \$/capita, or \$/population & employment) multiplied by the forecast increase in net population, or net population and employment growth, over the planning period. The resulting figure is the value of capital infrastructure that must be constructed for that particular service so that the ten-year historical service level is maintained.

There is also a requirement in the *DCA* to consider “excess capacity” within the Township’s existing infrastructure that may be available to partially meet future servicing requirements. If Council had expressed its intent before or at the time the capacity was created to recoup the cost of providing the capacity from new development, it is considered “committed excess capacity” under the *DCA*, and the associated capital cost is eligible for recovery. Should notional “uncommitted excess capacity” exist, if it is determined to be available to service new development appropriate adjustments are made to the calculations.

**TABLE 2 2018 – 2027 DEVELOPMENT-RELATED CAPITAL PROGRAM &
CALCULATION OF THE UNADJUSTED DEVELOPMENT CHARGE**

The *DCA* requires that Council express its intent to provide future capital facilities to support future growth. Based on the development forecasts presented in Appendix A, Hemson Consulting in collaboration with Township staff has developed a development-related capital program which sets out the projects required to service anticipated growth for the ten-year period from 2018 to 2027.

To determine the share of the program that is eligible for recovery through development charges, the project costs are reduced by any anticipated grants,

“replacement” shares and the legislated “ten per cent reduction” for any eligible services.

A replacement share occurs when a new facility will, at least in part, replace a facility that is demolished, redeployed or will otherwise not be available to serve its former function. The replacement share of the capital program is not deemed to be development-related and is therefore removed from the development charge calculation. The capital cost for replacement will require funding from non-development charge sources, typically property taxes or user fees.

When calculating development charges, the development-related net capital cost must be reduced by ten per cent for all services except protection services and engineered services (*DCA* s.5.(1)8.). The ten per cent discount is therefore applied to all soft services considered in this appendix with the exception of Fire, Police, and Public Works. As with replacement shares, the ten per cent mandatory reduction must be funded from non-development charge sources.

The capital program less any replacement or benefit to existing shares, ten per cent discount, yields the development-related costs. Although deemed development-related, not all of the net development-related capital program may be recoverable from development charges in the period from 2018 to 2027. For some of the services, a portion of the capital program will service growth that will not occur until after 2027. This portion of the capital program is either deemed “pre-built” service capacity to be considered as committed excess capacity to be recovered under future development, or is a service level increase.

The remaining portion of the net capital program represents the development-related cost that may be included in the development charge. In all cases, as required, this amount is equal to or less than the maximum allowable capital amount as calculated on the final page of Table 1. The result is the discounted development-related net capital cost that is eligible for recovery against development over the period from 2018 to 2027.

Calculation of the Unadjusted Development Charge Rates

The section below the capital program displays the calculation of the “unadjusted” development charge rates. The term “unadjusted” development charge is used to distinguish the charge that is calculated prior to cash flow financing considerations. The cash flow analysis is shown in Table 3.

The first step when determining the unadjusted development charge rate is to allocate the development-related net capital cost between the residential and non-residential sectors. For all Township-wide services with the exception of Library Services and Parks and Recreation, the development-related costs have been apportioned as 78 per cent residential and 22 per cent non-residential. This apportionment is based on the anticipated shares of population and employment growth over the ten-year forecast period.

The development-related costs associated with Library Services and Parks and Recreation have been allocated 100 per cent to the residential sector because the need for these services is generally driven by residential development.

The residential share of the 2018-2027 DC eligible costs are then divided by the forecast population growth in new units. This gives the unadjusted residential development charge per capita. The non-residential development-related net capital costs are divided by the forecast increase in non-residential gross floor area (GFA). This yields a charge per square metre of new non-residential GFA.

TABLE 3 CASH FLOW ANALYSIS

A cash flow analysis is also undertaken to account for the timing of projects and receipt of development charges. Interest earnings or borrowing costs are, therefore, accounted for in the calculation as allowed under the *DCA*. Based on the growth forecast, the analysis calculates the development charges rate that is required to finance the net development-related capital spending plan including provisions for any borrowing costs or interest earnings on the reserve funds. The cash flow analysis is designed so that the closing cash balance at the end of the planning period is as close to nil as possible.

In order to determine appropriate development charges rates reflecting borrowing and earnings necessary to support the net development-related funding requirement, assumptions are used for the inflation rate and interest rate. An inflation rate of 2.0 per cent is used for the funding requirements, an interest rate of 3.5 per cent is used for positive opening balances, and a rate of 5.5 per cent is used for negative opening balances.

Table 3 displays the results of the cash flow analysis and provides the adjusted or final per capita residential and per square metre (of GFA) non-residential development charges.

APPENDIX B.1

LIBRARY SERVICES

APPENDIX B.1

LIBRARY SERVICES

The Essa Public Library provides library services at two branch locations, one in Thornton and the other in Angus. Each branch offers a variety of books, periodicals, multimedia and other electronic resource materials for the community's use.

TABLE 1 2008-2017 HISTORICAL SERVICE LEVELS

Table 1 displays the Library's ten-year historic inventory for buildings, land, materials, and furniture and equipment (excluding computer equipment). The building space amounts to about 12,700 square feet which is valued at \$3.00 million (after committed excess capacity is considered). The library buildings occupy approximately 0.79 hectares of land worth \$1.03 million. The collection materials are valued at \$2.14 million and furniture and equipment associated with the branches are valued at \$407,900.

The 2017 full replacement value of the inventory of capital assets amounts to \$6.57 million and the ten-year historical average service level is \$288.05 per capita.

The historic service level multiplied by the ten-year forecast of net population growth results in a ten-year maximum allowable funding envelope of \$833,100 (2,892 net population growth X historic service level of \$288.05/capita). The 2017 service level exceeds the ten-year average service level, and therefore notional excess capacity of approximately \$352,200 is identified. However, the notional excess capacity identified cannot be used to meet the capital requirements required by future development, and therefore, the associated capital cost is eligible for recovery and no reduction to the funding envelope is made.

Library Services must be reduced by ten per cent as required under the *DCA*. The resulting net maximum allowable funding envelope brought forward to the development charges calculation is reduced to \$749,800.

TABLE 2 2018 – 2027 DEVELOPMENT-RELATED CAPITAL PROGRAM & CALCULATION OF THE UNADJUSTED DEVELOPMENT CHARGE

The Library Services capital program includes the repayment of debt incurred for the construction of the Angus Branch, an expansion of space at the Thornton Branch and three new parking spaces. These projects amount to a total gross cost of \$335,100. The

cost of acquiring new materials over the ten-year planning period while maintaining the average historic service level amounts to \$100,000.

The total gross cost of Library Services capital program is \$435,100. No grants, subsidies, or other recoveries are anticipated to fund any shares of the above mentioned projects and as such, the net cost to the municipality remains at \$435,100. No shares of the projects are deemed to be a replacement, as they are net additions to the current Library's service level and as such, no shares are deducted for replacement or benefit to existing. As required by the *DCA*, a ten per cent reduction has been applied to the new projects, and these shares amount to \$43,500. The net municipal cost of this program is then netted down to \$391,500 as this amount is deemed to be DC eligible. There is an amount of \$54,600 in the DC reserves to help offset the cost of the program. There are no post-period benefit shares identified for this service.

The remaining \$336,900 will be recovered through this DC by-law. This amount is allocated entirely against future residential development in the Township of Essa. This results in an unadjusted development charge of \$112.68 per capita.

TABLE 3 CASH FLOW AND RESERVE FUND ANALYSIS

After cash flow, the residential calculated charge increases to \$118.85 per capita. This is a reflection of the timing of the capital program and development charges revenues.

The following table summarizes the calculation of the Library development charge:

LIBRARY SERVICES SUMMARY						
10-year Hist. Service Level per capita	2018 - 2027 Development-Related Capital Program		Unadjusted Development Charge		Adjusted Development Charge	
	Total	Net DC Recoverable	\$/capita	\$/sq.m	\$/capita	\$/sq.m
\$288.05	\$435,050	\$336,921	\$112.68	\$0.00	\$118.85	\$0.00

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 APPENDIX B.1
 TABLE 1 - PAGE 1

2018 DEVELOPMENT CHARGES BACKGROUND STUDY
 TOWNSHIP OF ESSA
 INVENTORY OF CAPITAL ASSETS
 LIBRARY SERVICES

BUILDINGS Branch Name	# of Square Feet										UNIT COST (\$/sq. ft.)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Thornton Branch, 34 Robert Street	2,738	2,738	2,738	2,738	2,738	2,738	2,738	2,738	2,738	2,738	\$220
Old Angus Branch, 18 King Street	3,938	3,938	3,938	3,938	-	-	-	-	-	-	\$220
New Angus Branch, 8505 County Road 10	-	-	-	-	10,335	10,335	10,335	10,335	10,335	10,335	\$240
<i>Committed Excess Capacity</i>					(354)	(354)	(354)	(354)	(354)	(354)	\$240
Total (sq.ft.)	6,676	6,676	6,676	6,676	12,719	12,719	12,719	12,719	12,719	12,719	
Total (\$000)	\$1,468.7	\$1,468.7	\$1,468.7	\$1,468.7	\$2,997.8	\$2,997.8	\$2,997.8	\$2,997.8	\$2,997.8	\$2,997.8	

LAND Branch Name	# of Hectares										UNIT COST (\$/ha)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Thornton Branch, 34 Robert Street	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	\$1,300,000
Old Angus Branch, 18 King Street	0.20	0.20	0.20	0.20	0.20	-	-	-	-	-	\$1,300,000
New Angus Branch, 8505 County Road 10	-	-	-	-	-	0.51	0.51	0.51	0.51	0.51	\$1,300,000
Total (ha)	0.48	0.48	0.48	0.48	0.48	0.79	0.79	0.79	0.79	0.79	
Total (\$000)	\$620.1	\$620.1	\$620.1	\$620.1	\$620.1	\$1,027.7	\$1,027.7	\$1,027.7	\$1,027.7	\$1,027.7	

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2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
LIBRARY SERVICES

MATERIALS Type of Collection	# of Collection Materials										UNIT COST (\$/item)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Books	40,632	41,500	42,451	47,245	52,622	57,904	60,437	54,664	53,122	48,493	\$34
Periodicals	68	68	78	96	114	127	2,215	1,439	1,344	1,704	\$44
Audiobooks	995	1,500	2,150	1,003	1,321	1,941	1,968	2,388	2,000	2,012	\$61
Films	2,087	4,000	6,109	4,172	5,203	6,415	7,195	10,456	5,945	5,471	\$41
CD-ROM Software	239	239	124	28	27	45	39	-	11	-	\$51
Vertical Files	27	27	27	27	27	27	27	27	27	-	\$11
Readalongs	159	175	270	153	253	300	288	264	262	248	\$24
Multimedia kits	64	70	87	48	71	109	209	84	93	83	\$53
Music	146	200	300	567	729	801	657	632	597	514	\$32
NetLibrary COOL	6	7	8	8	8	8	8	8	8	-	\$571
Object kits (board games, maker kits)	-	25	25	25	25	61	36	70	242	249	\$26
Video games	-	50	307	342	428	615	605	574	613	578	\$61
Seed Library	-	-	-	-	-	-	-	400	766	766	\$1
Kitchen Library	-	-	-	-	-	-	-	-	-	49	\$0
Internet Hubs	-	-	-	-	-	-	-	-	-	6	\$0
Total (#)	44,423	47,861	51,936	53,714	60,828	68,353	73,684	71,006	65,030	60,173	
Total (\$000)	\$1,558.5	\$1,704.0	\$1,879.6	\$1,895.0	\$2,154.2	\$2,440.6	\$2,651.1	\$2,569.4	\$2,311.2	\$2,140.1	

FURNITURE AND EQUIPMENT Branch Name	Total Value of Furniture and Equipment (\$)									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Thornton Branch, 34 Robert Street	\$76,250	\$77,000	\$77,250	\$77,500	\$77,500	\$83,830	\$84,513	\$88,209	\$88,756	\$88,756
Old Angus Branch, 18 King Street	\$76,025	\$74,325	\$73,075	\$57,650	\$0	\$0	\$0	\$0	\$0	\$0
New Angus Branch, 8505 County Road 10	\$0	\$0	\$0	\$0	\$164,774	\$183,443	\$190,550	\$198,698	\$197,154	\$197,154
New Angus Branch Shelving	\$0	\$0	\$0	\$0	\$74,000	\$74,000	\$74,000	\$74,000	\$74,000	\$74,000
New Angus Branch Bibliogate System	\$0	\$0	\$0	\$0	\$48,000	\$48,000	\$48,000	\$48,000	\$48,000	\$48,000
Total (\$000)	\$152.3	\$151.3	\$150.3	\$135.2	\$364.3	\$389.3	\$397.1	\$408.9	\$407.9	\$407.9

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2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
CALCULATION OF SERVICE LEVELS
LIBRARY SERVICES

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Historic Population	17,525	17,846	18,173	18,505	18,994	19,496	20,011	20,540	21,083	21,598

INVENTORY SUMMARY (\$000)

Buildings	\$1,468.7	\$1,468.7	\$1,468.7	\$1,468.7	\$2,997.8	\$2,997.8	\$2,997.8	\$2,997.8	\$2,997.8	\$2,997.8
Land	\$620.1	\$620.1	\$620.1	\$620.1	\$620.1	\$1,027.7	\$1,027.7	\$1,027.7	\$1,027.7	\$1,027.7
Materials	\$1,558.5	\$1,704.0	\$1,879.6	\$1,895.0	\$2,154.2	\$2,440.6	\$2,651.1	\$2,569.4	\$2,311.2	\$2,140.1
Furniture And Equipment	\$152.3	\$151.3	\$150.3	\$135.2	\$364.3	\$389.3	\$397.1	\$408.9	\$407.9	\$407.9
Total (\$000)	\$3,799.6	\$3,944.1	\$4,118.8	\$4,118.9	\$6,136.4	\$6,855.4	\$7,073.6	\$7,003.8	\$6,744.6	\$6,573.5

SERVICE LEVEL (\$/capita)

											Average Service Level
Buildings	\$83.81	\$82.30	\$80.82	\$79.37	\$157.83	\$153.76	\$149.81	\$145.95	\$142.19	\$138.80	\$121.46
Land	\$35.38	\$34.75	\$34.12	\$33.51	\$32.65	\$52.71	\$51.36	\$50.03	\$48.75	\$47.58	\$42.08
Materials	\$88.93	\$95.48	\$103.43	\$102.40	\$113.42	\$125.19	\$132.48	\$125.09	\$109.63	\$99.09	\$109.51
Furniture And Equipment	\$8.69	\$8.48	\$8.27	\$7.30	\$19.18	\$19.97	\$19.84	\$19.91	\$19.35	\$18.89	\$14.99
Total (\$/capita)	\$216.81	\$221.01	\$226.64	\$222.58	\$323.07	\$351.63	\$353.49	\$340.98	\$319.91	\$304.36	\$288.05

2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
CALCULATION OF MAXIMUM ALLOWABLE
LIBRARY SERVICES

10-Year Funding Envelope Calculation	
10 Year Average Service Level 2008 - 2017	\$288.05
Net Population Growth 2018 - 2027	2,892
Maximum Allowable Funding Envelope	\$833,093
Less: Uncommitted Excess Capacity	\$0
Less: 10% Legislated Reduction	\$83,309
Discounted Maximum Allowable Funding Envelope	\$749,784

Excess Capacity Calculation	
Total Value of Inventory in 2017	\$6,573,491
Inventory Using Average Service Level	\$6,221,304
Excess Capacity	\$352,187
Excess Capacity:	Committed

TOWNSHIP OF ESSA
DEVELOPMENT-RELATED CAPITAL PROGRAM
LIBRARY SERVICES

Project Description	Timing	Gross Project Cost	Grants/ Subsidies/Other Recoveries	Net Municipal Cost	Ineligible Costs		Total DC Eligible Costs	DC Eligible Costs			
					Replacement & BTE Shares	10% Reduction		Available DC Reserves	2018-2027	Post 2027	
1.0 LIBRARY SERVICES											
1.1 Buildings, Land & Furnishings											
1.1.1 Repayment of Angus Branch Debt	2018	\$ 28,350	\$ -	\$ 28,350	\$ -	\$ 2,835	\$ 25,515	\$ 25,515	\$ -	\$ -	
1.1.2 Repayment of Angus Branch Debt	2019	\$ 28,350	\$ -	\$ 28,350	\$ -	\$ 2,835	\$ 25,515	\$ 20,109	\$ 5,406	\$ -	
1.1.3 Repayment of Angus Branch Debt	2020	\$ 28,350	\$ -	\$ 28,350	\$ -	\$ 2,835	\$ 25,515	\$ -	\$ 25,515	\$ -	
1.1.4 Branch Expansion Study	2020	\$ 25,000	\$ -	\$ 25,000	\$ -	\$ 2,500	\$ 22,500	\$ -	\$ 22,500	\$ -	
1.1.5 Thornton Branch Expansion (1,000 sq.ft)	2021	\$ 220,000	\$ -	\$ 220,000	\$ -	\$ 22,000	\$ 198,000	\$ -	\$ 198,000	\$ -	
1.1.6 Additional Parking (3 spaces)	2021	\$ 5,000	\$ -	\$ 5,000	\$ -	\$ 500	\$ 4,500	\$ -	\$ 4,500	\$ -	
Subtotal Buildings, Land & Furnishings		\$ 335,050	\$ -	\$ 335,050	\$ -	\$ 33,505	\$ 301,545	\$ 45,624	\$ 255,921	\$ -	
1.2 Material Acquisitions											
1.2.1 Additional Collection Materials (including E-material)	Various	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ 9,000	\$ 81,000	\$ -	
Subtotal Material Acquisitions		\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ 9,000	\$ 81,000	\$ -	
TOTAL LIBRARY SERVICES		\$ 435,050	\$ -	\$ 435,050	\$ -	\$ 43,505	\$ 391,545	\$ 54,624	\$ 336,921	\$ -	

Residential Development Charge Calculation		
Residential Share of 2018 - 2027 DC Eligible Costs	100%	\$336,921
10-Year Growth in Population in New Units		2,990
Unadjusted Development Charge Per Capita		\$112.68
Non-Residential Development Charge Calculation		
Non-Residential Share of 2018 - 2027 DC Eligible Costs	0%	\$0
10-Year Growth in Square Metres		47,000
Unadjusted Development Charge Per Square Metre		\$0.00

2018 - 2027 Net Funding Envelope	\$749,784
Reserve Fund Balance as at December 31, 2017	\$54,624

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APPENDIX B.1
TABLE 3

**TOWNSHIP OF ESSA
CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
LIBRARY SERVICES
RESIDENTIAL DEVELOPMENT CHARGE
(in \$000)**

LIBRARY SERVICES	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.0	\$27.9	\$51.8	\$31.6	(\$158.2)	(\$136.7)	(\$113.4)	(\$88.2)	(\$61.0)	(\$31.6)	
2018 - 2027 RESIDENTIAL FUNDING REQUIREMENTS											
- Library Services: Non Inflated	\$8.1	\$13.5	\$56.1	\$210.6	\$8.1	\$8.1	\$8.1	\$8.1	\$8.1	\$8.1	\$336.9
- Library Services: Inflated	\$8.1	\$13.8	\$58.4	\$223.5	\$8.8	\$8.9	\$9.1	\$9.3	\$9.5	\$9.7	\$359.1
NEW RESIDENTIAL DEVELOPMENT											
- Population Growth in New Units	299	299	299	299	299	299	299	299	299	299	2,990
REVENUE											
- DC Receipts: Inflated	\$35.5	\$36.2	\$37.0	\$37.7	\$38.5	\$39.2	\$40.0	\$40.8	\$41.6	\$42.5	\$389.1
INTEREST											
- Interest on Opening Balance	\$0.0	\$1.0	\$1.8	\$1.1	(\$8.7)	(\$7.5)	(\$6.2)	(\$4.9)	(\$3.4)	(\$1.7)	(\$28.5)
- Interest on In-year Transactions	\$0.5	\$0.4	(\$0.6)	(\$5.1)	\$0.5	\$0.5	\$0.5	\$0.6	\$0.6	\$0.6	(\$1.5)
TOTAL REVENUE	\$36.0	\$37.6	\$38.2	\$33.7	\$30.3	\$32.2	\$34.3	\$36.5	\$38.8	\$41.3	\$359.1
CLOSING CASH BALANCE	\$27.9	\$51.8	\$31.6	(\$158.2)	(\$136.7)	(\$113.4)	(\$88.2)	(\$61.0)	(\$31.6)	\$0.0	

2018 Adjusted Charge Per Capita **\$118.85**

Allocation of Capital Program

Residential Sector	100.0%
Non-Residential Sector	0.0%

Rates for 2018

Inflation Rate	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

APPENDIX B.2

FIRE SERVICES

APPENDIX B.2

FIRE SERVICES

The Essa Fire Department is responsible for fire prevention, inspections, public education and training, as well as fire suppression. The Fire Department serves the Township from two stations, one in Angus and the other in Thornton.

TABLE 1 2008-2017 HISTORICAL SERVICE LEVELS

The Fire Services inventory of capital assets includes two fire stations with a combined area of approximately 12,200 square feet, valued at \$4.28 million. The land area associated with the buildings is approximately 0.70 hectares and is valued at \$910,000. Station furniture and equipment such as SCBA, communications equipment, and equipment for firefighters and the dispatch centre add another \$757,500 to the value of inventory. Finally, vehicles associated with the stations have a replacement value of \$7.16 million.

The current value of the total Fire Services capital infrastructure including buildings, land, vehicles, furniture and equipment is valued at approximately \$13.11 million and has provided Essa with a ten-year average historical service level of \$675.51 per population and employment. The calculated maximum allowable recoverable through development charges over the 2018 to 2027 planning period is \$2.51 million (3,720 population and employment growth X historical service level of \$675.51/population and employment). No excess capacity has been identified in this service.

TABLE 2 2018 – 2027 DEVELOPMENT-RELATED CAPITAL PROGRAM & CALCULATION OF THE UNADJUSTED DEVELOPMENT CHARGE

The Fire capital program includes for the expansion of space at both Station 1 (Thornton) and Station 2 (Angus) to accommodate anticipated growth in the Township. The cost associated with the station expansions amounts to \$4.71 million. Additional fire vehicles are included in the capital program for a gross cost of \$1.20 million. Lastly, additional equipment for fire prevention, including bunker gear, SCBA air compressor, air cylinders and bottles, specialized extrication equipment, and TOMAR Lite Emitters add another \$333,400 to the capital program.

Altogether, the ten-year capital forecast for Fire Services amounts to \$6.24 million. Of this total, about \$1.05 million of the capital program is deemed to be a benefit to

existing community or a replacement shares. These costs will not be recovered through DCs, and the Township will need to fund this amount through means other than DCs. Approximately \$632,300 is to be funded from current Fire Services development charges reserve funds.

Finally, a portion of the capital program, \$2.05 million, is deemed a post-period benefit, and will be considered for recovery in subsequent development charge by-laws. The remaining \$2.51 million is related to development between 2018 and 2027, which is allocated against future residential and non-residential in the Township of Essa. The *DCA* does not require a 10 per cent statutory discount for Fire Services.

The ten-year development-related net capital cost is allocated 78 per cent, or \$1.96 million, against residential development, and 22 per cent, or \$552,800, against non-residential development. The allocation between residential and non-residential development is based on shares of ten-year growth in population and employment. The resulting unadjusted development charge is \$655.46 per capita and \$11.76 per square metre.

TABLE 3 CASH FLOW ANALYSIS

After cash flow consideration, the residential charge increases to \$705.65 per capita and the non-residential charge increases to \$12.67 per square metre.

The following table summarizes the calculation of the Fire Services development charge.

FIRE SERVICES SUMMARY						
10-year Hist. Service Level per pop & emp	2018 - 2027		Unadjusted		Adjusted	
	Total	Net DC Recoverable	\$/capita	\$/sq.m	\$/capita	\$/sq.m
\$675.51	\$6,238,638	\$2,512,608	\$655.46	\$11.76	\$705.65	\$12.67

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2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
FIRE SERVICES

BUILDINGS Station Name	# of Square Feet										UNIT COST (\$/sq. ft.)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Station #1 - Thornton	6,980	6,980	6,980	6,980	6,980	6,980	6,980	6,980	6,980	6,980	6,980	\$350
Station #2 - Angus	5,257	5,257	5,257	5,257	5,257	5,257	5,257	5,257	5,257	5,257	5,257	\$350
Total (sq.ft.)	12,237											
Total (\$000)	\$4,283.0											

LAND Station Name	# of Hectares										UNIT COST (\$/ha)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Station #1 - Thornton	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	\$1,300,000
Station #2 - Angus	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	\$1,300,000
Total (ha)	0.70											
Total (\$000)	\$910.0											

FURNITURE & EQUIPMENT Station Name	Total Value of Furniture & Equipment (\$)										UNIT COST (\$/outfit)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Dispatch Centre	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	
Other Station Equipment	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	
SCBA Equipment	\$182,500	\$205,000	\$227,500	\$250,000	\$272,500	\$272,500	\$272,500	\$272,500	\$272,500	\$272,500	\$272,500	
# of Equipped Firefighters	54	54	54	54	54	54	54	56	58	60		\$3,500
Total (\$000)	\$646.5	\$669.0	\$691.5	\$714.0	\$736.5	\$736.5	\$736.5	\$743.5	\$750.5	\$757.5		

APPENDIX B.2
TABLE 1 - PAGE 2

2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
FIRE SERVICES

VEHICLES Vehicle Type	# of Vehicles										UNIT COST (\$/vehicle)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
1985 GMC Utility Van	1	1	-	-	-	-	-	-	-	-	-	\$190,000
1988 Chev Pumper	1	1	-	-	-	-	-	-	-	-	-	\$270,000
1992 Int. Fire Truck Telesquirt (L4)	1	1	1	1	1	1	-	-	-	-	-	\$570,000
1993 International Fire Tanker (T2)	1	1	1	1	1	1	1	-	-	-	-	\$450,000
2000 Freightliner FL80 1050 Pumper (P2)	1	1	1	1	1	1	1	1	1	1	1	\$750,000
2003 Freightliner 1050 Pumper	1	-	-	-	-	-	-	-	-	-	-	\$750,000
1994 Int. Fire Tanker (T3)	1	1	1	1	1	1	1	1	1	1	0.5	\$450,000
1993 Int. Fire Tanker (T1)	1	1	1	1	-	-	-	-	-	-	-	\$450,000
1996 Ford Rescue Unit (R2)	1	1	1	1	1	1	1	1	-	-	-	\$750,000
1997 Freightliner Rescue Unit (R1)	1	1	1	1	1	1	1	1	1	1	1	\$750,000
1999 Int. 4900 Fire Tanker (T4)	1	1	1	1	1	1	1	1	1	1	1	\$450,000
2005 Chev 2500 HD 4x4 (C1)	1	1	1	1	1	1	1	1	-	-	-	\$57,000
2007 Ford F150 4x4 (C2)	-	1	1	1	1	1	1	1	1	1	1	\$80,000
2004 GMC Sierra 2500 4x4 (U1)	-	-	1	1	1	1	1	1	1	1	1	\$90,500
2004 GMC Sierra 3500 SLT 4X4 (U2)	-	-	1	1	1	1	1	1	1	1	1	\$110,000
2008 Dependable Crimson (P1)	-	-	1	1	1	1	1	1	1	1	1	\$750,000
1995 Freightliner FL-80 P-3	-	1	1	1	1	1	1	1	1	1	1	\$425,000
2012 Int. Amthor Fire Tanker (T1)	-	-	-	-	1	1	1	1	1	1	1	\$425,000
2001 Freightliner FL89 Pumper	1	1	1	1	1	1	1	1	1	1	1	\$750,000
2014 Dependable Freightliner	-	-	-	-	-	-	1	1	1	1	1	\$425,000
2011 Pierce 75ft Aerial	-	-	-	-	-	1	1	1	1	1	1	\$1,100,000
2016 Spartan Pumper/Rescue	-	-	-	-	-	-	-	-	1	1	1	\$750,000
2010 Ford F150 4x4	-	-	-	-	-	-	-	1	1	1	1	\$80,000
Total (#)	13	14	15	15	15	16	16	16	15	14.5		
Total (\$000)	\$6,637.0	\$6,392.0	\$6,882.5	\$6,882.5	\$6,857.5	\$7,957.5	\$7,812.5	\$7,442.5	\$7,385.5	\$7,160.5		

**APPENDIX B.2
TABLE 1 - PAGE 3**

**2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
CALCULATION OF SERVICE LEVELS
FIRE SERVICES**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Historic Population	17,525	17,846	18,173	18,505	18,994	19,496	20,011	20,540	21,083	21,598
Historic Employment	6,927	7,013	7,100	7,190	7,344	7,502	7,663	7,828	7,997	8,192
Total Population and Employment	24,452	24,859	25,273	25,695	26,338	26,998	27,674	28,368	29,080	29,790

INVENTORY SUMMARY (\$000)

Buildings	\$4,283.0	\$4,283.0	\$4,283.0	\$4,283.0	\$4,283.0	\$4,283.0	\$4,283.0	\$4,283.0	\$4,283.0	\$4,283.0
Land	\$910.0	\$910.0	\$910.0	\$910.0	\$910.0	\$910.0	\$910.0	\$910.0	\$910.0	\$910.0
Furniture & Equipment	\$646.5	\$669.0	\$691.5	\$714.0	\$736.5	\$736.5	\$736.5	\$743.5	\$750.5	\$757.5
Vehicles	\$6,637.0	\$6,392.0	\$6,882.5	\$6,882.5	\$6,857.5	\$7,957.5	\$7,812.5	\$7,442.5	\$7,385.5	\$7,160.5
Total (\$000)	\$12,476.5	\$12,254.0	\$12,767.0	\$12,789.5	\$12,787.0	\$13,887.0	\$13,742.0	\$13,379.0	\$13,329.0	\$13,111.0

SERVICE LEVEL (\$/capita + employee)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average Service Level
Buildings	\$244.39	\$239.99	\$235.68	\$231.45	\$225.49	\$219.68	\$214.03	\$208.52	\$203.15	\$198.30	\$222.07
Land	\$51.93	\$50.99	\$50.07	\$49.18	\$47.91	\$46.68	\$45.47	\$44.30	\$43.16	\$42.13	\$47.18
Furniture & Equipment	\$36.89	\$37.49	\$38.05	\$38.58	\$38.78	\$37.78	\$36.80	\$36.20	\$35.60	\$35.07	\$37.12
Vehicles	\$378.72	\$358.18	\$378.72	\$371.93	\$361.04	\$408.16	\$390.41	\$362.34	\$350.31	\$331.54	\$369.13
Total (\$/capita and employee)	\$711.92	\$686.65	\$702.52	\$691.13	\$673.21	\$712.30	\$686.72	\$651.36	\$632.21	\$607.04	\$675.51

**2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
CALCULATION OF MAXIMUM ALLOWABLE
FIRE SERVICES**

10-Year Funding Envelope Calculation	
10 Year Average Service Level 2008 - 2017	\$675.51
Population and Employment Growth 2018 - 2027	3,720
Maximum Allowable Funding Envelope	\$2,512,608
Less: Uncommitted Excess Capacity	\$0
Discounted Maximum Allowable Funding Envelope	\$2,512,608

Excess Capacity Calculation	
Total Value of Inventory in 2017	\$13,110,950
Inventory Using Average Service Level	\$14,589,665
Excess Capacity	\$0

APPENDIX B.2
TABLE 2

TOWNSHIP OF ESSA
DEVELOPMENT-RELATED CAPITAL PROGRAM
FIRE SERVICES

Project Description	Timing	Gross Project Cost	Grants/ Subsidies/Other Recoveries	Net Municipal Cost	Ineligible Costs		Total DC Eligible Costs	DC Eligible Costs		
					Replacement & BTE Shares	0% Reduction		Available DC Reserves	2018-2027	Post 2027
2.0 FIRE SERVICES										
2.1 Buildings, Land & Furnishings										
2.1.1 Station 1 (Thorton) Expansion	2020	\$ 1,586,230	\$ -	\$ 1,586,230	\$ 174,368	\$ -	\$ 1,411,862	\$ 270,931	\$ 1,140,931	\$ -
2.1.2 Station 2 - Land Acquisition (0.9 ha)	2021	\$ 1,183,000	\$ -	\$ 1,183,000	\$ -	\$ -	\$ 1,183,000	\$ -	\$ 849,677	\$ 333,323
2.1.3 Station 2 (Angus) Expansion	2024	\$ 1,936,008	\$ -	\$ 1,936,008	\$ 221,614	\$ -	\$ 1,714,394	\$ -	\$ -	\$ 1,714,394
Subtotal Buildings, Land & Furnishings		\$ 4,705,238	\$ -	\$ 4,705,238	\$ 395,982	\$ -	\$ 4,309,256	\$ 270,931	\$ 1,990,608	\$ 2,047,718
2.2 Vehicles										
2.2.1 Fire Prevention Officer Vehicle	2019	\$ 50,000	\$ -	\$ 50,000	\$ -	\$ -	\$ 50,000	\$ 50,000	\$ -	\$ -
2.2.2 Freightliner 1250 Pumper	2020	\$ 400,000	\$ -	\$ 400,000	\$ 300,000	\$ -	\$ 100,000	\$ 100,000	\$ -	\$ -
2.2.3 Fire Training Vehicle	2020	\$ 50,000	\$ -	\$ 50,000	\$ -	\$ -	\$ 50,000	\$ -	\$ 50,000	\$ -
2.2.4 Heavy Rescue Unit	2021	\$ 700,000	\$ -	\$ 700,000	\$ 350,000	\$ -	\$ 350,000	\$ -	\$ 350,000	\$ -
Subtotal Vehicles		\$ 1,200,000	\$ -	\$ 1,200,000	\$ 650,000	\$ -	\$ 550,000	\$ 150,000	\$ 400,000	\$ -
2.3 Equipment & Other										
2.3.1 Bunker Gear for 10 Firefighters	2019	\$ 35,000	\$ -	\$ 35,000	\$ -	\$ -	\$ 35,000	\$ 35,000	\$ -	\$ -
2.3.2 SCBA Air Compressor	2020	\$ 60,000	\$ -	\$ 60,000	\$ -	\$ -	\$ 60,000	\$ 60,000	\$ -	\$ -
2.3.3 Specialized Extrication Equipment (Heavy Rescue)	2019	\$ 40,000	\$ -	\$ 40,000	\$ -	\$ -	\$ 40,000	\$ 40,000	\$ -	\$ -
2.3.4 Specialized Extrication Equipment (Heavy Rescue)	2020	\$ 40,000	\$ -	\$ 40,000	\$ -	\$ -	\$ 40,000	\$ 40,000	\$ -	\$ -
2.3.5 Specialized Extrication Equipment (Heavy Rescue)	2021	\$ 40,000	\$ -	\$ 40,000	\$ -	\$ -	\$ 40,000	\$ -	\$ 40,000	\$ -
2.3.6 TOMAR Lite Emitters	various	\$ 70,000	\$ -	\$ 70,000	\$ -	\$ -	\$ 70,000	\$ 14,000	\$ 56,000	\$ -
2.3.7 SCBA Air Cylinders and Bottles (8)	2019	\$ 11,200	\$ -	\$ 11,200	\$ -	\$ -	\$ 11,200	\$ 11,200	\$ -	\$ -
2.3.8 SCBA Air Cylinders and Bottles (8)	2020	\$ 11,200	\$ -	\$ 11,200	\$ -	\$ -	\$ 11,200	\$ 11,200	\$ -	\$ -
2.3.9 SCBA Air Cylinders and Bottles (4)	2021	\$ 26,000	\$ -	\$ 26,000	\$ -	\$ -	\$ 26,000	\$ -	\$ 26,000	\$ -
Subtotal Equipment & Other		\$ 333,400	\$ -	\$ 333,400	\$ -	\$ -	\$ 333,400	\$ 211,400	\$ 122,000	\$ -
TOTAL FIRE SERVICES		\$ 6,238,638	\$ -	\$ 6,238,638	\$ 1,045,982	\$ -	\$ 5,192,656	\$ 632,331	\$ 2,512,608	\$ 2,047,718

Residential Development Charge Calculation		
Residential Share of 2018 - 2027 DC Eligible Costs	78%	\$1,959,834
10-Year Growth in Population in New Units		2,990
Unadjusted Development Charge Per Capita		\$655.46
Non-Residential Development Charge Calculation		
Non-Residential Share of 2018 - 2027 DC Eligible Costs	22%	\$552,774
10-Year Growth in Square Metres		47,000
Unadjusted Development Charge Per Square Metre		\$11.76

2018 - 2027 Net Funding Envelope	\$2,512,608
Reserve Fund Balance as at December 31, 2017	\$632,331

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TABLE 3 - PAGE 1

TOWNSHIP OF ESSA
CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
FIRE SERVICES
RESIDENTIAL DEVELOPMENT CHARGE
(in \$000)

FIRE SERVICES	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.0	\$210.2	\$432.0	(\$325.0)	(\$1,160.0)	(\$996.2)	(\$854.0)	(\$664.2)	(\$459.2)	(\$238.1)	
2018 - 2027 RESIDENTIAL FUNDING REQUIREMENTS											
- Fire Services: Non Inflated	\$4.4	\$4.4	\$933.3	\$960.4	\$4.4	\$35.6	\$4.4	\$4.4	\$4.4	\$4.4	\$1,959.8
- Fire Services: Inflated	\$4.4	\$4.5	\$971.0	\$1,019.2	\$4.7	\$39.3	\$4.9	\$5.0	\$5.1	\$5.2	\$2,063.3
NEW RESIDENTIAL DEVELOPMENT											
- Population Growth in New Units	299	299	299	299	299	299	299	299	299	299	2,990
REVENUE											
- DC Receipts: Inflated	\$211.0	\$215.2	\$219.5	\$223.9	\$228.4	\$232.9	\$237.6	\$242.4	\$247.2	\$252.2	\$2,310.3
INTEREST											
- Interest on Opening Balance	\$0.0	\$7.4	\$15.1	(\$17.9)	(\$63.8)	(\$54.8)	(\$47.0)	(\$36.5)	(\$25.3)	(\$13.1)	(\$235.8)
- Interest on In-year Transactions	\$3.6	\$3.7	(\$20.7)	(\$21.9)	\$3.9	\$3.4	\$4.1	\$4.2	\$4.2	\$4.3	(\$11.1)
TOTAL REVENUE	\$214.6	\$226.3	\$214.0	\$184.2	\$168.5	\$181.5	\$194.7	\$210.0	\$226.2	\$243.4	\$2,063.3
CLOSING CASH BALANCE	\$210.2	\$432.0	(\$325.0)	(\$1,160.0)	(\$996.2)	(\$854.0)	(\$664.2)	(\$459.2)	(\$238.1)	\$0.0	

2018 Adjusted Charge Per Capita **\$705.65**

Allocation of Capital Program	
Residential Sector	78.0%
Non-Residential Sector	22.0%
Rates for 2018	
Inflation Rate	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

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APPENDIX B.2
TABLE 3 - PAGE 2

**TOWNSHIP OF ESSA
CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
FIRE SERVICES
NON-RESIDENTIAL DEVELOPMENT CHARGE
(in \$000)**

FIRE SERVICES	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.00	\$59.34	\$121.94	(\$91.54)	(\$327.01)	(\$280.76)	(\$240.58)	(\$186.99)	(\$129.11)	(\$66.69)	
2018 - 2027 NON-RESIDENTIAL FUNDING REQUIREMENTS											
- Fire Services: Non Inflated	\$1.2	\$1.2	\$263.2	\$270.9	\$1.2	\$10.0	\$1.2	\$1.2	\$1.2	\$1.2	\$552.8
- Fire Services: Inflated	\$1.2	\$1.3	\$273.9	\$287.5	\$1.3	\$11.1	\$1.4	\$1.4	\$1.4	\$1.5	\$581.9
NEW NON-RESIDENTIAL DEVELOPMENT											
- Growth in Square Metres	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	47,000
REVENUE											
- DC Receipts: Inflated	\$59.5	\$60.7	\$62.0	\$63.2	\$64.5	\$65.7	\$67.1	\$68.4	\$69.8	\$71.2	\$652.0
INTEREST											
- Interest on Opening Balance	\$0.0	\$2.1	\$4.3	(\$5.0)	(\$18.0)	(\$15.4)	(\$13.2)	(\$10.3)	(\$7.1)	(\$3.7)	(\$66.4)
- Interest on In-year Transactions	\$1.0	\$1.0	(\$5.8)	(\$6.2)	\$1.1	\$1.0	\$1.1	\$1.2	\$1.2	\$1.2	(\$3.1)
TOTAL REVENUE	\$60.6	\$63.9	\$60.4	\$52.0	\$47.6	\$51.3	\$55.0	\$59.3	\$63.9	\$68.7	\$582.5
CLOSING CASH BALANCE	\$59.3	\$121.9	(\$91.5)	(\$327.0)	(\$280.8)	(\$240.6)	(\$187.0)	(\$129.1)	(\$66.7)	\$0.6	

2018 Adjusted Charge Per Square Metre	\$12.67
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Allocation of Capital Program	
Residential Sector	78.0%
Non-Residential Sector	22.0%
Rates for 2018	
Inflation Rate	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

APPENDIX B.3

POLICE SERVICES

APPENDIX B.3

POLICE SERVICES

Policing for the Township of Essa is provided by the Nottawasaga Ontario Provincial Police (OPP) through a joint contract between the Townships of Essa, and Adjala-Tosorontio and the Town of New Tecumseth. The service level calculations, development-related capital program and per capita development charge rates have been calculated based on the total growth requirements of the Township of Essa only.

TABLE 1 2008-2017 HISTORICAL SERVICE LEVELS

The ten-year historical inventory of capital assets for Police includes 19,600 square feet of building space with a replacement value of \$3.53 million. The 1.72 hectares of land associated with the building space is valued at \$2.23 million and the equipment for police officers, vehicles and station furniture adds another \$1.20 million to the value of the inventory.

The current replacement value of the Police Service's capital infrastructure including buildings, land, furniture and equipment is approximately \$6.96 million. However, the Township's share of this infrastructure is only 29 per cent as per shares of population and employment. As such, the value of the infrastructure related to the Township's level of service is reduced to \$2.02 million. This has provided a ten-year average historical service level of \$66.56 per capita and employee. This average historical service level multiplied by the ten-year forecast growth in net population and employment, results in a ten-year maximum allowable funding envelope of \$247,600.

**TABLE 2 2018 – 2027 DEVELOPMENT-RELATED CAPITAL PROGRAM &
CALCULATION OF THE UNADJUSTED DEVELOPMENT CHARGE**

The Police Services capital program recovers for equipment for new police officers and for equipment contained in new police vehicles. Altogether, the ten-year capital forecast for Police amounts to \$247,600, all of which is considered to be development-related. The in-period DC eligible costs are reduced by available DC reserves of \$219,500. As such, the eligible costs for the period of 2018-2027 is \$28,000. This is brought forward to the development charge calculation.

The total development-related net capital cost is allocated 78 per cent, or \$21,900 against new residential development, and 22 per cent, or \$6,200 against non-

residential development. This yields an unadjusted development charge of \$7.32 per capita and \$0.13 per square metre.

TABLE 3 CASH FLOW ANALYSIS

After cash flow consideration, the calculated residential charge decreases to \$6.92 per capita and the non-residential charge remains at \$0.13 per square metre.

The following table summarizes the calculation of the Police Services development charge.

POLICE SERVICES SUMMARY						
10-year Hist.	2018 - 2027		Unadjusted		Adjusted	
Service Level	Development-Related Capital Program		Development Charge		Development Charge	
per pop & emp	Total	Net DC Recoverable	\$/capita	\$/sq.m	\$/capita	\$/sq.m
\$66.56	\$247,575	\$28,044	\$7.32	\$0.13	\$6.92	\$0.13

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APPENDIX B.3
TABLE 1 - PAGE 1

2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
POLICE SERVICES

BUILDINGS Facility Name	# of Square Feet										UNIT COST (\$/sq. ft.)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Beeton	8,800	8,800	-	-	-	-	-	-	-	-	-	\$180
Alliston	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	\$180
Nottawasaga Detachment - Alliston	-	-	17,319	17,319	17,319	17,319	17,319	17,319	17,319	17,319	17,319	\$180
Tottenham ESO	250	250	250	250	250	250	250	250	250	250	250	\$180
Beeton ESO	-	640	640	640	640	640	640	640	640	640	640	\$180
Total (sq.ft.)	10,450	11,090	19,609									
Total (\$000)	\$1,881.0	\$1,996.2	\$3,529.6									

LAND Facility Name	# of Hectares										UNIT COST (\$/ha)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Beeton	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	\$ 1,300,000
Nottawasaga Detachment - Alliston	-	-	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	\$ 1,300,000
Total (ha)	0.15	0.15	1.72									
Total (\$000)	\$195.0	\$195.0	\$2,231.8									

FURNITURE & EQUIPMENT Facility Name	Total Value of Furniture & Equipment (\$)										UNIT COST (\$/unit)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Furniture and Equipment	\$111,400	\$111,400	\$111,400	\$111,400	\$111,400	\$111,400	\$111,400	\$111,400	\$111,400	\$111,400	\$111,400	
Vehicle Equipment (# vehicles x unit cost)	24	24	28	29	29	29	29	29	29	29	29	\$ 20,270
Personal Equipment (# uniformed officers x unit cost)	54	56	60	61	61	61	61	61	61	61	61	\$ 8,200
Total (\$000)	\$1,040.7	\$1,053.0	\$1,171.0	\$1,199.4								

**APPENDIX B.3
TABLE 1 - PAGE 2**

**2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
CALCULATION OF SERVICE LEVELS
POLICE SERVICES**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Historic Population	17,525	17,846	18,173	18,505	18,994	19,496	20,011	20,540	21,083	21,598
Historic Employment	<u>6,927</u>	<u>7,013</u>	<u>7,100</u>	<u>7,190</u>	<u>7,344</u>	<u>7,502</u>	<u>7,663</u>	<u>7,828</u>	<u>7,997</u>	<u>8,192</u>
Total Historic Population & Employment	24,452	24,859	25,273	25,695	26,338	26,998	27,674	28,368	29,080	29,790

INVENTORY SUMMARY (\$000)

Buildings	\$1,881.0	\$1,996.2	\$3,529.6	\$3,529.6	\$3,529.6	\$3,529.6	\$3,529.6	\$3,529.6	\$3,529.6	\$3,529.6
Land	\$195.0	\$195.0	\$2,231.8	\$2,231.8	\$2,231.8	\$2,231.8	\$2,231.8	\$2,231.8	\$2,231.8	\$2,231.8
Furniture & Equipment	\$1,040.7	\$1,053.0	\$1,171.0	\$1,199.4	\$1,199.4	\$1,199.4	\$1,199.4	\$1,199.4	\$1,199.4	\$1,199.4
Total (\$000)	\$3,116.7	\$3,244.2	\$6,932.4	\$6,960.9						

INVENTORY SUMMARY (\$000) - Essa Share Only (29%)

Buildings	\$545.49	\$578.90	\$1,023.59	\$1,023.59	\$1,023.59	\$1,023.6	\$1,023.6	\$1,023.6	\$1,023.6	\$1,023.6
Land	\$56.55	\$56.55	\$647.23	\$647.23	\$647.23	\$647.2	\$647.2	\$647.2	\$647.2	\$647.2
Furniture & Equipment	\$301.80	\$305.36	\$339.58	\$347.83	\$347.83	\$347.8	\$347.8	\$347.8	\$347.8	\$347.8
Total (\$000)	\$903.8	\$940.8	\$2,010.4	\$2,018.7						

**Average
Service
Level**

SERVICE LEVEL (\$/capita & employment)

Buildings	\$22.31	\$23.29	\$40.50	\$39.84	\$38.86	\$37.91	\$36.99	\$36.08	\$35.20	\$34.36	\$34.53
Land	\$2.31	\$2.27	\$25.61	\$25.19	\$24.57	\$23.97	\$23.39	\$22.82	\$22.26	\$21.73	\$19.41
Furniture & Equipment	\$12.34	\$12.28	\$13.44	\$13.54	\$13.21	\$12.88	\$12.57	\$12.26	\$11.96	\$11.68	\$12.62
Total (\$/capita & employment)	\$36.96	\$37.85	\$79.55	\$78.56	\$76.64	\$74.77	\$72.94	\$71.16	\$69.42	\$67.76	\$66.56

**2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
CALCULATION OF MAXIMUM ALLOWABLE
POLICE SERVICES**

10-Year Funding Envelope Calculation	
10 Year Average Service Level 2008 - 2017	\$66.56
Net Population & Employment Growth 2018 - 2027	3,720
Maximum Allowable Funding Envelope	\$247,575
Less: Uncommitted Excess Capacity	\$0
Discounted Maximum Allowable Funding Envelope	\$247,575

Excess Capacity Calculation	
Total Value of Inventory in 2017	\$2,018,659
Inventory Using Average Service Level	\$1,982,798
Excess Capacity	\$35,860
Excess Capacity:	Committed

TOWNSHIP OF ESSA
DEVELOPMENT-RELATED CAPITAL PROGRAM
POLICE SERVICES

Project Description	Timing	Gross Project Cost	Grants/ Subsidies/Other Recoveries	Net Municipal Cost	Ineligible Costs		Total DC Eligible Costs	DC Eligible Costs			
					Replacement & BTE Shares	0% Reduction		Available DC Reserves	2018-2027	Post 2027	
3.0 POLICE SERVICES											
3.1 Equipment											
3.1.1 Growth-Related Capital - Based on Historic Service Level	2018	\$ 24,757	\$ -	\$ 24,757	\$ -	\$ -	\$ 24,757	\$ 24,757	\$ -	\$ -	
3.1.2 Growth-Related Capital - Based on Historic Service Level	2019	\$ 24,757	\$ -	\$ 24,757	\$ -	\$ -	\$ 24,757	\$ 24,757	\$ -	\$ -	
3.1.3 Growth-Related Capital - Based on Historic Service Level	2020	\$ 24,757	\$ -	\$ 24,757	\$ -	\$ -	\$ 24,757	\$ 24,757	\$ -	\$ -	
3.1.4 Growth-Related Capital - Based on Historic Service Level	2021	\$ 24,757	\$ -	\$ 24,757	\$ -	\$ -	\$ 24,757	\$ 24,757	\$ -	\$ -	
3.1.5 Growth-Related Capital - Based on Historic Service Level	2022	\$ 24,757	\$ -	\$ 24,757	\$ -	\$ -	\$ 24,757	\$ 24,757	\$ -	\$ -	
3.1.6 Growth-Related Capital - Based on Historic Service Level	2023	\$ 24,757	\$ -	\$ 24,757	\$ -	\$ -	\$ 24,757	\$ 24,757	\$ -	\$ -	
3.1.7 Growth-Related Capital - Based on Historic Service Level	2024	\$ 24,757	\$ -	\$ 24,757	\$ -	\$ -	\$ 24,757	\$ 24,757	\$ -	\$ -	
3.1.8 Growth-Related Capital - Based on Historic Service Level	2025	\$ 24,757	\$ -	\$ 24,757	\$ -	\$ -	\$ 24,757	\$ 24,757	\$ -	\$ -	
3.1.9 Growth-Related Capital - Based on Historic Service Level	2026	\$ 24,757	\$ -	\$ 24,757	\$ -	\$ -	\$ 24,757	\$ 21,471	\$ 3,286	\$ -	
3.1.10 Growth-Related Capital - Based on Historic Service Level	2027	\$ 24,757	\$ -	\$ 24,757	\$ -	\$ -	\$ 24,757	\$ -	\$ 24,757	\$ -	
Subtotal Equipment		\$ 247,575	\$ -	\$ 247,575	\$ -	\$ -	\$ 247,575	\$ 219,531	\$ 28,044	\$ -	
TOTAL POLICE SERVICES		\$ 247,575	\$ -	\$ 247,575	\$ -	\$ -	\$ 247,575	\$ 219,531	\$ 28,044	\$ -	

Residential Development Charge Calculation		
Residential Share of 2018 - 2027 DC Eligible Costs	78%	\$21,874
10-Year Growth in Population in New Units		2,990
Unadjusted Development Charge Per Capita		\$7.32
Non-Residential Development Charge Calculation		
Non-Residential Share of 2018 - 2027 DC Eligible Costs	22%	\$6,170
10-Year Growth in Square Metres		47,000
Unadjusted Development Charge Per Square Metre		\$0.13

2018 - 2027 Net Funding Envelope	\$247,575
Reserve Fund Balance as at December 31, 2017	\$219,531

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APPENDIX B.3
TABLE 3 - PAGE 1

TOWNSHIP OF ESSA
CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
POLICE SERVICES
RESIDENTIAL DEVELOPMENT CHARGE
(in \$000)

POLICE SERVICES	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.0	\$2.1	\$4.3	\$6.7	\$9.1	\$11.7	\$14.5	\$17.3	\$20.4	\$20.5	
2018 - 2027 RESIDENTIAL FUNDING REQUIREMENTS											
- Police Services: Non Inflated	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$2.6	\$19.3	\$21.9
- Police Services: Inflated	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$3.0	\$23.1	\$26.1
NEW RESIDENTIAL DEVELOPMENT											
- Population Growth in New Units	299	299	299	299	299	299	299	299	299	299	2,990
REVENUE											
- DC Receipts: Inflated	\$2.1	\$2.1	\$2.2	\$2.2	\$2.2	\$2.3	\$2.3	\$2.4	\$2.4	\$2.5	\$22.7
INTEREST											
- Interest on Opening Balance	\$0.0	\$0.1	\$0.2	\$0.2	\$0.3	\$0.4	\$0.5	\$0.6	\$0.7	\$0.7	\$3.7
- Interest on In-year Transactions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	(\$0.6)	(\$0.3)
TOTAL REVENUE	\$2.1	\$2.2	\$2.3	\$2.5	\$2.6	\$2.7	\$2.9	\$3.0	\$3.1	\$2.6	\$26.1
CLOSING CASH BALANCE	\$2.1	\$4.3	\$6.7	\$9.1	\$11.7	\$14.5	\$17.3	\$20.4	\$20.5	\$0.0	

2018 Adjusted Charge Per Capita	\$6.92
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Allocation of Capital Program	
Residential Sector	78.0%
Non-Residential Sector	22.0%
Rates for 2018	
Inflation Rate	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

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APPENDIX B.3
TABLE 3 - PAGE 2

TOWNSHIP OF ESSA
CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
POLICE SERVICES
NON-RESIDENTIAL DEVELOPMENT CHARGE
(in \$000)

POLICE SERVICES	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.00	\$0.62	\$1.28	\$1.97	\$2.70	\$3.47	\$4.27	\$5.12	\$6.02	\$6.09	
2018 - 2027 NON-RESIDENTIAL FUNDING REQUIREMENTS											
- Police Services: Non Inflated	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.7	\$5.4	\$6.2
- Police Services: Inflated	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.8	\$6.5	\$7.4
NEW NON-RESIDENTIAL DEVELOPMENT											
- Growth in Square Metres	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	47,000
REVENUE											
- DC Receipts: Inflated	\$0.6	\$0.6	\$0.6	\$0.6	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$6.7
INTEREST											
- Interest on Opening Balance	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$1.1
- Interest on In-year Transactions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	(\$0.2)	(\$0.1)
TOTAL REVENUE	\$0.6	\$0.7	\$0.7	\$0.7	\$0.8	\$0.8	\$0.8	\$0.9	\$0.9	\$0.8	\$7.7
CLOSING CASH BALANCE	\$0.6	\$1.3	\$2.0	\$2.7	\$3.5	\$4.3	\$5.1	\$6.0	\$6.1	\$0.4	

2018 Adjusted Charge Per Square Metre	\$0.13
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Allocation of Capital Program	
Residential Sector	78.0%
Non-Residential Sector	22.0%
Rates for 2018	
Inflation Rate	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

APPENDIX B.4

PARKS AND RECREATION

APPENDIX B.4

PARKS AND RECREATION

The Township of Essa Parks and Recreation Department is responsible for providing indoor and outdoor leisure space to its residents. The Township offers a wide array of recreational opportunities by way of community, neighborhood and township parks, and indoor recreation facilities within the Township. This department also offers a variety of outdoor recreation facilities including soccer fields, baseball diamonds, tennis courts, outdoor pads, splash pads and numerous playgrounds.

TABLE 1 2008-2017 HISTORICAL SERVICE LEVELS

The ten-year historical inventory of capital assets for Parks and Recreation includes 71,800 square feet of indoor recreation building space with a current replacement value of \$17.75 million. The land associated with the buildings amount to 9.39 hectares, and is valued at \$12.21 million. The furniture and equipment associated with the facilities have a total value of \$2.68 million.

The Township of Essa offers 19 hectares of developed parkland space in 27 parks. There is also 24 km of trails valued at a cost of \$960,000. The combined value of the community, neighbourhood and township parks and trails amounts to \$1.56 million. The outdoor facilities include full and three-quarter sized soccer pitches, major and minor baseball diamonds, tennis courts, outdoor pads, an off leash dog park, splash pads, a skateboard park, picnic areas, and numerous playgrounds and parking spaces. These facilities have a combined value of \$3.86 million. The Parks and Recreation department is also responsible for the vehicles and small equipment that are required to maintain the park facilities – these items add \$164,600 to the inventory. Finally, the capital program includes a fish cleaning station and storage building for a combined cost of \$178,000.

The combined value of capital assets for Parks and Recreation Services totals \$38.40 million. The ten-year historic average service level is \$2,045.54 per capita, and this, multiplied by the ten-year forecast growth in net population, results in a ten-year maximum allowable funding envelope of \$5.92 million (2,892 net population growth X historic service level of \$2,045.54/capita). No calculated excess capacity has been identified for this service. After the ten percent reduction, the discounted maximum allowable funding envelope becomes \$5.32 million.

TABLE 2 2018 – 2027 DEVELOPMENT-RELATED CAPITAL PROGRAM & CALCULATION OF THE UNADJUSTED DEVELOPMENT CHARGE

The 2018-2027 development-related capital program for Parks and Recreation amounts to \$7.57 million. A provision of \$3.9 million for the construction of new indoor recreation space is included in the capital program – the specific of the space will be subject to the needs as identified in the forthcoming Parks and Recreation Master Plan. The total provision includes for a design study and acquisition of land to facilitate the construction of the new facility. In addition, the capital program includes for a proposed expansion of dressing room space at the Thornton Arena and Recreation Centre in 2023 for \$375,000. The capital program includes the purchase of a dump truck valued at \$64,000 and the addition of parking, playground equipment, lighting, and a provision for further trail development for \$3.26 million.

Of the \$7.57 million total capital program costs, \$550,000 is deemed to be of the benefit of existing residents/replacement share. This amount will not be funded through DCs and the Township will need to raise monies through other means. The ten per cent reduction shares amount to \$702,400 and will have to be funded from non-DC sources. Approximately \$4.18 million is to be funded from the current Parks and Recreation development charges reserve fund. The remaining \$2.14 million is related to growth between 2018 and 2027 and is brought forward to the development charges calculation.

The 2018-2027 DC costs eligible for recovery amount to \$2.14 million, which is allocated entirely against future residential development in the Township of Essa. This results in an unadjusted development charge of \$715.35 per capita.

TABLE 3 CASH FLOW AND RESERVE FUND ANALYSIS

After cash flow consideration, the residential calculated charge decreases to \$703.15 per capita. The following table summarizes the calculation of the Parks and Recreation development charge:

PARKS AND RECREATION SUMMARY						
10-year Hist. Service Level per capita	2018 - 2027 Development-Related Capital Program		Unadjusted Development Charge		Adjusted Development Charge	
	Total	Net DC Recoverable	\$/capita	\$/sq.m	\$/capita	\$/sq.m
\$2,045.54	\$7,574,000	\$2,138,889	\$715.35	\$0.00	\$703.15	\$0.00

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APPENDIX B.4
TABLE 1 - PAGE 1

2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
PARKS AND RECREATION
INDOOR RECREATION FACILITIES

BUILDINGS Facility Name	# of Square Feet										UNIT COST (\$/sq. ft.)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Angus Community Park Hall	2,010	2,010	2,010	2,010	2,010	2,010	2,010	2,010	2,010	2,010	2,010	\$170
Elmgrove Community Hall	1,400	1,400	-	-	-	-	-	-	-	-	-	\$170
Angus Recreation Centre	38,932	38,932	42,052	42,052	42,052	42,052	42,052	42,052	42,052	42,052	42,052	\$250
Former NVCA Building	2,000	2,000	2,000	2,000	-	-	-	-	-	-	-	\$180
Thornton Recreation Centre	27,240	27,240	27,240	27,240	27,240	27,240	27,240	27,240	27,240	27,240	27,240	\$250
Youth Centre	500	500	500	500	500	500	500	500	500	500	500	\$170
Total (sq.ft.)	72,082	72,082	73,802	73,802	71,802							
Total (\$000)	\$17,567.70	\$17,567.70	\$18,109.70	\$18,109.70	\$17,749.70							

LAND Facility Name	# of Hectares										UNIT COST (\$/ha)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Angus Community Park Hall	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	\$1,300,000
Elmgrove Community Hall	0.50	0.50	-	-	-	-	-	-	-	-	-	\$1,300,000
Angus Recreation Centre	4.01	4.01	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	\$1,300,000
Former NVCA Building	0.75	0.75	0.75	0.75	-	-	-	-	-	-	-	\$1,300,000
Thornton Recreation Centre	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	\$1,300,000
Total (ha)	13.26	13.26	10.14	10.14	9.39							
Total (\$000)	\$17,238.0	\$17,238.0	\$13,182.0	\$13,182.0	\$12,207.0							

FURNITURE & EQUIPMENT Facility Name	Total Value of Furniture & Equipment (\$)									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Angus Community Park Hall	\$29,000	\$29,000	\$29,000	\$29,000	\$29,000	\$29,000	\$29,000	\$29,000	\$29,000	\$29,000
Elmgrove Community Hall	\$33,000	\$33,000	-	-	-	-	-	-	-	-
Essa Recreation Centre (Angus)	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000
Former NVCA Building	\$8,000	\$8,000	\$8,000	\$8,000	-	-	-	-	-	-
Thornton Recreation Centre	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000	\$1,321,000
Youth Centre	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000
Total (\$000)	\$2,725.0	\$2,725.0	\$2,692.0	\$2,692.0	\$2,684.0	\$2,684.0	\$2,684.0	\$2,684.0	\$2,684.0	\$2,684.0

2018 DEVELOPMENT CHARGES BACKGROUND STUDY
TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
PARKS AND RECREATION
PARKLAND DEVELOPMENT

COMMUNITY PARKS Park Name	# of Hectares of Developed Area										UNIT COST (\$/ha)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Angus - Community Park (3.015)	1.05	1.05	1.05	1.05	1.05	1.50	1.50	1.50	1.50	1.50	\$45,300
Angus - Bush Parkland	4.09	4.09	4.09	-	-	-	-	-	-	-	\$45,300
Angus - LeClair Parkland (10.514)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	\$45,300
Angus - Peacekeepers Park (1.55)	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	\$45,300
Angus - Lions Park (.7811)	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	\$45,300
Angus - New Ball Park (Priven Court) (2)	-	-	-	0.20	0.20	0.20	0.20	0.20	0.20	0.20	\$45,300
Baxter - Ball Park(1.728)	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	\$45,300
Utopia - Soccer Park (1.809)	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	\$45,300
Thonton Hills Soccer Park (2.42)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	\$45,300
Thornton Arena Ball Park (3.35)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	\$45,300
Total (ha)	8.80	8.80	8.80	4.91	4.91	5.36	5.36	5.36	5.36	5.36	
Total (\$000)	\$398.7	\$398.7	\$398.7	\$222.6	\$222.6	\$242.8	\$242.8	\$242.8	\$242.8	\$242.8	

NEIGHBOURHOOD PARKS Park Name	# of Hectares of Developed Area										UNIT COST (\$/ha)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Angus - Dellbrook Subdivision (.809)	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	\$30,200
Angus - Glen Eton/Wildflowers Park (2)	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	\$30,200
Angus - Maple Lane Subdivision (.404)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	\$30,200
Angus - McGeorge Subdivision (.526)	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	\$30,200
Baxter - Marshall Parkland (.728)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	\$30,200
Cunningham Acres (Phase 2) (2)	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	\$30,200
Cunningham Subdivision (Phase 1) (.566)	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	\$30,200
Pioneer Ridge Subdivision (.647)	0.64	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	\$30,200
Robson Park (.44)	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	\$30,200
Thornton Creek Park	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	\$30,200
Stonemount Park (1)	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	\$30,200
Brownley Park (1.1735)	-	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	\$30,200
Meadowland	-	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	\$30,200
Total (ha)	7.55	8.85	9.85								
Total (\$000)	\$228.1	\$267.4	\$297.6								

APPENDIX B.4
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TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
PARKS AND RECREATION
PARKLAND DEVELOPMENT

TOWNSHIP PARKS (Rural Areas) Park Name	# of Hectares of Township Parks										UNIT COST (\$/ha)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Don Ross Fishing Park (.364)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	\$15,100
Elmgrove Ball Park (1.8009)	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	\$15,100
Elmgrove Community Centre	0.24	0.24	-	-	-	-	-	-	-	-	\$15,100
Essa Centennial Park (33.75)	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	\$15,100
Ivy Ball Park (1.0198)	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	\$15,100
NVCA Fishing Park	1.46	1.46	1.46	1.46	0.27	0.27	0.27	0.27	0.27	0.27	\$15,100
Total (ha)	5.51	5.51	5.27	5.27	4.08	4.08	4.08	4.08	4.08	4.08	
Total (\$000)	\$83.3	\$83.3	\$79.6	\$79.6	\$61.7	\$61.6	\$61.6	\$61.6	\$61.6	\$61.6	

TRAIL SYSTEM Location	# of Kilometres of Limestone Trail										UNIT COST (\$/km)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Abandoned CN Railway	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	\$40,000
Thornton-Cookstown Trail	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	\$40,000
Pine River Trail	-	-	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	\$40,000
Total (km)	23.00	23.00	23.00	24.00							
Total (\$000)	\$920.0	\$920.0	\$920.0	\$960.0							

TOWNSHIP OF ESSA
 INVENTORY OF CAPITAL ASSETS
 PARKS AND RECREATION
 PARK FACILITIES

SOCCER FIELDS Park Name	# of Soccer Fields										UNIT COST (\$/unit)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Full Sized Soccer Field											
LeClair Soccer Park	2	2	2	2	2	2	2	2	2	2	\$44,000
Thornton Hills Soccer Park	2	2	2	2	2	2	2	2	2	2	\$44,000
Three Quarter Sized Soccer Field											
Utopia Soccer Park	3	3	3	3	3	3	3	3	3	3	\$40,000
Brownley Park	-	-	1	1	1	1	1	1	1	1	\$44,000
LeClair Soccer Park	1	1	1	1	1	1	1	1	1	1	\$40,000
Total (#)	8	8	9								
Total (\$000)	\$336.0	\$336.0	\$380.0								

BASEBALL DIAMONDS Park Name	# of Baseball Diamonds										UNIT COST (\$/unit)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Major Diamond											
Angus Community Park	1	1	1	1	1	1	1	1	1	1	\$165,000
Baxter Ball Park	1	1	1	1	1	1	1	1	1	1	\$165,000
Bush Ball Park	1	1	1	-	-	-	-	-	-	-	\$83,000
Elmgrove Ball Park	1	1	1	1	1	1	1	1	1	1	\$55,000
Ivy Ball Park	1	1	1	1	1	1	1	1	1	1	\$83,000
Thornton Arena Ball Park	1	1	1	1	1	1	1	1	1	1	\$83,000
Bob Geddes Park	-	-	-	1	1	1	1	1	1	1	\$309,000
Minor Diamond											
Lion's Ball Park	1	1	1	1	1	1	1	1	1	1	\$22,000
Total (#)	7	7	7	7	7	7	7	7	7	7	
Total (\$000)	\$656.0	\$656.0	\$656.0	\$882.0							

TENNIS COURTS Park Name	# of Tennis Courts										UNIT COST (\$/unit)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Cunningham Acres Ph 2	1	1	1	1	1	1	1	1	1	1	\$44,000
Glen Eton/Wildflower	2	2	2	2	2	2	2	2	2	2	\$44,000
Marshall Park	1	1	1	1	1	1	1	1	1	1	\$44,000
Total (#)	4	4	4	4	4	4	4	4	4	4	
Total (\$000)	\$176.0	\$176.0	\$176.0	\$176.0	\$176.0	\$176.0	\$176.0	\$176.0	\$176.0	\$176.0	

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INVENTORY OF CAPITAL ASSETS
PARKS AND RECREATION
PARK FACILITIES

OUTDOOR PADS Park Name	# of Outdoor Pads										UNIT COST (\$/unit)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Baxter Park	1	1	1	1	1	1	1	1	1	1	1	\$221,000
Glen Eton/Wildflower	1	1	1	1	1	1	1	1	1	1	1	\$248,000
Stonemount Park	1	1	1	1	1	1	1	1	1	1	1	\$276,000
Thornton Arena Park	1	1	1	1	1	1	1	1	1	1	1	\$248,000
Total (#)	4	4	4	4	4	4	4	4	4	4	4	
Total (\$000)	\$993.0	\$993.0	\$993.0	\$993.0	\$993.0	\$993.0	\$993.0	\$993.0	\$993.0	\$993.0	\$993.0	

OFF LEASH DOG PARK Park Name	# of Off Leash Dog Parks										UNIT COST (\$/unit)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Glen Eton/Wildflower	-	-	-	1	1	1	1	1	1	1	1	\$12,000
Total (#)	-	-	-	1								
Total (\$000)	\$0.0	\$0.0	\$0.0	\$12.0								

SPLASH PADS Park Name	# of Splash Pads										UNIT COST (\$/unit)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Angus Community Park	-	-	-	1	1	1	1	1	1	1	1	\$140,000
Stonemount Park	-	-	-	-	-	-	-	-	-	-	1	\$130,000
Thornton Arena Ball Park	-	-	-	-	-	-	-	-	-	-	1	\$100,000
Total (#)	-	-	-	1	3							
Total (\$000)	\$0.0	\$0.0	\$0.0	\$140.0	\$370.0							

SKATEBOARD PARK Park Name	# of Skateboard Park										UNIT COST (\$/unit)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Angus Arena	1	1	1	1	1	1	1	1	1	1	1	\$238,000
Total (#)	1	1	1	1	1	1	1	1	1	1	1	
Total (\$000)	\$238.0	\$238.0	\$238.0	\$238.0	\$238.0	\$238.0	\$238.0	\$238.0	\$238.0	\$238.0	\$238.0	

APPENDIX B.4
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INVENTORY OF CAPITAL ASSETS
PARKS AND RECREATION
PARK FACILITIES

PLAYGROUNDS Park Name	# of Playgrounds										UNIT COST (\$/unit)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Angus Community Park	1	1	1	1	1	1	1	1	1	1	1	\$132,000
Baxter Ball Park	1	1	1	1	1	1	1	1	1	1	1	\$15,000
Brownley Park	1	1	1	1	1	1	1	1	1	1	1	\$60,000
Cunningham Acres Ph.1	1	1	1	1	1	1	1	1	1	1	1	\$132,000
Cunningham Acres Ph.2	1	1	1	1	1	1	1	1	1	1	1	\$53,000
Dellbrook Park	1	1	1	1	1	1	1	1	1	1	1	\$13,000
Egbert Park	1	1	1	1	1	1	1	1	1	1	1	\$21,000
Elmgrove Ball Park	1	1	1	1	1	1	1	1	1	1	1	\$1,000
Glen Eton/Wildflower	1	1	1	1	1	1	1	1	1	1	1	\$63,000
Ivy Ball Park	1	1	1	1	1	1	1	1	1	1	1	\$16,000
Maple Lane Park	1	1	1	1	1	1	1	1	1	1	1	\$26,000
Marshall Park	1	1	1	1	1	1	1	1	1	1	1	\$32,000
McGeorge Park	1	1	1	1	1	1	1	1	1	1	1	\$16,000
Robson Park	1	1	1	1	1	1	1	1	1	1	1	\$11,000
Stonemount Park	1	1	1	1	1	1	1	1	1	1	1	\$42,000
Thornton Arena Park	1	1	1	1	1	1	1	1	1	1	1	\$13,000
Thornton Creek Park	1	1	1	1	1	1	1	1	1	1	1	\$13,000
Utopia Park	1	1	1	1	1	1	1	1	1	1	1	\$11,000
Total (#)	18	18	18	18	18	18	18	18	18	18	18	
Total (\$000)	\$670.0	\$670.0	\$670.0	\$670.0	\$670.0	\$670.0	\$670.0	\$670.0	\$670.0	\$670.0	\$670.0	

PICNIC TABLES Park Name	# of Picnic Tables										UNIT COST (\$/unit)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Angus Community Park	4	4	4	4	4	4	4	4	4	4	4	\$740
Baxter Ball Park	2	2	2	2	2	2	2	2	2	2	2	\$370
Cunningham Acres Ph.2	1	1	1	1	1	1	1	1	1	1	1	\$740
Don Ross Fishing Park	4	4	4	4	4	4	4	4	4	4	4	\$740
Maple Lane Park	-	1	1	1	1	1	1	1	1	1	1	\$740
NVCA Fishing Park	1	1	1	1	1	1	1	1	1	1	1	\$740
Peacekeepers Park	5	5	5	5	5	5	5	5	5	5	5	\$740
Stonemount Park	-	-	-	1	1	1	1	1	1	1	1	\$370
Total (#)	17	18	18	19								
Total (\$000)	\$11.8	\$12.6	\$12.6	\$13.0								

TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
PARKS AND RECREATION
PARK FACILITIES

SHELTERED PICNIC TABLES Park Name	# of Sheltered Picnic Tables										UNIT COST (\$/unit)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Baxter Ball Park	2	2	2	2	2	2	2	2	2	2	2	\$350
Nottawasaga Fishing Park	-	-	-	1	1	1	1	1	1	1	1	\$350
Don Ross	-	-	-	4	4	4	4	4	4	4	4	\$350
Total (#)	2	2	2	7								
Total (\$000)	\$0.7	\$0.7	\$0.7	\$2.5								

PARKING SPACES Park Name	# of Parking Spots										UNIT COST (\$/unit)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Angus Community Park	40	40	40	40	40	40	40	40	40	40	40	\$1,000
Brownley Meadows Park	-	-	30	30	30	30	30	30	30	30	30	\$1,000
Baxter Diamond Park	30	30	30	30	30	30	30	30	30	30	30	\$1,000
Ivy Diamond Park	20	20	20	20	20	20	20	20	20	20	20	\$1,000
Total (#)	90	90	120									
Total (\$000)	\$90.0	\$90.0	\$120.0									

TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
PARKS AND RECREATION
PARK VEHICLES AND EQUIPMENT

VEHICLES AND EQUIPMENT Type	# of Vehicles and Equipment										UNIT COST (\$/unit)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
10" Table Saw Table Master	1	1	1	1	-	-	-	-	-	-	\$300
Stihl Weed Wackers	3	3	3	3	3	3	3	3	3	3	\$700
5 Ton Tag Along Trailer	1	1	1	1	1	1	1	1	1	1	\$10,600
Billy Goat Honda Vacuum 5.5	1	1	1	1	1	1	1	1	1	1	\$2,100
c/w 72" x 72" Bush Hog	1	1	1	1	1	1	1	1	1	1	\$4,000
John Deere Tractor w/ Front Mount Mower F925	1	1	1	1	1	1	1	1	1	1	\$19,800
M.T.D. Lawn Mower	1	1	1	1	1	1	1	1	1	1	\$300
Massey Ferguson 230 Tractor	-	-	-	-	-	1	1	1	-	-	\$19,800
2006 Ford 350 1 Ton c/w Hoist 06-33	1	1	1	1	1	-	-	-	-	-	\$50,700
Fertilizer Spreader	1	1	1	1	1	1	1	1	1	1	\$2,600
2009 Chevrolet Silverado 1500 09-19	-	1	1	1	1	1	1	1	1	1	\$21,100
5 x 8 utility trailer	-	1	1	1	1	1	1	1	1	1	\$3,400
Stihl Back Pack Blowers (2)	-	2	2	2	2	2	2	2	3	4	\$500
Solo Back Pack Blower	1	1	1	1	1	1	1	1	1	1	\$400
Bannerman Groomer	-	1	1	1	1	1	1	1	1	1	\$7,900
Craftsman Compressor	-	-	-	1	1	1	1	1	1	1	\$500
16x32 Portable Stage	1	1	1	1	1	1	1	1	1	1	\$5,300
32 HP Diesel John Deer Tractor with Snowblower & bucket	-	1	1	1	1	1	1	1	1	1	\$37,000
Dewalt Tool kit	1	1	1	1	1	2	2	2	2	2	\$1,300
John Deere snow blower	-	1	1	1	1	1	1	1	1	1	\$4,100
Murray snow blower	1	1	1	1	1	1	1	1	1	1	\$800
2004 Ford Ranger	-	1	1	1	1	1	1	1	1	1	\$19,000
2004 Ford Ranger	-	1	1	1	1	1	1	1	1	1	\$19,000
2017 GMC Sierra 4D with Lift	-	-	-	-	-	-	-	-	-	1	\$0
Total (#)	15	24	24	25	24	25	25	25	25	27	
Total (\$000)	\$100.3	\$212.8	\$212.8	\$213.3	\$213.0	\$183.4	\$183.4	\$183.4	\$164.1	\$164.6	

PARK BUILDINGS Type of Structure	# of Buildings										UNIT COST (\$/unit)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Fish Cleaning Station	2	2	2	2	2	2	2	2	2	2	\$1,000
AG storage building 3,200 sq ft x \$ 55	1	1	1	1	1	1	1	1	1	1	\$176,000
Total (sq.ft.)	3										
Total (\$000)	\$178.0										

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**TOWNSHIP OF ESSA
CALCULATION OF SERVICE LEVELS
PARKS AND RECREATION**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Historic Population	17,525	17,846	18,173	18,505	18,994	19,496	20,011	20,540	21,083	21,598

INVENTORY SUMMARY (\$000)

Major Facilities & Land	\$37,530.7	\$37,530.7	\$33,983.7	\$33,983.7	\$32,640.7	\$32,640.7	\$32,640.7	\$32,640.7	\$32,640.7	\$32,640.7
Parkland	\$1,630.1	\$1,669.3	\$1,695.9	\$1,559.8	\$1,541.8	\$1,562.0	\$1,562.0	\$1,562.0	\$1,562.0	\$1,561.9
Park Facilities	\$3,171.5	\$3,172.3	\$3,246.3	\$3,626.4	\$3,626.4	\$3,626.4	\$3,626.4	\$3,626.4	\$3,626.4	\$3,856.4
Vehicles and Special Facilities	\$278.3	\$390.8	\$390.8	\$391.3	\$391.0	\$361.4	\$361.4	\$361.4	\$342.1	\$342.6
Total (\$000)	\$42,610.6	\$42,763.1	\$39,316.7	\$39,561.2	\$38,199.9	\$38,190.5	\$38,190.5	\$38,190.5	\$38,171.2	\$38,401.6

SERVICE LEVEL (\$/capita)											Average Service Level
Major Facilities & Land	\$2,141.55	\$2,103.03	\$1,870.01	\$1,836.46	\$1,718.47	\$1,674.23	\$1,631.14	\$1,589.13	\$1,548.20	\$1,511.28	\$1,762.35
Parkland	\$93.01	\$93.54	\$93.32	\$84.29	\$81.17	\$80.12	\$78.06	\$76.05	\$74.09	\$72.32	\$82.60
Park Facilities	\$180.97	\$177.76	\$178.63	\$195.97	\$190.92	\$186.01	\$181.22	\$176.55	\$172.01	\$178.55	\$181.86
Vehicles and Special Facilities	\$15.88	\$21.90	\$21.50	\$21.15	\$20.59	\$18.54	\$18.06	\$17.59	\$16.23	\$15.86	\$18.73
Total (\$/capita)	\$2,431.42	\$2,396.23	\$2,163.47	\$2,137.86	\$2,011.16	\$1,958.89	\$1,908.47	\$1,859.32	\$1,810.52	\$1,778.02	\$2,045.54

**TOWNSHIP OF ESSA
CALCULATION OF MAXIMUM ALLOWABLE
PARKS AND RECREATION**

10-Year Funding Envelope Calculation	
10 Year Average Service Level 2008 - 2017	\$2,045.54
Net Population Growth 2018 - 2027	2,892
Maximum Allowable Funding Envelope	\$5,916,077
Less: Uncommitted Excess Capacity	\$0
Less: 10% Legislated Reduction	\$591,608
Discounted Maximum Allowable Funding Envelope	\$5,324,470

Excess Capacity Calculation	
Total Value of Inventory in 2017	\$38,401,586
Inventory Using Average Service Level	\$44,179,573
Excess Capacity	\$0

TOWNSHIP OF ESSA
DEVELOPMENT-RELATED CAPITAL PROGRAM
PARKS AND RECREATION

Project Description	Timing	Gross Project Cost	Grants/ Subsidies/Other Recoveries	Net Municipal Cost	Ineligible Costs		Total DC Eligible Costs	DC Eligible Costs		
					Replacement & BTE Shares	10% Reduction		Available DC Reserves	2018-2027	Post 2027
4.0 PARKS AND RECREATION										
4.1 Angus Arena and Recreation Centre										
4.1.1 Design Study	2021	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ 90,000	\$ -	\$ -
4.1.2 Recreation Facility - Land Acquisition (0.5ha)	2022	\$ 650,000	\$ -	\$ 650,000	\$ -	\$ 65,000	\$ 585,000	\$ 585,000	\$ -	\$ -
4.1.3 Recreation Facility - Construction	2024	\$ 3,125,000	\$ -	\$ 3,125,000	\$ -	\$ 312,500	\$ 2,812,500	\$ 1,303,611	\$ 1,508,889	\$ -
Subtotal Angus Arena and Recreation Centre		\$ 3,875,000	\$ -	\$ 3,875,000	\$ -	\$ 387,500	\$ 3,487,500	\$ 1,978,611	\$ 1,508,889	\$ -
4.2 Thornton Arena and Recreation Centre										
4.2.1 Dressing Room Expansion	2023	\$ 375,000	\$ -	\$ 375,000	\$ -	\$ 37,500	\$ 337,500	\$ 337,500	\$ -	\$ -
Subtotal Thornton Arena and Recreation Centre		\$ 375,000	\$ -	\$ 375,000	\$ -	\$ 37,500	\$ 337,500	\$ 337,500	\$ -	\$ -
4.3 Equipment										
4.3.1 Dump Truck	2019	\$ 64,000	\$ -	\$ 64,000	\$ -	\$ 6,400	\$ 57,600	\$ 57,600	\$ -	\$ -
Subtotal Equipment		\$ 64,000	\$ -	\$ 64,000	\$ -	\$ 6,400	\$ 57,600	\$ 57,600	\$ -	\$ -

TOWNSHIP OF ESSA
DEVELOPMENT-RELATED CAPITAL PROGRAM
PARKS AND RECREATION

Project Description	Timing	Gross Project Cost	Grants/ Subsidies/Other Recoveries	Net Municipal Cost	Ineligible Costs		Total DC Eligible Costs	DC Eligible Costs		
					Replacement & BTE Shares	10% Reduction		Available DC Reserves	2018-2027	Post 2027
4.4 Parks, Outdoor Recreation Facilities										
4.4.1 Stonemount Parking Lot	2019	\$ 10,000	\$ -	\$ 10,000	\$ -	\$ 1,000	\$ 9,000	\$ 9,000	\$ -	\$ -
4.4.2 Playground Equipment and Amenities	2018	\$ 100,000	\$ -	\$ 100,000	\$ 50,000	\$ 5,000	\$ 45,000	\$ 45,000	\$ -	\$ -
4.4.3 Trail Construction	2018	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ 90,000	\$ -	\$ -
4.4.4 Baxter Park Expansion	2018	\$ 850,000	\$ -	\$ 850,000	\$ -	\$ 85,000	\$ 765,000	\$ 765,000	\$ -	\$ -
4.4.5 Lights at Ivy Ball Park	2019	\$ 150,000	\$ -	\$ 150,000	\$ -	\$ 15,000	\$ 135,000	\$ 135,000	\$ -	\$ -
4.4.6 Trail Construction	2019	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ 90,000	\$ -	\$ -
4.4.7 Playground Equipment and Amenities	2019	\$ 100,000	\$ -	\$ 100,000	\$ 50,000	\$ 5,000	\$ 45,000	\$ 45,000	\$ -	\$ -
4.4.8 Trail Construction	2020	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ 90,000	\$ -	\$ -
4.4.9 Playground Equipment and Amenities	2020	\$ 100,000	\$ -	\$ 100,000	\$ 50,000	\$ 5,000	\$ 45,000	\$ 45,000	\$ -	\$ -
4.4.10 Playground Equipment and Amenities	2021	\$ 100,000	\$ -	\$ 100,000	\$ 50,000	\$ 5,000	\$ 45,000	\$ 45,000	\$ -	\$ -
4.4.11 Trail Construction	2021	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ 90,000	\$ -	\$ -
4.4.12 Lights at Bush (Previn) Ball Diamond	2021	\$ 150,000	\$ -	\$ 150,000	\$ -	\$ 15,000	\$ 135,000	\$ 135,000	\$ -	\$ -
4.4.13 Playground Equipment	2022	\$ 100,000	\$ -	\$ 100,000	\$ 50,000	\$ 5,000	\$ 45,000	\$ 45,000	\$ -	\$ -
4.4.14 Trail Construction	2022	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ 90,000	\$ -	\$ -
4.4.15 Playground Equipment and Amenities	2022	\$ 100,000	\$ -	\$ 100,000	\$ 50,000	\$ 5,000	\$ 45,000	\$ 45,000	\$ -	\$ -
4.4.16 Playground Equipment and Amenities	2023	\$ 100,000	\$ -	\$ 100,000	\$ 50,000	\$ 5,000	\$ 45,000	\$ 45,000	\$ -	\$ -
4.4.17 Trail Construction	2023	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ -	\$ 90,000	\$ -
4.4.18 Playground Equipment and Amenities	2024	\$ 100,000	\$ -	\$ 100,000	\$ 50,000	\$ 5,000	\$ 45,000	\$ -	\$ 45,000	\$ -
4.4.19 Trail Construction	2024	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ -	\$ 90,000	\$ -
4.4.20 Playground Equipment and Amenities	2025	\$ 100,000	\$ -	\$ 100,000	\$ 50,000	\$ 5,000	\$ 45,000	\$ -	\$ 45,000	\$ -
4.4.21 Trail Construction	2025	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ -	\$ 90,000	\$ -
4.4.22 Playground Equipment and Amenities	2026	\$ 100,000	\$ -	\$ 100,000	\$ 50,000	\$ 5,000	\$ 45,000	\$ -	\$ 45,000	\$ -
4.4.23 Trail Construction	2026	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ -	\$ 90,000	\$ -
4.4.24 Playground Equipment and Amenities	2027	\$ 100,000	\$ -	\$ 100,000	\$ 50,000	\$ 5,000	\$ 45,000	\$ -	\$ 45,000	\$ -
4.4.25 Trail Construction	2027	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ 10,000	\$ 90,000	\$ -	\$ 90,000	\$ -
Subtotal Parks, Outdoor Recreation Facilities		\$ 3,260,000	\$ -	\$ 3,260,000	\$ 550,000	\$ 271,000	\$ 2,439,000	\$ 1,809,000	\$ 630,000	\$ -
TOTAL PARKS AND RECREATION		\$ 7,574,000	\$ -	\$ 7,574,000	\$ 550,000	\$ 702,400	\$ 6,321,600	\$ 4,182,711	\$ 2,138,889	\$ -

Residential Development Charge Calculation		
Residential Share of 2018 - 2027 DC Eligible Costs	100%	\$2,138,889
10-Year Growth in Population in New Units		2,990
Unadjusted Development Charge Per Capita		\$715.35
Non-Residential Development Charge Calculation		
Non-Residential Share of 2018 - 2027 DC Eligible Costs	0%	\$0
10-Year Growth in Square Metres		47,000
Unadjusted Development Charge Per Square Metre		\$0.00

2018 - 2027 Net Funding Envelope	\$5,324,470
Reserve Fund Balance as at December 31, 2017	\$4,182,711

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APPENDIX B.4
TABLE 3

**TOWNSHIP OF ESSA
CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
PARKS AND RECREATION
RESIDENTIAL DEVELOPMENT CHARGE
(in \$000)**

PARKS AND RECREATION	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.00	\$213.92	\$439.61	\$677.56	\$928.29	\$1,192.33	\$1,369.14	(\$241.86)	(\$167.22)	(\$86.71)	
2018 - 2027 RESIDENTIAL FUNDING REQUIREMENTS											
- Parks And Recreation: Non Inflated	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$90.0	\$1,643.9	\$135.0	\$135.0	\$135.0	\$2,138.9
- Parks And Recreation: Inflated	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$99.4	\$1,851.3	\$155.1	\$158.2	\$161.3	\$2,425.2
NEW RESIDENTIAL DEVELOPMENT											
- Population Growth in New Units	299	299	299	299	299	299	299	299	299	299	2,990
REVENUE											
- DC Receipts: Inflated	\$210.2	\$214.4	\$218.7	\$223.1	\$227.6	\$232.1	\$236.8	\$241.5	\$246.3	\$251.3	\$2,302.1
INTEREST											
- Interest on Opening Balance	\$0.0	\$7.5	\$15.4	\$23.7	\$32.5	\$41.7	\$47.9	(\$13.3)	(\$9.2)	(\$4.8)	\$141.5
- Interest on In-year Transactions	\$3.7	\$3.8	\$3.8	\$3.9	\$4.0	\$2.3	(\$44.4)	\$1.5	\$1.5	\$1.6	(\$18.3)
TOTAL REVENUE	\$213.9	\$225.7	\$237.9	\$250.7	\$264.0	\$276.2	\$240.3	\$229.7	\$238.7	\$248.1	\$2,425.3
CLOSING CASH BALANCE	\$213.9	\$439.6	\$677.6	\$928.3	\$1,192.3	\$1,369.1	(\$241.9)	(\$167.2)	(\$86.7)	\$0.0	

2018 Adjusted Charge Per Capita **\$703.15**

Allocation of Capital Program	
Residential Sector	100.0%
Non-Residential Sector	0.0%
Rates for 2018	
Inflation Rate:	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

APPENDIX B.5

PUBLIC WORKS AND FLEET

APPENDIX B.5

PUBLIC WORKS AND FLEET

The Public Works department is responsible for the maintenance of all roads, sidewalks and curbs within Township boundaries. Staff from the Township's engineering department carry out the function relating to Public Works and Fleet. These functions include maintenance services such as sweeping, leaf pickup, pothole patching, repair of utility poles, sidewalk repair and replacement, curb repairs, snow plowing, sanding and salting and spring clean up. The capital costs associated with Public Works functions are accounted for in this section.

TABLE 1 2008-2017 HISTORICAL SERVICE LEVELS

The ten-year historical inventory of capital assets for Public Works includes 36,200 square feet of building space with a replacement value of \$3.65 million. The 12.0 hectares of land associated with the Public Works buildings are valued at \$600,000, furniture and equipment amounts to \$3,000, and the public works fleet of 28 vehicles adds an additional \$6.31 million to the value of the capital assets.

The total value of the Public Works capital infrastructure is estimated to be \$10.56 million. The ten-year historical average service level is \$367.69 per capita and employee and this, multiplied by the ten-year forecast net population and employment growth (3,720), results in a ten-year maximum allowable funding envelope of \$1.37 million. No calculated excess capacity has been identified for this service.

TABLE 2 2018 – 2027 DEVELOPMENT-RELATED CAPITAL PROGRAM AND CALCULATION OF THE UNADJUSTED DEVELOPMENT CHARGES

The total 2018–2027 development-related capital program for the Public Works department amounts to \$1.07 million, which provides for additional fleet vehicles and equipment.

There are no replacement shares, or post-period shares for this service. The available reserve amounts to \$309,100 and therefore, the total DC recoverable costs is \$755,900.

The 2018–2027 DC costs eligible for recovery are allocated 78 per cent, or \$589,600, against new residential development, and 22 per cent, or \$166,300, against non-residential development. This yields an unadjusted development charge of \$197.18 per capita and \$3.54 per square metre.

TABLE 3 CASH FLOW ANALYSIS

After cash flow and reserve fund analysis, the residential calculated charge increases to \$202.62 per capita and the non-residential charge increases to \$3.64 per square metre. This is a reflection of the timing of the capital program and development charges revenues.

The following table summarizes the calculation of the Public Works and Fleet development charge.

PUBLIC WORKS AND FLEET SUMMARY						
10-year Hist.	2018 - 2027		Unadjusted		Adjusted	
Service Level per pop & emp	Development-Related Capital Program		Development Charge		Development Charge	
	Total	Net DC Recoverable	\$/capita	\$/sq.m	\$/capita	\$/sq.m
\$367.69	\$1,065,000	\$755,862	\$197.18	\$3.54	\$202.62	\$3.64

TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
PUBLIC WORKS AND FLEET

BUILDINGS Facility Name	# of Square Feet										UNIT COST (\$/sq.ft.)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Roads Equipment Depot	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	\$260
Equipment Storage Building	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	\$40
Sand and Salt Storage Building 80 x 200	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	\$40
Equipment Storage Building 50 x 140	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	\$40
Total (#)	36,200											
Total (\$000)	\$3,648.0											

LAND Facility Name	# of Hectares										UNIT COST (\$/ha)	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
Roads Equipment Depot	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	12.00	\$50,000
Total (ha)	10.00	12.00										
Total (\$000)	\$500.0	\$600.0										

FURNITURE & EQUIPMENT Facility Name	Total Value of Furniture & Equipment (\$)									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Public Works Office Space - 15'x15'	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000
Total (\$000)	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0

APPENDIX B.5
TABLE 1 - PAGE 2TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
PUBLIC WORKS AND FLEET

FLEET & EQUIPMENT Description	# of Self-Propelled Equipment										UNIT COST (\$/unit)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
1999 Champion 740 Grader #11	1	1	1	1	1	1	1	1	1	1	\$500,000
2002 Volvo 740A Grader #09	1	1	1	1	1	1	1	1	1	1	\$500,000
2004 Sterling Tandem Dump/Plow #21	1	1	1	1	1	1	1	1	1	1	\$300,000
1993 Ford Tandem Dump Truck/Plow	1	-	-	-	-	-	-	-	-	-	\$300,000
1999 International Tandem Truck/Plow #27	1	1	1	1	1	-	-	-	-	-	\$300,000
2001 International Tandem Dump/Plow #26	1	1	1	1	1	1	1	1	-	-	\$300,000
2003 International Tandem Dump/Plow #23	1	1	1	1	1	1	1	1	-	-	\$300,000
1997 Cat Loader 924F #06	1	1	1	1	1	1	1	1	1	1	\$260,000
2001 Ford 350 1 Ton Truck (01-05)	1	1	1	1	-	-	-	-	-	-	\$52,000
2004 Tag Along Float Trailer #30	1	1	1	1	1	1	1	1	1	1	\$60,000
1999 Trackless 4 Wheel Drive Tractor #14	1	1	1	1	1	1	1	1	1	1	\$150,000
2001 Ford F150 1/2 Ton Pickup (01-18)	1	1	1	-	-	-	-	-	-	-	\$30,000
2002 Pontiac Sunbird	1	1	1	1	1	1	1	-	-	-	\$17,000
2002 JCB Tractor/Backhoe #04	1	1	1	1	1	1	1	1	1	1	\$180,000
2003 Dodge 1 Ton Crew Cab Diesel #08	1	1	1	1	1	1	1	1	1	1	\$80,000
2006 Sterling Tandem Dump/Plow #20	1	1	1	1	1	1	1	1	1	1	\$300,000
2007 Sterling Tandem Dump/Plow #24	1	1	1	1	1	1	1	1	1	1	\$300,000
2004 Sterling Tandem Dump/Plow #22	1	1	1	1	1	1	1	1	1	1	\$300,000
2006 Cat Loader 930G #10	1	1	1	1	1	1	1	1	1	1	\$260,000
2006 Cat D5 Dozer #12	1	1	1	1	1	1	1	1	1	1	\$225,000
2008 Volvo Tandem Dump/Plow #29	-	1	1	1	1	1	1	1	1	1	\$300,000
2009 Sterling Tandem Dump/Plow #25	1	1	1	1	1	1	1	1	1	1	\$300,000
2008 Ford F150 Crew Cab #07	1	1	1	1	1	1	1	1	1	1	\$50,000
2005 Gradall Excavator #16	-	1	1	1	1	1	1	1	1	1	\$250,000
2009 Trackless 4 Wheel Drive Tractor #15	-	1	1	1	1	1	1	1	1	1	\$150,000
2010 Ford F150 Super Cab #03 (changed to #01 in 2015)	-	-	1	1	1	1	1	1	1	1	\$40,000
2011 GMC 1 Ton Crew Cab Gas #18	-	-	-	1	1	1	1	1	1	1	\$60,000
2010 Kubota and Mower #05	-	-	-	-	1	1	1	1	1	1	\$80,000
2016 Western Star Dump/Plow #26	-	-	-	-	-	-	-	-	1	1	\$300,000
2015 Western Star Dump/Plow #23	-	-	-	-	-	-	-	1	1	1	\$300,000
2016 Chev Half Ton Pickup #03	-	-	-	-	-	-	-	-	1	1	\$40,000
2012 Freightliner Dump/Plow	-	-	-	-	-	1	1	1	1	1	\$300,000
2015 Elgin Megawind Sweeper/vac	-	-	-	-	-	-	-	1	1	1	\$325,000
2017 CASE 621G Wheel Loader	-	-	-	-	-	-	-	-	-	1	\$250,000
2015 MT6 Trackless Tractor #17	-	-	-	-	-	-	-	1	1	1	\$150,000
Total (#)	22	24	25	25	25	25	25	27	27	28	
Total (\$000)	\$5,064.0	\$5,464.0	\$5,504.0	\$5,534.0	\$5,562.0	\$5,562.0	\$5,562.0	\$6,320.0	\$6,060.0	\$6,310.0	

APPENDIX B.5
TABLE 1 - PAGE 3

TOWNSHIP OF ESSA
CALCULATION OF SERVICE LEVELS
PUBLIC WORKS AND FLEET

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Historic Population	17,525	17,846	18,173	18,505	18,994	19,496	20,011	20,540	21,083	21,598
Historic Employment	6,927	7,013	7,100	7,190	7,344	7,502	7,663	7,828	7,997	8,192
Total Historic Population & Employment	24,452	24,859	25,273	25,695	26,338	26,998	27,674	28,368	29,080	29,790

INVENTORY SUMMARY (\$000)

Buildings	\$3,648.0	\$3,648.0	\$3,648.0	\$3,648.0	\$3,648.0	\$3,648.0	\$3,648.0	\$3,648.0	\$3,648.0	\$3,648.0
Land	\$500.0	\$500.0	\$500.0	\$500.0	\$500.0	\$500.0	\$500.0	\$500.0	\$500.0	\$600.0
Furniture & Equipment	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0
Fleet & Equipment	\$5,064.0	\$5,464.0	\$5,504.0	\$5,534.0	\$5,562.0	\$5,562.0	\$5,562.0	\$6,320.0	\$6,060.0	\$6,310.0
Total (\$000)	\$9,215.0	\$9,615.0	\$9,655.0	\$9,685.0	\$9,713.0	\$9,713.0	\$9,713.0	\$10,471.0	\$10,211.0	\$10,561.0

SERVICE LEVEL (\$/pop & emp)											Average Service Level
Buildings	\$149.19	\$146.75	\$144.34	\$141.97	\$138.51	\$135.12	\$131.82	\$128.60	\$125.45	\$122.46	\$136.42
Land	\$20.45	\$20.11	\$19.78	\$19.46	\$18.98	\$18.52	\$18.07	\$17.63	\$17.19	\$20.14	\$19.03
Furniture & Equipment	\$0.12	\$0.12	\$0.12	\$0.12	\$0.11	\$0.11	\$0.11	\$0.11	\$0.10	\$0.10	\$0.11
Fleet & Equipment	\$207.10	\$219.80	\$217.78	\$215.38	\$211.18	\$206.02	\$200.98	\$222.79	\$208.39	\$211.82	\$212.12
Total (\$/pop & emp)	\$376.86	\$386.78	\$382.03	\$376.93	\$368.78	\$359.77	\$350.98	\$369.11	\$351.14	\$354.52	\$367.69

TOWNSHIP OF ESSA
CALCULATION OF MAXIMUM ALLOWABLE
PUBLIC WORKS AND FLEET

10-Year Funding Envelope Calculation	
10 Year Average Service Level 2008 - 2017	\$367.69
Net Population & Employment Growth 2018 - 2027	3,720
Maximum Allowable Funding Envelope	\$1,367,649
Less: Uncommitted Excess Capacity	\$0
Discounted Maximum Allowable Funding Envelope	\$1,367,649

Excess Capacity Calculation	
Total Value of Inventory in 2017	\$10,561,000
Inventory Using Average Service Level	\$10,953,351
Excess Capacity	\$0
Excess Capacity:	Uncommitted

TOWNSHIP OF ESSA
DEVELOPMENT-RELATED CAPITAL PROGRAM
PUBLIC WORKS AND FLEET

Project Description	Timing	Gross Project Cost	Grants/ Subsidies/Other Recoveries	Net Municipal Cost	Ineligible Costs		Total DC Eligible Costs	DC Eligible Costs		
					Replacement & BTE Shares	0% Reduction		Available DC Reserves	2018-2027	Post 2027
5.0 PUBLIC WORKS AND FLEET										
5.1 Fleet										
5.1.2 Trackless Sidewalk Plow and Sander	2019	\$ 180,000	\$ -	\$ 180,000	\$ -	\$ -	\$ 180,000	\$ 180,000	\$ -	\$ -
5.1.1 Tandem Dump and Plow	2020	\$ 300,000	\$ -	\$ 300,000	\$ -	\$ -	\$ 300,000	\$ 129,138	\$ 170,862	\$ -
5.1.3 Heavy Equipment	2021	\$ 180,000	\$ -	\$ 180,000	\$ -	\$ -	\$ 180,000	\$ -	\$ 180,000	\$ -
5.1.4 Single Axle Plow and Sander Truck	2022	\$ 225,000	\$ -	\$ 225,000	\$ -	\$ -	\$ 225,000	\$ -	\$ 225,000	\$ -
5.1.5 Trackless Sidewalk Plow and Sander	2025	\$ 180,000	\$ -	\$ 180,000	\$ -	\$ -	\$ 180,000	\$ -	\$ 180,000	\$ -
Subtotal Fleet		\$ 1,065,000	\$ -	\$ 1,065,000	\$ -	\$ -	\$ 1,065,000	\$ 309,138	\$ 755,862	\$ -
TOTAL PUBLIC WORKS AND FLEET		\$ 1,065,000	\$ -	\$ 1,065,000	\$ -	\$ -	\$ 1,065,000	\$ 309,138	\$ 755,862	\$ -

Residential Development Charge Calculation		
Residential Share of 2018 - 2027 DC Eligible Costs	78%	\$589,573
10-Year Growth in Population in New Units		2,990
Unadjusted Development Charge Per Capita		\$197.18
Non-Residential Development Charge Calculation		
Non-Residential Share of 2018 - 2027 DC Eligible Costs	22%	\$166,290
10-Year Growth in Square Metres		47,000
Unadjusted Development Charge Per Square Metre		\$3.54

2018 - 2027 Net Funding Envelope	\$1,367,649
Reserve Fund Balance as at December 31, 2017	\$309,138

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TABLE 3 - PAGE 1

**TOWNSHIP OF ESSA
CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
PUBLIC WORKS AND FLEET
RESIDENTIAL DEVELOPMENT CHARGE
(in \$000)**

PUBLIC WORKS AND FLEET	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.00	\$61.64	\$126.68	\$53.41	(\$31.76)	(\$161.31)	(\$102.13)	(\$38.32)	(\$134.64)	(\$69.82)	
2018 - 2027 RESIDENTIAL FUNDING REQUIREMENTS											
- Public Works And Fleet: Non Inflated	\$0.0	\$0.0	\$133.3	\$140.4	\$175.5	\$0.0	\$0.0	\$140.4	\$0.0	\$0.0	\$589.6
- Public Works And Fleet: Inflated	\$0.0	\$0.0	\$138.7	\$149.0	\$190.0	\$0.0	\$0.0	\$161.3	\$0.0	\$0.0	\$638.9
NEW RESIDENTIAL DEVELOPMENT											
- Population Growth in New Units	299	299	299	299	299	299	299	299	299	299	2,990
REVENUE											
- DC Receipts: Inflated	\$60.6	\$61.8	\$63.0	\$64.3	\$65.6	\$66.9	\$68.2	\$69.6	\$71.0	\$72.4	\$663.4
INTEREST											
- Interest on Opening Balance	\$0.0	\$2.2	\$4.4	\$1.9	(\$1.7)	(\$8.9)	(\$5.6)	(\$2.1)	(\$7.4)	(\$3.8)	(\$21.1)
- Interest on In-year Transactions	\$1.1	\$1.1	(\$2.1)	(\$2.3)	(\$3.4)	\$1.2	\$1.2	(\$2.5)	\$1.2	\$1.3	(\$3.3)
TOTAL REVENUE	\$61.6	\$65.0	\$65.4	\$63.8	\$60.4	\$59.2	\$63.8	\$65.0	\$64.8	\$69.8	\$638.9
CLOSING CASH BALANCE	\$61.6	\$126.7	\$53.4	(\$31.8)	(\$161.3)	(\$102.1)	(\$38.3)	(\$134.6)	(\$69.8)	\$0.0	

2018 Adjusted Charge Per Capita **\$202.62**

Allocation of Capital Program	
Residential Sector	78.0%
Non-Residential Sector	22.0%
Rates for 2018	
Inflation Rate:	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

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APPENDIX B.5
TABLE 3 - PAGE 2

**TOWNSHIP OF ESSA
CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
PUBLIC WORKS AND FLEET
NON-RESIDENTIAL DEVELOPMENT CHARGE
(in \$000)**

PUBLIC WORKS AND FLEET	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.00	\$17.41	\$35.77	\$15.13	(\$8.87)	(\$45.38)	(\$28.66)	(\$10.63)	(\$37.76)	(\$19.44)	
2018 - 2027 NON-RESIDENTIAL FUNDING REQUIREMENTS											
- Public Works And Fleet: Non Inflated	\$0.0	\$0.0	\$37.6	\$39.6	\$49.5	\$0.0	\$0.0	\$39.6	\$0.0	\$0.0	\$166.3
- Public Works And Fleet: Inflated	\$0.0	\$0.0	\$39.1	\$42.0	\$53.6	\$0.0	\$0.0	\$45.5	\$0.0	\$0.0	\$180.2
NON-RESIDENTIAL SPACE GROWTH											
- Growth in Square Metres	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	47,000
REVENUE											
- DC Receipts: Inflated	\$17.1	\$17.5	\$17.8	\$18.2	\$18.5	\$18.9	\$19.3	\$19.7	\$20.0	\$20.4	\$187.3
INTEREST											
- Interest on Opening Balance	\$0.0	\$0.6	\$1.3	\$0.5	(\$0.5)	(\$2.5)	(\$1.6)	(\$0.6)	(\$2.1)	(\$1.1)	(\$5.9)
- Interest on In-year Transactions	\$0.3	\$0.3	(\$0.6)	(\$0.7)	(\$1.0)	\$0.3	\$0.3	(\$0.7)	\$0.4	\$0.4	(\$0.9)
TOTAL REVENUE	\$17.4	\$18.4	\$18.5	\$18.0	\$17.1	\$16.7	\$18.0	\$18.4	\$18.3	\$19.7	\$180.5
CLOSING CASH BALANCE	\$17.4	\$35.8	\$15.1	(\$8.9)	(\$45.4)	(\$28.7)	(\$10.6)	(\$37.8)	(\$19.4)	\$0.3	

2018 Adjusted Charge Per Square Metre	\$3.64
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Allocation of Capital Program	
Residential Sector	78.0%
Non-Residential Sector	22.0%
Rates for 2018	
Inflation Rate	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

APPENDIX B.6

GENERAL GOVERNMENT

APPENDIX B.6

GENERAL GOVERNMENT

The *DCA* allows the cost of development-related studies to be included in the calculation of the development charges as long as they are permitted under the legislation. Consistent with s.5(1)7 of the *DCA*, the eligible development-related capital costs for the provision of studies and permitted general government expenditures are reduced by ten per cent when calculating the development charges.

**TABLE 1 2018 – 2027 DEVELOPMENT-RELATED CAPITAL PROGRAM AND
CALCULATION OF THE UNADJUSTED DEVELOPMENT CHARGES**

As shown on Table 1, the 2018–2027 development-related gross cost for General Government is \$229,000. As required under the *DCA*, development charges studies must be undertaken every five years, thus two additional studies are included in the capital program. The capital plan also includes Fire Master Plans, OP Reviews, Urban Design Guidelines, Zoning by-law updates and a Parks and Recreation Master Plan.

Recognizing that not all studies under this service are entirely a result of new growth in the Township, “benefit to existing” shares have been netted off the total costs. The benefit to existing shares amount to \$12,000, which will not be recovered through development charges. The legislated ten per cent reduction, \$21,700 is also discounted from the capital costs. There is also \$174,900 available in the General Government development charges reserve balance to offset the cost of this program.

As such, \$20,400 is eligible for development charges funding in the ten-year planning period. This amount is included in the development charge calculation and is allocated 78 per cent, or \$15,900 to the residential sector and 22 per cent, or \$4,500 to the non-residential sector based on shares of ten-year growth in population and employment. The resulting unadjusted per capita residential charge is \$5.32 per capita before cash flow adjustments. The non-residential unadjusted charge is \$0.10 per square metre.

TABLE 3 CASH FLOW ANALYSIS

After cash flow analysis, the residential charge slightly decreases to \$5.05 per capita and the non-residential charge remains at \$0.10 per square metre. This is a reflection of the timing of the capital program and development charges revenues.

The following table summarizes the calculation of the General Government development charge.

GENERAL GOVERNMENT SUMMARY					
2018 - 2027		Unadjusted		Adjusted	
Development-Related Capital Program		Development Charge		Development Charge	
Total	Net DC Recoverable	\$/capita	\$/sq.m	\$/capita	\$/sq.m
\$229,000	\$20,398	\$5.32	\$0.10	\$5.05	\$0.10

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APPENDIX B.6
TABLE 1

TOWNSHIP OF ESSA
DEVELOPMENT-RELATED CAPITAL PROGRAM
GENERAL GOVERNMENT

Project Description	Timing	Gross Project Cost	Grants/ Subsidies/Other Recoveries	Net Municipal Cost	Ineligible Costs		Total DC Eligible Costs	DC Eligible Costs		
					Replacement & BTE Shares	10% Reduction		Available DC Reserves	2018-2027	Post 2027
6.0 GENERAL GOVERNMENT										
6.1 Development-Related Studies										
6.1.1 Development Charges Study	2018	\$ 24,000	\$ -	\$ 24,000	\$ -	\$ 2,400	\$ 21,600	\$ 21,600	\$ -	\$ -
6.1.2 Fire Master Plan	2020	\$ 25,000	\$ -	\$ 25,000	\$ -	\$ 2,500	\$ 22,500	\$ 22,500	\$ -	\$ -
6.1.3 Official Plan Review	2019	\$ 15,000	\$ -	\$ 15,000	\$ 4,500	\$ 1,050	\$ 9,450	\$ 9,450	\$ -	\$ -
6.1.4 Parks and Recreation Master Plan	2018	\$ 50,000	\$ -	\$ 50,000	\$ -	\$ 5,000	\$ 45,000	\$ 45,000	\$ -	\$ -
6.1.5 Angus Secondary Plan	2020	\$ 20,000	\$ -	\$ 20,000	\$ -	\$ 2,000	\$ 18,000	\$ 18,000	\$ -	\$ -
6.1.6 Zoning By-law	2021	\$ 10,000	\$ -	\$ 10,000	\$ 3,000	\$ 700	\$ 6,300	\$ 6,300	\$ -	\$ -
6.1.7 Zoning By-law	2022	\$ 10,000	\$ -	\$ 10,000	\$ 3,000	\$ 700	\$ 6,300	\$ 6,300	\$ -	\$ -
6.1.8 Urban Design Guidelines	2023	\$ 5,000	\$ -	\$ 5,000	\$ 1,500	\$ 350	\$ 3,150	\$ 3,150	\$ -	\$ -
6.1.9 Development Charges Study	2022	\$ 35,000	\$ -	\$ 35,000	\$ -	\$ 3,500	\$ 31,500	\$ 31,500	\$ -	\$ -
6.1.10 Development Charges Study	2027	\$ 35,000	\$ -	\$ 35,000	\$ -	\$ 3,500	\$ 31,500	\$ 11,102	\$ 20,398	\$ -
TOTAL GENERAL GOVERNMENT		\$ 229,000	\$ -	\$ 229,000	\$ 12,000	\$ 21,700	\$ 195,300	\$ 174,902	\$ 20,398	\$ -

Residential Development Charge Calculation		
Residential Share of 2018 - 2027 DC Eligible Costs	78%	\$15,911
10-Year Growth in Population in New Units		2,990
Unadjusted Development Charge Per Capita		\$5.32
Non-Residential Development Charge Calculation		
Non-Residential Share of 2018 - 2027 DC Eligible Costs	22%	\$4,488
10-Year Growth in Square Metres		47,000
Unadjusted Development Charge Per Square Metre		\$0.10

Reserve Fund Balance as at December 31, 2017	\$174,902
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TOWNSHIP OF ESSA
CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
GENERAL GOVERNMENT
RESIDENTIAL DEVELOPMENT CHARGE
(in \$000)

GENERAL GOVERNMENT	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.00	\$1.54	\$3.16	\$4.87	\$6.67	\$8.56	\$10.56	\$12.66	\$14.87	\$17.19	
2018 - 2027 RESIDENTIAL FUNDING REQUIREMENTS											
- General Government: Non Inflated	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$15.9	\$15.9
- General Government: Inflated	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$19.0	\$19.0
NEW RESIDENTIAL DEVELOPMENT											
- Population Growth in New Units	299	299	299	299	299	299	299	299	299	299	2,990
REVENUE											
- DC Receipts: Inflated	\$1.5	\$1.5	\$1.6	\$1.6	\$1.6	\$1.7	\$1.7	\$1.7	\$1.8	\$1.8	\$16.5
INTEREST											
- Interest on Opening Balance	\$0.0	\$0.1	\$0.1	\$0.2	\$0.2	\$0.3	\$0.4	\$0.4	\$0.5	\$0.6	\$2.8
- Interest on In-year Transactions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.5)	(\$0.2)
TOTAL REVENUE	\$1.5	\$1.6	\$1.7	\$1.8	\$1.9	\$2.0	\$2.1	\$2.2	\$2.3	\$1.9	\$19.1
CLOSING CASH BALANCE	\$1.5	\$3.2	\$4.9	\$6.7	\$8.6	\$10.6	\$12.7	\$14.9	\$17.2	\$0.1	

2018 Adjusted Charge Per Capita **\$5.05**

Allocation of Capital Program	
Residential Sector	78.0%
Non-Residential Sector	22.0%
Rates for 2018	
Inflation Rate:	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

TOWNSHIP OF ESSA
 CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
 GENERAL GOVERNMENT
 NON-RESIDENTIAL DEVELOPMENT CHARGE
 (in \$000)

GENERAL GOVERNMENT	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.00	\$0.48	\$0.98	\$1.51	\$2.08	\$2.67	\$3.29	\$3.94	\$4.63	\$5.35	
2018 - 2027 NON-RESIDENTIAL FUNDING REQUIREMENTS											
- General Government: Non Inflated	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$4.5	\$4.5
- General Government: Inflated	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$5.4	\$5.4
NON-RESIDENTIAL SPACE GROWTH											
- Growth in Square Metres	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	47,000
REVENUE											
- DC Receipts: Inflated	\$0.5	\$0.5	\$0.5	\$0.5	\$0.5	\$0.5	\$0.5	\$0.5	\$0.6	\$0.6	\$5.1
INTEREST											
- Interest on Opening Balance	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.9
- Interest on In-year Transactions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.1)	(\$0.1)
TOTAL REVENUE	\$0.5	\$0.5	\$0.5	\$0.6	\$0.6	\$0.6	\$0.7	\$0.7	\$0.7	\$0.6	\$6.0
CLOSING CASH BALANCE	\$0.5	\$1.0	\$1.5	\$2.1	\$2.7	\$3.3	\$3.9	\$4.6	\$5.3	\$0.6	

2018 Adjusted Charge Per Square Metre	\$0.10
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Allocation of Capital Program	
Residential Sector	78.0%
Non-Residential Sector	22.0%
Rates for 2018	
Inflation Rate	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

APPENDIX B.7

ROADS AND RELATED

APPENDIX B.7

ROADS AND RELATED

The Public Works Department is responsible for the design and construction of the Township's network of Roads and Related infrastructure. This appendix provides an overview of the Township's roads and related services included in the development charges calculation form 2018-2027. This appendix provides a review of the development-related capital forecast and the calculation of the development charges for Roads and Related services. Consistent with s. 5. (1) 7 of the *DCA*, there is no legislated percentage reduction in the eligible development-related capital costs for the provision of these services. The cost, quantum and timing of the projects identified in the forecast have been provided by the Public Works Department.

TABLE 1 2008-2017 HISTORICAL SERVICE LEVELS

Table 1 demonstrates that the Township's current road infrastructure is comprised of 235 kilometres of paved roads, and 33 kilometres of gravel roads. The service level also includes 14 bridges, and 7 culverts. The total inventory of capital assets has a full replacement value of \$116.72 million. This produces a ten-year historical service level of \$4,063.34 per capita and employment. The resulting maximum allowable funding envelope is \$15.11 million ($\$4,063.34 \times 3,720$ net population and employment growth over the ten-year planning horizon). No excess capacity exists for this service and the *DCA* does not require a 10 per cent statutory discount for services related to a highway.

TABLE 2 2018 – 2027 DEVELOPMENT-RELATED CAPITAL PROGRAM AND CALCULATION OF THE UNADJUSTED DEVELOPMENT CHARGES

Table 2 provides a summary of the development-related capital program for Roads and Related services.

As shown in Table 2, the gross capital program totals \$23.28 million. The largest projects in the Roads and Related capital program are the replacement and widening of Bridge 9, which amounts to \$3.00 million and the reconstruction of 5th Line between 20th Sideroad to Willoughby Road, which also amounts to \$3.00 million. Other works include the reconstruction of a road between 20th Sideroad and south of 19th Sideroad at 5th Line for a total cost of \$2.50 million. Another major project is the Vernon Street urbanization valued at \$1.30 million.

No subsidies have been identified to offset the cost of the roads and related program. A share of \$6.75 million has been identified as a non-growth or benefit to existing share to reflect general road resurfacing expenditures the Township would incur in the absence of new development; these costs will be recovered from other municipal funding sources. The development-related net capital cost for Roads and Related services is netted down to \$16.54 million. About \$5.84 million is available in the Township's existing roads and related development charges reserve fund to help offset the cost of this program.

Therefore, the remaining \$10.69 million is included in the development charges calculation and is allocated 78 per cent, or \$8.34 million to the residential sector and 22 per cent, or \$2.35 million to the non-residential sector based on shares of ten-year growth in population and employment. The resulting unadjusted per capita residential charge is \$2,789.51 per capita before cash flow adjustments. The non-residential unadjusted charge is \$50.05 per square metre.

TABLE 3 CASH FLOW ANALYSIS

After cash flow and reserve fund analysis, the residential calculated charge decreases to \$2,706.31 per capita and the non-residential charge decreases slightly to \$48.56 per square metre. This is a reflection of the timing of the capital program and development charges revenues.

The following table summarizes the calculation of the Roads and Related development charge.

ROADS AND RELATED SUMMARY						
2018 - 2027		Unadjusted		Adjusted		
Development-Related Capital Program		Development Charge		Development Charge		
Total	Net DC Recoverable	\$/capita	\$/sq.m	\$/capita	\$/sq.m	
\$23,280,000	\$10,693,131	\$2,789.51	\$50.05	\$2,706.31	\$48.56	

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APPENDIX B.7
TABLE 1 - PAGE 1

TOWNSHIP OF ESSA
INVENTORY OF CAPITAL ASSETS
ROADS AND RELATED

ROADS Type of Road	# of Kilometres										UNIT COST (\$/km)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Paved	200.0	202.7	208.0	212.0	215.0	215.0	220.0	225.0	230.0	235.0	\$423,000
Gravel	45.0	41.0	38.0	34.0	33.0	33.0	33.0	33.0	33.0	33.0	\$211,000
Total (km)	245.0	243.7	246.0	246.0	248.0	248.0	253.0	258.0	263.0	268.0	
Total (\$000)	\$94,095.0	\$94,393.1	\$96,002.0	\$96,850.0	\$97,908.0	\$97,908.0	\$100,023.0	\$102,138.0	\$104,253.0	\$106,368.0	

BRIDGES & CULVERTS Description	# of Bridges & Culverts										UNIT COST (\$/unit)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Bridges	13	13	13	13	14	14	14	14	14	14	\$634,000
Culverts	6	6	6	6	6	6	6	6	7	7	\$211,000
Total (#)	19	19	19	19	20	20	20	20	21	21	
Total (\$000)	\$9,508.0	\$9,508.0	\$9,508.0	\$9,508.0	\$10,142.0	\$10,142.0	\$10,142.0	\$10,142.0	\$10,353.0	\$10,353.0	

APPENDIX B.7
TABLE 1 - PAGE 2

TOWNSHIP OF ESSA
CALCULATION OF SERVICE LEVELS
ROADS AND RELATED

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Historic Population	17,525	17,846	18,173	18,505	18,994	19,496	20,011	20,540	21,083	21,598
Historic Employment	<u>6,927</u>	<u>7,013</u>	<u>7,100</u>	<u>7,190</u>	<u>7,344</u>	<u>7,502</u>	<u>7,663</u>	<u>7,828</u>	<u>7,997</u>	<u>8,192</u>
Total Historic Population & Employment	24,452	24,859	25,273	25,695	26,338	26,998	27,674	28,368	29,080	29,790

INVENTORY SUMMARY (\$000)

Roads	\$94,095.0	\$94,393.1	\$96,002.0	\$96,850.0	\$97,908.0	\$97,908.0	\$100,023.0	\$102,138.0	\$104,253.0	\$106,368.0
Bridges & Culverts	\$9,508.0	\$9,508.0	\$9,508.0	\$9,508.0	\$10,142.0	\$10,142.0	\$10,142.0	\$10,142.0	\$10,353.0	\$10,353.0
Total (\$000)	\$103,603.0	\$103,901.1	\$105,510.0	\$106,358.0	\$108,050.0	\$108,050.0	\$110,165.0	\$112,280.0	\$114,606.0	\$116,721.0

Average
Service
Level

SERVICE LEVEL (\$/pop & emp)

Roads	\$3,848.15	\$3,797.14	\$3,798.60	\$3,769.26	\$3,717.37	\$3,626.49	\$3,614.33	\$3,600.47	\$3,585.07	\$3,570.64	\$3,692.75
Bridges & Culverts	\$388.84	\$382.48	\$376.21	\$370.04	\$385.07	\$375.66	\$366.48	\$357.52	\$356.02	\$347.54	\$370.59
Total (\$/pop & emp)	\$4,236.99	\$4,179.62	\$4,174.81	\$4,139.30	\$4,102.44	\$4,002.15	\$3,980.81	\$3,957.98	\$3,941.10	\$3,918.17	\$4,063.34

TOWNSHIP OF ESSA
CALCULATION OF MAXIMUM ALLOWABLE
ROADS AND RELATED

10-Year Funding Envelope Calculation	
10 Year Average Service Level 2008 - 2017	\$4,063.34
Net Population & Employment Growth 2018 - 2027	3,720
Maximum Allowable Funding Envelope	\$15,113,885
Less: Uncommitted Excess Capacity	\$0
Discounted Maximum Allowable Funding Envelope	\$15,113,885

Excess Capacity Calculation	
Total Value of Inventory in 2017	\$116,721,000
Inventory Using Average Service Level	\$121,045,422
Excess Capacity	\$0
Excess Capacity:	Uncommitted

TOWNSHIP OF ESSA
2018 DEVELOPMENT CHARGES STUDY
ROADS AND RELATED CAPITAL PROGRAM

ROADS AND RELATED			Length of Improvement (meters)	Anticipated Timing (year)	Gross Cost	Grants and Subsidies	Net Municipal Cost	Ineligible Costs			Total DC Eligible Costs	DC Eligible Costs			
Prj. #	Road	From To						Benefit to Existing and Local Shares ²	0% Reduction	Available DC Reserves		2018-2027	Post 2027		
Road Projects															
1	Elizabeth Street Urbanization	Centre Street King Street	300	2020	\$ 420,000	\$ -	\$ 420,000	21%	\$ 90,000	\$ -	\$ 330,000	\$ 330,000	\$ -	\$ -	
2	25th Sideroad	9th Line 10th Line	1,400	2020	\$ 450,000	\$ -	\$ 450,000	25%	\$ 112,500	\$ -	\$ 337,500	\$ 337,500	\$ -	\$ -	
3	Alma Street Urbanization	King Street Margaret Street	190	2021	\$ 330,000	\$ -	\$ 330,000	17%	\$ 57,000	\$ -	\$ 273,000	\$ 273,000	\$ -	\$ -	
4	5th Line	Re-align and cut down north approach to Bridge No. 9 including property acquisition		2020	\$ 390,000	\$ -	\$ 390,000	25%	\$ 97,500	\$ -	\$ 292,500	\$ 292,500	\$ -	\$ -	
5	20th Sideroad	5th Line Cnty Road 10	900	2022	\$ 240,000	\$ -	\$ 240,000	25%	\$ 60,000	\$ -	\$ 180,000	\$ 57,369	\$ 122,631	\$ -	
6	King Street West Urbanization	Mill Street Elizabeth Street	490	2019	\$ 750,000	\$ -	\$ 750,000	20%	\$ 147,000	\$ -	\$ 603,000	\$ 603,000	\$ -	\$ -	
7	5th Line	Construct left turning lane and slip-by lane northbound on 5th Line at intersection of Willoughby Road		2023	\$ 400,000	\$ -	\$ 400,000	25%	\$ 100,000	\$ -	\$ 300,000	\$ -	\$ 300,000	\$ -	
8	King Street East Urbanization	Elizabeth Street Huron Street	830	2018	\$ 800,000	\$ -	\$ 800,000	31%	\$ 249,000	\$ -	\$ 551,000	\$ 551,000	\$ -	\$ -	
9	6th Line	30th Sideroad Cnty Road 90	1,000	2027	\$ 750,000	\$ -	\$ 750,000	25%	\$ 187,500	\$ -	\$ 562,500	\$ -	\$ 562,500	\$ -	
10	Margaret Street Urbanization	Mill Street Vernon Street	700	2023	\$ 900,000	\$ -	\$ 900,000	23%	\$ 210,000	\$ -	\$ 690,000	\$ -	\$ 690,000	\$ -	
11	Margaret Street Urbanization	Vernon Street Alma Street	400	2022	\$ 725,000	\$ -	\$ 725,000	17%	\$ 120,000	\$ -	\$ 605,000	\$ 605,000	\$ -	\$ -	
12	25th Sideroad	Intersection improvements at 10th Line	400	2019	\$ 250,000	\$ -	\$ 250,000	25%	\$ 120,000	\$ -	\$ 130,000	\$ 130,000	\$ -	\$ -	
13	Vernon Street Urbanization	Margaret Street County Road 10	990	2024	\$ 1,300,000	\$ -	\$ 1,300,000	23%	\$ 297,000	\$ -	\$ 1,003,000	\$ -	\$ 1,003,000	\$ -	
14	5th Line	20th Sideroad Willoughby Road	4,900	Various	\$ 3,000,000	\$ -	\$ 3,000,000	25%	\$ 750,000	\$ -	\$ 2,250,000	\$ 450,000	\$ 1,800,000	\$ -	
15	Unallocated growth-related roads projects				Various	\$ 750,000	\$ -	\$ 750,000	25%	\$ 187,500	\$ -	\$ 562,500	\$ 112,500	\$ 450,000	\$ -
16	5th Line	20th Sideroad South of 19th Sideroad		2025	\$ 2,500,000	\$ -	\$ 2,500,000	25%	\$ 625,000	\$ -	\$ 1,875,000	\$ -	\$ 1,875,000	\$ -	
17	25th Sideroad	5th Line 6th Line	1,350	2027	\$ 1,200,000	\$ -	\$ 1,200,000	25%	\$ 300,000	\$ -	\$ 900,000	\$ -	\$ 900,000	\$ -	
18	25th Sideroad	6th Line Cnty Road 56	1,500	2027	\$ 1,200,000	\$ -	\$ 1,200,000	25%	\$ 300,000	\$ -	\$ 900,000	\$ -	\$ 900,000	\$ -	
19	25th Sideroad	8th Line 9th Line	1,400	2027	\$ 1,200,000	\$ -	\$ 1,200,000	25%	\$ 300,000	\$ -	\$ 900,000	\$ -	\$ 900,000	\$ -	
20	5th Line	County Road 90 Willoughby Road		2027	\$ 1,200,000	\$ -	\$ 1,200,000	25%	\$ 300,000	\$ -	\$ 900,000	\$ -	\$ 900,000	\$ -	
21	Traffic Calming Measures (\$25,000/year)				Various	\$ 250,000	\$ -	\$ 250,000	50%	\$ 125,000	\$ -	\$ 125,000	\$ -	\$ 125,000	\$ -
Subtotal Road Works							\$ 19,005,000	\$ -	\$ 19,005,000	\$ 4,735,000	\$ -	\$ 14,270,000	\$ 3,741,869	\$ 10,528,131	\$ -
Other Works															
22	E.A. Study for Bridge 9				2018	\$ 300,000	\$ -	\$ 300,000	50%	\$ 150,000	\$ -	\$ 150,000	\$ 150,000	\$ -	\$ -
23	E.A. Study for Bridge 9				2018	\$ 300,000	\$ -	\$ 300,000	50%	\$ 150,000	\$ -	\$ 150,000	\$ 150,000	\$ -	\$ -
24	Bridge 9 Replacement and Widening - 5th Line - 1.95 km north 20th Sideroad				2020	\$ 3,000,000	\$ -	\$ 3,000,000	50%	\$ 1,500,000	\$ -	\$ 1,500,000	\$ 1,500,000	\$ -	\$ -
25	Intersection Signalization	Centre Street at 5th Line		2018	\$ 200,000	\$ -	\$ 200,000	25%	\$ 50,000	\$ -	\$ 150,000	\$ 150,000	\$ -	\$ -	
26	Intersection Signalization	Centre Street at Greenwood Drive		2021	\$ 200,000	\$ -	\$ 200,000	25%	\$ 50,000	\$ -	\$ 150,000	\$ 150,000	\$ -	\$ -	
27	Intersection Signalization	Wilby Road at 5th Line		2023	\$ 200,000	\$ -	\$ 200,000	55%	\$ 110,000	\$ -	\$ 90,000	\$ -	\$ 90,000	\$ -	
28	Roads Needs Study				2022	\$ 25,000	\$ -	\$ 25,000	0%	\$ -	\$ -	\$ 25,000	\$ -	\$ 25,000	\$ -
27	Engineering Design Standards Study				2019	\$ 50,000	\$ -	\$ 50,000	0%	\$ -	\$ -	\$ 50,000	\$ -	\$ 50,000	\$ -
Subtotal Other Works							\$ 4,275,000	\$ -	\$ 4,275,000	\$ 2,010,000	\$ -	\$ 2,265,000	\$ 2,100,000	\$ 165,000	\$ -
Total Roads and Related							\$23,280,000	\$0	\$23,280,000	\$6,745,000	\$0	\$16,535,000	\$5,841,869	\$10,693,131	\$0

Benefit to existing for Urbanizations based on the following:

Resurfacing of an existing Rural paved road is approx:	\$100 per m
Surfacing an existing rural gravel road is approx:	\$40 per m
Resurfacing of an existing Urban Road is approx:	\$300 per m

Residential Development Charge Calculation		
Residential Share of 2018 - 2027 DC Eligible Costs	78%	\$8,340,642
10-Year Growth in Population in New Units		2,990
Unadjusted Development Charge Per Capita		\$2,789.51
Non-Residential Development Charge Calculation		
Non-Residential Share of 2018 - 2027 DC Eligible Costs	22%	\$2,352,489
10-Year Growth in Square Metres		47,000
Unadjusted Development Charge Per Square Metre		\$50.05

2018 - 2027 Net Funding Envelope	\$15,113,885
Reserve Fund Balance as at Dec 31, 2017	\$5,841,869

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APPENDIX B.7
TABLE 4 - PAGE 1

**TOWNSHIP OF ESSA
CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
ROADS AND RELATED
RESIDENTIAL DEVELOPMENT CHARGE
(in \$000)**

ROADS AND RELATED	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.00	\$634.86	\$1,264.15	\$1,968.90	\$2,711.53	\$3,366.79	\$3,236.80	\$3,166.79	\$2,287.89	\$3,111.80	
2018 - 2027 RESIDENTIAL FUNDING REQUIREMENTS											
- Roads And Related: Non Inflated	\$185.25	\$224.25	\$185.3	\$185.3	\$300.4	\$1,027.7	\$967.6	\$1,647.8	\$185.3	\$3,432.0	\$8,340.6
- Roads And Related: Inflated	\$185.3	\$228.7	\$192.7	\$196.6	\$325.2	\$1,134.6	\$1,089.7	\$1,892.7	\$217.0	\$4,101.6	\$9,564.1
NEW RESIDENTIAL DEVELOPMENT											
- Population Growth in New Units	299	299	299	299	299	299	299	299	299	299	2,990
REVENUE											
- DC Receipts: Inflated	\$809.2	\$825.4	\$841.9	\$858.7	\$875.9	\$893.4	\$911.3	\$929.5	\$948.1	\$967.1	\$8,860.4
INTEREST											
- Interest on Opening Balance	\$0.0	\$22.2	\$44.2	\$68.9	\$94.9	\$117.8	\$113.3	\$110.8	\$80.1	\$108.9	\$761.2
- Interest on In-year Transactions	\$10.9	\$10.4	\$11.4	\$11.6	\$9.6	(\$6.6)	(\$4.9)	(\$26.5)	\$12.8	(\$86.2)	(\$57.5)
TOTAL REVENUE	\$820.1	\$858.0	\$897.5	\$939.2	\$980.4	\$1,004.6	\$1,019.7	\$1,013.8	\$1,041.0	\$989.8	\$9,564.1
CLOSING CASH BALANCE	\$634.9	\$1,264.2	\$1,968.9	\$2,711.5	\$3,366.8	\$3,236.8	\$3,166.8	\$2,287.9	\$3,111.8	\$0.0	

2018 Adjusted Charge Per Capita **\$2,706.31**

Allocation of Capital Program	
Residential Sector	78.0%
Non-Residential Sector	22.0%
Rates for 2018	
Inflation Rate:	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

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APPENDIX B.7
TABLE 4 - PAGE 2

**TOWNSHIP OF ESSA
CASHFLOW AND DETERMINATION OF DEVELOPMENT CHARGE
ROADS AND RELATED
NON-RESIDENTIAL DEVELOPMENT CHARGE
(in \$000)**

ROADS AND RELATED	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
OPENING CASH BALANCE	\$0.00	\$179.06	\$356.56	\$555.33	\$764.79	\$949.61	\$912.94	\$893.20	\$645.30	\$877.69	
2018 - 2027 NON-RESIDENTIAL FUNDING REQUIREMENTS											
- Roads And Related: Non Inflated	\$52.3	\$63.3	\$52.3	\$52.3	\$84.7	\$289.9	\$272.9	\$464.8	\$52.3	\$968.0	\$2,352.5
- Roads And Related: Inflated	\$52.3	\$64.5	\$54.4	\$55.4	\$91.7	\$320.0	\$307.3	\$533.9	\$61.2	\$1,156.8	\$2,697.6
NON-RESIDENTIAL SPACE GROWTH											
- Growth in Square Metres	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	47,000
REVENUE											
- DC Receipts: Inflated	\$228.2	\$232.8	\$237.5	\$242.2	\$247.0	\$252.0	\$257.0	\$262.2	\$267.4	\$272.8	\$2,499.1
INTEREST											
- Interest on Opening Balance	\$0.0	\$6.3	\$12.5	\$19.4	\$26.8	\$33.2	\$32.0	\$31.3	\$22.6	\$30.7	\$214.7
- Interest on In-year Transactions	\$3.1	\$2.9	\$3.2	\$3.3	\$2.7	(\$1.9)	(\$1.4)	(\$7.5)	\$3.6	(\$24.3)	(\$16.2)
TOTAL REVENUE	\$231.3	\$242.0	\$253.1	\$264.9	\$276.5	\$283.4	\$287.6	\$286.0	\$293.6	\$279.2	\$2,697.6
CLOSING CASH BALANCE	\$179.1	\$356.6	\$555.3	\$764.8	\$949.6	\$912.9	\$893.2	\$645.3	\$877.7	\$0.0	

2018 Adjusted Charge Per Square Metre	\$48.56
--	----------------

Allocation of Capital Program	
Residential Sector	78.0%
Non-Residential Sector	22.0%
Rates for 2018	
Inflation Rate	2.0%
Interest Rate on Positive Balances	3.5%
Interest Rate on Negative Balances	5.5%

APPENDIX C

***WATER AND SEWER SERVICES
TECHNICAL APPENDIX***

APPENDIX C

WATER & SEWER SERVICES

TECHNICAL APPENDIX

The Public Works Department ensures that the Township's municipal services such as roads, water and wastewater systems are designed for the appropriate protection, health and quality of life of the public, and good engineering practices. The department also provides review and inspection services to facilitate new development and to maintain service standards to sustain the existing infrastructure.

This appendix provides a brief outline of the municipal water and sewer services. Water Services includes water supply and distribution system and Sewer Service provides for sewer collection and treatment. The three service areas that this appendix will focus upon are Angus (water and sewer services), Thornton (water services only), and Baxter (in which new development will connect into the Angus Sewage Treatment Plant).

The following tables set out the 2018 to build-out development-related capital forecast and the calculation of the development charge for water and sewer services. The cost, quantum and description of the projects included in the forecast are generally based upon servicing plans from the Township's engineering consultants as well as supplemental information provided by Township staff.

The development-related water and sewer infrastructure projects are required to service the demands of population and employment growth from 2018 to build-out. The forecasts differ depending on development potential of each service area. Appendix A outlines in more detail the growth forecasts of each service area.

Angus Water Services

Tables 1 – 2 provide details of the projects included in the Angus Water development charges calculation. The content of the tables is as follows:

Table 1	Water Service Capital: Supply and Distribution System
Table 2	Calculation of Development Charge

The development-related capital program for the water supply and distribution system is \$4.11 million to service growth to build-out of the Township's currently designated lands. The program provides for an in-ground storage facility at the Mill Street Reservoir Site at a cost of \$3.00 million and a water supply test well drilling program for \$200,000. Recoveries of past commitments include the Mill Street Reservoir principal and interest payments on the remaining portions of the debentures and the remaining principal and interest payments on the Brownley Reservoir which adds up to \$771,300. Studies are also included for a total of \$140,000.

Table 2 displays the calculated development charge rates for the Angus Water service area. The total capital program amounts to \$4.11 million, with no deductions for benefit to existing nor post-period benefit. However, about \$1.98 million in existing development charges reserves are on hand to fund a share of the program which reduces the capital program to \$2.13 million. This amount is brought forward to the DC calculation. The total development-related capital cost of \$2.13 million is allocated 63 per cent to the residential sector, and 37 per cent to the non-residential sector (based on shares of future population and employment growth). As such, the residential sector bears \$1.34 million of the development-related capital program. This cost, divided by the anticipated population growth in new units yields a calculated charge of \$688.22 per capita. The non-residential charge is the \$788,170 divided by the anticipated new non-residential floor space, which yields a charge of \$12.13 per square metre.

The following is a summary of the Angus Water development charges:

ANGUS WATER SUMMARY			
2018 - Build-out		Calculated	
Development-Related Capital Program		Development Charge	
Total	Net DC Recoverable	\$/capita	\$/sq.m
\$4,111,262	\$2,130,192	\$688.22	\$12.13

Angus Sewer Services

Tables 3 – 4 provide details of the projects included in the Angus sewer development charges calculation. The content of the tables is as follows:

Table 3	Sewer Service Capital: Treatment and Collection System
Table 4	Calculation of Development Charge

The development-related capital program for sewer treatment and collection is \$7.87 million to service growth to build-out of the Township's currently designated lands. A capacity review study and modelling study are proposed for the Angus Sewer DC capital program and valued at \$140,000. The Township also continues to recover for the previous expansion to the Angus Sewage Treatment Plant and the remaining principal payments amount to \$3.42 million and the interest payments amount to \$1.26 million. Also included in the Angus Sewer DC capital program is for the recovery of sewage treatment plant credits for Clauriz Construction Inc. and Previn Court Subdivision – these amount to \$395,300. A new project included in the DC capital program is for sludge management (digesters) and this project will cost about \$2.50 million. And finally, aeration system upgrades for \$151,000 is included as the final project in the DC capital program (Table 3).

In total, the Angus Sewer DC capital program amounts to \$7.87 million. About \$6.17 million is available in the Angus Sewer DC reserve fund and is used to offset the capital program. A nominal benefit to existing share of \$3,900 is also netted off from DC recovery. No post-period benefit shares are identified for this program. In total, \$1.70 million is brought forward to the DC calculation. 70 percent of these costs are apportioned to the residential sector, while the remaining 30 per cent are apportioned to the non-residential sector (based on shares of future population and employment growth). This yields a calculated charge of \$434.83 per capita and \$7.83 per square metre.

The following is a summary of the calculated Angus Sewer development charges:

ANGUS SEWER SUMMARY			
2018 - Build-out		Unadjusted	
Development-Related Capital Program		Development Charge	
Total	Net DC Recoverable	\$/capita	\$/sq.m
\$7,866,576	\$1,695,855	\$434.83	\$7.83

Baxter Service Area

It should be noted that new development in the Baxter service area will be required to pay development charges for their proportionate share of costs of the Angus Sewage Treatment and Collection charge to assists in paying for existing capacity and to help pay down the debt involved with the previous expansion. The capital costs for the internal sewage collection system, pumping stations, and forcemain are to be paid for by the developer. Furthermore, any new water infrastructure needed to facilitate this development is anticipated to be emplaced by the developer and the water will be provided via the Collingwood/Alliston pipeline. Therefore, such costs associated with the water infrastrcture are not considered for in this study.

Thornton Water Services

Tables 5 – 6 provide details of the projects included in the Thornton Water development charges calculation. The content of the tables is as follows:

Table 5	Water Service Capital: Supply and Distribution System
Table 6	Calculation of Development Charge

The Thornton Water DC capital program amounts to \$885,000 and consists of seven projects – upgrades to existing wells and equipment, new production well, Schedule B Class EA, well testing and replacement, additional storage, increase high lift pump capacity, and changes in the distribution system. The specific cost and requirements of the program have been identified through the Village of Thornton Drinking Water System Capacity Review prepared in March 2017.

The Township has about \$27,100 available in the Thornton Water DC reserve fund to offset the cost of these projects. Furthermore, it is recognized that many of the required works identified in the capacity report would be considered to replace existing infrastructure and benefit the existing community, therefore, about \$430,400 has been netted off the total program to account for this share. No post-period benefit shares have been identified for this project. As such, \$427,500 is brought forward to the DC calculation. This net development-related capital cost is apportioned 76 per cent to the residential sector and 24 per cent to the non-residential sector. This yields a calculated charge of \$2,809.58 per capita and \$126.14 per square metre of new non-residential GFA.

The following is a summary of the calculated Thornton Water development charges:

THORNTON WATER SUMMARY

2018 - Build-out		Unadjusted	
Development-Related Capital Program		Development Charge	
Total	Net DC Recoverable	\$/capita	\$/sq.m
\$885,000	\$427,478	\$2,809.58	\$126.14

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APPENDIX C
TABLE 1

TOWNSHIP OF ESSA
DEVELOPMENT-RELATED CAPITAL PROGRAM
ANGUS SERVICE AREA - WATER SUPPLY AND DISTRIBUTION

ANGUS WATER SUPPLY AND DISTRIBUTION	Estimated Project Costs						
	Gross Cost	Grants and Subsidies	Benefit to Existing and Local Shares		Net Growth-Related	Post Period Benefit	Net DC Recoverable 2018-Build Out
Project Descriptions							
1 Capacity Review Study (2)	\$40,000	\$0	0%	\$0	\$40,000	\$0	\$40,000
2 Modeling Study (2)	\$100,000	\$0	0%	\$0	\$100,000	\$0	\$100,000
3 In-ground Storage Facility at Mill Street Reservoir Site	\$3,000,000	\$0	0%	\$0	\$3,000,000	\$0	\$3,000,000
4 Angus Water Supply Test Well Drilling Program	\$200,000	\$0	0%	\$0	\$200,000	\$0	\$200,000
5 Angus Water Debenture	\$771,262	\$0	0%	\$0	\$771,262	\$0	\$771,262
Mill Street Reservoir Principal (2018 to 2024) \$ 473,016.66							
Mill Street Reservoir Interest (2018 to 2024) \$ 42,243.07							
Brownley Reservoir Principal (2018 to 2024) \$ 235,014.61							
Brownley Reservoir Interest (2018 to 2024) \$ 20,988.14							
Subtotal	\$4,111,262	\$0		\$0	\$4,111,262	\$0	\$4,111,262
Less: Available DC Reserve Fund	(\$1,981,070)				(\$1,981,070)		(\$1,981,070)
TOTAL ANGUS WATER SUPPLY AND DISTRIBUTION	\$2,130,192	\$0		\$0	\$2,130,192	\$0	\$2,130,192

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APPENDIX C
TABLE 2

**TOWNSHIP OF ESSA
SUMMARY OF RESIDENTIAL AND NON-RESIDENTIAL DEVELOPMENT CHARGES
ANGUS SERVICE AREA - WATER SUPPLY AND DISTRIBUTION**

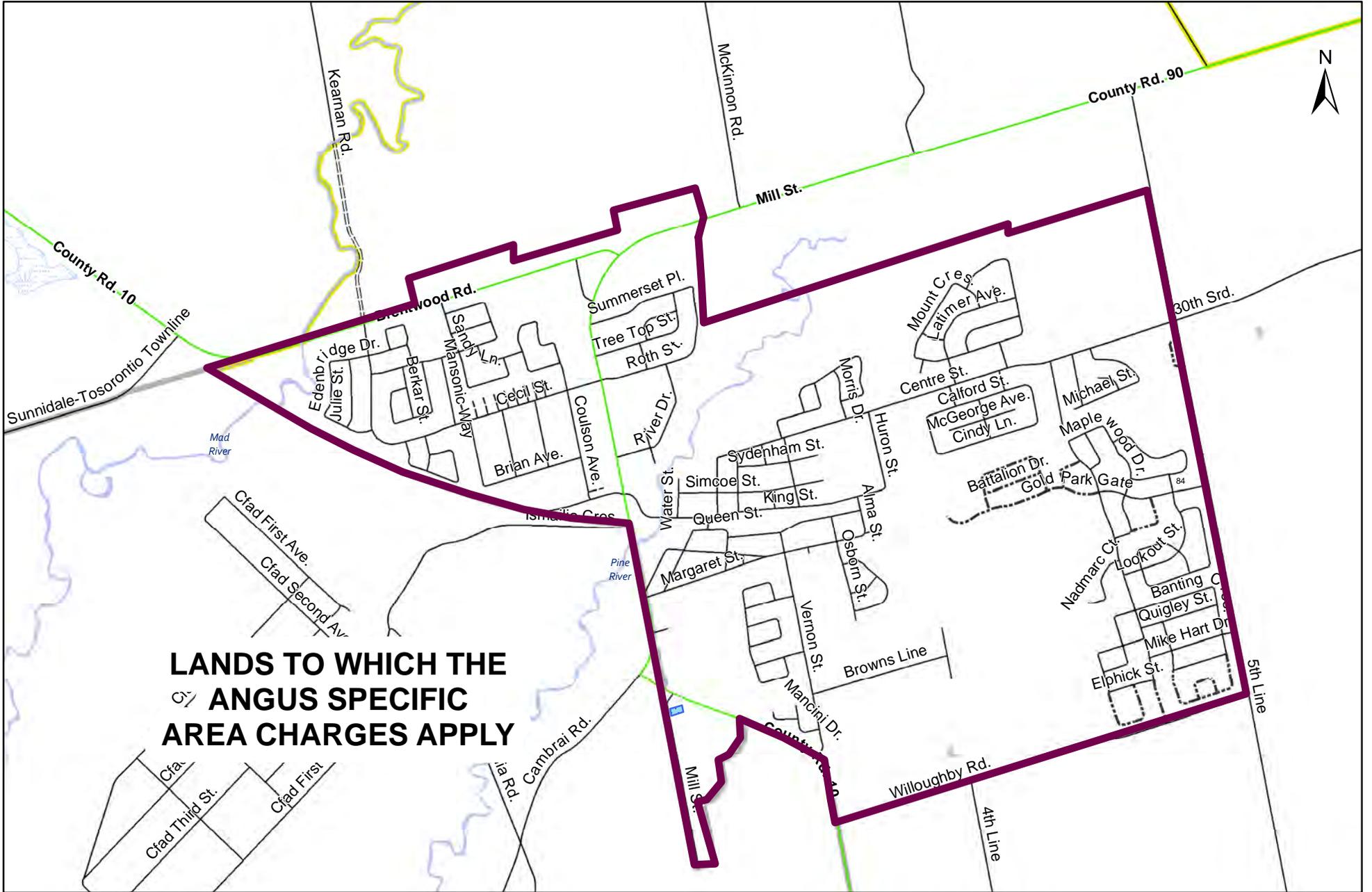
Angus Water Service Area Growth in Population in New Units	1,950
Ultimate Growth in Employment	1,141
Ultimate Growth in Square Metres	64,991

	Growth-Related Capital Forecast									
	Total (Net of Grants/ Subsidies) (\$000)	Prior Growth (\$000)	Benefit to Existing Share (\$000)	Pre-Built Service (Calculated Oversizing) (\$000)	Total Growth- Related Net Capital Costs (\$000)	Residential Share		Non-Residential Share		
						%	(\$000)	%	(\$000)	
ANGUS WATER SUPPLY AND DISTRIBUTION										
Water and Distribution Projects	\$ 4,111.26	\$ 1,981.07	\$ -	\$ -	\$ 2,130.19	63%	\$ 1,342.02	37%	\$ 788.17	
TOTAL ANGUS WATER SUPPLY AND DISTRIBUTION	\$ 4,111.26	\$ 1,981.07	\$ -	\$ -	\$ 2,130.19		\$ 1,342.02		\$ 788.17	
Unadjusted Development Charge Per Capita (\$)							\$ 688.22			
Unadjusted Development Charge Per Sq. M. (\$)									\$ 12.13	

Angus Service Area	Charge Per Capita	Charge By Unit Type (1)			
		Single & Semi- Detached	Rows & Other Multiples	Apartments	
				2 Bedrooms & Larger	Bachelor & 1 Bedroom
Water Supply and Distribution	\$688.22	\$2,154	\$1,927	\$1,308	\$964

Angus Non-Residential Water Charge	
Calculated Charge	
Per Square Metre of GFA	\$ 12.13
Per Square Foot of GFA	\$ 1.13

(1) Based on Persons Per Unit Of: 3.13 2.80 1.90 1.40



**LANDS TO WHICH THE
ANGUS SPECIFIC
AREA CHARGES APPLY**

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APPENDIX C
TABLE 3

TOWNSHIP OF ESSA
DEVELOPMENT-RELATED CAPITAL PROGRAM
ANGUS SERVICE AREA - SEWAGE TREATMENT AND COLLECTION

ANGUS SEWAGE TREATMENT AND COLLECTION	Estimated Project Costs							
	Gross Cost	Grants and Subsidies	Benefit to Existing and Local Shares		Net Growth-Related	Post Period Benefit		Net DC Recoverable 2018-Build Out
Project Descriptions								
1.0 Studies								
1.1 Capacity Review Study (2)	\$40,000	\$0	0%	\$0	\$40,000	0%	\$0	\$40,000
1.2 Modelling Study (2)	<u>\$100,000</u>	<u>\$0</u>	0%	<u>\$0</u>	<u>\$100,000</u>	0%	<u>\$0</u>	<u>\$100,000</u>
Sub-Total	\$140,000	\$0		\$0	\$140,000		\$0	\$140,000
2.0 Angus WWTP Expansion								
2.1 Construction and Related Costs	\$3,421,881	\$0	0%	\$0	\$3,421,881	0%	\$0	\$3,421,881
2.2 Debenture Financing Costs ¹	<u>\$1,261,359</u>	<u>\$0</u>	0%	<u>\$0</u>	<u>\$1,261,359</u>	0%	<u>\$0</u>	<u>\$1,261,359</u>
Sub-Total Angus WWTP Expansion	\$4,683,240	\$0		\$0	\$4,683,240		\$0	\$4,683,240
3.0 Sewage Collection and Related Works								
3.1 Recovery of Sewage Treatment Plant Existing Credits ²	\$395,336	\$0	0%	\$0	\$395,336	0%	\$0	\$395,336
3.2 Sludge Management (Digesters)	\$2,497,000	\$0	0%	\$0	\$2,497,000	0%	\$0	\$2,497,000
3.3 Aeration System Upgrades	<u>\$151,000</u>	<u>\$0</u>	3%	<u>\$3,862</u>	<u>\$147,138</u>	0%	<u>\$0</u>	<u>\$147,138</u>
Sub-Total Sewage Collection and Related Works	\$3,043,336	\$0		\$3,862	\$3,039,474		\$0	\$3,039,474
Subtotal	\$7,866,576	\$0		\$3,862	\$7,862,714		\$0	\$7,862,714
Less Available DC Reserve Fund	(\$6,166,858)				(\$6,166,858)			(\$6,166,858)
TOTAL ANGUS SEWAGE TREATMENT AND COLLECTION	\$1,699,717	\$0		\$3,862	\$1,695,855		\$0	\$1,695,855

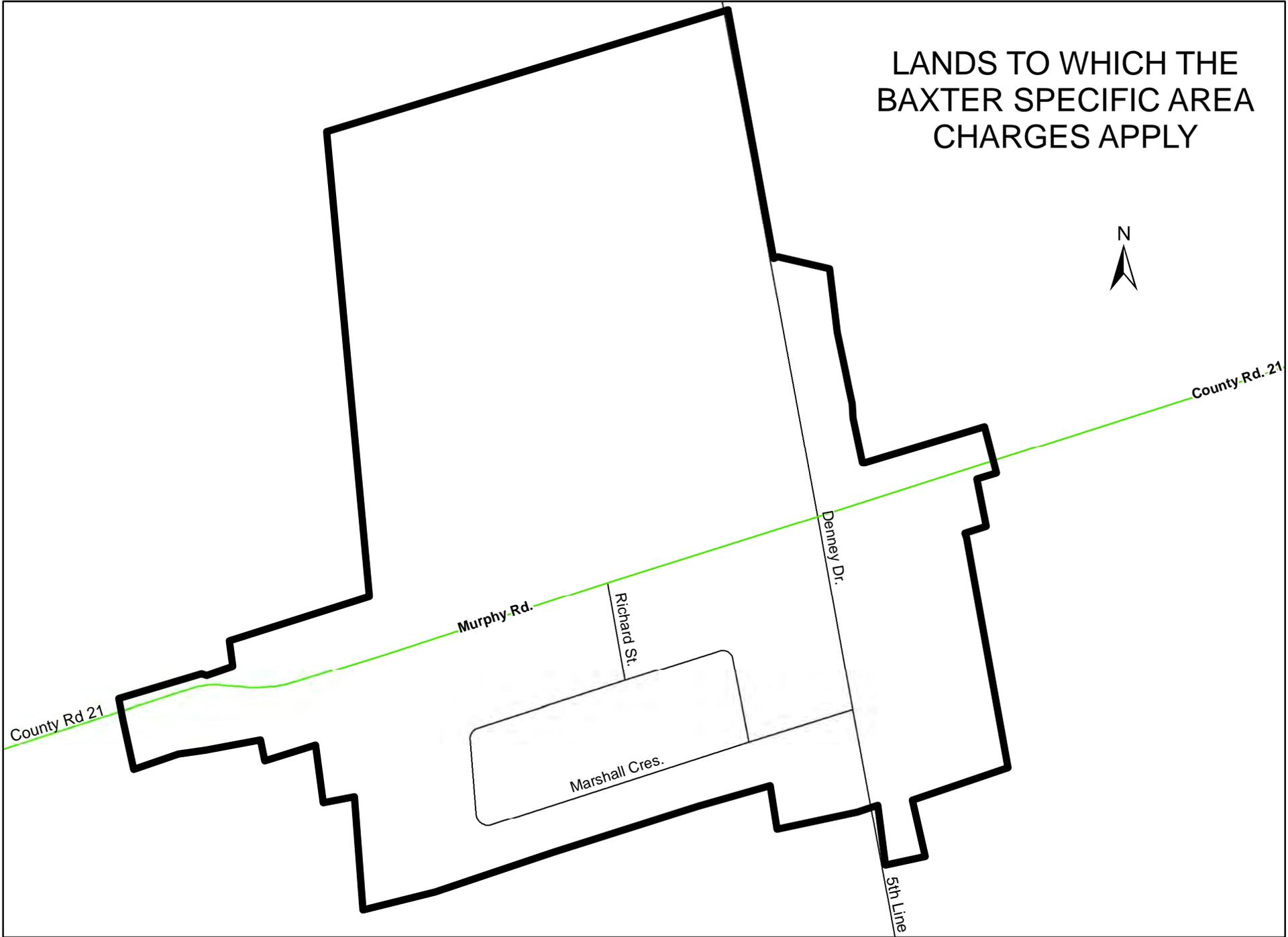
Notes

1) The Township issued a debenture (By-law Number 2006-01) to finance the growth-related share of the Angus WWTP and Pump Station No. 2 works; balance of repayments from 2018 to 2031.

Semi-Annual Payments	\$173,453.31
Number of Remaining Payments	27
Total Payments	\$4,683,239.37
Principal	\$3,421,881.00
Interest	\$1,261,358.74

2) including File No E-T-94007, 43-21-010-010-05410-0000, Conc III Pt Lots 31 and 32 (Clauriz Construction Inc, Previn Court Subdivision)

LANDS TO WHICH THE BAXTER SPECIFIC AREA CHARGES APPLY



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APPENDIX C
TABLE 5

TOWNSHIP OF ESSA
DEVELOPMENT-RELATED CAPITAL PROGRAM
THORNTON SERVICE AREA - WATER SUPPLY AND DISTRIBUTION

THORNTON WATER SUPPLY AND DISTRIBUTION	Estimated Project Costs						
	Gross Cost	Grants and Subsidies	Benefit to Existing and Local Shares		Net Growth-Related	Post Period Benefit	Net DC Recoverable 2018- Buildout
Project Descriptions (1)							
1 Upgrades to existing wells and equipment	\$ 40,000	\$0	34%	\$ 13,440	\$ 26,560	\$ -	\$ 26,560
2 New Production Well	\$ 300,000	\$0	34%	\$ 100,800	\$ 199,200	\$ -	\$ 199,200
3 Schedule B Class EA	\$ 30,000	\$0	34%	\$ 10,080	\$ 19,920	\$ -	\$ 19,920
4 Well Testing and Replacement	\$ 240,000	\$0	87%	\$ 209,953	\$ 30,047	\$ -	\$ 30,047
5 Additional Storage	\$ 165,000	\$0	0%	\$ -	\$ 165,000	\$ -	\$ 165,000
6 Increase High Lift Pump Capacity	\$ 80,000	\$0	87%	\$ 69,920	\$ 10,080	\$ -	\$ 10,080
7 Changes in the Distribution System	\$ 30,000	\$0	87%	\$ 26,220	\$ 3,780	\$ -	\$ 3,780
Subtotal Project Costs	\$ 885,000	\$ -		\$ 430,413	\$ 454,587	\$ -	\$ 454,587
8 Available Thornton Water DC Reserve Fund	(\$27,109)				(\$27,109)	\$0	(\$27,109)
TOTAL THORNTON WATER SUPPLY AND DISTRIBUTION	\$857,891	\$0		\$430,413	\$427,478	\$0	\$427,478

Note 1: Costs and BTE shares are based on the Village of Thornton Drinking Water Capacity Review and suggested cost sharing memorandum (March 2017)

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APPENDIX C
TABLE 6

**TOWNSHIP OF ESSA
SUMMARY OF RESIDENTIAL AND NON-RESIDENTIAL DEVELOPMENT CHARGES
THORNTON SERVICE AREA - WATER SUPPLY AND DISTRIBUTION**

Remaining Supply of Units (Singles/Semis)	37
Population in New Units	116
Remaining Supply of Non-Residential Land (acres)	2
Potential Employment	16
Potential GFA	809

	Development-Related Capital Forecast									
	Total (Net of Grants/ Subsidies) (\$000)	Prior Growth (\$000)	Benefit to Existing Share (\$000)	Pre-Built Service (Calculated Oversizing) (\$000)	Total Growth- Related Net Capital Costs (\$000)	Residential Share		Non-Residential Share		
						%	(\$000)	%	(\$000)	
THORNTON WATER SUPPLY AND DISTRIBUTION Water Supply and Distribution Projects	\$ 885.00	\$ 27.11	\$ 430.41	\$ -	\$ 427.48	76%	\$ 325.38	24%	\$ 102.10	
TOTAL THORNTON WATER SUPPLY AND DISTRIBUTION	\$ 885.00	\$ 27.11	\$ 430.41	\$ -	\$ 427.48		\$ 325.38		\$ 102.10	
Unadjusted Development Charge Per Capita (\$)							\$ 2,809.58			
Unadjusted Development Charge Per Sq. M. (\$)									\$ 126.14	

Thornton Service Area	Charge Per Capita	Charge By Unit Type (1)			
		Single & Semi- Detached	Rows & Other Multiples	Apartments	
				2 Bedrooms & Larger	Bachelor & 1 Bedroom
Water Supply and Distribution	\$2,809.58	\$8,794	\$7,867	\$5,338	\$3,933

Thornton Non-Residential Water Charge	
Calculated Charge	
Per Square Metre of GFA	\$ 126.14
Per Square Foot of GFA	\$11.72

(1) Based on Persons Per Unit Of: 3.13 2.80 1.90 1.40



LANDS TO WHICH THE
 THORNTON SPECIFIC
 AREA CHARGES APPLY

APPENDIX D

RESERVE FUND BALANCES

APPENDIX D**DEVELOPMENT CHARGES RESERVE FUNDS UNCOMMITTED BALANCES**

The *Development Charges Act* requires that a reserve fund be established for each service for which development charges are collected. Table 1 presents the uncommitted reserve fund balances that are available to help fund the development-related net capital costs identified in this study.

As shown on Table 1, the December 31, 2017 total uncommitted reserve fund balance was approximately \$19.59 million and all of the available reserve fund balances are therefore accounted for in this study.

The application of the available uncommitted balance in each of the reserve funds is discussed in the appendix section related to each service. These funds are assigned to projects in the initial years of the capital program for each service. This has the effect of reducing and deferring capital costs brought forward to the development charge calculation and the cash flow analysis.

**APPENDIX D
TABLE 1**

**TOWNSHIP OF ESSA
DEVELOPMENT CHARGE RESERVE FUND BALANCE BY ACCOUNT
YEAR ENDING DECEMBER 31, 2017**

Service	Uncommitted Reserve Fund Balance as at Dec. 31, 2017
Library Services	\$ 54,624
Fire Services	\$ 632,331
Police Services	\$ 219,531
Parks And Recreation	\$ 4,182,711
Public Works And Fleet	\$ 309,138
General Government	\$ 174,902
Roads And Related	\$ 5,841,869
Angus Sewer	\$ 6,166,858
Angus Water	\$ 1,981,070
Thornton Water	\$ 27,109
Total Development Charge Reserves	\$ 19,590,142

APPENDIX E

LONG-TERM CAPITAL AND OPERATING IMPACTS

APPENDIX E

TABLE 1

TOWNSHIP OF ESSA
ESTIMATED NET OPERATING COST OF THE PROPOSED
DEVELOPMENT-RELATED CAPITAL PROGRAM
(in constant 2018 dollars)

	Net Cost (in 2018\$)		Estimated Operating Costs (\$000)									
			2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Library Services			\$0.0	\$0.0	\$30.0	\$30.0						
- Building Expansion (Thronton)	\$30	per sq.ft. of new space	\$0.0	\$0.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0
Fire Services			\$0.0	\$0.0	\$93.0	\$93.0	\$93.0	\$93.0	\$204.0	\$204.0	\$204.0	\$204.0
- Building Expansions	\$30	per sq.ft. of new fire station space	\$0.0	\$0.0	\$93.0	\$93.0	\$93.0	\$93.0	\$204.0	\$204.0	\$204.0	\$204.0
Parks and Recreation			\$105.0	\$141.0	\$161.0	\$196.0	\$226.0	\$246.0	\$376.0	\$396.0	\$416.0	\$436.0
- Recreation Facility	\$110,000	per year	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$110.0	\$110.0	\$110.0	\$110.0
- Park Facilities	\$0.10	per \$1.00 of new inventory added	\$105.0	\$141.0	\$161.0	\$196.0	\$226.0	\$246.0	\$266.0	\$286.0	\$306.0	\$326.0
Public Works and Fleet			\$0.0	\$18.0	\$48.0	\$66.0	\$88.5	\$88.5	\$88.5	\$106.5	\$106.5	\$106.5
- Fleet	\$0.10	per \$1.00 of new inventory added	\$0.0	\$18.0	\$48.0	\$66.0	\$88.5	\$88.5	\$88.5	\$106.5	\$106.5	\$106.5
Police (1)			\$2.5	\$5.0	\$7.4	\$9.9	\$12.4	\$14.9	\$17.3	\$19.8	\$22.3	\$24.8
- Buildings, Land and Fleet	\$0.10	per \$1.00 of new inventory added	\$2.5	\$4.95	\$7.4	\$9.9	\$12.4	\$14.9	\$17.3	\$19.8	\$22.3	\$24.8
Roads and Related			\$25.0	\$50.0	\$75.0	\$100.0	\$125.0	\$150.0	\$175.0	\$200.0	\$225.0	\$250.0
- Development-Related Roads Infrastructure	\$250	per household	\$25.0	\$50.0	\$75.0	\$100.0	\$125.0	\$150.0	\$175.0	\$200.0	\$225.0	\$250.0
TOTAL ESTIMATED OPERATING COSTS			\$132.5	\$214.0	\$414.4	\$494.9	\$574.9	\$622.4	\$890.8	\$956.3	\$1,003.8	\$1,051.3

Note 1: Additional Operating costs associated with the OPP contract are not identified

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APPENDIX E
TABLE 2 - PAGE 1

**TOWNSHIP OF ESSA
SUMMARY OF TAX SUPPORTED FUNDING REQUIREMENTS**

Net Capital Cost of Development-Related Projects	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)	2022 (\$000)	2023 (\$000)	2024 (\$000)	2025 (\$000)	2026 (\$000)	2027 (\$000)	TOTAL (\$000)
LIBRARY SERVICES											
Total Net Cost (1)	38.4	38.4	63.4	235.0	10.0	10.0	10.0	10.0	10.0	10.0	435.1
Net Cost From Development Charges (2)	8.1	13.5	56.1	210.6	8.1	8.1	8.1	8.1	8.1	8.1	336.9
Net Cost From Non-DC Sources	30.3	24.8	7.2	24.4	1.9	1.9	1.9	1.9	1.9	1.9	98.1
- Discount Portion (3)	3.8	3.8	6.3	23.5	1.0	1.0	1.0	1.0	1.0	1.0	43.5
- Available DC Reserves (4)	26.4	21.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	54.6
- Replacement & Benefit to Existing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- For Post 2027 Development (5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FIRE SERVICES											
Total Net Cost (1)	27.0	123.2	2,134.4	1,936.0	27.0	27.0	1,943.0	7.0	7.0	7.0	6,238.6
Net Cost From Development Charges (2)	5.6	5.6	1,196.5	1,231.3	5.6	45.6	5.6	5.6	5.6	5.6	2,512.6
Net Cost From Non-DC Sources	21.4	117.6	937.9	704.7	21.4	(18.6)	1,937.4	1.4	1.4	1.4	3,726.0
- Discount Portion (3)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Available DC Reserves (4)	1.4	137.6	483.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	632.3
- Replacement & Benefit to Existing	0.0	0.0	474.4	350.0	0.0	0.0	221.6	0.0	0.0	0.0	1,046.0
- For Post 2027 Development (5)	0.0	0.0	0.0	333.3	0.0	0.0	1,714.4	0.0	0.0	0.0	2,047.7
POLICE SERVICES											
Total Net Cost (1)	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	247.6
Net Cost From Development Charges (2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	24.8	28.0
Net Cost From Non-DC Sources	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	21.5	0.0	219.5
- Discount Portion (3)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Available DC Reserves (4)	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	21.5	0.0	219.5
- Replacement & Benefit to Existing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- For Post 2027 Development (5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PARKS AND RECREATION											
Total Net Cost (1)	1,050.0	424.0	200.0	450.0	950.0	575.0	3,325.0	200.0	200.0	200.0	7,574.0
Net Cost From Development Charges (2)	0.0	0.0	0.0	0.0	0.0	90.0	1,643.9	135.0	135.0	135.0	2,138.9
Net Cost From Non-DC Sources	1,050.0	424.0	200.0	450.0	950.0	485.0	1,681.1	65.0	65.0	65.0	5,435.1
- Discount Portion (3)	100.0	37.4	15.0	40.0	85.0	52.5	327.5	15.0	15.0	15.0	702.4
- Available DC Reserves (4)	900.0	336.6	135.0	360.0	765.0	382.5	1,303.6	0.0	0.0	0.0	4,182.7
- Replacement & Benefit to Existing	50.0	50.0	50.0	50.0	100.0	50.0	50.0	50.0	50.0	50.0	550.0
- For Post 2027 Development (5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes: (1) For total development-related capital program see Appendix B.

(2) Share of capital program to be funded from development charges if calculated rates are fully implemented

(3) Mandatory 10% reduction for applicable services

(4) Portion of development-related capital program identified as available DC reserves (to be funded from present Development Charge reserve fund balances).

(5) Post 2027 development-related net capital costs may be eligible for development charges in future DC by-laws, but interim financing of this share may be required

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APPENDIX E
TABLE 2 - PAGE 2

**TOWNSHIP OF ESSA
SUMMARY OF TAX SUPPORTED FUNDING REQUIREMENTS**

Net Capital Cost of Development-Related Projects	2018 (\$000)	2019 (\$000)	2020 (\$000)	2021 (\$000)	2022 (\$000)	2023 (\$000)	2024 (\$000)	2025 (\$000)	2026 (\$000)	2027 (\$000)	TOTAL (\$000)
PUBLIC WORKS AND FLEET											
Total Net Cost (1)	0.0	180.0	300.0	180.0	225.0	0.0	0.0	180.0	0.0	0.0	1,065.0
Net Cost From Development Charges (2)	0.0	0.0	170.9	180.0	225.0	0.0	0.0	180.0	0.0	0.0	755.9
Net Cost From Non-DC Sources	0.0	180.0	129.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	309.1
- Discount Portion (3)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Available DC Reserves (4)	0.0	180.0	129.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	309.1
- Replacement & Benefit to Existing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- For Post 2027 Development (5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GENERAL GOVERNMENT											
Total Net Cost (1)	74.0	15.0	45.0	10.0	45.0	5.0	0.0	0.0	0.0	35.0	229.0
Net Cost From Development Charges (2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4	20.4
Net Cost From Non-DC Sources	74.0	15.0	45.0	10.0	45.0	5.0	0.0	0.0	0.0	14.6	208.6
- Discount Portion (3)	7.4	1.1	4.5	0.7	4.2	0.4	0.0	0.0	0.0	3.5	21.7
- Available DC Reserves (4)	66.6	9.5	40.5	6.3	37.8	3.2	0.0	0.0	0.0	11.1	174.9
- Replacement & Benefit to Existing	0.0	4.5	0.0	3.0	3.0	1.5	0.0	0.0	0.0	0.0	12.0
- For Post 2027 Development (5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROADS AND RELATED (6)											
Total Net Cost (1)	2,000.0	1,450.0	4,660.0	930.0	1,390.0	1,900.0	1,700.0	2,900.0	400.0	5,950.0	23,280.0
Net Cost From Development Charges (2)	237.5	287.5	237.5	237.5	385.1	1,317.5	1,240.5	2,112.5	237.5	4,400.0	10,693.1
Net Cost From Non-DC Sources	1,762.5	1,162.5	4,422.5	692.5	1,004.9	582.5	459.5	787.5	162.5	1,550.0	12,586.9
- Discount Portion (3)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Available DC Reserves (4)	1,057.3	789.3	2,516.3	479.3	718.6	56.3	56.3	56.3	56.3	56.3	5,841.9
- Replacement & Benefit to Existing	705.3	373.3	1,906.3	213.3	286.3	526.3	403.3	731.3	106.3	1,493.8	6,745.0
- For Post 2027 Development (5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL MUNICIPAL SERVICES											
Total Net Cost (1)	3,214.1	2,255.3	7,427.5	3,765.8	2,671.8	2,541.8	7,002.8	3,321.8	641.8	6,226.8	39,069.3
Net Cost From Development Charges (2)	251.2	306.6	1,661.0	1,859.4	623.8	1,461.2	2,898.1	2,441.2	389.5	4,593.9	16,485.9
Net Cost From Non-DC Sources	2,962.9	1,948.7	5,766.5	1,906.4	2,047.9	1,080.6	4,104.7	880.6	252.3	1,632.9	22,583.4
- Discount Portion (3)	111.2	42.3	25.8	64.2	90.2	53.9	328.5	16.0	16.0	19.5	767.6
- Available DC Reserves (4)	2,076.4	1,498.7	3,330.1	872.6	1,548.5	469.0	1,386.9	83.3	80.0	69.7	11,415.1
- Replacement & Benefit to Existing	755.3	427.8	2,430.6	616.3	389.3	577.8	674.9	781.3	156.3	1,543.8	8,353.0
- For Post 2027 Development (5)	0.0	0.0	0.0	333.3	0.0	0.0	1,714.4	0.0	0.0	0.0	2,047.7

Notes: (1) For total development-related capital program see Appendix B.

(2) Share of capital program to be funded from development charges if calculated rates are fully implemented

(3) Mandatory 10% reduction for applicable services

(4) Portion of development-related capital program identified as available DC reserves (to be funded from present Development Charge reserve fund balances).

(5) Post 2027 development-related net capital costs may be eligible for development charges in future DC by-laws, but interim financing of this share may be required

APPENDIX F

ASSET MANAGEMENT PLAN

APPENDIX F

ASSET MANAGEMENT PLAN

ASSET MANAGEMENT PLAN

The *Development Charges Act* now requires that municipalities complete an Asset Management Plan before passing a development charges by-law. A key function of the Asset Management Plan is to demonstrate that all assets proposed to be funded under the development charges by-law are financially sustainable over their full life-cycle.

Asset Types

A summary of the future municipal-owned assets and estimated useful life assumptions for eligible DC services considered as part of the study are outlined in Table 1 and Table 2. Although all capital assets considered in the study have been identified, not all assets necessitate future replacement or ongoing maintenance activities. The exception and the justification is as follows:

- Some projects do not relate to the emplacement of a tangible capital asset—some examples include the acquisition of land or the undertaking of development-related studies. These projects/costs do not necessarily require future replacement or ongoing maintenance. Such projects are identified as “not infrastructure” in the tables.

It should be noted that the capital cost estimates prepared for each of the projects identified in this section include grouped costs of various individual elements, which, as a stand-alone item, may have its own useful life (ex. New buildings include: HVAC, structural elements, roof, etc.). Accordingly, the average useful life assumptions noted below are applicable to all project components.

Table 1 Summary of Township-wide Municipal Assets for General Services	
Service and Amenities	Estimated Useful Life
Library Services <ul style="list-style-type: none"> • Studies and Design • Buildings • Collection Materials 	Not Infrastructure 50 Years 10 Years
Fire Protection <ul style="list-style-type: none"> • Land Acquisition • Buildings • Fire Equipment • Fire Vehicles 	Not Infrastructure 50 Years 10-15 Years 10-20 Years
Police <ul style="list-style-type: none"> • Development-Related Capital 	10 Years
Parks and Recreation <ul style="list-style-type: none"> • Studies and Design • Land Acquisition • Facilities • Trail Construction • Playground Equipment and Amenities • Lighting at Fields • Vehicle – Dump Truck 	Not Infrastructure Not Infrastructure 50 Years 20 Years 20 Years 25 Years 15 Years
Public Works: Buildings and Fleet <ul style="list-style-type: none"> • Fleet 	15 Years
General Government <ul style="list-style-type: none"> • All studies 	Not Infrastructure
Roads and Related <ul style="list-style-type: none"> • Studies and Design • Road Projects • Bridge work • Signalization 	Not Infrastructure 40 Years ⁽¹⁾ 75 Years ⁽²⁾ 25 Years

1: This recognizes that some regular road maintenance is captured in the operating impact analysis of this study.

2: Bridges are required to have an engineered design life of 75 years, however, preventative maintenance activities and repair work would likely be needed to achieve this design life.

Table 2 Summary of Township-wide Municipal Assets for Engineered Services	
Capital Project Description	Estimated Useful Life
Angus Sewer <ul style="list-style-type: none"> • Sewage Collection and related Angus Water <ul style="list-style-type: none"> • Facilities Thornton Water <ul style="list-style-type: none"> • Related Projects 	All assets, with the exception of studies and completed projects, in this category have all been assigned an average 50 year useful life

Development Charges collected towards the ongoing recovery of debt associated with the construction of an asset (e.g. Angus Library Branch) is considered to be incorporated into the Township's corporate asset management plan and that there are no additional fiscal requirements associated with this project. Finally, the development-related studies are not infrastructure and have no long-term financial requirements.

Annual Provision

When assets require rehabilitation or are due for replacement, the source of funds is limited to reserves or contributions from operating. Capital expenditures to carry out the rehabilitation and replacement of aging infrastructure are not development-related and are therefore not eligible for funding through development charge revenues or other developer contributions.

Based on the information obtained from Township staff regarding useful life assumptions and the capital cost of acquiring and/or replacing each asset, a provision for infrastructure replacement has been calculated for both the general and engineered services. Provisions for infrastructure replacement are initially calculated for each asset based on their useful life and the anticipated cost of replacement. The aggregate of all individual provisions form the required annual capital provision. In calculating the annual provisions, a number of assumptions are made to account for inflation (2.0 per cent) and interest (3.5 per cent).

Consistent with the requirements of the *Development Charge Act*, assets that are proposed to be funded under the development charges by-law have been included in the analysis. As a result, the total calculated annual provision for development charge related infrastructure has been netted down to consider the replacement of existing infrastructure or benefit-to-existing development. For reference, the annual replacement provisions associated with the non-development charge funded portion include costs related to benefit-to-existing development, post-period benefit as well as a portion of the statutory ten percent discount that relates to those DC costs that will be considered for recovery in subsequent by-laws has also been calculated.

Tables 3 provides the calculated annual asset management contribution for 2018-2028 for the gross capital expenditures and the share related to the 2018-2027 DC recoverable portion. The year 2028 has been included to calculate the annual contribution for the 2018-2027 period as the expenditures in 2027 will not trigger asset management contributions until 2028. As shown in Table 3, by 2028, the Township's asset management contributions would reach \$886,000 per annum and this amount

would be needed in order to properly fund the full life-cycle costs of the new assets related to the general services supported under the development charges by-law.

Service	2018-2027 Capital Program		Calculated AMP Annual Provision by 2028	
	DC Recoverable	Non-DC Funded	DC Related	Non-DC Related
Library Services	\$ 392,000	\$ 43,000	\$ 16,000	\$ -
Fire Services	\$ 3,145,000	\$ 3,094,000	\$ 102,000	\$ 68,000
Police Services	\$ 248,000	\$ -	\$ 27,000	\$ -
Parks And Recreation	\$ 6,322,000	\$ 1,252,000	\$ 225,000	\$ 31,000
Public Works And Fleet	\$ 1,065,000	\$ -	\$ 76,000	\$ -
General Government	\$ -	\$ 265,000	\$ -	\$ -
Roads And Related	\$ 2,265,000	\$ 20,940,000	\$ 440,000	\$ 162,000
Total 2028 Provision	\$ 13,437,000	\$ 25,594,000	\$ 886,000	\$ 261,000

* Non-DC funding includes projects that are replacement shares, post-period shares and associated 10% discount etc.

In addition to the general services asset management requirements, the water and sewer area-specific supported program would result in additional annual contributions of \$130,000 when this infrastructure comes online. The additional contributions are anticipated to be supported through future utility rates.

Financial Sustainability of the Program

Future Revenue Growth

The calculated annual funding provision should be considered within the context of the Township's projected growth. Over the next ten years (to 2027) the Township is projected to increase by approximately 1,000 households, which represents a 14 per cent increase over the existing base. In addition, the Township will also add nearly 830 new employees that will result in approximately 47,000 square metres of additional non-residential building space.

This growth will have the effect of increasing the overall assessment base and additional user fee and charges revenues to offset the capital asset provisions required to replace the infrastructure proposed to be funded under the development charges by-law. The collection of these funds is intended to be allocated to the Township's reserves for the future replacement of these assets.

Annual Budgetary Reviews

In order to maintain, protect and manage the Township's infrastructure and assets, staff monitor current levels of service and life cycle trends. These assessments are used to schedule appropriate activities, such as the pavement management program, bridge rehabilitation, road reconstruction, equipment/vehicle replacement and drainage improvement. Ongoing maintenance and repairs to community facilities will ensure that they continue to meet the needs of a growing population into the future.

Overall, the Township will continue to invest, renew and manage infrastructure and assets by implementing an asset management program that is crucial to forecasting capital budgetary needs, both in the short term and long term. This will help to improve financial sustainability to maximize benefits, reduce risk and provide satisfactory levels of service to the community user in an environmentally and ecologically responsible manner.

The Program is Deemed Financially Sustainable

The calculated annual provisions identified in Tables 3 and subsequent water and sewer provisions are considered to be financially sustainable as it is expected that the increased capital asset management requirements can be absorbed by the tax and user base over the long-term. Importantly, the Township's annual operating budget review will allow staff to continue to monitor and implement mitigating measures should the program become less sustainable.

APPENDIX G

***PROPOSED BY-LAW
(AVAILABLE UNDER SEPARATE COVER)***