



THE CORPORATION OF THE TOWNSHIP OF PUSLINCH
September 18, 2019 COUNCIL MEETING

A G E N D A

DATE: Wednesday September 18, 2019

REGULAR MEETING: 7:00 P.M.

≠ Denotes resolution prepared

1. Call the Meeting to Order
2. Disclosure of Pecuniary Interest & the General Nature Thereof.
3. **CLOSED ITEMS** ≠
4. Adoption and Receipt of Minutes of the Previous Meeting.≠
(a) September 4, 2019 Council Meeting
5. Business Arising Out of the Minutes.
6. **PUBLIC MEETINGS**
7. **COMMUNICATIONS**
 1. Correspondence from M.F. Property Management Ltd. with respect to the current status of the Mini Lakes Wastewater treatment systems and recommendations to be taken regarding the system's performance dated September 9, 2019.
 2. Correspondence from Lafarge Canada Inc. with respect to a minor site plan amendment request at the Lafarge McMillian Pit #10671 regarding the Final Rehabilitation dated September 6, 2019.
 3. Correspondence from Lafarge Canada Ltd. with respect to delegating to Council on future Site Plan Amendments dated September 13, 2019.
 4. Mill Creek Pit License # 5738 Monthly Monitoring Report prepared by Dufferin Aggregates dated August 12, 2019.



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5. **Intergovernmental Affairs**

- (a) Various correspondence for review.

8. **DELEGATIONS / PRESENTATIONS**

7:05 p.m. – Bruce Peever, Director KPMG, with respect to the Operational Services Efficiency for the County of Wellington and its Member Municipalities. #

7:25 p.m. – Stuart Winchester, P. Eng. Partner/Director, Municipal Infrastructure CIMA regarding the Feasibility Study for Municipal Water and Sewage Servicing #

9. **REPORTS**

1. **Puslinch Fire and Rescue Services**

- (a) None

2. **Finance Department**

- (a) FIN-2019-029 – Community Benefits Charge – Bill 108
(b) Addendum to the Feasibility Study for Water and Sewage Servicing Prepared by CIMA Canada Inc. dated August 28, 2019

3. **Administration Department**

- (a) None

4. **Planning and Building**

- (a) BLDG-2019-008 Building Monthly Update – August 2019



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5. **Roads & Parks Department**

- (a) PW-2019-002 – 2019 Capital Budget – Funding for Sideroad 10 North Culvert Replacement

6. **Recreation Department**

None

7. **Mayor's Updates**

None

10. **NOTICES OF MOTION**

None

11. **COMMITTEE MINUTES**

- (a) August 13, 2019 Committee of Adjustment Minutes
(b) August 13, 2019 Planning and Development Advisory Committee Minutes

12. **MUNICIPAL ANNOUNCEMENTS**

13. **UNFINISHED BUSINESS**

14. **BY-LAWS ≠**

- (a) Being a by-law to amend by-law number 19/85, as amended, being the zoning by-law for the Township of Puslinch (6920 Concession Road 1)
(b) Being a by-law to amend by-law number 023/18, as amended, being the zoning by-law for the Township of Puslinch (6920 Concession Road 1)

15. **CONFIRMING BY-LAW ≠**



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- (a) By-law to confirm the proceedings of Council for the Corporation of the Township of Puslinch.

16. **ADJOURNMENT** ≠

MINUTES

DATE: September 4, 2019

REGULAR MEETING: 1:00 P.M.

The September 4, 2019 Regular Council Meeting was held on the above date and called to order at 1:00 p.m. in the Council Chambers, Aberfoyle.

1. ATTENDANCE:

Mayor James Seeley
Councillor Matthew Bulmer
Councillor Jessica Goyda
Councillor John Sepulis

STAFF IN ATTENDANCE:

1. Patrick Moyle, Acting CAO/Clerk
2. Mary Hasan, Director of Finance/Treasurer
3. Mike Fowler, Supervisor of Public Works and Parks
4. Courtenay Hoytfox, Development and Legislative Coordinator

2. DISCLOSURE OF PECUNIARY INTEREST & THE GENERAL NATURE THEREOF:

Councillor Goyda declared a potential pecuniary interest with respect to item 9(4b) PD-2019-011 Temporary Residence Agreement L04/MAR as the builder for the project is employer to myself and is a family owned corporation.

3. ADOPTION OF THE MINUTES:

- (a) August 14, 2019 Council Meeting
- (b) August 14, 2019 Closed Council Meeting
- (c) August 14, 2019 D14/SUN Public Information Meeting

Resolution No. 2019-310:

Moved by Councillor Goyda and
Seconded by Councillor Sepulis

That the minutes of the following meetings be adopted as written and distributed:

- (a) **August 14, 2019 Council Meeting**
- (b) **August 14, 2019 Closed Council Meeting**
- (c) **August 14, 2019 D14/SUN Public Information Meeting**

CARRIED

4. BUSINESS ARISING OUT OF THE MINUTES:

5. PUBLIC MEETINGS:

1. Proposed User Fees and Charges By-law

*note this Public Information Meeting will be held on Thursday September 12, 2019 at 7:00 p.m. at the Municipal Complex – 7404 Wellington Rd. 34. The By-law for this matter will be considered at the September 18, 2019 Council Meeting.

6. COMMUNICATIONS:

1. (a) Roszell Road Pit Licence No. 625189 2018 Groundwater Monitoring Report prepared by Groundwater Science Corp. dated March 2018.
(b) Roszell Road Pit Licence No. 625189 2018 Groundwater Monitoring Review prepared by Harden Environmental dated August 28, 2019.
2. Correspondence from the Puslinch Historical Society with respect to the Killean School Bell dated August 27, 2019.

Resolution No. 2019-311:

Moved by Councillor Sepulis and
Seconded by Councillor Goyda

THAT Council receives the correspondence from the Puslinch Historical Society with respect to the Killean School Bell; and

That Council authorize the Puslinch Historical Society to place the Killean School Bell on Township lands at the Millennial Gardens, 23 Brock Road South; and

That the Recreation Committee be consulted with respect to the best suited location of the Killean School Bell.

CARRIED

3. Mill Creek Coordinated Monitoring Report January 1 to December 21, 2018 prepared by LRG Environmental dated March 26, 2019.

- (a) Technical Appendix A of the Mill Creek Coordinated Monitoring Report: 2018 Surface Water Monitoring Report prepared by Stantec Consulting Ltd. Dated March 28, 2019.
- (b) Mill Creek Aggregates Pit Hydrogeology Appendix B of the 2018 Coordinated Monitoring Report dated March 29, 2019.
- (c) Technical Appendix C 2018 Annual Fisheries Report of the Mill Creek Coordinated Monitoring Report prepared by LRG Environmental dated March 25, 2019.
- (d) Mill Creek Pit Hydrogeological Monitoring Review prepared by Harden Environmental dated August 28, 2019.

Council directed staff to forward item 7 (3d), Mill Creek Pit Hydrogeological Monitoring Review prepared by Harden Environmental dated August 28, 2019, to the Ministry of Natural Resources and Forestry.

4. Correspondence from Robert Cummings, Lafarge Canada Inc. with respect to the Site Plan Amendment for the Mill Creek Pit Licence #5738.

Council directs staff to follow up with Lafarge with respect to delegating to Council regarding the site plan amendment at Mill Creek Pit Licence #5738.

7. Intergovernmental Affairs

Resolution No. 2019-312:

Moved by Councillor Goyda and
Seconded by Councillor Sepulis

That the Intergovernmental Affairs correspondence items listed on the Council Agenda for September 4, 2019 Council meeting be received.

CARRIED

8. DELEGATIONS/PRESENTATIONS

1:05 p.m. – Mike Schreiner, Leader of the Green Party of Ontario, with respect to the Paris Galt Moraine Conservation Act.

Resolution No. 2019-313:

Moved by Councillor Goyda and
Seconded by Councillor Sepulis

That Council receives the presentation from Mike Schreiner, Leader of the Green Party of Ontario, with respect to the Paris Galt Moraine Conservation Act; and

That Council endorse the passage of Bill 71, the Paris Galt Moraine Conservation ACT, 2019 in principle; and

That Council forward correspondence to the Minister of Municipal Affairs and Housing with respect to Council's endorsement of Bill 71, the Paris Galt Moraine Conservation ACT, 2019; and

That Township staff work with County planning staff, and Councillor Bulmer to bring forward a report on recommendations with respect to Bill 71 and the Paris Galt Moraine Conservation Act.

CARRIED

1:35 p.m. - Todd White, Executive Director CRINS (Canadian Radiocommunications Information and Notification Services), with respect to information surrounding membership and services provided.

Resolution No. 2019-314:

Moved by Councillor Bulmer and
Seconded by Councillor Goyda

That Council receives the presentation from Todd White, Executive Director CRINS (Canadian Radiocommunications Information and Notification Services), with respect to information surrounding membership and services provided; and

That Report PD-2019-013 with respect to a membership with Canadian Radiocommunications Information and Notification Services (CRINS-SINRC) be received; and

That Council authorize that the Township of Puslinch become a member of the Canadian Radiocommunications Information and Notification Service for processing Radiocommunications facilities applications within the Township of Puslinch and forward a letter to CRINS-SINRC advising of the decision; and

That Council authorize CRINS-SINRC and its staff to act as the authorized representative of the Township for the purpose of receiving and acting upon all Radiocommunications applications, reporting to and working with the Development and Legislative Coordinator; and

That Council adopt the CRINS-SINRC Antenna System Siting Review and Consultation Protocol as amended to clarify the responsibilities of the Township and the responsibilities of CRINS-SINRC; and

That Council authorize a combined application fee of \$2293.00 where \$543.00 is remitted to the Township to cover administration costs and \$1750.00 is remitted to CRINS; and

That exempt applications would not be subject to a Township administration fee of \$543.00 or CRINS fee of \$1750,00.

CARRIED

9. REPORTS:

1. Puslinch Fire and Rescue Services

None

2. Finance Department

(a) FIN-2019-028 First Quarter Financial Report - 2019

Resolution No. 2019-315:

Moved by Councillor Sepulis and
Seconded by Councillor Goyda

THAT Report FIN-2019-028 regarding the First Quarter Financial Report – 2019 be received; and

That Council direct the Puslinch Fire Chief to forward explanations for the expenditure overages in the Fire cost centre and how expenditures will be managed to ensure within budget by year-end.

CARRIED

(b) Addendum to the Feasibility Study for Water and Sewage Servicing

Resolution No. 2019-316:

Moved by Councillor Sepulis and
Seconded by Councillor Goyda

THAT Addendum to the Feasibility Study for Water and Sewage Servicing Prepared by CIMA Canada Inc. dated August 26, 2019 be received.

CARRIED

3. Administration Department

(a) ADM-2019-023 Council and Budget Meeting Schedule for 2020

Resolution No. 2019-317:

Moved by Councillor Goyda and
Seconded by Councillor Sepulis

THAT Council receives and adopts the 2020 Council/Budget Meeting Schedule, attached as Appendix "A" to Report ADM-2019-023.

CARRIED

4. Planning and Building Department

a. BLDG-2019-007 Building Department Monthly Update

Resolution No. 2019-318:

Moved by Councillor Sepulis and
Seconded by Councillor Bulmer

That Report BLDG-2019-007 with respect to the Building Department Monthly Update – June 2019 be received for information.

CARRIED

Councillor Goyda declared a potential pecuniary interest with respect to Item 9(4b) PD-2019-011 Temporary Residence Agreement L04/MAR as the builder for the project is employer to myself and is a family owned corporation and refrained from discussions and voting on that item.

b. PD-2019-011 Temporary Residence Agreement L04/MAR

Resolution No. 2019-319:

Moved by Councillor Sepulis and
Seconded by Councillor Bulmer

That Report PD-2019-011 regarding a Temporary Residence Agreement (the “Agreement”) between the Township and Michael Marinovic for the land described as Rear Part Lot 20, Concession 7, designated as Part 1 on Reference Plan 61R-577 and known municipally as 7424 Wellington Rd 34, Puslinch (the “Lands”), be received; and

That Council authorize entering into an agreement with Michael Marinovic regarding a Temporary Residence Agreement; and

That Council delegate authority to staff to enter into Temporary Residence Agreements.

CARRIED

c. PD-2019-012 Bus Pad Agreement

Resolution No. 2019-320:

Moved by Councillor Bulmer and
Seconded by Councillor Sepulis

That Report PD-2019-012 with respect to the Bus Pad Agreement (the “Agreement”) between the Township and Wellington Vacant Land Condominium Corporation No. 172 for the land abutting Wellington Road 34, Puslinch (the “Lands”) be received; and

That Council authorize entering into an agreement with Wellington Vacant Land Condominium Corporation No. 172.

That Council delegate authority to staff to enter into Bus Pad Agreements.

CARRIED

d. PD-2019-013 Canadian Radiocommunications Information and Notification Services (CRINS-SINRC)

Report PD-2019-013 was received with the amended resolution as part of Resolution No. 2019-314.

e. Planning Report from the County of Wellington with respect to the Zoning Amendment Application D14/SUN

Resolution No. 2019-321:

Moved by Councillor Bulmer and
Seconded by Councillor Sepulis

That Council receive this Planning Report by the County of Wellington Planning and Development Department; and

That Council pass a by-law to amend Zoning By-law 19/85 on the subject lands as outlined in the report dated August 26, 2019; and

That Council pass a by-law to amend Zoning By-law 023/18 on the subject lands as outlined in this report dated August 26, 2019.

CARRIED

(f) Amanda Pepping, GM BluePlan, with respect to the Municipal Development Standards Policy.

Resolution No. 2019-322:

Moved by Councillor Goyda and
Seconded by Councillor Bulmer

That Council receives the updated Municipal Development Standards Policy as amended; and

That Council adopted the updated Municipal Development Standards Policy as amended.

CARRIED

5. Roads & Parks Department

(a) PW-2019-003 Intersection Review

Resolution No. 2019-323:

Moved by Councillor Sepulis and
Seconded by Councillor Bulmer

That Council receive Report PW-2019-003 Intersection Review for information.

CARRIED

6. Recreation Department

None

7. Mayor's Updates

AMO updates:

- a. Letter to the Honourable Caroline Mulroney, Minister of Transportation
- b. Letter to the Honourable Jeff Yurek, Minister of the Environment, Conservation and Parks
- c. Letter to the Honourable Rod Phillips, Ministry of Finance
- d. Letter to the Honourable Steve Clark, Minister of Municipal Affairs and Housing

10. NOTICE OF MOTION:

11. COMMITTEE MINUTES

- (a) July 9, 2019 Committee of Adjustment Meeting Minutes
- (b) July 9, 2019 Planning and Development Advisory Committee Meeting Minutes

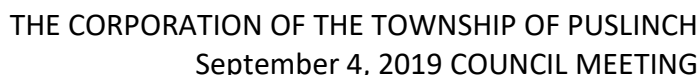
Resolution No. 2019-324:

Moved by Councillor Bulmer and
Seconded by Councillor Goyda

That the Committee minutes of the following meetings be adopted as written and distributed:

- (a) **July 9, 2019 Committee of Adjustment Meeting Minutes**
- (b) **July 9, 2019 Planning and Development Advisory Committee Meeting Minutes**

CARRIED



- (a) Friends of Mill Creek completed their Ranger program and had their annual event. Councillor Goyda suggested that instead of an annual appreciation night, the Rangers could present to Council about their program and year.
- (b) Welcome new Acting Clerk Patrick Moyle
- (c) Wednesday October 9, 2019 is all candidates night for the Federal Election
- (d) Aberfoyle Fall Fair September 6-8, 2019

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September 9, 2019

Township of Puslinch
c/o Courtenay Hoytfox
Development and Legislative Coordinator
7404 Wellington Road 34
Puslinch, ON N0B 2J0

SENT VIA E-MAIL: admin@puslinch.ca

RE: Mini Lakes Annual Wastewater and Water Reports

On August 2, 2019, we received a letter from the Township of Puslinch Council (Township) requesting a response regarding:

- Appendix E from the 2018 Annual Operations and Maintenance Report for the Wastewater Treatment System submitted by Ontario Clean Water Agency (Table 3: Mini Lakes Water Treatment & Distribution System recommended work);
- Review of 2018 Annual Operations and Maintenance report for the Wastewater Treatment System by Amanda Pepping, GM BluePlan

In order to best supply a response, representatives from Mini Lakes and OCWA met with representatives from the Township, which included Patrick Moyle, CAO, to discuss the current status of the Mini Lakes wastewater treatment system as well as the recommendations in GM BluePlan's review of OCWA's 2018 Annual Operations and Maintenance report. At this meeting, we presented the progress that Mini Lakes and OCWA have made regarding the wastewater system's performance, which is summarized below: Due to the sporadic compliance issues in the wastewater treatment system, OCWA conducted a trade-off study to determine which options could be implemented to improve the system. These options included:

- Connecting to Puslinch's Municipal Sewage System
- Treatment System Rehabilitation
- Treatment System Upgrades (and various options for upgrades)

Subsequent recommendations were to:

- upgrade the current system with a Fluidyne Integrated Surge Anoxic Mix (ISATM-50) System
- flush and inspect the tile bed piping to improve absorption
- procure and install a backup generator

The Board of Directors have taken the recommendations outlined above from OCWA and are proceeding with these.

Regards,

On Behalf of the Board of Directors WCECC #214



Susan Heisler, RCM, General Licensee
Senior Property Manager
M.F. PROPERTY MANAGEMENT LTD.



Township of Puslinch
7404 Wellington Road 34
Puslinch, ON N0B 2J0
T: (519) 763 – 1226
www.puslinch.ca

August 2, 2019

MF Property Management
28 Bett Court
Guelph, ON N1C 045

SENT VIA E-MAIL: susanh@mfproperty.com

RE: Mini Lakes Annual Wastewater and Water Reports

Please be advised that Township of Puslinch Council, at its meeting held on July 17, 2019, considered the aforementioned topic and subsequent to discussion, the following was resolved:

Council directed staff to send the following correspondence to Mini Lakes with a request for acknowledgement of receipt, and a request for a schedule of action items addressing the recommended work outlined in the following:

- **Appendix E from the 2018 Annual Operations and Maintenance Report for the Wastewater Treatment System submitted by Ontario Clean Water Agency (Table 3: Mini Lakes Water Treatment & Distribution System recommended work);**
- **Review of 2018 Annual Operations and Maintenance report for the Wastewater Treatment System by Amanda Pepping, GM BluePlan;**

And that a response be provided to the Township within 60 days.

As per the above resolution, please accept a copy of this correspondence for your information and consideration. Please note that, as per Council's direction, you are being request to:

- Confirm receipt and acknowledgement of this correspondnence as soon as possible;
- Provide a response within 60 days, **by September 1, 2019** to admin@puslinch.ca

Yours very truly,
Nina Lecic
Acting Clerk

APPENDIX E

Mini Lakes WTS Condition Assessment (2018)

Internal Memo

To: Scott Craggs, Senior Operation Manager

From: Jose Casal, P.Eng. -Senior Water Process Engineer/PM
Hank Andres, P.Eng. - Senior Wastewater Process Engineer
Jason Younker, EIT -

cc: Karen Lorente, Regional Manager
David O’Connell, Business Development Manager
Lisa Babel, P.Eng. – Director of Project Planning and Delivery Group

Date: February 27, 2018

Project: Mini Lakes CE Support

Subject: Condition Assessment

1. Introduction and Background

The Mini Lakes community is located between the City of Guelph and the Township of Puslinch. The water and wastewater treatment services are provided on site. The Mini Lakes water and wastewater treatment systems is comprised of three production wells spread across the community, five sewage pumping stations, and a RBC wastewater treatment plant.

On December 14, 2017; OCWA Project Planning and Delivery Group (PPDG) completed a visual site inspection to the existing water and wastewater infrastructure on site with the purpose of assessing the condition of the water and wastewater treatment processes and equipment currently in place. In addition to the site visit, OCWA met onsite with representatives of the property management group to discuss relevant aspects of both treatment systems and gather additional information to support the assessment.

Statement of Confidentiality

This document has been developed by the Ontario Clean Water Agency in response to the Mini Lakes Condominium request. Information has been provided for the express review of the Mini Lakes and is not to be copied or submitted in any way or form to any person(s) or organization(s) without the written authorization of the President and CEO of the Ontario Clean Water Agency. All copyright and intellectual rights to the material provided remain in the ownership of the Ontario Clean Water Agency.

2. Facility Description

The Mini Lakes community has its own communal water and wastewater treatment systems which are owned by the Wellington Common Elements Condominium Corporation (Mini Lakes). The treatment facilities were operated by American Water (AW) until October, 2017 when the operations were assumed by the Ontario Clean Water Agency.

2.1. Water Treatment & Distribution Systems

Under the Safe Drinking Water Act (SDWA), the Mini Lakes water treatment system is classified as “non-municipal year-round residential system”.

The Mini Lakes communal drinking water supply system utilizes three groundwater production wells located within the Mini Lakes property (PW1, PW2 and PW3) and three corresponding pump-houses (PH1, PH2 and PH3). Table 1 provides a summary of the well pump capacity and design flows for each pump-house, as well as the flow requirements defined in the Permit to Take water (PTTW). A new Permit to take Water (PTTW) was issued in January 2017, consolidating all water taking into one permit, including well PW4, which is not part of the communal system.

Table 1: Mini Lakes Water Treatment System Flows

PUMP HOUSE	LOCATION	DISTRIBUTION SYSTEM ZONE	GROUNDWATER WELL	WELL PUMP CAPACITY (L/M)	DESIGN FLOWS (L/M)	PTTW (L/M)
PH 1	Northwest corner of the intersection of Ash Ave. and Lakeshore Dr.	Zone 1	Well # 1	80	90.6	136
PH 2	Northwest end of Cedarbush Cres.	Zone 2	Well # 2	110	136	182
PH3	Northeast corner of the intersection of Bullfrog Dr. and Water St.	Zone 3	Well # 3	205	222	222

The well pumps are each controlled by a pressure switch on the discharge side of the treatment system. When the pressure drops below the low-pressure setting at the switch, the pump is turned on. Conversely, when the pressure reaches the high-pressure switch setting, the pump is turned off.

Each of the three pump-houses contains an identical treatment process, with only minor variations in size or number of equipment units. The water is pumped from each well via submersible pump to each respective pump station, where the water treatment equipment is housed. The process flow for the system is as follows:

- Well Supply/Pump

- Primary Disinfection within Contact Pipe using Sodium Hypochlorite (Chlorine)
- Multi-Media Filtration (MMF)
- Pressure Retention Tanks (PRT) and Distribution

The distribution system at Mini Lakes, although fully interconnected across the development, is divided into three separate zones. As shown in **Table 1** Zone 1 is supplied by PH1, Zone 2 is supplied by PH2, and Zone 3 is supplied by PH3.

2.2. Wastewater Collection & Treatment System

The wastewater is collected through gravity drainage and pumped through forcemains from five pump stations discharging into a sewage treatment plant (with dual trains operating in parallel) with a rated capacity of 158 m³/day. The facility operates under the Amended Environmental Compliance Approval (ECA) No. 8154-AR4J2T issued in September 18, 2017.

The wastewater treatment system includes a primary settling tank, rotating biological contactors, intermediate clarifier, a denitrification tank, final clarifiers and an effluent pump chamber housed within the structure, also included:

- A concrete common primary settlement tank with cover, approx. 8.1 m wide x 8.5 m long x 1.73 m liquid depth discharging (via an outlet pipe to each treatment train) to the rotating biological contactors, complete with gear motor and drive mechanism.
- Two rotating biological contactors (RBCs) with 2.35 m diameter rotor, each equipped with low profile fixed baffles and four zones per rotor, and providing approx. 4,179 m² of bio-support media area.
- Two hopper bottom 3m x 3.6m intermediate clarifiers per treatment train, complete with inlet and outlet weir, sludge and scum transfer equipment and pumping systems.
- Two denitrification tanks, approximately 5.06 m x 3.6 m, each consisting of 4,704 m² of submerged rigid media, complete with an adjustable flow distribution box.
- One 900 L capacity chemical tank and chemical metering pump capable of feeding a carbon source to the denitrification tanks complete with spill containment facilities.
- A Chemical feed system comprising of one (1) 2,300 L capacity polyethylene chemical storage tank and metering pump (with standby pump) capable of feeding approx. 1.5 L/hr of alum into the last stage of the rotating biological contactor rotor, complete with spill containment.
- Two (2) hopper bottom 3 m x 3.6 m final clarifiers per treatment train, complete with inlet and outlet weirs and sludge transfer equipment and pumping systems.
- A 50,000 L capacity effluent pump chamber equipped with five (5) submersible pumps (with one additional standby pump), each rated at 2.7 L/s at 11m TDH (max.), to discharge treated effluent via a splitter valve and five (5) 75 mm diameter forcemains, one forcemain to each absorption cell of the subsurface disposal system.
- A subsurface disposal system comprising of five (5) shallow buried trench absorption cells, each cell comprising of six (6) zones with eight (8) laterals (each lateral located within a trench 18 m long and 0.6 m wide, with a hollow inverted semi-circular chamber housing a 25mm PVC pressurized pipe with 3.2 mm holes spaced at 1m c/c) per zone, for a total of approx. 864 m of

piping per cell (total of approximately 4,320 m of piping), and distribution valve assembly and manifold together with a relocation area (alternate subsurface disposal area) and the use of the existing leaching bed areas as contingencies for a period of three (3) years of operation of the sewage works,

The amended ECA, proposed the following work/modifications to the existing wastewater treatment system:

- Upgrades to primary clarifier as follows:
 - Installation of a partition wall separating the chamber in two compartments; an inlet and sludge storage compartment having a working volume of 73 m³ and a primary effluent compartment having a working volume of 23 m³.
 - An influent baffle plate at the tank inlet.
 - An outlet weir box and baffle plate at the tank outlet.
 - Sludge recirculation piping to the inlet chamber and sludge removal piping.
- Modifications to the inlet of the denitrification tank to allow for crossover between trains for redundancy and option to operate on one RBC train and two tertiary treatment trains.
- One (1) new effluent pump and discharge piping to be located in the effluent pump chamber to recirculate treated effluent back to the inlet of the primary clarifier.
- A 3.5 m x 4.12 m chemical storage building housing the following:
 - A 900 L capacity chemical storage tank to provide a carbon source and three (3) chemical metering pumps (one (1) spare); all located within secondary containment.
 - A 2,300 L capacity bulk chemical storage tank for phosphorus removal and three chemical metering pumps (one spare); all located within secondary containment.
 - An eyewash/shower system.
- All other controls, electrical equipment, instrumentation, pumps, piping, valves and appurtenances essential for the proper operation of the aforementioned sewage works.

The facility must comply with effluent concentration limits for various parameters. The effluent limits are listed below in Table 3.

Table 2: Mini Lakes Wastewater System Effluent Quality

PARAMETER	ANNUAL AVERAGE CONCENTRATION LIMIT (mg/L)
BOD ₅	20
TSS	20
Nitrate Nitrogen	8
Total Phosphorus	1

3. Site Observations

In December 14, 2017, the Ontario Clean Water Agency visited Mini Lakes and conducted a visual inspection to assess the current condition of the water and wastewater facilities. The following observations were noted:

3.1. Water Treatment

- **Equipment & Components:** In general, equipment is dated and some of the main equipment and components are due for upgrade (i.e. pressure gauges, chemical dosage pumps, pressure tanks, etc.)
 - As noted in the latest MOECC inspection report, installing auto switchover on chlorine pumps at each well house is required. This has not yet been completed.
 - There is no backup power. In the event of a power failure, the water will not be treated according to applicable provincial standards, resulting in water which may be unsafe to consume.
 - The three systems operate based on constant pressure. However the existing pressure tanks are not able to build sufficient pressure for sustained operation and hence the well pump operates in a continuous on-off mode.
 - The three pump-houses are equipped with a Multi-Media Filter (MMF) manufactured by the Water Group (WG 1465). The filters are composed of four layers of media (anthracite, silica sand, coarse garnet, and fine garnet). As indicated by the operation staff and as included in the 2006 Mini Lakes Engineering Evaluation Report prepared by Stantec, filtration is not required by regulation. However the MMF systems were installed for aesthetic improvement of the water quality due to potentially elevated levels of iron in the water supply. There are no records indicating that the existing MMF filters have been serviced and/or that the media has been replaced/regenerated.
- **Water Quality:** There are currently no complete raw water quality scans to review. However, the limited data available appears to indicate that the raw water is of good quality. At present there are no records indicating the presence of iron and/or manganese in the raw groundwater neither monitoring/sampling program for these parameters is currently in place.
- **Water Demand Fluctuation:** The continuous flow fluctuations result in improper chlorination putting the system at risk to not comply with the regulatory requirements. There is no remote access during this event resulting in at minimum a 15 minutes response delay until an operator is able to normalize the conditions. Until the system is upgraded, continuous operational oversight is recommended.
- **Disinfection:** The chlorine dosage pumps are very old and appear to be unable to provide the required chlorine dosage in an accurate and/or effective manner. The free chlorine residual concentrations fluctuate significantly resulting in a compliance issue due to the inability to meet the disinfection requirements. The auto switchover on chlorine pumps has not yet been installed.
- **Control System:** There is no SCADA system or any other electronic system for record keeping. All records are kept manually. A proper data recording system must be implemented.

- **Safety/Housekeeping:** The three existing pump houses are cramped with limited space for day to day operations and maintenance work if required.
- **Water Distribution System:** There is no reservoir, standpipe or any other type of water storage in place. Consequently, there is no fire protection in place.
 - Based on the available records, there is a significant difference between the drinking water flows and the sewage flows. It appears that the average sewage flows are less than the drinking water flows, which could indicate potential leakages within the distribution systems. A leak detection study is recommended.

3.2. Wastewater Treatment

- None of the proposed works in the Amended ECA No 8154-AR4J2T (dated September 18, 2017) have been completed.
- **Historian/SCADA:** Historian has only 72 hrs of data. Site requires frequent checking since computer failure (including historian) does occur. SCADA system has no control and can only be used for monitoring and manual data recording of system information.
- **Emergency Power:** No emergency back-up power for treatment plant or sewage pumping stations.
- **Safety:** Emergency Spill kit is isolated and would be difficult to access in an emergency
 - Entry ramps are a serious slip hazard, especially in winter conditions
 - Ventilation of building may be insufficient for proper air exchanges and circulation
- **Two train RBC treatment plant:**
 - Primary clarifier: No partition in primary clarifier.
 - Two Rotating Biological Contactors: Alum is being added before RBCs for phosphorus removal, may be decreasing effectiveness of biological growth. Distribution of alum may not be a 50/50 split between the two trains and there is not currently an effective way to control the alum dosage split.
 - Two intermediate clarifiers: Micro C mixer is not working properly. Results in settling/separation of micro C mixture and inconsistent supplemental carbon dosage to the anoxic tanks. Currently, the water hose is used to periodically mix up the Micro C solution.
 - Chemical pumps are old and parts are no longer available.
 - High flow results in sloughing of biomass from RBC and buildup of sludge in chambers.
 - Chemical tanks (Micro C and alum) are 200 L instead of 2300 L and 900 L as specified in the ECA.
 - Two denitrification chambers: Build-up of sludge in clarifiers has to be removed manually (vacuumed out). Draining of the trains is not possible. Removed sludge will be mostly liquid, meaning that it is expensive to haul away (paying for water).
 - Pump chamber with six pumps (5 duty, 1 spare)

- Five weeping tile beds: Tile beds were supposed to have been recently repaired; however, given the weather conditions the status of this repairs and the tile bed itself could not be verified.
- **Sewage Collection System (Pumping Stations)**
 - Five sewage pump stations (PS): Pumps used in PS's were not described as high quality i.e. Mini-Lakes maintenance staff described them as knock-off brand pumps that were cheap to purchase. Longevity and reliability of pumps is therefore questionable
 - Two pumps in each station except #5 that only has one. Rails damaged in PS 5
 - PS 1, 3, and 5 have 2 HP pumps. PS 3 has very limited space for maintenance/repair operations
 - PS 2 and 4 have 5 HP pumps

4. Recommended Works

The following tables outline the recommended works that should be carried out in order to bring the Mini-Lakes facilities to a proper operational condition. The table is divided into four categories, the issues identified as problems within the system, the work recommended to resolve them, the priority and the time-line in which they should be resolved.

Table 3: Mini Lakes Water Treatment & Distribution System recommended work

PRIORITY	IDENTIFIED ISSUE	ISSUE CLASSIFICATION	RECOMMENDED WORK	TIME LINE
1	Lack of raw water quality	Compliance	Complete raw water scan	Start immediately with monthly sampling for at least one year
2	No SCADA system for record keeping, manual record keeping used	Operational/Compliance	Install proper historian, data logger or any other automatic data record keeping system	Within next 6 months
3	The existing chlorine disinfection system is not reliable. During normal operations, it causes numerous fluctuations in the free chlorine residuals.	Compliance/Operational	Upgrade system for greater remote operation and stability.	Immediately
4	Chlorine dosage pumps automatic switchover	Compliance	Install auto-switchover on chlorine pumps	Immediately
6	System operation is mostly manual with no remote capabilities, increasing operator response time should emergencies or operational issues arise.	Operational	Upgrade the system; otherwise consider dedicating one operator on permanent basis to address both water and wastewater treatment system.	Immediately
6	No back-up power – water unsafe/not available during power outage	Operational/Compliance	Installation of standalone back-up power for each pump-house	Immediately
7	Based on initial assessment there is greater water produced than sewage collected. This may indicate a leak in the distribution system.	Operational	Perform leak detection study for distribution system	Immediately
8	No fire protection	Operational/H&S	Upgrading the system including fire hydrants and sufficient fire storage (reservoir) should be considered	1-2 years
9	Chlorine dosage pumps are old and appear to provide inaccurate dosage. Resulting in Chlorine	Operational/Compliance	Replace chlorine dosage pumps.	1 year

PRIORITY	IDENTIFIED ISSUE	ISSUE CLASSIFICATION	RECOMMENDED WORK	TIME LINE
10	concentration fluctuations. Old equipment (pressure tanks, dosage pumps, pressure gauges, etc.).	Operational	Upgrade/replace/rehabilitate older equipment as needed	1 year
11	Pressure tanks are insufficient in size to maintain pressure for prolonged period.		Upgrade/expand pressure tanks, especially if the 3 zone distribution system will be amalgamated and the entire water is supplied from one single groundwater well.	1-2 year
12	All 3 pump-houses are equipped with MMF filters. Filter maintenance/service/replacement history is required to determine likely replacement schedule	Operational	Assess presence of iron/manganese and any other parameters requiring the presence of these filters.	1 year
13	Pump houses have limited space. Lack of space, limits maintenance operations and space for upgrades.	Housekeeping	Consider upgrading the building.	1-2 years
14	Three (3) separate distribution systems operate independently of each other. Single closed connection separates three zones.		Combine systems into one system, will allow for improved stability in terms of pressure. Consider the possibility of single storage site for all three systems.	2-3 years

Table 4: Mini Lakes Wastewater Treatment & Collection System Recommended work

PRIORITY	IDENTIFIED ISSUE	ISSUE CLASSIFICATION	RECOMMENDED WORK	TIME LINE
1	<p>None of the proposed works in the ECA (June 1, 2016) have been completed</p> <p>Primary and intermediate clarifiers have to be vacuumed out, while filled with sewage, to remove sludge. Process is very inefficient.</p> <p>Chemical dosing pumps are old and may soon require replacement</p> <p>Micro C chemical addition allows for settling and inconsistent dosing.</p>	Compliance	<p>Complete all proposed works</p> <p>Partition of primary clarifier into 2 compartments. Including baffle plates, sludge recirculation pumps/piping to the inlet chamber, and sludge removal piping.</p> <p>Modify denitrification tank to allow crossover between trains</p> <p>New pump to recycle effluent back to inlet of primary clarifier</p> <p>Separate chemical storage building to store 900L and 2,300L tanks with metering pumps and eyewash station</p>	1-3 years
2	Alum addition before RBCs may decrease biological growth due to phosphorus limitations	Operational	Alum dosage should be monitored if RBC fixed film growth or biological treatment performance deteriorates	N/A
3	Alum addition is not equalized between both tanks.	Operational	Rework chemical tubing/valving to ensure equal split of alum between the treatment trains	1 year
4	Historian has limited memory (72 hrs.), limited SCADA accessibility/control. Manual data recording.	Operational	Upgrade SCADA and historian	1-2 years
5	Weeping tile beds condition is presently unknown	Compliance/Operational	Inspection/assessment of tile bed for the possibility for repair.	1 year
6	High flows can cause unwanted sloughing of biomass and accumulation of sludge in intermediate clarifiers.	Operational	Addition of equalization tank for variable flow conditions	4 years+
7	No back-up power	Operational	Installation of single back-up power for water & waste water facilities	2-3 years
8	Entry ramp is a slip issue	H&S	Rebuild ramp for greater traction and decreased slope	1 year

PRIORITY	IDENTIFIED ISSUE	ISSUE CLASSIFICATION	RECOMMENDED WORK	TIME LINE
9	Possible ventilation issue		Assess ventilation system Increase air cycling	1-2 years
10	Emergency supplies are difficult to access	Operational	Relocate emergency supplies	1 year
11	Pumps utilized in sewage pumping station were identified lower quality.	Operational	Replace as needed with high quality pumps for long term use	5 years+
12	Sewage pumping station 5 has damaged rails and only a single operating pump	Operational	Repair rails and add second pump	1 year
13	Sewage pumping station 3 has very limited space for maintenance and repair operations	Operational, H&S	No recommendation at this time	

5. Next Steps

The current conditions of both water and wastewater treatment systems do not guarantee a safe and reliable operation of the system nor compliance with the applicable regulatory requirements currently in place.

In general, most of the assets currently in place (especially the main process equipment and components) have surpassed its life expectancy and in some cases its day-to-day operation is unreliable. Under such circumstances, it is critical that a replacement program be started in order to prevent costly emergency repairs or compliance issues that could put at risk the health and safety of the residents of Mini Lakes.

To capture the magnitude of these upgrades in better detail, developing a “Class 5” cost estimate, and a Comprehensive Capital Plan (CCP) is recommended.



July 2, 2019
Our File: 199024

Township of Puslinch
RR3, 7404 Wellington Road 34
Guelph, ON N1H 6H9

Attention: Ms. Nina Lecic

Re: Wellington Common Elements
Condominium Corporation No.
214 (CECC #214), Annual
Monitoring Report - 2018

Dear Ms. Lecic,

As requested, GM BluePlan Engineering Limited (GMBP) has reviewed the '2018 Annual Operations and Maintenance Report for the Wastewater Treatment System' prepared for the Wellington Common Elements Condominium Corporation #214 (WCECC #214) by the Ontario Clean Water Agency (OCWA) dated March 28, 2019 (hereafter referred to as the annual report). The annual report is required as per the 2014 Operations and Maintenance agreement between CECC #214 and the Township of Puslinch (the Township).

WCECC #214, formerly known as the Mini Lakes Mobile Home Community, is located on Wellington County Road 34 in the Township of Puslinch and is serviced with a communal collection and Wastewater Treatment System (WWTS) with subsurface disposal beds. The Waste Water Treatment System (WWTS) serves approximately 292 residential units and common amenities and has a rated capacity of 158 m³/day average daily flow. The treatment process is a dual train aerobic system each consisting of a primary settlement tank, rotating biological contactors (RBCs), alum injection system, intermediate clarifier, denitrification tank with carbon dosing, and final clarifier. An effluent pump station discharges treated effluent to the subsurface disposal system.

In October 2017, OCWA was retained as the Operating Authority for the WWTS, which was previously operated by American Water Canada Corporation until the end of September 2017. The WWTS is operated under Ministry of the Environment, Conservation and Parks (MECP) Amended Environmental Compliance Approval (ECA) # 8154-AR4J2T dated September 18, 2017. The current ECA replaced the previously issued Amended ECA No. 2391-9KCJUS dated June 1, 2016.

1.0 EFFLUENT QUALITY

Monthly monitoring of the treated sewage effluent prior to discharge to the leaching bed is required by the ECA. Treated effluent samples are collected from the effluent pump chamber prior to discharge to the leaching bed. A total of 12 effluent quality samples were reported to be collected during 2018.

Table 1 summarizes the average effluent quality for the year 2018, presented as year to date (YTD) average concentrations (Column 2), previous YTD average (2017) (Column 3) and ECA Compliance Limit (Column 4). It is noted that the effluent limits in the ECA are based on annual average concentrations for any calendar year. As per the ECA, a non-compliance, with respect to effluent quality, occurs when the annual average

concentration of any of the treated effluent parameters, based on all grab samples collected in accordance with the ECA requirements, during any calendar year, exceeds its effluent compliance limit concentration.

Table 1. Effluent Limits, ECA No. 8154-AR4J2T

1	2	3	4
Parameters (mg/L)	YTD Avg., (Jan. 1, 2018 to Dec. 31, 2018) ^a (mg/L)	Previous YTD Avg., (Jan. 1, 2017 to Dec. 31, 2017) ^a (mg/L)	Amended ECA Compliance Limit (mg/L)
CBOD ₅ ^b	18	11.3	20
TSS ^c	20.25	7.2	20
TP ^d	0.33	0.11	1
NO ₃ ^e (Nitrate-Nitrogen)	9.12	6.41	8

- a. Year to date (YTD), or annual average concentration, as reported by OCWA.
- b. CBOD₅ = 5 day Carbonaceous Biological Oxygen Demand
- c. TSS = Total Suspended Solids
- d. TP = Total Phosphorous
- e. NO₃ = Nitrate

Based on reported concentrations, the YTD or average annual concentrations of TSS and NO₃, exceed the ECA compliance limits for these parameters. The YTD average annual concentrations of CBOD₅ and TP are within the ECA compliance limits for the 2018 monitoring period for these parameters. Additional details are discussed below.

Total Phosphorus (TP)

Effluent TP concentrations were reported below the effluent limit for this parameter during the 12 effluent quality sampling events in 2018. The average reported annual TP concentration was 0.33 mg/L, which is well below the effluent limit of 1.0 mg/L. Although elevated above the 2017 annual TP concentration, overall, the plant is considered to have performed well in terms of TP removal during the 2018 operating year suggesting an appropriate alum dose is being introduced to support precipitation and settlement of phosphorus.

Carbonaceous Biological Oxygen Demand (CBOD₅)

Effluent CBOD₅ concentrations were reported below the effluent compliance limit for 8 out of 12 monthly samples collected in 2018. The effluent CBOD₅ concentrations were reported above the compliance limit of 20 mg/L on occasions in May, June, October and November 2018 (exceedances ranging from 21 to 36 mg/L). The overall average annual CBOD₅ concentration was 18 mg/L, which remains below the effluent compliance limit for this parameter, however is higher than typical for this parameter compared to previous years. It is noted that the CBOD₅ concentration remained elevated during the first quarter 2019 sampling, as presented in the first quarter monitoring report issued in May 2019.

The reason for the increase in effluent CBOD₅ concentration is not currently clear, however the annual report notes issues with the rotating biological contactor (RBC) disk biofilm health as a potential factor. It is recommended that Operators implement regular monitoring of the RBC biofilm to establish a record of conditions and assist with establishing any correlation between biofilm issues and removal of CBOD₅, and report on the monitoring results in subsequent reports. It is further recommended that carbon dosing as

part of the denitrification process be reviewed and optimized if overdosing is determined to be a factor in elevated effluent CBOD₅ concentrations.

Nitrate (NO₃)

The NO₃ concentrations were above the limit during 7 of the 12 effluent quality sampling events in 2018. The annual average effluent NO₃ concentration was reported at 9.12 mg/L, above the ECA compliance limit of 8.0 mg/L for this parameter.

The plant has a history of challenges achieving the target NO₃ concentrations during cold weather months. This has largely been attributed to an overall reduction in denitrification due to lower temperatures, which are known to impact the denitrification process. In previous years, the effluent NO₃ concentrations have typically decreased during the warmer months, improving the overall performance trend for the year. However, in 2018 effluent NO₃ concentrations remained elevated throughout the remainder of the year and exceeded the NO₃ limit in the warmer months also, with reported concentrations higher during each quarter compared to previous years. This trend continued in the first quarter of 2019, with the highest recorded quarterly average effluent NO₃ concentration at 12.5 mg/L.

Historical effluent NO₃ concentrations from 2012 to 2018 are summarized in Table 5.5 in the report. We note that prior to the ECA amendment which occurred in 2016, the effluent NO₃ concentration limit was 5.0 mg/L. Accordingly, there are additional instances in the table which constitute an exceedance of the effluent concentration limits which are not marked in red. However, the intent of the table is understood and the upward trend in effluent NO₃ concentrations is clear.

The plant upgrades which have been previously proposed to improve the overall plant performance and consequently enhance the denitrification process, as previously approved in the June 2016/September 2018 ECA amendment, have not yet been implemented. Recommendations and proposed schedule for upgrades and maintenance has been provided by OCWA in the annual report. It is understood that the first action will be to undertake a Comprehensive Performance Evaluation / Optimization Study as soon as possible. Based on the results of the study, a plan to proceed with the remedial works/optimization (preferred) or upgrades to the plant will be made. A copy of the Comprehensive Performance Evaluation / Optimization Study should be provided for the Township for review as soon as this becomes available.

We note that there does not appear to be any discussion in the annual report regarding cleaning and maintenance of media in the denitrification tanks. It has been previously noted that solids carried through the treatment process may result in plugging of the denitrification media. It is recommended that the denitrification media be monitored and maintained regularly and reported on in subsequent reports.

While in-line with historical sampling results, it is further noted that the dissolved oxygen concentrations in the wastewater are higher (7.8 mg/L) than is typically observed in similar wastewater processes. As noted by OCWA, low dissolved oxygen, 2 mg/L or less, is ideal to promote denitrification. The reason for the high dissolved oxygen is unknown, however it is recommended that the overall treatment process be evaluated to identify opportunities (if any) to reduce oxygen entrainment.

Total Suspended Solids (TSS)

The annual average effluent TSS concentration was reported at 20.25 mg/L, which is above the effluent compliance limit of 20 mg/L. In 4 out of the 12 monthly grab samples of the treated effluent, the TSS concentrations were reported at above 20 mg/L (exceedances ranging from 23 to 32 mg/L). These recent exceedances are well above the TSS annual average concentrations reported during 2012 to 2018. The

upwards trend in effluent TSS concentrations appears to have started in the second quarter of 2018 and is continued in the 2019 first quarter monitoring report.

The annual report identifies challenges with the sludge management systems resulting in carry over of solids and debris through the treatment process as a contributor to solids removal performance. Plant upgrades previously proposed and approved in the June 2016/September 2018 ECA amendment included modifications to the sludge management systems but have yet to be implemented. As noted above, a plan to proceed with the remedial works/optimization (preferred) or upgrades to the plant will be made following completion of the proposed Comprehensive Performance Evaluation / Optimization Study.

TSS exceedances have the potential to affect the long-term performance of leaching beds and therefore it is important that this issue be addressed, especially given the reported concerns with the sewage disposal beds as discussed further below.

2.0 SUBSURFACE DISPOSAL SYSTEM

Concerns related to presence of standing water and sludge breakthrough in the vicinity of the five (5) sewage disposal beds have been identified. In October 2018, a test was completed which confirmed accumulation of sludge and other solids debris within the distribution pipes in each disposal bed.

Immediate flushing and camera inspection of the distribution piping system is recommended to remove sludge build up as well as assess the condition of the system. A report documenting the results of the assessment, as well as any necessary repairs identified and the timing for implementation, should be provided to the Township of Puslinch for review.

3.0 SEWAGE FLOWS

Flows to the plant ranged from approximately 73 m³/day (May 2018) to 108.6 m³/day (January 2018), with maximum daily flows of 217.4 m³/day on January 23, 2018 and 204.0 m³/day on February 21, 2018.

The WWTS is rated for an "Average Daily Flow" rate of 158 m³/day. "Average Daily Flow" as defined in the ECA as the *cumulative total sewage flow to the sewage works during a calendar year divided by the number of days during which sewage was flowing to the sewage works that year*. The Average Daily Flow for 2018 to the plant was 85.6 m³/day which represents approximately 54% of the current rated plant capacity. The plant is considered in compliance with the ECA with respect to effluent flows.

A slight decrease in average daily flows was observed in 2018. In the years preceding, the average daily flow rate was higher, in the range of 100 m³/day. A direct cause of the flow reduction has not been determined. It was noted in the annual report that effluent flow meters for two pumps were replaced, however it is unknown if this contributed to the reduced effluent flow values. Based on the flow results in the 2019 first quarter monitoring report, flow values appear to be returning to normal levels. It is recommended that effluent flow meters are calibrated, and plant flow rates monitored closely moving forward.

The elevated plant flows which occurred in January and February 2018 are attributed to abnormally mild temperatures (3.9 to 13.8°C) and heavy precipitation (up to 19mm of rain) which contributed to increased snow melt and inflow and infiltration (I & I) into the sewage system.

Although there is evidence that some infiltration and inflow is occurring, the “Average Daily Flow” to the plant is well within the compliance limits of the ECA and appear to be within the maximum hydraulic capacity of the plant (237 m³/day, based on a 1.5 peaking factor). It is recommended that the peak flows to the plant are closely monitored moving forward. Practices which reduce inflow may also be proactively considered, such as installation of inflow dishes on low lying maintenance hole lids.

It is noted that high groundwater elevations are known to occur in many areas of the site and are likely the main contributor to sewer system infiltration.

4.0 GROUNDWATER LEVEL AND QUALITY MONITORING

In accordance with the ECA, groundwater level and groundwater quality monitoring is completed at the site in the nine (9) existing monitoring wells. As reported, groundwater level fluctuations were observed in 2018, which is expected based on climatic conditions and seasonal variations in weather, such as the amount and type (e.g. snow vs. rainfall) of precipitation as well as regional fluctuations in groundwater levels.

With respect to sewage indicator parameters, based on the results of the quarterly groundwater quality monitoring, elevated nitrate concentrations (up to 8.66 mg/L) were reported in the two (2) monitoring wells located in close proximity and down gradient (west) of the disposal beds. Elevated nitrate concentrations near the sewage subsurface disposal beds are expected and are in-line with historical test results for these locations. These concentrations are below the Ontario Drinking Water Quality Standards (ODWQS) of 10 mg/L for nitrate. More importantly, the concentration of nitrate was reported at well below the ODWQS at the monitoring wells which are located near property lines.

Total phosphorus concentrations in the groundwater were within levels expected for shallow groundwater. Although elevated at select locations, E. coli levels were also within ranges expected in shallow groundwater, and no elevated levels of E. coli were reported in the direct vicinity of the leaching bed. Influence of surface water rather than direct influence from a sewage leak are likely the source of E. coli and TP detections in the monitoring wells located further away from the disposal beds.

5.0 SURFACE WATER QUALITY MONITORING

Quarterly surface water quality samples were collected in 2018 at six (6) locations, as required by the ECA. Generally, the analytical results of water quality with respect to key indicator parameters for surface water including nitrates, total phosphorus and ammonia are comparable for the upstream, throughout the property and downstream monitoring locations.

There does not appear to be noticeable increases in concentration of parameters related to sewage disposal in the surface water across the site. Although occasional detections of phosphorus and E. coli were reported, the slight increases in concentration were reported in the upstream, throughout the property as well as downstream monitoring locations. This is considered to be related to the overall water quality in the greater watershed rather than attributable to the presence of the onsite sewage disposal systems.

6.0 OPERATIONAL ISSUES AND SYSTEM MAINTENANCE

System maintenance activities and operational issues are summarized in the 2018 annual report. For the most part, the undertaken maintenance activities comprise general housekeeping items typically needed in the operation of a wastewater treatment plant and sewage collection system as well as upgrades to equipment identified to cause operational issues. The 2018 activities included monitoring of sludge levels and removal as needed, repair, maintenance and/or replacement of various system components including

flow meters, pumps, check valves, chemical feed lines to address identified issues and identified challenges with the operation of the WWTS.

7.0 CHEMICAL STORAGE CONTAINMENT REQUIREMENTS

The wastewater treatment plant continues to be out of compliance with the requirements for chemical storage. The June 1, 2016 Amended ECA included approval for this upgrade. In order to achieve conformance with the Amended ECA, a 900 L carbon tank and 2,300 L alum tank, complete with secondary spill containment are required to be installed. Previously it was reported that a new chemical storage building was planned to resolve this issue.

An update regarding the timing of the proposed work, to bring the wastewater treatment plant into compliance with respect to ECA requirements, is requested.

8.0 OTHER SYSTEM INVESTIGATIONS, IMPROVEMENTS AND RECOMMENDATIONS

Several operational items and recommendations to improve the overall system performance, were identified in the annual report, with some of the items reported as completed under the O&M contract with OCWA. Outstanding items identified include the following:

- Emergency power for all sewage pumping stations (SPS) recommended to take place in the next 2 to 3 years.
- June 1, 2016 ECA approved proposed upgrades have not been completed.
- SCADA and historian system upgrades to improve accessibility, control and data recording capabilities.
- Monitoring of alum dosages and RBC biofilm to improve biological treatment.
- Addition of an equalization tank for variable flow conditions to improve sludge accumulation in the intermediate clarifiers.
- Investigation of options for preliminary treatment (i.e. bar screens) or increased frequency of sludge removal to improve sludge accumulation issues.
- Assessment of operating conditions to optimize the treatment process including the state of the RBC disk biomass.
- Flushing and condition assessment of the distribution piping within each disposal bed.
Rehabilitation and repair of piping, appurtenances and other components of the disposal beds to improve surface water accumulation near the disposal beds.

Several investigations were reported to have been completed at the site including a Sewage Treatment System Trade-Off Study by OCWA and a Standby Power Study by R. V. Anderson Associates Limited. In October 2018, a high level visual condition assessment of the WWTS was also conducted by OCWA. Based on the information presented in the supporting reports, we understand that a Comprehensive Performance Evaluation / Optimization Study will be initiated as soon as possible. Based on the results of the study, a plan to proceed with the remedial works/optimization (preferred) or upgrades to the plant will be made. A

copy of the report, including the timing of implementation of any proposed remedial works or improvements, shall be submitted to the Township of Puslinch for review.

It is understood that characterization of the raw (incoming) sewage commenced in late 2018. We concur that this additional sampling is beneficial and will provide useful data to assist with plant troubleshooting, performance assessment and optimization. Consideration could also be given to completing wastewater characterization at key additional (intermediate) steps in the treatment process.

It is also noted that a Wastewater Treatment System Process Flow Diagram (PFD) would be beneficial with subsequent reports to assist with overall process understanding and analysis

The above matters, and issues should be investigated, and any resolutions reported on in the subsequent quarterly and annual monitoring reports.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the information provided in the '2018 Annual Operations and Maintenance Report for the Wastewater Treatment System' prepared by OCWA (March 28, 2019), the WCECC #214 wastewater treatment plant effluent did not meet the MECP ECA compliance limits for NO_3 and TSS based on an annual average effluent quality basis during 2018. The effluent did meet the compliance limits for TP and CBOD_5 .

The 2018 average effluent flow was reported at $85.6 \text{ m}^3/\text{day}$ which represents approximately 54% of the current rated plant capacity of $158 \text{ m}^3/\text{day}$ and is below the sewage flow compliance limit stipulated in the ECA.

Based on our review of the 2018 Annual Monitoring Report we recommend that;

1. The Comprehensive Performance Evaluation / Optimization Study be initiated as soon as possible. A copy of the Comprehensive Performance Evaluation / Optimization Study, including the timing for implementation of any proposed remedial works or improvements, shall be provided for the Township for review as soon as this becomes available.
2. Operators implement regular monitoring of the RBC biofilm to establish a record of conditions and assist with establishing any correlation between biofilm issues and reduction of CBOD_5 , and report on the monitoring results in subsequent reports.
3. Carbon dosing as part of the denitrification process be reviewed and adjusted (if necessary).
4. The overall treatment process be evaluated to identify opportunities (if any) to reduce oxygen entrainment.
5. Operators undertake regular monitoring and maintenance of denitrification media to ensure media plugging due to solids carry through does not occur.
6. Operators consider completing wastewater characterization at additional steps in the treatment process to assist with troubleshooting and optimization of the treatment process.

7. Immediate flushing and camera inspection of the distribution piping within each sewage disposal bed is completed. Provide a report of the results, including any remedial repairs identified and timing for implementation, to the Township of Puslinch as soon as complete.
8. Effluent flow meters are calibrated, and plant flow rates monitored closely moving forward.
9. Consider easy to implement practices to reduce sewer inflow, such as installation of inflow dishes on low lying maintenance hole lids.
10. Operators continue to closely monitor effluent parameters and take corrective action, as required.
11. The Owner and Operators take appropriate action to bring the wastewater treatment plant into compliance with respect to ECA requirements previously approved in 2016, including for improved chemical storage. An update on the timing of implementing the required work is requested.
12. Provide a Wastewater Treatment System Process Flow Diagram with subsequent reports to assist with overall process understanding and analysis.

We trust this is sufficient for your requirements. If you have any questions, please do not hesitate to contact us.

Yours truly,

GM BLUEPLAN ENGINEERING LIMITED

Per:

A handwritten signature in black ink, appearing to read 'Amanda Pepping'.

Amanda Pepping, P.Eng.

AP/jo

Courtenay Hoytfox

From: Carol SIEMIGINOWSKI <carol.siemiginowski@lafargeholcim.com>
Sent: Friday, September 13, 2019 1:11 PM
To: Courtenay Hoytfox
Cc: Richardson, Seana (MNRF)
Subject: Re: FW: Lafarge McMillan Pit - Site Plan Amendment

Good morning Courtenay,

Further to our discussion Wednesday morning, unfortunately a Lafarge representative will not be available to attend the council meeting on September 18th.

However, in addition to the detail provided in the MNRF amendment request, Lafarge would like to provide a statement to be shared at the meeting:

Lafarge is applying to remove a requirement to fill a portion of the lake created by extraction. By amending the final rehab plan to omit this obligation, Lafarge will be able to avoid a large amount of fill imported into the site. As the site plan states now, Lafarge is allowed to import clean fill into the site as there is not enough overburden to complete the plan as is. Amending the rehab plan will significantly reduce the amount of fill required to complete rehabilitation. Lafarge would also like to note to Council that this request requires no change to the extraction area.

Thank you for the chance to provide more information, and I would be happy to answer any questions Council may have.

Carol

Carol Siemiginowski, P.Eng
Land Manager, Southwest Ontario & Atlantic

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carol.siemiginowski@lafargeholcim.com
www.buildingbettercities.ca | www.lafargeholcim.com

A member of LafargeHolcim

On Fri, Sep 6, 2019 at 2:05 PM Lynne Banks <lbanks@puslinch.ca> wrote:



Lynne Banks
Development and Legislative Coordinator
Township of Puslinch
7404 Wellington Rd. 34, Puslinch, ON N0B 2J0
P: 519-763-1226 ext. 226/Fax: 519-763-5846 www.puslinch.ca
Email: lbanks@puslinch.ca

From: Carol SIEMIGINOWSKI <carol.siemiginowski@lafargeholcim.com>
Sent: September-06-19 2:04 PM
To: Lynne Banks <lbanks@puslinch.ca>
Subject: Lafarge McMillan Pit - Site Plan Amendment

Hi Lynne,

Further to my voice message, I was hoping to speak with you (or someone at your office) regarding a minor site plan amendment Lafarge has applied for with the MNRF.

Although the township is not required to comment, our MNRF inspector has asked that we review the application with the township to ensure you are aware of it before it is processed.

I've attached our application request. Lafarge is applying to remove the requirement to fill a portion of the lake created by extraction. By amending our final rehab plan to omit this obligation, Lafarge will be able to better manage the resource and avoid a large amount of fill imported into the site.

Please take moment to review. I would be happy to discuss further by phone should you have any questions or concerns. My contact info is below.

Thank you and have nice weekend,

Carol

Carol Siemiginowski, P.Eng

Land Manager, Southwest Ontario & Atlantic

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A member of LafargeHolcim

Township of Puslinch
7404 Wellington Rd 34, Puslinch, ON N0B 2J0
P 519 763-1226 F 519-763-5846
www.puslinch.ca

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June 21, 2019

Seana Richardson
Aggregate Technical Specialist
Ministry of Natural Resources & Forestry, Guelph District
1 Stone Road West
Guelph, ON
N1G 4Y2

[SENT BY EMAIL ONLY]

**RE: LAFARGE MCMILLAN PIT, ARA #10671
FINAL REHABILITATION - MINOR SITE PLAN AMENDMENT REQUEST**

Dear Ms. Richardson,

As discussed on the phone June 10 and email June 17, please find enclosed a minor site plan amendment request to remove the 150m backfilling requirement as stated on the Lafarge McMillan (ARA# 10671) Final Rehabilitation Plans.

The site plan currently allows for extraction to the 30m setback in the northern portion of the site, however the final rehabilitation plan shows this area to be backfilled to 150m. Since backfilling into a large open body of water would not be feasible, Lafarge would have to leave a significant amount of aggregate resource behind in order to establish the final rehab design. By amending the final rehab plan to omit this obligation, Lafarge will be able to better manage the resource, and avoid a large amount of fill imported into the site.

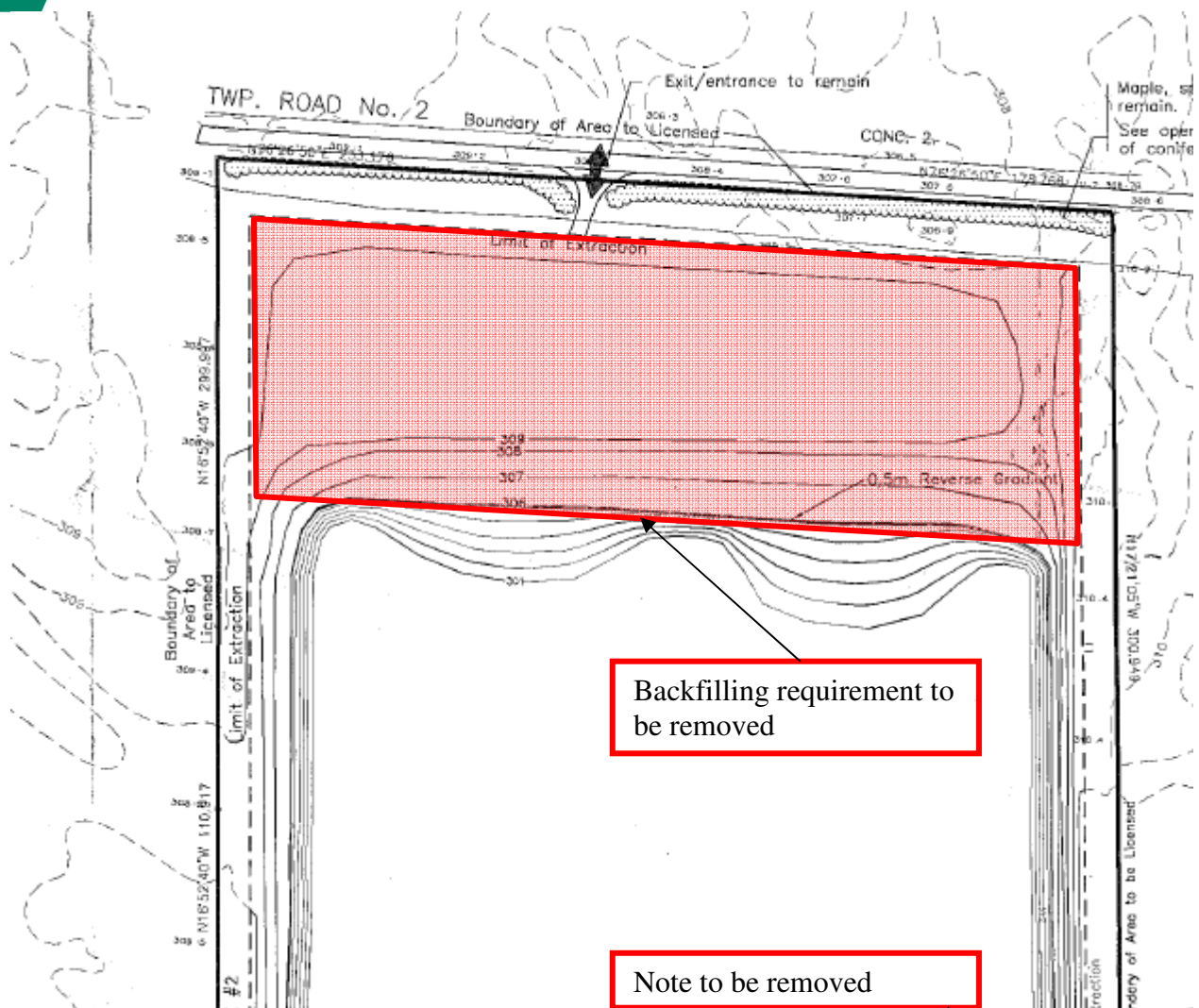
This request would require no change to the extraction area or boundaries, but would simply change the final contours of the rehabilitation plan. The final rehabilitation of this area would still include the 30m setback and 3:1 slopping to the water feature. Please see the attached sketch for further details.

Should you have any questions, please do not hesitate to contact me for further clarification.

Sincerely,
LAFARGE CANADA INC.,

A handwritten signature in black ink, appearing to read 'Siemiginowski'.

Carol Siemiginowski, P.Eng
Land Manager, Southwest Ontario & Atlantic



2. ALL FENCES AND GATES ARE TO REMAIN.
3. THE TREE SCREEN ALONG TOWNSHIP ROAD 2 IS TO REMAIN. AS WELL, THE REAR WOODLOT IS TO REMAIN.
4. ALL INTERNAL ROADS ARE TO BE REMOVED EXCEPT THE ACTUAL ENTRANCEWAY ROAD TO THE LIMIT OF EXTRACTION.
5. THE FRONT 150.0 METRES IN FROM TOWNSHIP ROAD 2 (LESS THE 30.0 METRE REGULATORY SETBACK) WILL BE BACKFILLED TO THE PRE-EXTRACTION LEVEL WHICH IS ± 3.5 METRES ABOVE THE FINAL POND LEVEL. ALL POND SIDESLOPES ABOVE THE WATER TABLE WILL BE 3(H) : 1(V). BACKFILL MATERIAL WILL COMPRISE OF ON-SITE OVERBURDEN AND FINES.
6. BELOW WATER TABLE SIDE SLOPES WILL VARY. ALONG THE WESTERN AND EASTERN SIDES, 2:1 SLOPES WILL BE ACHIEVED DUE TO THE POTENTIAL FOR COMMON SETBACK REMOVAL. HOWEVER THE SOUTHERN AND NORTHERN SHORELINES WILL PROVIDE FOR UP TO 10:1 SIDE SLOPES. SHALLOW RIPARIAN ZONES WILL PROVIDE FOR DIVERSE ECOLOGICAL HABITAT FOR PLANT AND WILDLIFE. ON SITE FINES FROM THE WASH PLANT AND/OR EXCESS OVERBURDEN AND/OR M.O.E.E. APPROVED IMPORTED INERT FILL WILL BE USED TO BACKFILL THE SIDE SLOPES. IN ADDITION, OVERSIZE BOULDERS, STUMPS AND LOGS (IF AVAILABLE) WILL BE PLACED ALONG THE SHALLOW SHORELINE AREA TO FURTHER ASSIST WITH FISH AND WILDLIFE HABITAT CREATION.

Courtenay Hoytfox

From: Carol SIEMIGINOWSKI <carol.siemiginowski@lafargeholcim.com>
Sent: Friday, September 13, 2019 10:52 AM
To: Courtenay Hoytfox
Cc: Robert CUMMING
Subject: Re: Lafarge Site Plan Amendment

Hi Courtenay,

Further to our discussion Wednesday morning, Lafarge would be happy to have a representative attend a council meeting to delegate on either/both our ECA application or our future site plan amendment request.

At this time, a site plan amendment request has not yet been submitted to the MNRF. We are still working with the MECP to determine the final recommendations before we proceed with MNRF. Lafarge feels it would be most appropriate to arrange a delegation after we have worked through the recommendations with MECP.

I will be sure to keep you updated on this process.

I hope this helps, please let me know if you have any additional questions.

Carol

Carol Siemiginowski, P.Eng
Land Manager, Southwest Ontario & Atlantic

Lafarge Canada Inc.
6509 Airport Road, Mississauga ON, L4V 1S7
Office: 905-738-2985 | Mobile: 416-688-3480
carol.siemiginowski@lafargeholcim.com
www.buildingbettercities.ca | www.lafargeholcim.com

A member of LafargeHolcim

On Wed, Sep 11, 2019 at 11:43 AM Courtenay Hoytfox <choytfox@puslinch.ca> wrote:

Good morning Carol,

Based on the feedback received from Council at the September 4, 2019 Council meeting with respect the major Site plan amendment, could you please advise if a representative from Lafarge would be able to attend a Council meeting to delegate on the proposed amendment?

Thank you!

Kind regards,



PUSLINCH

Courtenay Hoytfox
Development and Legislative Coordinator
Township of Puslinch
7404 Wellington Rd 34, Puslinch, ON N0B 2J0
P: 519-763-1226 ext. 227 F: 519-763-5846 www.puslinch.ca

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Dufferin Aggregates
2300 Steeles Ave W, 4th Floor
Concord, ON L4K 5X6
Canada

August 12, 2019

RECEIVED

AUG 15 2019

Township of Puslinch

Seana Richardson
Aggregates Technical Specialist
Ministry of Natural Resources and Forestry
Guelph District
1 Stone Road West
Guelph, Ontario
N1G 4Y2

Attention: Ms. Richardson

**Re: Monthly Monitoring Report
Mill Creek Pit, License #5738
Township of Puslinch, Wellington County**

Please find enclosed the required monitoring data for the month of July 2019. There are no exceedances to report for July for those monitoring wells that could be measured.

If you have any questions, please do not hesitate to call.

Sincerely,

Ron Van Ooteghem
Site Manager
C.c.
Township of Puslinch
Sonja Strynatka (GRCA)
Maria Topalovic (Dufferin Aggregates)
University of Guelph

Monthly Reporting
Mill Creek Aggregates Pit
July 2019

Date	DP21 (mASL)	Threshold Value (mASL)	Exceedance
9-Jul-19	305.90	305.49	NO
18-Jul-19	305.96	305.49	NO
26-Jul-19	305.90	305.49	NO
31-Jul-19	305.87	305.49	NO

Date	BH13 (mASL)	DP21 (mASL)	Head Difference (m)	Threshold Value (m)	Exceedance
9-Jul-19	306.38	305.90	0.48	0.10	NO
18-Jul-19	306.47	305.96	0.51	0.10	NO
26-Jul-19	306.36	305.90	0.46	0.10	NO
31-Jul-19	306.34	305.87	0.47	0.10	NO

Date	DP17 (mASL)	Threshold Value (mASL)	Exceedance
9-Jul-19	305.28	305.17	NO
18-Jul-19	305.36	305.17	NO
26-Jul-19	305.32	305.17	NO
31-Jul-19	305.31	305.17	NO

Date	BH92-12 (mASL)	DP17 (mASL)	Head Difference (m)	Threshold Value (m)	Exceedance
9-Jul-19	305.60	305.28	0.32	0.06	NO
18-Jul-19	305.64	305.36	0.28	0.06	NO
26-Jul-19	305.57	305.32	0.25	0.06	NO
31-Jul-19	305.56	305.31	0.25	0.06	NO

Date	DP3 (mASL)	Threshold Value (mASL)	Exceedance
9-Jul-19	304.87	304.54	NO
18-Jul-19	304.93	304.54	NO
26-Jul-19	304.83	304.54	NO
31-Jul-19	304.83	304.54	NO

Date	DP6 (mASL)	DP3 (mASL)	Head Difference (m)	Threshold Value (m)	Exceedance
9-Jul-19	306.05	304.87	1.18	0.58	NO
18-Jul-19	306.11	304.93	1.18	0.58	NO
26-Jul-19	306.01	304.83	1.18	0.58	NO
31-Jul-19	306.01	304.83	1.18	0.58	NO

Date	DP2 (mASL)	Threshold Value (mASL)	Exceedance
9-Jul-19	304.18	303.50	NO
18-Jul-19	304.20	303.50	NO
26-Jul-19	304.13	303.50	NO
31-Jul-19	304.13	303.50	NO

Date	BH92-27 (mASL)	DP2 (mASL)	Head Difference (m)	Threshold Value (m)	Exceedance
9-Jul-19	304.76	304.18	0.58	0.32	NO
18-Jul-19	304.77	304.20	0.57	0.32	NO
26-Jul-19	304.68	304.13	0.55	0.32	NO
31-Jul-19	304.68	304.13	0.55	0.32	NO

Date	DP1 (mASL)	Threshold Value (mASL)	Exceedance
9-Jul-19	304.26	303.91	NO
18-Jul-19	304.31	303.91	NO
26-Jul-19	304.22	303.91	NO
31-Jul-19	304.21	303.91	NO

Date	BH92-29 (mASL)	DP1 (mASL)	Head Difference (m)	Threshold Value (m)	Exceedance
9-Jul-19	304.77	304.26	0.51	0.23	NO
18-Jul-19	304.82	304.31	0.51	0.23	NO
26-Jul-19	304.87	304.22	0.65	0.23	NO
31-Jul-19	304.84	304.21	0.63	0.23	NO

Date	DP5CR (mASL)	Threshold Value (mASL)	Exceedance
9-Jul-19	303.27	302.79	NO
18-Jul-19	303.34	302.79	NO
26-Jul-19	303.25	302.79	NO
31-Jul-19	303.26	302.79	NO

Date	OW5-84 (mASL)	DP5CR (mASL)	Head Difference (m)	Threshold Value (m)	Exceedance
9-Jul-19	303.59	303.27	0.32	0.25	NO
18-Jul-19	303.65	303.34	0.31	0.25	NO
26-Jul-19	303.54	303.25	0.29	0.25	NO
31-Jul-19	303.56	303.26	0.30	0.25	NO

Note: No exceedances to report.

Monthly Reporting
 Mill Creek Aggregates Pit
 July 2019

					Max. Allowable as per PTTW- Main Pond			Max. Allowable as per PTTW- Silt Pond				
					(Imperial Gallons)		(Litres)	(Imperial Gallons)		(Litres)		
Total Monthly Precipitation (mm):		49.5	Kitchener/Waterloo (Actual)		2,500	per minute	11,365	2,597	per minute	11,806		
Total Monthly Normal Precipitation (mm):		98.6	Waterloo-Wellington A (30-year Normal)		1,800,000	per day	8,183,000	3,739,477	per day	17,000,000		
Date	Below Water Table Extraction Phase 2	Below Water Table Extraction Phase 1	Water Pumped from Main Pond (gals)	Water Pumped from Active Silt Pond (gals)	Main Pond Level (mASL)	Exceedance Y/N (BELOW 305.5 mASL)	Phase 2 Pond Level (mASL)	Exceedance Y/N (BELOW 305.0 mASL)	Phase 3 Pond Level (mASL)	Exceedance Y/N (BELOW 303.85 mASL)	Phase 4 Pond Level (mASL)	Exceedance Y/N (BELOW 304.5 mASL)
1-Jul-19	-	-	-	-	-	-	-	-	-	-	-	-
2-Jul-19	0	0	1,672,866	2,934,390	306.84	N	306.41	N	305.04	N	306.47	N
3-Jul-19	0	0	1,766,573	1,319,815	306.81	N	306.41	N	305.04	N	306.52	N
4-Jul-19	0	0	1,792,749	1,415,282	306.82	N	306.41	N	305.04	N	306.48	N
5-Jul-19	0	0	1,458,836	2,146,460	306.84	N	306.40	N	305.04	N	306.45	N
6-Jul-19	-	-	-	-	-	-	-	-	-	-	-	-
7-Jul-19	-	-	-	-	-	-	-	-	-	-	-	-
8-Jul-19	0	0	1,662,088	1,974,224	306.85	N	306.41	N	305.03	N	306.46	N
9-Jul-19	0	0	969,404	394,845	306.84	N	306.40	N	305.02	N	306.50	N
10-Jul-19	0	0	1,525,047	2,332,334	306.85	N	306.39	N	305.00	N	306.47	N
11-Jul-19	0	0	1,654,609	1,415,282	306.84	N	306.39	N	305.00	N	306.43	N
12-Jul-19	0	0	1,660,328	573,240	306.82	N	306.39	N	305.00	N	306.49	N
13-Jul-19	-	-	-	-	-	-	-	-	-	-	-	-
14-Jul-19	-	-	-	-	-	-	-	-	-	-	-	-
15-Jul-19	0	0	1,668,027	1,793,189	306.81	N	306.37	N	304.98	N	306.47	N
16-Jul-19	0	0	1,658,788	2,422,081	306.84	N	306.35	N	304.95	N	306.43	N
17-Jul-19	0	0	1,597,857	1,492,271	306.85	N	306.38	N	304.98	N	306.42	N
18-Jul-19	0	0	1,655,049	2,298,019	306.87	N	306.39	N	305.00	N	306.45	N
19-Jul-19	0	0	1,655,269	1,319,815	306.83	N	306.39	N	304.99	N	306.50	N
20-Jul-19	-	-	-	-	-	-	-	-	-	-	-	-
21-Jul-19	-	-	-	-	-	-	-	-	-	-	-	-
22-Jul-19	0	0	1,649,769	1,932,210	306.86	N	306.39	N	304.98	N	306.46	N
23-Jul-19	0	0	1,585,978	1,539,785	306.83	N	306.38	N	304.98	N	306.50	N
24-Jul-19	0	0	1,544,624	2,554,063	306.83	N	306.37	N	304.98	N	306.50	N
25-Jul-19	0	0	1,625,353	2,568,581	306.85	N	306.36	N	304.96	N	306.42	N
26-Jul-19	0	0	1,646,910	1,743,476	306.85	N	306.36	N	304.95	N	306.42	N
27-Jul-19	-	-	-	-	-	-	-	-	-	-	-	-
28-Jul-19	-	-	-	-	-	-	-	-	-	-	-	-
29-Jul-19	0	0	1,487,212	490,971	306.81	N	306.33	N	304.93	N	306.43	N
30-Jul-19	0	0	1,640,971	2,517,328	306.83	N	306.34	N	304.94	N	306.43	N
31-Jul-19	0	0	1,654,829	970,724	306.81	N	306.35	N	304.93	N	306.44	N
Total	-	-	35,233,136	38,148,385	-	-	-	-	-	-	-	-

Note: No exceedances to report.



August 28, 2019

Hon Doug Ford
Premier of Ontario
Premier's Office
Room 281
Legislative Building
Queen's Park
Toronto, ON M7A 1A1

BY EMAIL ONLY

Dear Premier:

Re: Resolution from the Township of McKellar – Municipal Amalgamation

Please be advised that the Council of the Town of Wasaga Beach, during their August 27, 2019 Council meeting and at the request of the Township of McKellar, adopted the following resolution:

"Whereas there are 444 municipalities in Ontario that are very efficient and well-governed, and who respond quickly to ratepayer's needs;

And whereas in the 1990's the Conservative Government forced many municipalities to amalgamate on the guise they would become more efficient, effective, save money, lower taxes and ultimately reduce the provincial deficit;

And whereas there has never been a valid evidence-based study that supported these outcomes;

And whereas forced amalgamation actually accomplished just the opposite: ill feelings, increased animosity and mistrust, job losses, rise in local taxes and an increase in the provincial deficit;

And whereas there are many positive examples of small rural and northern municipalities working together in a collaborate and cooperative manner via shared agreements that responds to local needs without amalgamation and provincial interference;

And Whereas the Provincial Government has a large deficit due to their own decision-making;

And whereas recently the same Conservative Government recently reduced one large regional municipal government by 50%, without "consultation";

And whereas this same Conservative Government is presently reviewing other provincial regional governments through a purported "consultative" approach with a view to reduce or eliminate them;

And whereas the Provincial Government should investigate all other internal ways of reducing their deficit and becoming more fiscally responsible over time rather than downloading to the one level of government that is the most efficient, has the lowest cost and is closest to the electorate which will not put a dent in the provincial deficit;

And whereas the Province could look at what other provinces have done to reduce the debt with one singular education system, organizing unorganized municipalities, controlling OPP costs, substantially increase fines, and find a way to collect millions and millions of dollars in unpaid fines and instead, invest in the north to create jobs and stimulate and enhance economic development;

Now therefore be it resolved that before the Provincial Government forces amalgamation in any of the 444 municipalities in Ontario, our AMO organization go beyond requesting "consultation" and "demand" that the Provincial Government do the following:

- 1) Hold a local referendum letting the citizens decide to amalgamate or not
- 2) Conduct an evidence-based study to show that amalgamation actually saves costs, jobs, lowers taxes and reduce the provincial deficit
- 3) Allow those municipalities to work out their own local collaborative agreement that best suit their local needs and to be permitted to do so on their own time line and volition
- 4) To ensure that there is absolutely no conflict of interest in this consultative process
- 5) To emphasize the political reality of forcing amalgamation on the many rural and northern municipalities across Ontario

And further that a copy of this resolution be sent to Doug Ford, Premier of Ontario; Christine Elliott, Deputy Premier; Steve Clark, Minister of Municipal Affairs; Andrea Horwath, Leader of the New Democratic Party; and all MPPs in the Province of Ontario;

And further that a copy of this resolution be sent to the Association of Municipalities of Ontario (AMO), the Northwestern Ontario Municipal Association (NOMA), Rural Ontario Municipalities Association (ROMA), Federation of Northern Ontario Municipalities (FONOM), the District of Parry Sound Municipal Association (DPSMA), the County of Simcoe and all Ontario municipalities for their consideration."

Your favourable consideration of this matter is appreciated.

Should you have any questions, please contact me at cao@wasagabecah.com or (705) 429-3844 Ext. 2222.

Sincerely



George Vadeboncoeur
Chief Administrative Officer

Enclosure.

- c. Hon Christine Elliott, Deputy Premier
- Hon. Steve Clark, Minister of Municipal Affairs
- MPP's in the Province of Ontario
- Association of Municipalities of Ontario (AMO)
- Northwestern Ontario Municipal Association (NOMA)
- Rural Ontario Municipalities Association (ROMA)
- Federation of Northern Ontario Municipalities (FONOM)
- District of Parry Sound Municipal Association (DPSMA)
- All Ontario Municipalities



Township of McKellar

701 Hwy #124, P.O. Box 69, McKellar, Ontario POG 1C0

Phone: (705) 389-2842

Fax: (705) 389-1244

July 16, 2019

Hon. Doug Ford, Premier
Legislative Building Rm 281, Queen's Park
Toronto, Ontario
M7A 1A1

Dear Premier Ford,

Re: MUNICIPAL AMALGAMATION

Please be advised that at its regular meeting held, Monday July 15, 2019 the Council of the Township of McKellar passed the following resolution:

19-355 **WHEREAS** there are 444 municipalities in Ontario that are very efficient and well-governed, and who respond quickly to ratepayer's needs;

AND WHEREAS in the 1990's the Conservative Government forced many municipalities to amalgamate on the guise they would become more efficient, effective, save money, lower taxes and ultimately reduce the provincial deficit;

AND WHEREAS there has never been a valid evidence-based study that supported these outcomes;

AND WHEREAS forced amalgamation actually accomplished just the opposite: ill feelings, increased animosity and mistrust, job losses, rise in local taxes and an increase in the provincial deficit;

AND WHEREAS there are many positive examples of small rural and northern municipalities working together in a collaborate and cooperative manner via shared agreements that responds to local needs without amalgamation and provincial interference;

AND WHEREAS the Provincial Government has a large deficit due to their own decision-making;

AND WHEREAS recently the same Conservative Government recently reduced one large regional municipal government by 50%, without "consultation";

AND WHEREAS this same Conservative Government is presently reviewing other provincial regional governments through a purported "consultative" approach with a view to reduce or eliminate them;

AND WHEREAS the Provincial Government should investigate all other internal ways of reducing their deficit and becoming more fiscally responsible over time rather than downloading to the one level of government that is the most efficient, has the lowest cost and is closest to the electorate which will not put a dent in the provincial deficit;

AND WHEREAS the Province could look at what other provinces have done to reduce the debt with one singular education system, organizing unorganized municipalities, controlling OPP costs, substantially increase fines, and find a way to collect millions and millions of dollars in unpaid fines and instead, invest in the north to create jobs and stimulate and enhance economic development;

NOW THEREFORE BE IT RESOLVED that before the Provincial Government forces amalgamation in any of the 444 municipalities in Ontario, our AMO organization go beyond requesting "consultation" and "demand" that the Provincial Government do the following:

- 1) Hold a local referendum letting the citizens decide to amalgamate or not
- 2) Conduct an evidence-based study to show that amalgamation actually saves costs, jobs, lowers taxes and reduce the provincial deficit
- 3) Allow those municipalities to work out their own local collaborative agreement that best suit their local needs and to be permitted to do so on their own time line and volition
- 4) To ensure that there is absolutely no conflict of interest in this consultative process
- 5) To emphasize the political reality of forcing amalgamation on the many rural and northern municipalities across Ontario

AND FURTHER that a copy of this resolution be sent to Doug Ford, Premier of Ontario; Christine Elliott, Deputy Premier; Steve Clark, Minister of Municipal Affairs; Andrea Horwath, Leader of the New Democratic Party; and all MPPs in the Province of Ontario;

AND FURTHER that a copy of this resolution be sent to the Association of Municipalities of Ontario (AMO), the Northwestern Ontario Municipal Association (NOMA), Rural Ontario Municipalities Association (ROMA), Federation of Northern Ontario Municipalities (FONOM), the District of Parry Sound Municipal Association (DPSMA) and all Ontario municipalities for their consideration.

Carried

Sincerely,



Tammy Wylle, AMCT

Clerk Administrator

Cc:

Deputy Premier of Ontario;

Minister of Municipal Affairs and Housing;

Leader of the New Democratic Party;

All Ontario MPP's;

Association of Municipalities of Ontario (AMO);

Northwestern Ontario Municipal Association (NOMA);

Rural Ontario Municipalities Association (ROMA);

Federation of Northern Ontario Municipalities (FONOM);

District of Parry Sound Municipal Association (DPSMA);

all Ontario municipalities

O:\Council mtg letters\July 15 2019\Municipal Amalgamation



905.336.1158
Fax: 905.336.7014
2596 Britannia Road West
Burlington, Ontario L7P 0G3
conservationhalton.ca

Protecting the Natural
Environment from
Lake to Escarpment

August 28, 2019

The Honourable Doug Ford, Premier of Ontario
Legislative Building Queen's Park, Toronto, ON M7A 1A1
Tel 416-325-1941
premier@ontario.ca

The Honourable Jeff Yurek, Minister of the Environment, Conservation and Parks
Ministry of the Environment, Conservation and Parks
5th Floor, 777 Bay St., Toronto, ON M7A 2J3
Tel 416-314-6790
jeff.yurek@pc.ola.org

Dear Premier Ford and Minister Yurek,

We are writing in response to your letter dated August 16, 2019 that was sent to all Conservation Authorities and their member municipalities.

We look forward to engaging with you when you start your promised consultations for creating the definitions and regulations required to move forward with your agenda to define what is included in the core mandate of the Conservation Authorities.

To assist with such promised consultations, we are providing the attached discussion paper for your consideration, as well as Conservation Halton's 2018 Annual Report (Appendix A).

We believe Conservation Halton is efficient, transparent and accountable. Specifically:

- **Conservation Halton's programs and services are within their mandate as defined by the CA Act. There are no programs that divert focus from helping municipalities grow and manage risks associated with flooding hazards.**
- **The Board of Directors of Conservation Halton is made up of 70% elected officials, including three mayors. The Board approves all business plans and budgets. Furthermore, Conservation Halton engages in detailed discussions with municipalities before the budget is presented to Regional Council.**
- **Conservation Halton uses zero tax dollars to manage and operate Conservation Areas and generates a surplus which offsets significant costs (about \$2.5mil in 2018) that**

would otherwise be funded through Municipal tax levies. Municipalities have no desire to take over these responsibilities.

- Conservation Halton employs approximately 800 seasonal workers, mostly youth, and supports local businesses and tourism. These 800 jobs are at risk with the apparent direction of the Province. Furthermore, CH attracts 1.2mil visitors annually – that would be 1.2 million disappointments should CH lose its ability to manage these cherished assets.
- Conservation Halton has already committed to service delivery improvements. Planning and permitting services are delivered without mission creep, within the scope of the CA Act and Municipal MOUs. Turnaround times are adhered to and reported on with complete transparency.

We hope you find this letter and the discussion paper helpful as you map out a meaningful consultation process. We strongly recommend engaging in pre-consultations with Conservation Halton and other CAs to ensure we are working together to define the governing regulations and to continue our long-standing partnership.

Regards,

Gerry Smallegange



Chair, Conservation Halton Board of Directors

Gary Carr



Halton Regional Chair

Mayor Rob Burton, BA, MS



Town of Oakville

Mayor Marianne Meed Ward



City of Burlington

Mayor Gordon Krantz



Town of Milton

Mayor Rick Bonnette



Town of Halton Hills

DISCUSSION PAPER

Conservation Halton, along with other CAs, have been anticipating provincial consultations for the development of regulations that will define these mandatory programs and services and what specifically is captured under them. As of today's date, Conservation Halton does not know the details of specific programs and services that are mandated. For example, will water quantity monitoring to support flood forecasting and floodplain mapping to support hazard regulations be considered part of the mandatory programs and services? Will tree planting and stewardship initiatives in our watersheds that slow down flood waters be considered part of the mandatory programs and services? Will broader environmental monitoring be considered part of mandatory programs or will the Province assume the responsibility and costs of undertaking monitoring in an efficient and responsive manner?

Responsible Finances and Efficiencies

At Conservation Halton, we made a commitment three years ago to develop a sustainable, long-term financial strategy. As a result, our operating budgets have been at or below the rate of inflation over the past two years. Our capital expenditures were restructured to ensure a disciplined approach to capital allocation towards maintaining our four dams, flood conveyance channels and other structures in a state of good repair. Those funding reserves have been established with support and guidance from Halton Region.

Additionally, we use **no tax dollars** to fund our conservation area operations or capital investments, and the returns we generate at our conservation areas help offset tax supported program costs. We now have one of the lowest proportion of tax revenues in Ontario, with municipal taxes funding 34% of our annual budget, while generating 59% through our own conservation area operations. Provincial revenues will make up a meagre 1.35% of our annual operating budget for the upcoming year.

By taking away the ability for CAs, and specifically Conservation Halton to develop financial partnerships with municipalities and develop revenue-generating programs, not only will you decrease the employment opportunity for youth in the region and increase the tax payers' bill for core programs but you will also limit, if not eliminate, our capacity to invest in these conservation areas to make them more accessible for a rapidly growing population.

Conservation Halton provides a large variety of benefits (all self-funded) to the Halton community; the most notable one is that we support youth employment through our 800 seasonal employees, most of which fall within the 'youth' segment, in the Region and provide \$4.3mil in seasonal wages. In 2018, our recreation programs exceeded our revenue generation targets with 7.7% growth.

We will continue to work with our member municipalities to finalize our 2020 budget and the scope of the activities that are included therein. We would appreciate the Province confirming its continuing financial support for the Source Protection program until such time as the transition period is completed to avoid any in-year budget adjustments. We have already had to contend with the mid-year loss of \$145,277 of Section 39 transfer payment from the Province for one of our mandatory programs – hazards management.

Transparency and Accountability

We are very proud of how Conservation Halton works with our municipalities to align our work with their needs and meet the targets that are set out. Equally important is our commitment to accountability and transparency, not just in terms of program costs but in terms of service delivery standards that are clear

and quantifiable. We lead every budget cycle request with a review of how we performed the previous year and who benefited from our programs.

Furthermore, we clearly lay out how our programs are funded:

- By municipalities as part of our regulatory responsibilities,
- By municipalities through municipal MOUs and other sources such as grants, e.g. plan review, education, stewardship, environmental monitoring. MOUs with Halton area municipalities were renewed earlier this year after a two-year review, and
- Non tax supported core programs that are entirely self-funded, e.g. recreation events, operations and capital.

We therefore do not abuse our power to levy but instead work with our municipalities to ensure our performance warrants tax levy funding and that our priorities are aligned. Our latest Annual Report clearly details our performance. If desired, our detailed business plans for every program and service can be shared as well.

Focus on Core Mandate

Conservation Halton is focused on our core programs and more importantly, on ensuring that the cost, time required, and scope of those programs are aligned with regulations, where applicable. For instance, we publish turnaround times for all our permits. As of the beginning of 2019, we issued 97% of our minor permits within the prescribed 30 days (provincial target is 80%). We have quarterly meetings with BILD and local agriculture groups to discuss process improvements and find solutions where needed.

As per our strategic plan, here are a few examples from the year that show how our efforts are focused in the right areas while adding value for residents, businesses, municipalities and other stakeholders.

- **Public Safety:** Our watershed monitoring network has expanded from 16 hydrometric stations to 35 digitally connected stations using Internet of Things (IOT) devices to collect, analyze and deliver insights from our data to predict weather impacts on riverine conditions and inform the public and our partners through accurate, timely flood status updates and warnings. Our goal is to improve our accuracy and lead time for storm events. We also launched a comprehensive update of our floodplain mapping to identify areas susceptible to flooding and help reduce flood risk in our communities through proactive planning and restoration.
- **Development Permits and Planning:** We've continued to work hard in delivering timely, predictable, cost-effective services across all our products and services. Through ongoing engagement with developers, process re-engineering and a desire to re-write the narrative around customer value, we have exceeded our stretch goal of processing 95% of minor permits within 30 days and continue to work with our development review partners to improve service delivery on technical reviews and planning applications, also ensuring that we are not commenting on matters beyond our scope or changing the goal posts for customers.
- **Recreation and Management of Conservation Authority Lands:** For the second year running we welcomed over 1 million visitors to our conservation areas and launched several new programs and events, such as the Hops and Harvest Festival showcasing local breweries and food vendors. We continue to offer innovative, engaging, family-friendly experiences to our growing communities through our network of seven conservation areas. Our brand is strong,

and we are committed to leading the market when it comes to outdoor recreation, wellness and leisure within our watershed. It bears repeating that our conservation areas and all festivals (including maple syrup for instance) are 100% self-sustaining financially. We are proud of how responsibly we have monetized our assets to generate revenues while creating tremendous value and employment opportunities for our local communities.

- **Education:** We hosted over 64,000 students from local schools at our outdoor education centres, including at our newly built archaeology room in the Wolf Clan Longhouse at Crawford Lake. We partnered with other organizations on 144 occasions to help engage residents and students alike around Climate Change and other environmental events, because if we can't tell an engaging story to raise awareness, then we can't make the kind of collective impact that is necessary for our communities to remain prosperous and resilient.
- **Environmental Restoration:** For our communities to be sustainable we must balance the impacts of growth and development with improvements to green infrastructure, ensuring our water, land and air can sustain our activities today and in the future. In 2018 we monitored and analyzed data from 176 monitoring stations, engaged 11,000 residents in hands-on stewardship activities, managed close to 10,000 acres of natural lands, planted thousands of trees (over 4 million to date), carried out 43 environmental improvement projects and leveraged every \$1 invested in restoration projects by Conservation Halton to \$15.92 worth of improvements through public/private sector partnership funds.

Next Steps

We don't want increased risk to public safety or increased liabilities to the Province, municipalities and conservation authorities due to lack of funding for critical programs and services. The current level of provincial investment in CA flood operations and the funding available to maintain aging dams is inadequate, and it is putting a strain on municipal finances. We strongly encourage the Province to undertake meaningful, focused pre consultations with CAs prior to consulting all stakeholders around the regulations you are working on. We feel strongly that through these pre consultations we can help the Province gain a clear understanding of what CAs do, and we can assist the Provincial Government in fulfilling its commitment to Ontarians.

We believe that the Conservation Halton Board and participating municipalities should be allowed the time to consider the full implications to their watersheds before reducing any programs or freezing fees and levies. The regulations that will outline the agreements necessary between municipalities and CAs will increase transparency on what CAs are required to do, what is discretionary and how it impacts the municipal levy. Again, we would like to focus on the development of the regulations that will provide the consistent framework for what the government wants to do.

In conclusion, the new CA Act directs our Board members (Section 14.1) to act honestly and in good faith with a view to furthering the objectives of the Authority. That is just what our Board intends to continue to do. The elected officials and citizen appointees who make up our Board of Directors allow us to work closely with each of our municipal partners to deliver a variety of locally supported programs and services valued by residents. We look forward to working with the province to define the governing regulations and to continuing our long-standing partnerships with both the Province of Ontario and our local municipalities.

2018

ANNUAL
REPORT



Conservation
Halton

GUIDING PRINCIPLES

STRATEGIC PLAN 2020

COLLABORATION

We will build strong partnerships and create opportunities for collaboration with our customers and community members.

INTEGRITY

We will take a proactive approach to accountability, transparency and financial responsibility and make difficult decisions with integrity.

INNOVATION

We will seek out innovative technologies and creative solutions that will allow us to be leaders in natural resource management and environmental planning.

SUSTAINABILITY

We will embody sustainability in everything we do, from the facilities we build to the communities we help plan, in an effort to limit our impact on the environment.





INSIDE THE **2018 REPORT**

- 4 MESSAGE FROM THE CAO**
- 8 MESSAGE FROM THE CHAIR**
- 10 OUR PROGRESS AT A GLANCE**
- 12 OBJECTIVES IN DETAIL**
- 24 FINANCIAL REPORT**
- 25 BOARD OF DIRECTORS**
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MESSAGE FROM THE CAO

I am happy to report that 2018 was another year of success in our efforts to improve Conservation Halton. We are on track with the business performance and financial commitments that we made two years ago as part of Metamorphosis and we continue to deliver on our commitments to our customers, our employees and our communities.

We made a financial commitment to rework our budgets to ensure our operating expenditures were at or below the rate of inflation and over the past two years, we have been able to do just that. Our capital expenditures were restructured to ensure a disciplined approach to capital allocation towards maintaining our dams, channels and other structures in a state of good repair. Those funding reserves have been established, along with a long-term financing strategy developed in partnership with Halton Region, to ensure we can set funds aside for these critical assets, while limiting the tax impact to around 1 percent increase annually until the capital reserves are fully funded. In 2018, we completed five projects to ensure our dams and channels remain in a state of good repair.

We exceeded our revenue generation targets with 7.7 percent growth in 2018.

We exceeded our revenue generation targets with 7.7 percent growth in 2018. We now have one of the lowest shares of tax revenues in Ontario, with municipal taxes funding 34 percent of our annual budget and provincial tax revenues contributing 4 percent of our total annual budget. We have been able to maintain strong financial performance, while reinvesting in the organization to improve our technology, project management and employee skills.

Here are a few examples that show how our efforts are focused in the right areas and helping us add value.

- **Public Safety:** Our watershed monitoring network has expanded from 16 hydrometric stations to 35 stations, digitally connected using Internet of Things (IOT) devices to collect, analyze and deliver insights from our data to predict weather impacts on watershed conditions and inform the public and our partners through accurate, timely flood status updates and warnings. We also launched a comprehensive update of our floodplain mapping to identify areas susceptible to flooding and help reduce flood risk in our communities through proactive planning and restoration.
- **Recreation and Tourism:** For the second year, we welcomed more than 1 million visitors to our parks and launched several new programs and events. We continue to inspire memorable family-friendly experiences to our growing communities through our network of parks. Our parks brand is strong and we are committed to leading the market when it comes to outdoor recreation, wellness and leisure within our watershed.



- **Education:** We have implemented technology to create online story maps to communicate the results of our long-term environmental monitoring programs and we are aiming for more data and analysis to be available to the public, so they can make informed choices to help us adapt to climate change. We hosted more than 64,000 students at our outdoor education centres, including our new archaeology room in the Wolf Clan Longhouse at Crawford Lake. We partnered with other organizations on more than 140 occasions to help engage residents and students alike around climate change and other environmental issues, because if we can't tell an engaging story to raise awareness, then we can't make the kind of collective impact that is necessary for our communities to remain prosperous and resilient.

- **Permits and Planning:** We have continued to work hard in delivering timely, predictable, cost-effective services. Through ongoing engagement, process re-engineering and a desire to re-write the narrative around customer value, we have exceeded our goal of processing 95 percent of minor permits within 30 days and continue to work with our development review partners to improve service delivery on technical reviews of planning applications.

- **Environmental Restoration:** For our communities to be sustainable, we must balance the impacts of growth and development with green infrastructure, to ensure that our water, land and air can sustain our activities today and in the future. In 2018, we monitored and analyzed data from 176 monitoring stations, engaged 11,000 residents in stewardship activities,





managed close to 10,000 acres of natural area, planted about 100,000 trees and shrubs, carried out 43 environmental improvement projects and leveraged every \$1 invested in Conservation Halton restoration projects to \$15.92 worth of improvement through partnership funds. We are not only good at conducting the science and analysis to determine where improvements are necessary, but we take a lot of pride in acting as project managers to deliver those improvements on the ground.

The reason I am proud to lead this organization is that we have a passionate and talented team, led not only by strategy and structure but by a set of shared core values. We will continue to build on our unwavering commitment to engage with our customers and improve our products and services. We have an ambitious vision and the skills to follow it. That vision is as true today as the day we crafted it. We have had a great year and I am looking forward to a bright future for Conservation Halton.



Hassaan Basit

Chief Administrative Officer

MESSAGE FROM THE **BOARD CHAIR**

As outlined in the strategic plan, Metamorphosis, this year has been one of process improvement, asset management, digital transformation and financial overhaul. The Board of Directors has worked with the Chief Administrative Officer and other leadership from Conservation Halton throughout this process and could not be more proud of the progress that has been made.

We have also seen improvements in the governance of the organization this year. Just as the strategic plan provided Conservation Halton with a clear understanding of their measures and targets, it has provided the Board of Directors with a renewed focus on their priorities, including finance, policy and risk. With a work plan, key performance indicators and dedicated strategy sessions, there has been an increased emphasis on performance, which has resulted in more effective flow of information, concise documentation and productive discussions and efficient meetings.

On behalf of the Board of Directors, I would like to thank everyone at Conservation Halton for their hard work this year. We are proud of all that Conservation Halton has accomplished in the last year and we are honoured to be part of your success.



Gerry Smallegange

Chair, Board of Directors












**THE STRATEGIC PLAN HAS
FOUR MAIN THEMES:**

- Taking care of our growing communities
- Protecting our natural, cultural and scenic assets
- Preparing for the effects of climate change
- Creating opportunities to connect with nature

HIGH LEVEL OVERVIEW

OUR PROGRESS AT A GLANCE

Conservation Halton is reporting on nine objectives as identified by the Senior Leadership Team. Within each objective there are measures which have their progress tracked based on the 2018 Outcome and what the Target is for 2020. You will find these results on the following pages.

-  Positive upward trend
-  Positive downward trend
-  Negative upward trend
-  Negative downward trend
-  Neutral trend
-  On track
-  On track with minor issues
-  Off track

OBJECTIVES

01 PUBLIC
SAFETY

02 SUSTAINABILITY

03 EDUCATION &
COMMUNICATION

04 RECREATION
& TOURISM

05 PARTNERSHIPS





**06 PLANNING &
DEVELOPMENT**

**07 RESOURCE
MANAGEMENT**

**08 CUSTOMER
SATISFACTION**

**09 DIGITAL
TRANSFORMATION**

METAMORPHOSIS

An extensive public consultation was conducted throughout the summer and fall of 2016 on the draft version of the Metamorphosis strategic plan, with stakeholder meetings, public open houses, an online survey and interaction through Conservation Halton's social media platforms. This input was helpful and is reflected in the final version of the plan. The final version of the Metamorphosis strategic plan can be viewed at conservationhalton.ca/metamorphosis.

Why is this objective important?

We depend on floodplain mapping, flood models, dams and channels to protect our communities, coordinate emergency response and support smart, safe land use planning. This has always been an important function of Conservation Halton but, as climate change continues to impact weather patterns, it has become more important than ever.



This hydrometric station was recently installed in Bronte Creek at Lowville Park. The intake pipe in the creek transfers the water level into the stilling well pipe, where a measurement is taken. This data is then accessible in real time through the use of a cellular modem. In the past, Lowville has been a known flood damage centre, so this station will assist us in monitoring conditions there. Video surveillance through a fixed-dome camera will further enhance monitoring efforts in the coming year.

What progress has been made?

This year, we expanded our watershed monitoring network from 16 hydrometric stations in 2016 to 35 stations in 2018. This will enable us to better predict surface water runoff response and provide more accurate messages to residents about watershed conditions. We also managed eight capital projects (\$3,732,000) to support the State of Good Repair of our dams and channels, so that we can more confidently protect the safety of our communities. Conservation Halton has also begun to update floodplain mapping for the Grindstone Creek watershed, which has not been completed since 1985. Updated mapping will identify areas that may be susceptible to flooding and reduce flood risk in our communities.

Measures	2018 Outcome	2020 Target	Trend	Status
Number of real-time hydrometric stations	35	50	↗	●
Percentage of dams and channels assessed as being in a State of Good Repair	14%	50%	↗	●
Modernized models that provide clearly defined and defensible floodplain hazard limits with information that is quickly accessible for faster decision making	0%	40%	↗	●

Why is this objective important?

With more people building homes in our watershed, starting families in our communities and spending time in our conservation areas each year, it is important that we protect our natural areas. The only way we can do this is through social, financial and environmental sustainability.

What progress has been made?

This year, visitor impact management was expanded to include all 110 kilometres of managed trails within the Conservation Halton Parks, with particular efforts made to improve the distinction between the trail and the forest to discourage walking off the trails at Hilton Falls. There was also a focus on financial sustainability this year. Program-based budgets and performance metrics have provided us with more insightful financial analysis and enabled us

to develop a more sustainable budget strategy. There are still challenges to overcome in responsibly funding our critical assets and other capital projects but we have made progress on these issues with our funding partners.



At Hilton Falls, trees were planted at the edge of the trails and trails were lined with logs to keep visitors on the path.

Measures	2018 Outcome	2020 Target	Trend	Status
Percentage of Conservation Halton Lands under a current Master Plan	49%	95%	↔	●
Percentage of km of trails under a visitor impact management program	100%	100%	↗	●
Limit increase in annual tax supported Municipal Levy before State of Good Repair Levy to regional budget guidelines	1.4%	3.2%	↘	●
Increase self-generated revenue by 2 to 5 percent annually	7.7%	2%–5%	↗	●

EDUCATION & COMMUNICATION

Why is this objective important?

It's often said that you can't save what you don't love and you can't love what you don't know. Conservation Halton has made it a priority to teach both children and adults about the importance of nature and the benefits of conservation, so that the community will support our programs and projects.



What progress has been made?

Conservation Halton has started using a web-based platform that combines maps, images, text and other media in an interactive way that is more engaging than print media or even conventional webpages. This year, we used these story maps to communicate the results of our monitoring program and restoration projects, such as Courtcliffe Park. The parks have also expanded their use of interactive education with improvements to the Longhouses at Crawford Lake, including a new archeology room in the Wolf Clan Longhouse. This year, Conservation Halton also launched a brand new program, From the Ground Up, which teaches students about the importance of trees to the watershed and provides them with an opportunity to plant trees near their school.

Left: The new Archaeology Room in the Wolf Clan Longhouse at Crawford Lake features a number of learning stations, including a simulated excavation site and clay pot reconstruction activity, as well as a stratigraphy wall to illustrate sediment layers and a painted mural that shows the locations of the longhouses that we are aware of at Crawford Lake.

Measures	2018 Outcome	2020 Target	2018 Trend	Status
Number of people attending parks educational programming	64,453	75,000	↔	●
Number of stewardship and outreach public engagements	108	60	↗	●
Number of watershed residents who participate in conservation outreach and stewardship activities	11,662	10,660	↗	●



Children learn about the creeks, streams, lakes and ponds within our watershed, as well as the plants and animals that live in them, through games, activities and other forms of interactive education at the Halton Children's Water Festival at Kelso Conservation Area.

OBJECTIVE 04

RECREATION & TOURISM

Why is this objective important?

Our parks provide opportunities to spend time outdoors, connect with nature and maintain a healthy lifestyle, as well as employment and other economic benefits to the community. It is important that we invest in the parks, so that they can be enjoyable, accessible and safe for generations to come.

What progress has been made?

For the second year in a row, more than 1 million visitors came to Conservation Halton Parks. This year, visitors enjoyed a number of new offerings, such as a brand new Challenge Course, including an aerial ropes course and a climbing tower, which attracted more than 4,000 participants to Kelso Conservation Area. Hops and Harvest, which was our first annual festival of this kind, brought close to 8,000 people to Kelso over one weekend in October to sample beer and cider from craft breweries, enjoy seasonal eats from local food vendors and celebrate the natural and cultural heritage of the Niagara Escarpment.



Measures	2018 Outcome	2020 Target	2018 Trend	Status
Number of annual memberships to Conservation Halton Parks	9,353	10,000	↗	●
Number of visitors to Conservation Halton Parks	1,076,670	1,160,000	↗	●



Far Left: The Challenge Course at Kelso Conservation Area has provided day trippers, summer campers, festival goers and other park visitors with an opportunity to test their strength, push their limits and admire the Niagara Escarpment from an entirely new perspective.

Above: Hops and Harvest brought food, such as *arepas* from Venezuelan food truck, The Arepa Republic (pictured), and craft beer from vendors such as Orange Snail, Good Lot and Shawn & Ed, together in the beautiful, autumn setting of Kelso Conservation Area.

PARTNERSHIPS

Why is this objective important?

As the challenges, changes and pressures on our watershed increase, it has become increasingly important for us to work together. On our own, we are limited, but in working with our community partners, we can develop more effective projects, innovative programs and compelling research opportunities.

What progress has been made?

Conservation Halton is on the leadership team of the Halton Climate Collective and a member of the Bay Area Climate Change Council. With many projects that contribute to climate change mitigation and adaptation, we have been an important member of these groups. There has also been an increased interest in partnership with Crawford Lake. This year, we partnered with Ojibiikaan Indigenous Cultural Network in support of the Three Sisters Garden and with Brock, Carleton and McMaster Universities on the sampling of Crawford Lake sediment. These partnerships, and others, have helped to increase our capacity and position us as a community partner.



**Halton
Climate
Collective**

Conservation Halton is an important member of the Halton Climate Collective, which began branding, marketing, communications and community engagement efforts this year. We were responsible for developing the visual identity.



The Three Sisters Garden, consisting of beans, squash and corn, was planted by members of the Ojibiikaan Indigenous Cultural Network, in partnership with Conservation Halton, at Crawford Lake.

Measures	2018 Outcome	2020 Target	2018 Trend	Status
Ratio of partnership dollars leveraged for every dollar invested in stewardship and restoration work by Conservation Halton	\$15.97	\$15	↗	●
Number of environmental partnership initiatives	144	140	↗	●

PLANNING & DEVELOPMENT

Why is this objective important?

As climate change puts an increasing amount of pressure on our infrastructure, a responsible and progressive approach to planning is needed to protect the people, properties and nature in our communities from flooding and erosion.

What progress has been made?

Last year, Conservation Halton conducted an internal review of the planning and permit application process, with teams established for each of the municipalities within our jurisdiction to allow for better communication among agencies and applicants. As a result of the review, Conservation Halton has continued to make changes, including a reorganization of staff resources, and we are positioned to bring about major improvements to customer service. The Memorandum of Understanding for environmental reviews in Halton Region was also updated, with specific roles and responsibilities being identified in 2019 to avoid duplication of effort.



Conservation Halton regulates development adjacent to creeks, streams, rivers, wetlands and shorelines, such as this neighbourhood in North Oakville, pictured during construction.

Measures	2018 Outcome	2020 Target	2018 Trend	Status
Deliver comments on 95 percent of technical review of permit applications within six weeks	94%	95%	↗	●
Deliver comments on 95 percent of technical review of planning applications within six weeks	65%	95%	↔	●
Process 95 percent of minor permit applications within 30 days	96%	95%	↗	●

RESOURCE MANAGEMENT

Why is this objective important?

We depend on our natural resources and areas for environmental sustainability, community health and economic prosperity. It is our responsibility to manage these resources, through restoration projects, water protection programs and other conservation efforts, so that generations to come can enjoy the same quality of life.

What progress has been made?

In an effort to protect the forest resources in our watershed, we planted more than 90,300 trees and 4,450 shrubs and removed more than 8,700 trees affected by emerald ash borer. Conservation

Halton also acquired 45.6 acres (18.5 ha) of land on Canyon Road, adjacent to Rattlesnake Point, which will be incorporated into the park. As of this year, 95 percent of the source drinking water source protection policies have been implemented and 84 percent of the identified drinking water threats have been addressed by Conservation Halton and partners. There was also a large group of mudpuppies, which are a salamander species, found in Sixteen Mile Creek, after having not been recorded in the creek for more than 30 years, which indicates that our restoration efforts have been effective.

Measures	2018 Outcome	2020 Target	Trend	Status
Number of hectares of protected terrestrial and aquatic area	9,515.6 ha	9,658.2 ha	↗	●
Maintain a consistent or improving trend in key water quality indicators across the watershed	Chlorides exceedence of provincial guidelines at 45% of stations	Exceedences at fewer than 37% of stations	↔	●
	Phosphorus exceedence of provincial guidelines at 64% of stations	Exceedences at fewer than 28% of stations	↘	●
Number of floodplain, wetland and watercourse restoration activities	43	21	↗	●
Number of aquatic and terrestrial stations monitored each year	176	100	↔	●



Top: Emerald Ash Borer is an invasive species of beetle (pictured) that feeds under the bark of ash trees, which does irreparable damage to the health of the tree.

Bottom: This year, more than 8,700 ash trees that had been damaged by emerald ash borer were removed to prevent the trees from being hazardous and allow for other trees to be planted in these areas.



An ecologist from Conservation Halton holds one of the many mudpuppies that were found in Sixteen Mile Creek during a fish rescue as part of a restoration project.

CUSTOMER SATISFACTION

Why is this objective important?

Conservation Halton provides a variety of services to a wide range of audiences, from teachers to landscapers to politicians. It is our responsibility to provide the best customer service possible, so that our programs and services can have the greatest impact in our community.

What progress has been made?

Conservation Halton installed customer service terminals at four of our parks in order to measure the happiness of our visitors and quality of the experience at our parks. This year, there were more than 27,000 responses on the terminals and the overall happiness score was 80. Conservation Halton also conducted public consultation for the Kelso Master Plan, which included an extensive online component. The online campaign received outstanding engagement, with more than 2,700 responses to the question polls on social media. In 2019, we will implement additional customer feedback tools to ensure we are addressing specific customer pain-points.



An interpreter from Conservation Halton teaches a crowd of visitors how maple syrup is made during Maple Town at Mountsberg Conservation Area.

Measures	2018 Outcome	2020 Target	2018 Trend	Status
Reach an average customer satisfaction rate of 90 percent across all service areas	80%	90%	↗	●

DIGITAL TRANSFORMATION

Why is this objective important?

Data-driven decision-making is the way forward for Conservation Halton and digital transformation is how we get there. With planning and monitoring data at our fingertips, we can make more informed decisions, share more knowledge with our partners and provide more efficient customer service.

What progress has been made?

This year, Conservation Halton launched a number of new GIS tools that allow staff to collect and input data digitally, which improves quality and analysis, and makes this data accessible from anywhere. We are also developing a platform that provides mapping and other data on regulatory limits, physical geography, ecological monitoring and source water protection for our partners and members of the public in order to increase access to information. Conservation Halton has also launched a new intranet that allows staff to access project management tools, asset management data and human resources information. An extranet is being developed for more secure storage, sharing and collaboration with our external partners.



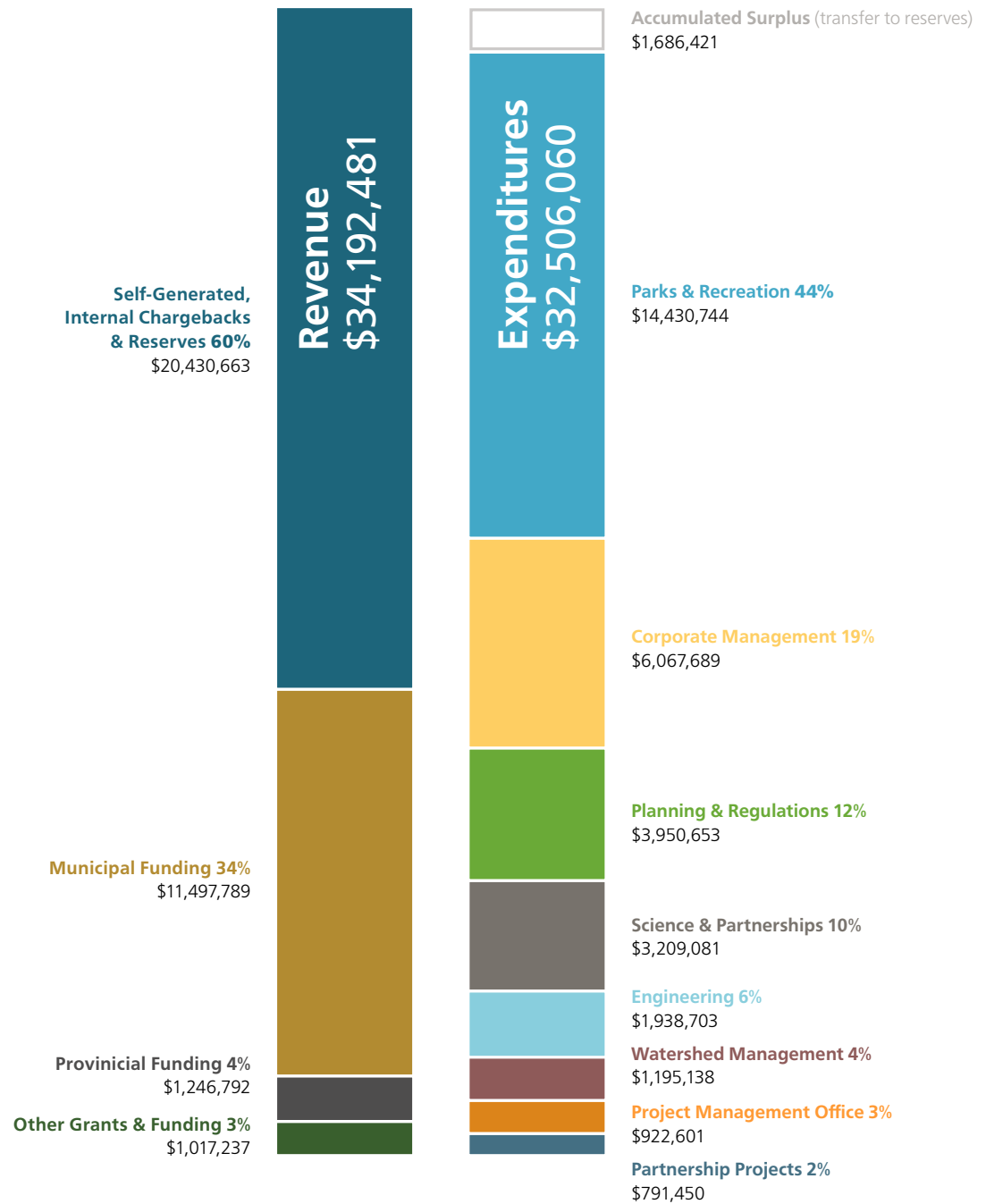
This platform provides mapping and other data on regulatory limits, physical geography, ecological monitoring and source water protection for our partners and members of the public in order to solve important local issues.

Measures	2018 Outcome	2020 Target	2018 Trend	Status
Number of online e-commerce transactions	92%	30,000	↗	●

2018

FINANCIAL REPORT

Projected 2018 Surplus will be transferred to Reserves as approved by the Board of Directors. The financial information presented in the Annual Report has not yet been audited and is therefore subject to change.



2018 CONSERVATION HALTON

BOARD OF DIRECTORS

REGIONAL MUNICIPALITY OF HALTON

BURLINGTON

Councillor Marianne Meed Ward

Mr. Gerry Smallegange, *Chair*

Mr. Jim Sweetlove

Mr. John Vice

HALTON HILLS

Councillor Moya Johnson, *Vice-Chair*

Councillor Bryan Lewis

MILTON

Councillor Mike Cluett

Councillor Robert Duvall

Mayor Gordon Krantz

OAKVILLE

Mayor Rob Burton

Councillor Cathy Duddeck

Councillor Allan Elgar

Councillor Dave Gittings

REGIONAL MUNICIPALITY OF PEEL

MISSISSAUGA

Councillor Sue McFadden

Mrs. Jean Williams

CITY OF HAMILTON

Ms. Joanne Di Maio

Mr. Ed Wells

TOWNSHIP OF PUSLINCH

Mr. Stephen Gilmour

ORGANIZATIONAL CHART

SENIOR LEADERSHIP TEAM



Chief Administrative Officer
Hassaan Basit



Senior Manager,
Human Resources
Plezzie Ramirez



Director,
Parks & Operations
Gene Matthews



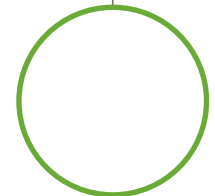
Director,
Corporate Compliance
Jill Ramseyer



Director, Planning
& Watershed
Management
Barb Veale



Director, Foundation
Garner Beckett



Senior Director,
Corporate Services
Vacant



Associate Director,
Engineering
Janelle Wepler



Associate Director,
Science & Partnerships
Kim Barrett

*The above organizational
structure is as of April 2019*





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THE
COLLEGE
OF
PHYSICIANS
AND
SURGEONS
OF
ONTARIO

July 8, 2019

TO MAYOR, CITY CLERK AND COUNCILLORS:

**Nominate an Outstanding Ontario Physician in Your Community
The College of Physicians and Surgeons of Ontario Council Award**



Did You Know?

***Over the last four years,
the Council Award has
been presented to four
physicians nominated by
their local city council?***

The College of Physicians and Surgeons (CPSO) is now accepting nominations for the **2020 Council Award**. The Council Award honours outstanding Ontario physicians who have demonstrated excellence and embody a vision of the “ideal physician”.

The criteria for selecting a physician for the Council Award are outlined in the enclosed nomination form. The criteria are based upon eight “physician roles” that reflect society’s expectations of what is needed to practise modern medicine.

Through the award, the College honours Ontario physicians whose performance in each of these roles is outstanding, recognizing that individual physicians will demonstrate more extensive expertise in some roles than in others.

If you know of a physician who meets the selection criteria, please nominate him or her for the Council Award.

The deadline for receipt of nominations is September 30, 2019 at 5:00 p.m.

For further information, please contact the Council Awards Program at 416-967-2600 or 1-800-268-7096 extension 257 or cpsoaward@cpso.on.ca.



The Council Award honours outstanding Ontario physicians who have demonstrated excellence and come closest to meeting society's vision of an "ideal physician."

Four awards are presented each year, in the following categories: Academic Specialty, Community Specialty, Academic Family Practice and Community Family Practice.

CRITERIA

The criteria for selecting a physician for the Council Award is based on the eight physician roles identified as the essential qualities needed to practise modern medicine:

- medical expert/clinical decision maker
- health advocate
- communicator
- learner
- collaborator
- scientist/scholar
- gatekeeper/resource manager
- person & professional

The Council Award recognizes physicians whose performance in these roles is outstanding, recognizing that they may demonstrate more extensive expertise in some roles than in others. Details on the elements of each role are outlined on the CPSO's award webpage.

ELIGIBILITY FOR NOMINATION

Anyone may nominate a physician for the Council Award. To be eligible for nomination, a physician must be licensed in Ontario and be in good standing with the College. Previous nominees who were unsuccessful are eligible. Former recipients of the Council Award or the Excellence in Quality Management of Medical Care Award are not eligible for nomination. Council Members and staff of the College and members of their immediate families are also not eligible.

NOMINATION INSTRUCTIONS

1. Complete the **nomination form**.
2. Provide a **detailed nominator's statement** describing how the nominee has demonstrated overall excellence and contributed to the profession. *You are encouraged to include pertinent supporting materials such as testimonials, reports, media articles, CVs, etc.*
3. Find a **seconder** for the nomination who will provide a written testimonial about the nominee's accomplishments.
4. The completed Council Award nomination package (including nominator's statement, supporting material and seconder's statement) can be emailed to cpsoaward@cpso.on.ca or mailed to the following address:

The Council Award,
c/o Communications Department
College of Physicians and Surgeons of Ontario
80 College Street, Toronto, Ontario, M5G 2E2

For more information, please contact:

Call: 416-967-2600 or 1-800-268-7096, ext. 257

E-mail: cpsoaward@cpso.on.ca

Additional information and nomination forms are available at:

www.cpso.on.ca/council-award

CHECKLIST:

- ☐ NOMINATION FORM
- ☐ NOMINATOR'S STATEMENT
- ☐ SECONDER'S STATEMENT
- ☐ SUPPORTING DOCUMENTS (OPTIONAL)
- ☐ NOMINEE'S CV (OPTIONAL)

The deadline for the nominations is Monday, **September 30, 2019** at 5:00 p.m.

NOMINATION FORM

Please provide Nominator and Seconder
Statements and any additional information
in support of your nomination



NOMINEE

FIRST NAME: _____ LAST NAME: _____

NOMINEE'S ADDRESS: _____

EMAIL ADDRESS: _____ TELEPHONE: _____

DATE AND PLACE OF BIRTH: _____

DEGREES EARNED (DEGREE, SCHOOL, YEAR): _____

SPECIALTY, IF ANY: _____

TYPE OF PRACTICE: _____

FACULTY APPOINTMENTS, IF ANY: _____

PREVIOUS HONOURS AND AWARDS: _____

If you need more space, please attach additional pages.

NOMINATOR

FIRST NAME: _____ LAST NAME: _____

ADDRESS: _____

E-MAIL ADDRESS: _____ TELEPHONE NUMBER: _____

PLEASE INDICATE YOUR RELATIONSHIP TO THE NOMINEE: _____

SECONDER (must be provided)

FIRST NAME: _____ LAST NAME: _____

ADDRESS: _____

E-MAIL ADDRESS: _____ TELEPHONE NUMBER: _____

September 3, 2019

Karen Landry, CAO/Clerk
Township of Puslinch
7404 Wellington Road 34
Puslinch, ON N0B 2J0

RECEIVED

SEP 03 2019

Township of Puslinch

Dear Karen Landry:

**RE: Notice of Public Information Centre #2
GTA West Transportation Corridor Route Planning and Environmental Assessment
Study, Stage 2**

In June 2019 the Minister of Transportation announced that the government is resuming Stage 2 of the Greater Toronto Area (GTA) West Transportation Corridor Route Planning and Environmental Assessment (EA) Study. Building on the recommendations from Stage 1, the EA Study will identify the route, determine interchange locations and complete the preliminary design for a new transportation corridor within the Route Planning Study Area (refer to the enclosed Notice). The new multimodal transportation corridor will include: a 400-series highway, transitway and potential goods movement priority features.

The GTA West Transportation Corridor is vital transportation infrastructure that will help meet the projected growth in both population and employment identified in the *Growth Plan for the Greater Golden Horseshoe (2019)*, and will deliver multiple benefits including:

- Greater connectivity between urban growth centres;
- Enhanced people and goods movement;
- Improved commuting; and
- Greater economic vitality.

The GTA West Study is being undertaken as an Individual EA in accordance with the *Ontario EA Act* and the *GTA West Corridor EA Terms of Reference*, which was approved by the Ontario Minister of the Environment on March 4, 2008.

This letter is to notify you that the second round of Public Information Centres (PIC #2) for this study has been scheduled. PIC #2 will present the study process, the Technically Preferred Route, the 2019 Focused Analysis Area, and will introduce the opportunity to participate in developing Community Value Plans for the GTA West Study. PIC #2 will be an informal drop-in centre with Project Team representatives available to answer questions. The same information will be presented at each venue.

Your organization is invited to attend one of the PIC #2 preview sessions:

Thursday September 19, 2019
3:00 p.m. to 4:00 p.m.
Venetian Salon
Château Le Jardin Conference
Centre
8440 Highway 27
Woodbridge, Ontario, L4L 1A5

Thursday September 26, 2019
3:00 p.m. to 4:00 p.m.
Kinsmen Hall
Gellert Community Centre
10241 Eighth Line
Georgetown, Ontario, L7G 4S5

Thursday October 3, 2019
3:00 p.m. to 4:00 p.m.
Peel Junior Farmers Hall
Brampton Fairgrounds
12942 Heart Lake Road
Caledon, Ontario, L7C 2J3

PIC #2 preview sessions will be an informal drop-in centre with Project Team representatives available to answer questions. Members of the public have been invited to attend PIC #2 between 4:00 p.m. and 8:00 p.m.

Comments and input regarding the study are encouraged and will be collected to assist the GTA West Project Team. This material will be maintained on file for use during the project and may be included in project documentation to meet the requirements of the *Ontario EA Act*. Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act* and the *Access to Information Act*. With the exception of personal information, all comments will become part of the public record. If you have any accessibility requirements in order to participate in this project, please contact the Project Team. To contact the Project Team directly, please call the toll-free telephone line at 1-877-522-6916, send an email to project_team@gta-west.com, or write to the Project Team at the addresses provided below. Study information is available on the project website: www.gta-west.com. Des renseignements sont disponibles en français en composant (289) 835-2484 (Yannick Garnier).

Jim Dowell, P. Eng., Consultant Project Manager
WSP
610 Chartwell Road, Suite 300
Oakville, ON L6J 4A5

Lukasz Grobel, P. Eng., MTO Project Manager
Ontario Ministry of Transportation
Central Region
159 Sir William Hearst Avenue, 4th Floor
Toronto, ON M3M 0B7

Sincerely,



Britta Patkowski, MCIP, RPP
GTA West Project Team Member
AECOM Canada Ltd.
1-877-522-6916
project_team@gta-west.com

cc: Lukasz Grobel, MTO
Chris Barber, MTO
Jim Dowell, WSP

Encl. Ontario Government Notice – Notice of PIC #2

ONTARIO GOVERNMENT NOTICE
NOTICE OF PUBLIC INFORMATION CENTRE #2 - GTA WEST TRANSPORTATION CORRIDOR ROUTE
PLANNING AND ENVIRONMENTAL ASSESSMENT STUDY, STAGE 2

THE STUDY: In June 2019 the Minister of Transportation announced that the government is resuming Stage 2 of the Greater Toronto Area (GTA) West Transportation Corridor Route Planning and Environmental Assessment (EA) Study. Building on the recommendations from Stage 1, the EA Study will identify the route, determine interchange locations and complete the preliminary design for a new transportation corridor within the Route Planning Study Area. The new multimodal transportation corridor will include: a 400-series highway, transitway and potential goods movement priority features.

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- Improved commuting; and
- Greater economic vitality.

The GTA West Study is being undertaken as an Individual EA in accordance with the *Ontario EA Act* and the *GTA West Corridor EA Terms of Reference*, which was approved by the Ontario Minister of the Environment on March 4, 2008.

PUBLIC INFORMATION CENTRE #2 (PIC #2):

PIC #2 will present the study process, the Technically Preferred Route, the 2019 Focused Analysis Area, and will introduce the opportunity to participate in developing Community Value Plans for the GTA West Study. PIC #2 will be an informal drop-in centre with Project Team representatives available to answer questions. The same information will be presented at each venue. Location and dates:

Thursday September 19, 2019

4:00 p.m. to 8:00 p.m.

Venetian Salon

Château Le Jardin Conference Centre

8440 Highway 27

Woodbridge, Ontario, L4L 1A5

Thursday September 26, 2019

4:00 p.m. to 8:00 p.m.

Kinsmen Hall

Gellert Community Centre

10241 Eighth Line

Georgetown, Ontario, L7G 4S5

Thursday October 3, 2019

4:00 p.m. to 8:00 p.m.

Peel Junior Farmers Hall

Brampton Fairgrounds

12942 Heart Lake Road

Caledon, Ontario, L7C 2J3

COMMENTS: Comments and input regarding the study are encouraged and will be collected to assist the GTA West Project Team. This material will be maintained on file for use during the project and may be included in project documentation to meet the requirements of the *Ontario EA Act*. Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act* and the *Access to Information Act*. With the exception of personal information, all comments will become part of the public record. If you have any accessibility requirements in order to participate in this project, please contact the Project Team. To contact the Project Team directly or to be added to the mailing list, please call the toll-free telephone line at **1-877-522-6916**, send an email to project_team@gt-west.com, or write to the Project Team at the addresses provided below. Study information is available on the project website: www.gt-west.com. Des renseignements sont disponibles en français en composant (289) 835-2484 (Yannick Garnier).

Jim Dowell, P. Eng., Consultant Project Manager
WSP
610 Chartwell Road, Suite 300
Oakville, ON L6J 4A5

Lukasz Grobel, P. Eng., MTO Project Manager
Ontario Ministry of Transportation, Central Region
159 Sir William Hearst Avenue, 4th Floor
Toronto, ON M3M 0B7



AVIS DU GOUVERNEMENT DE L'ONTARIO
AVIS DU CENTRE D'INFORMATION N° 2 – PLANIFICATION DU CORRIDOR DE TRANSPORT OUEST DE LA RGT
ET ÉTUDE D'ÉVALUATION ENVIRONNEMENTALE, PHASE 2

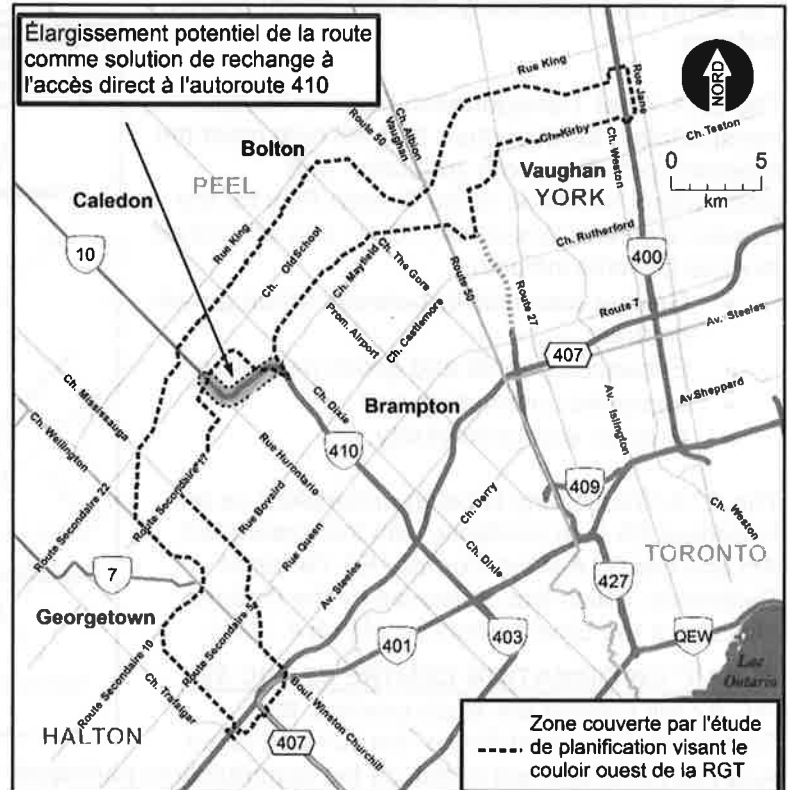
L'ÉTUDE: En juin 2019, le ministère des Transports a annoncé que le gouvernement relançait la phase 2 de la planification du corridor de transport Ouest de la région du Grand Toronto (RGT) et l'étude d'évaluation environnementale (EE) associée. À partir des recommandations de la phase 1, l'étude d'EE permettra d'identifier l'itinéraire, de situer les emplacements des correspondances et de terminer la conception préliminaire d'un nouveau corridor de transport dans la zone d'étude de planification de l'itinéraire. Le nouveau corridor de transport combiné comprendra : une autoroute de la série 400, une voie réservée aux piétons-autobus et de possibles caractéristiques prioritaires pour la circulation de marchandises.

Le corridor de transport Ouest de la RGT constitue une infrastructure de transport essentielle qui contribuera à répondre à la croissance prévue en termes de population et d'emploi identifiée dans le *Plan de croissance de la région élargie du Golden Horseshoe (2019)*, et il permettra de nombreux avantages, notamment les suivants :

- Une meilleure liaison entre les centres de croissance urbains;
- Une amélioration de la circulation des personnes et des marchandises;
- L'amélioration des trajets quotidiens; et
- Une plus grande vitalité économique.

L'étude portant sur le corridor Ouest de la RGT est réalisée comme une EE individuelle conformément à la *Loi sur les évaluations environnementales de l'Ontario* et au Cadre de référence de l'évaluation environnementale du corridor de transport Ouest dans la RGT, qui a été approuvé par le ministère de l'Environnement de l'Ontario le 4 mars 2008.

CENTRE D'INFORMATION N° 2 : Le centre d'information n° 2 portera sur le processus de l'étude, l'itinéraire retenu sur le plan technique ainsi que la zone d'analyse focalisée de 2019, et présentera une occasion de participer à l'élaboration de plans de valeur collective pour l'étude du corridor de transport Ouest de la RGT. Le centre d'information n° 2 constituera un centre informel sans inscription où les représentants de l'équipe du projet seront disponibles pour répondre aux questions. La même information sera présentée à tous les établissements. Lieux et dates :



Jeudi 19 septembre 2019

de 16 h à 20 h

Venetian Salon

Centre de conférence du Château Le

Jardin

8440 Highway 27

Woodbridge (Ontario) L4L 1A5

Jeudi 26 septembre 2019

de 16 h à 20 h

Kinsmen Hall

Centre communautaire Gellert

10241 Eighth Line

Georgetown (Ontario) L7G 4S5

Jeudi 3 octobre 2019

de 16 h à 20 h

Peel Junior Farmers Hall

Brampton Fairgrounds

12942 Heart Lake Road

Caledon (Ontario) L7C 2J3

COMMENTAIRES: Les commentaires sur l'étude sont les bienvenus et seront recueillis pour aider l'équipe de projet du corridor de transport Ouest de la RGT. Ces éléments seront conservés afin d'être utilisés tout au long du projet et pourront être inclus dans la documentation du projet afin de répondre aux exigences de la *Loi sur les évaluations environnementales de l'Ontario*. L'information recueillie sera utilisée conformément à la *Loi sur l'accès à l'information et la protection de la vie privée* et à la *Loi sur l'accès à l'information*. Tous les commentaires, à l'exception des renseignements personnels, feront partie du dossier public. Si vous avez des exigences en matière d'accessibilité pour participer à ce projet, veuillez prendre contact avec l'équipe du projet. Pour contacter directement l'équipe du projet ou pour être ajouté à la liste de distribution, veuillez composer le numéro sans frais **1 877 522-6916**, envoyer un courriel à **project_team@gta-west.com**, ou écrire à l'équipe à l'une des adresses ci-dessous. Vous pouvez consulter l'information relative à l'étude sur le site Web du projet : **www.gta-west.com**. Des renseignements sont disponibles en français au 289 835-2484 (Yannick Garnier).

Jim Dowell, ing., chargé de projet de firme de conseils

WSP

610, rue Chartwell, bureau 300

Oakville (Ontario) L6J 4A5

Lukasz Grobel, ing., gestionnaire de projets du MTO

Ministère des Transports de l'Ontario, région du Centre

159, avenue Sir William Hearst, 4^e étage

Toronto (Ontario) M3M 0B7

THE CORPORATION OF THE TOWNSHIP OF LARDER LAKE

69 Fourth Avenue, Larder Lake, ON

Phone: 705-643-2158 Fax: 705-643-2311



MOVED BY:

☐ Thomas Armstrong
☒ Patricia Hull
☐ Paul Kelly
☐ Lynne Paquette

SECONDED BY:

☐ Thomas Armstrong
☒ Patricia Hull
☐ Paul Kelly
☐ Lynne Paquette

Motion #: 17

Resolution #: 17

Date: August 27, 2019

WHEREAS Council has discussed lobbying the provincial ministers to be allow for electronic delegation; And

WHEREAS Council feel that it is unjust to have to attend expensive conferences to be able to have a delegation with Ministers or the Premier; And

THEREFORE, Council request that the Ministers and the Premier offer electronic delegations to small and rural Municipalities that do not have sufficient budget to attend conferences; And

FURTHER THAT this resolution be sent to all Ontario Municipalities in order to request their support on the matter; And

FURTHER THAT this resolution be sent to the Premier and all the Ministries for their consideration.

Recorded vote requested: ☐

	For	Against
Tom Armstrong		
Patricia Hull		
Paul Kelly		
Lynne Paquette		
Patty Quinn		

Disclosure of Pecuniary Interest*

I declare this motion

<input checked="" type="checkbox"/> Carried
<input type="checkbox"/> Lost / Defeated
<input type="checkbox"/> Deferred to: _____ (enter date)
Because:
<input type="checkbox"/> Referred to: _____ (enter body)
Expected response: _____ (enter date)

Chair:

*Disclosed his/her (their) interest(s), abstained from discussion and did not vote on this question.



The County of Wellington Service Review

Final Project Charter

July 12, 2019



Project Overview – Background and Charter

Project Charter

- The purpose of this charter is to ensure clarity of expectations between consultant and client.
- This charter contains information on project objectives, governance, team, work plan, and project management.

Project Objectives – *How will we define success?*

KPMG has been engaged by the County of Wellington (the “County”) and its Member Municipalities to undertake an Operational Service Efficiency Review (the “Project” or “Service Review”) in response to the Provincial Modernization Grant. The overall objective of the Project is to conduct a complete a review of all operations within each Member Municipality to find efficiencies, operational savings and cost effectiveness without compromising the customers’ service experience. Our aim is to identify creative and innovative solutions that are realistic and practical for implementation to achieve greater efficiency and cost savings in service delivery.

The Operational Service Efficiency Review will take place in two phases. KPMG will assist in Phase 1 conducting a complete review of services and operations along with recommendations for obtaining efficiencies throughout the County and its Member Municipalities with a final report. Phase 2 will consist of the implementation of the recommendations identified in the Phase 1 report in 2020.

Specific project objectives include the following:

1. **Facilitate review** – Conduct a comprehensive review of services and operations along with recommendations for obtaining efficiencies throughout the County and its Member Municipalities through documentation review and stakeholder consultation. As part of this, consider all aspects of the County and its Member Municipalities’ services including delivery methods, service expenditure, revenue streams and high level benchmarking with comparator municipalities.
2. **Identify opportunities** – Identify and explore opportunities for sustainable approaches to service delivery and establishing and/or amending service levels.
3. **Advise on implementation** – Evaluate and categorize opportunities to develop recommendations for short-term, mid-term, and long-term priorities. Provide strategic guidance to leadership on implementation and prioritization of new, innovative and/or leading service delivery models that improve upon organizational efficiency while balancing stakeholder expectations. In addition, highlight the risks associated with each proposed change/option to inform management of the key factors and risks which should be considered during the decision making process.

Project Overview – Scope, Deliverables and Timing

Project Drivers - *Why are we doing this, what problem do we want to solve?*

- The County and its Member Municipalities are conducting an Operational Services Efficiency Review in response to the Provincial Modernization Grant, which aims to assist “small and rural municipalities’ efforts to become more efficient and reduce expenditure growth in the longer term.” Given the current review of the Regions and two Counties it is important to address the Provincial expectation of reviewing systems to find cost saving efficiencies.

Project Principles – *What is Important to Us?*

- We will leverage the knowledge and expertise of the County and its Member Municipalities’ management and employees as a foundation to conduct the Service Review and to arrive at recommended actions through a transparent, participative and inclusive process facilitated by the consultant.
- The framework and approach will be based on leading practice from municipal or other levels of government experience and/or private sector.
- While these reviews often go by many different names – including service efficiency reviews, value for money audits and cost saving studies – they all share the same goal: to determine if a municipality is delivering its services to its customers in the best possible manner and further, to determine if there are more efficient, effective or economical means to delivering municipal services. For simplicity, this will be called a ‘Service Review’.
- Lastly, this is not an audit. Phase 1 is a review to build on successes and identify opportunities to improve the efficiency of how the County and Member Municipalities deliver services to the community. Phase 2 will be implementation of the recommended opportunities identified and prioritized in Phase 1.

Project Timing

- The project will commence on July 12, 2019, and all engagement activities and deliverables will be completed and submitted to the County and its Member Municipalities on or before November 29, 2019, except for the final report presentation. Timing of the final report presentation will be subsequently determined by the County and its Member Municipalities.

Project Overview – Scope, Deliverables and Timing

Scope & Deliverables

- **Phase One: Project Initiation**

- Kick-off Meeting with Project Sponsor/Manager
- Project kick-off meeting with the Project Steering Committee
- Confirmed Project Charter and established bi-weekly status reporting structure
- Project Schedule/Gantt Chart

- **Phase Two: Environmental Scan**

- Documentation review that provides insight into the County and Member Municipalities' organization environment, financials, and services delivered
- Stakeholder engagement (5 interviews with each Member Municipality and 10 interviews with the County (including the Mayors))
- Benchmarking against 5 comparator municipalities for the County, Centre Wellington and rural Member Municipalities
- Kick off presentation to each municipal council (applicable County Council representative for each Member Municipality are welcome)
- Current State Summary (interviews/focus groups' findings and recommendations)

- **Phase Three: Current Service Delivery Model Review**

- Service Profiles for all County and Member Municipality services
- Individual meetings with the Member Municipalities to confirm service profile data
- Interim Report and presentation to Steering Committee and Member Municipalities

- **Phase Four: Opportunity Identification**

- Three half day working sessions with the Steering Committee to identify, rank and confirm opportunities
- Potential opportunities to achieve the most structurally and operationally effective service delivery model
- Draft recommendations on changes to services, programs, resources, and responsibilities, including whether specific services should be expanded, reduced, discontinued or delivered in an alternative manner
- Draft recommendations on the prioritization of services
- Quantification of financial implications of identified opportunities

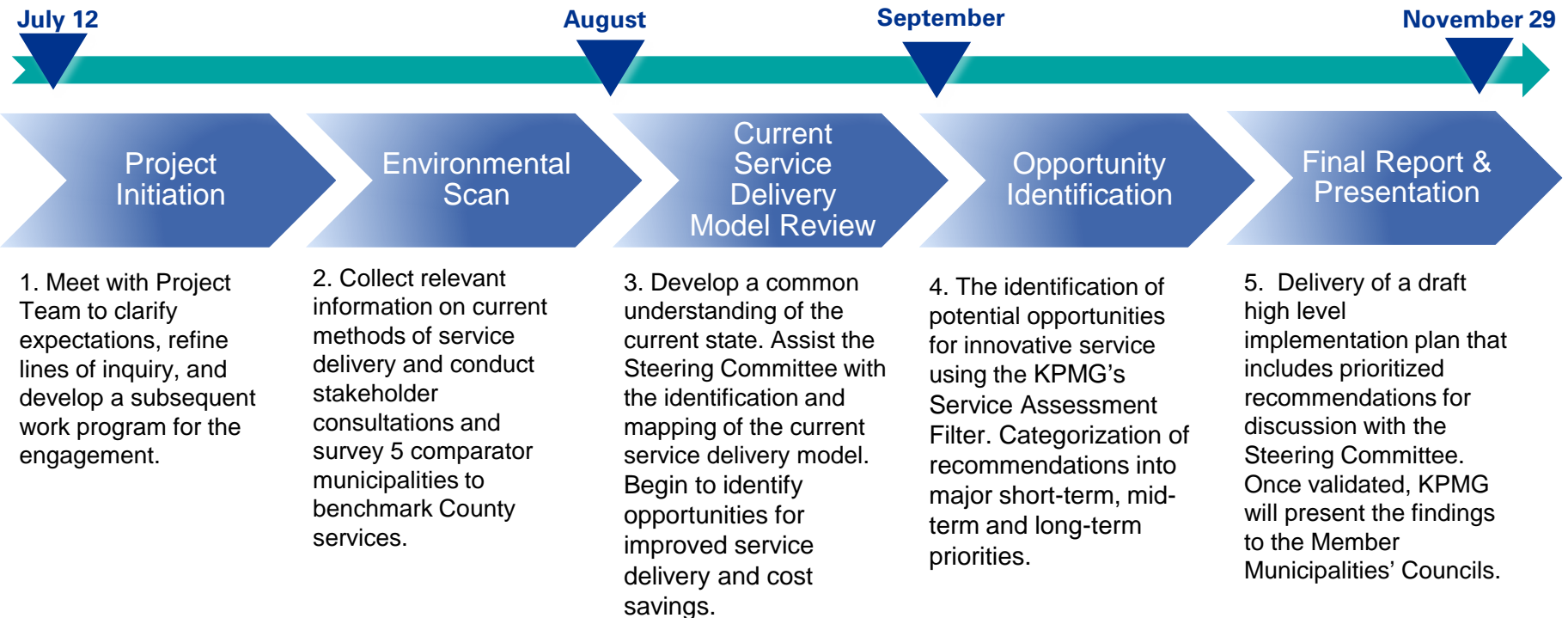
Project Overview – Scope, Deliverables and Timing

Scope & Deliverables (continued)

- **Phase Five: Final Report & Presentation**

- Finalized service profiles inventorying current services and delivery approaches
- Identification of key issues with property-centric services
- Specific recommendations with regard to changes in services, programs, resources, and responsibilities, including whether specific services should be expanded, reduced, discontinued or delivered in an alternate manner
- Quantification of financial implications of identified opportunities
- Identification of impacts for operations and service delivery resulting from recommendations, including clearly defined service levels
- Identification of recommended next steps
- Electronic versions of all project documents.

Project Charter Project Phases



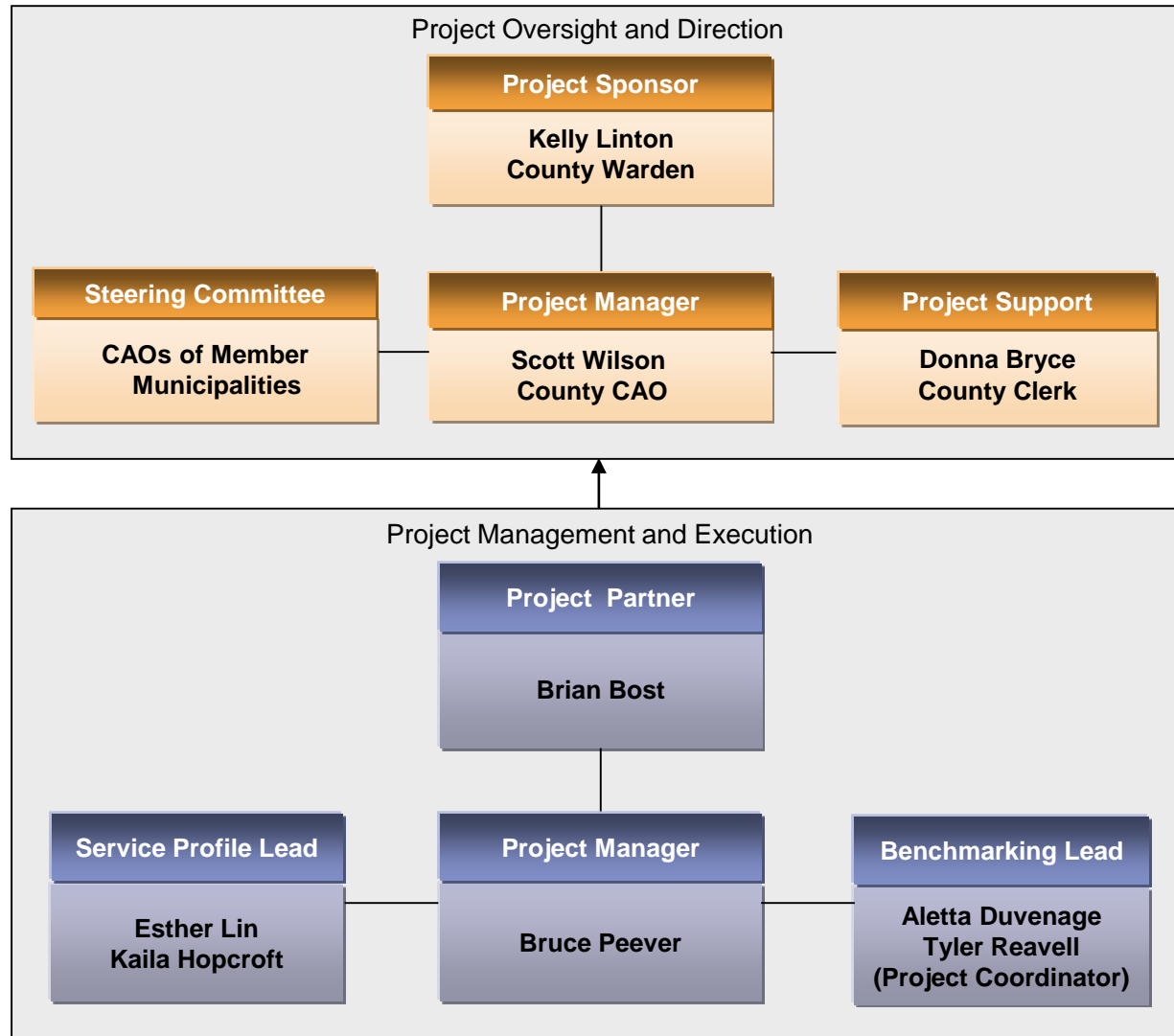
Project Schedule

Phase	Key Tasks and Deliverables		July					August					September					October					November				
		Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
	Overall budget and schedule management																										
	Regular meetings with Project Sponsor and Project Manager																										
1	Project Initiation																										
	Project kick-off meeting with Project Sponsor/Manager																										
	Project kick-off meeting with Project Management Team																										
	Develop Project Charter																										
	Develop Engagement Plans - Public & Stakeholders																										
2	Environmental Scan																										
	Documentation Review																										
	Stakeholder Engagement - Council Meetings																										
	Stakeholder Engagement - Municipal Interviews																										
	Benchmarking & Leading Practice Review																										
3	Current Service Delivery Model Review																										
	Service Profile Development																										
	Service Profile Validation																										
	Presentation of Interim Report to Steering Committee																										
	Reporting of Interim Report to Municipalities																										
3	Opportunity Identification																										
	Opportunity Identification Workshop																										
	Opportunity Ranking & Prioritizing Workshop																										
	Opportunity Categorizing & Confirmation																										
	Validation of Opportunities with Steering Committee																										
	Reporting of Opportunities to Municipalities																										
4	Final Report & Presentation																										
	Develop Draft Final Report																										
	Working Session to Review Final Report																										
	Incorporate Feedback																										
	Present Final Report to Councils																										

Dates of Project Meetings

Project Meetings	Date	Participants
Project Kick Off Meeting with Project Team	July 12	Steering Committee
Interviews	July and August – Target complete by August 30	Mayors, CAOs, Senior Management Team, and staff
Present Interim Report	September 16, 9:00 AM	Steering Committee
Present Interim Report	September 26	Council
Working Session to Identify & Rank Opportunities	October 7 9:00 AM	Steering Committee plus representatives of Member Municipalities
Working Session to Review & Prioritize Opportunities	October 22 Full Day	Steering Committee plus representatives of Member Municipalities
Working Session to Confirm Recommendations	October 28, 9:00 AM	Steering Committee plus representatives of Member Municipalities
Final Report Delivery	November 18, 9:00 AM	Steering Committee
Final Report Presentation	November 28	Council

Service Review Governance Structure



Steering Committee

- The Steering Committee is the key body within the governance structure that is responsible for guiding and monitoring the project on behalf of the County and its Member Municipalities.

Project Sponsor

- The Project Sponsor is the champion for the project and ensures the objectives and priorities of the County and its Member Municipalities are achieved at the conclusion of the project.

Project Manager (PM)

- The Project Manager is the individual with overall accountability for the project and provides the necessary leadership to achieve the project's goals. The PM ensures that the project stays on budget and schedule and that the consultant has the necessary information and support to complete the analysis and provide recommendations. All project communications are processed through the PM.

Project Support

- The Project Coordinator is an individual responsible for the day-to-day organization of the project reporting to the Project Manager.

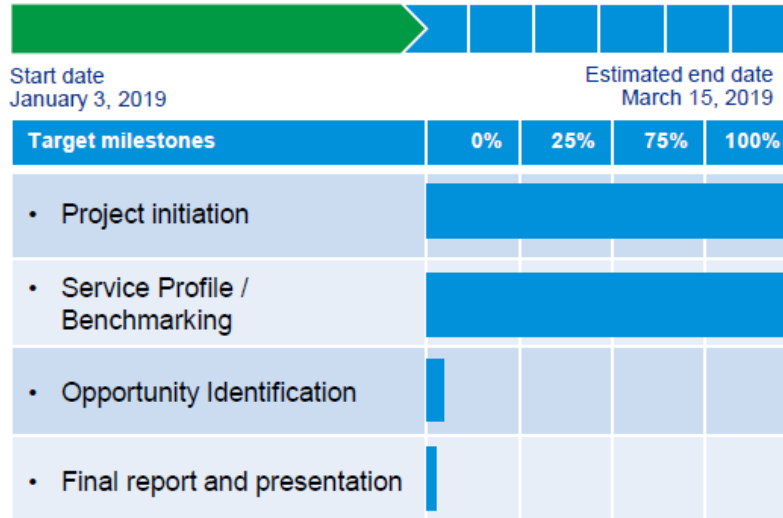
Status Reporting

- The KPMG project team will submit to the project manager a brief status report, based on the format presented in the following slide, on a bi-weekly basis.
- The status report may be followed up with a brief phone call should there be any risks or issues that need to be addressed.

Status Reporting – Sample for Illustrative Purposes

Overall status – 02/01/2019

Timeline



Project status

Overall **G** Schedule **G** Budget **G** Scope **G**

Legend:

G On schedule

Y Issues present but planning is underway to mitigate them

R Issues present which require immediate action to address them

Current week's accomplishments

- Presented draft Interim Report to Corporate Leadership Team on Feb 1, 2019, which includes Service Profile service level assessment, and benchmarking analysis of comparator municipalities.

Next steps / action items

- Initiate Phase 3 of Opportunity Identification –
 - Opportunity brainstorming session (Feb 7);
 - Opportunity criteria rating (Feb 11); and
 - Opportunity grouping and prioritization (Feb 21)
- Refine Interim Report data with any additional comments or data input from Corporate Leadership Team for final reporting.
- Prepare draft final report.

Outstanding issues and risks

- None

Deliverable Acceptance Process

- Deliverables presented in a scheduled and collaborative process
- KPMG team submits key draft deliverables to Project Manager for Client review
- Project Manager works with the Steering Committee / Project Team and other relevant stakeholders to consolidate feedback and suggestions and forwards them to KPMG project team
- Feedback to be provided within a period of 5 business days
- KPMG team incorporates feedback and resubmits to Project Manager
- Project Manager, working with the Steering Committee / Project Team, approves revised deliverables and signs off on them
- Upon the sign-off, deliverables are considered “final”

Service Review
KPMG Project Team

Brian Bost
Partner

613-212-2898
bbost@kpmg.ca

Bruce Peever
Director

905-523-2224
bpeever@kpmg.ca

Esther Lin
Manager

519-747-8291
estherlin@kpmg.ca

Aletta Duvenage
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Feasibility Study for Municipal Water and Sewage Servicing

Council Presentation

Location: Puslinch Municipal Office
7404 Wellington Road 34, Puslinch

September 18th 2019



TOWNSHIP OF
PUSLINCH
EST. 1850

Agenda

- Introductions
- Meeting Objectives
- Background and Scope of Feasibility Study
- High-level Potential Servicing Options
 - Intra-municipal servicing
 - Inter-municipal servicing
- Cost Recovery options
- Survey Response Results
- Questions

Feasibility Study Objective

- Assess viability of implementing municipal water and sewage servicing within the industrial and commercial urban areas in the Township
 - Review the high-level water and sewage servicing options being considered
 - Review the key advantages and disadvantages identified for each servicing option
- The Feasibility Study will provide the basis for proceeding (or not proceeding) with a Municipal Class EA Study that will be necessary before implementing any drinking water or sewage servicing solution

Current Conditions

- The Township is an attractive place for development
 - Go Transit access, close proximity to Guelph, natural setting and accessibility to major markets
- Limited opportunities for growth due to lack of servicing
 - As identified in the Community Based Strategic Plan completed for the Township and the Business Retention and Expansion Study completed for the County of Wellington
- Current servicing consist of individual on-site wells, septic systems as well as few private communal water and sewage systems

Scoped Study Area Limits

- Excludes residential properties
- Focus on industrial and commercial urban areas
 - Contains the highest concentrations of employment lands in the Township



Major Industrial and Commercial Users

- Including; food processing, concrete pipe manufacturer, water bottling and aggregate extraction
 - Royal Canin
 - Nestle
 - Capital Paving
 - Maple Leaf Foods
 - Con-Cast Pipe
 - Dufferin Aggregates

Preliminary Project Demands

Projected Employment Growth

Type	Projected Growth / Planning Period		
	2016	2036	2041
I&C – Total Employment ¹	4,020	5,160	5,630
<div>Notes:</div> <div>1. Projected Employment Growth as per Wellington County Official Plan May 6, 1999 (Last Revision September 1, 2016). Includes ‘no fixed place of work’ employment.</div>			

Preliminary Project Flows

Preliminary Future Water Demands 2041:

Type	Average Day Demands (m ³ /d)	Max. Day Demands (m ³ /d)
I&C Large Users ^{1,2}	31,000	52,704
Notes: 1. Includes a portion of existing employment. Employment numbers for study area to be confirmed with County of Wellington. Includes current water demands for large users – significantly < than ex. permitted capacity 2. Excludes demands from Nestle and CRH Canada Inc (formerly St Mary's Cement)		

Preliminary Future Sewage Flows 2041:

Type	Average Flow for Treatment (m ³ /d)	Peak Flows for Sewer Capacity (m ³ /d)
I&C Large Users ^{1,2,3}	2,027	6,479
Notes: 1. Future average day flows for large users assume a unit generation rate of 360 L/cap/cay. 2. 2. Future peak day flows assume an I&I rate of 10,110 L/ha/d and peak factor calculated based on Harmon Formula. 3. Includes existing gravel extraction areas that are excluded from current infiltration allowance calculations		

Summary

Preliminary Projected Water Demands and Sewage Flows

Type	Average Day Demands (m ³ /d)	Max. Day Demands (m ³ /d)
Water Demands	1,393	2,905
Sewage Flows	2,027	6,479
The preliminary water and wastewater demands are based on the projected employment population and exclude allowances for process water currently consumed by the large users. It is assumed that the large users will continue to source their individual process water demands from their current sources.		

High-level servicing options developed for consideration:

Intra-Municipal Servicing

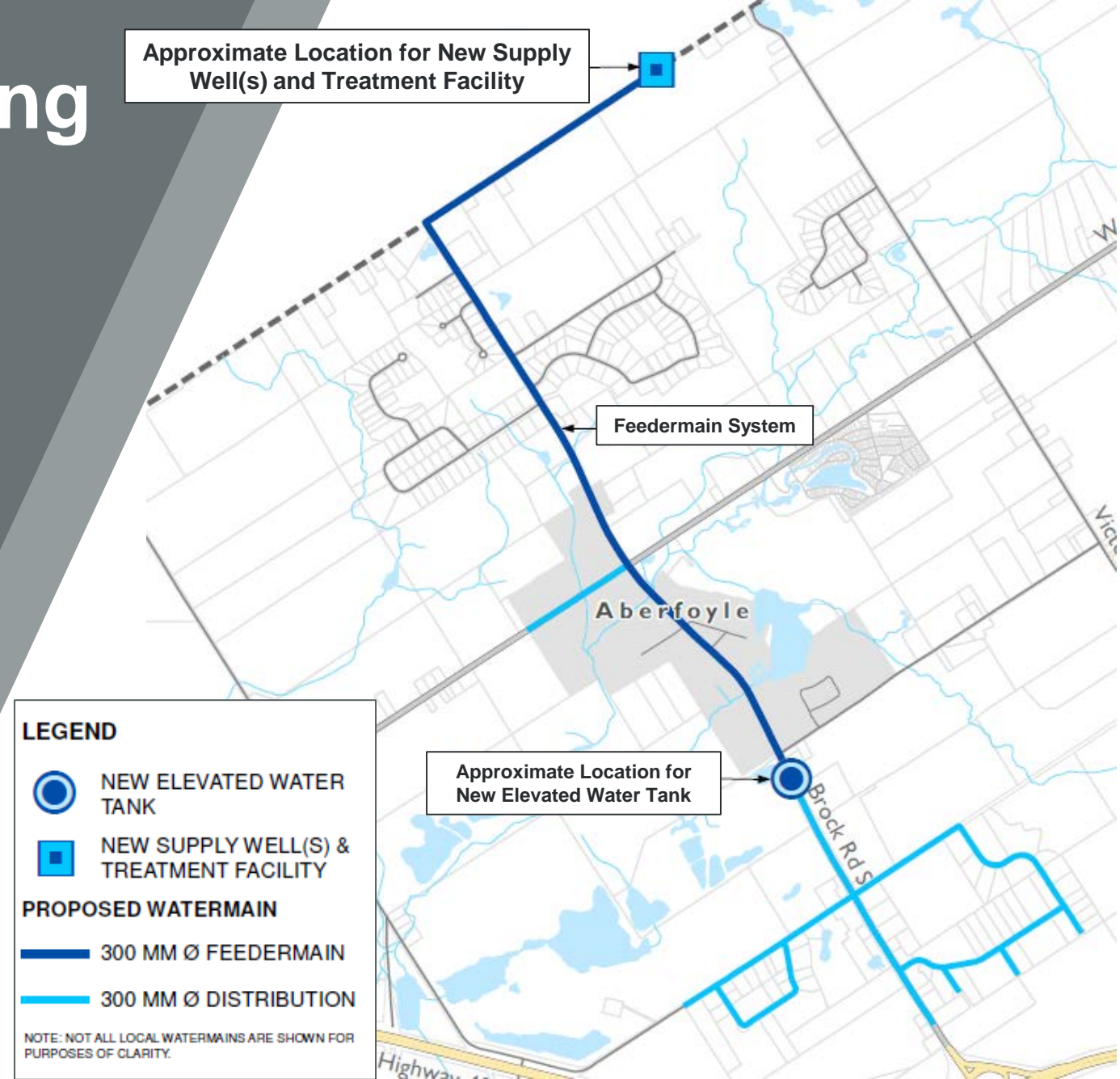
- *Provided by the Township*
- New municipal water system
 - New well(s), Treatment facility, Storage, Pumping, Distribution
- New municipal sewage system
 - New pumping station, Treatment system, Conveyance system

Inter-Municipal Servicing

- *Provided jointly by the Township and City of Guelph*
- Connection to City of Guelph Water supply and distribution system
- Connection to City of Guelph sewage collection and treatment system

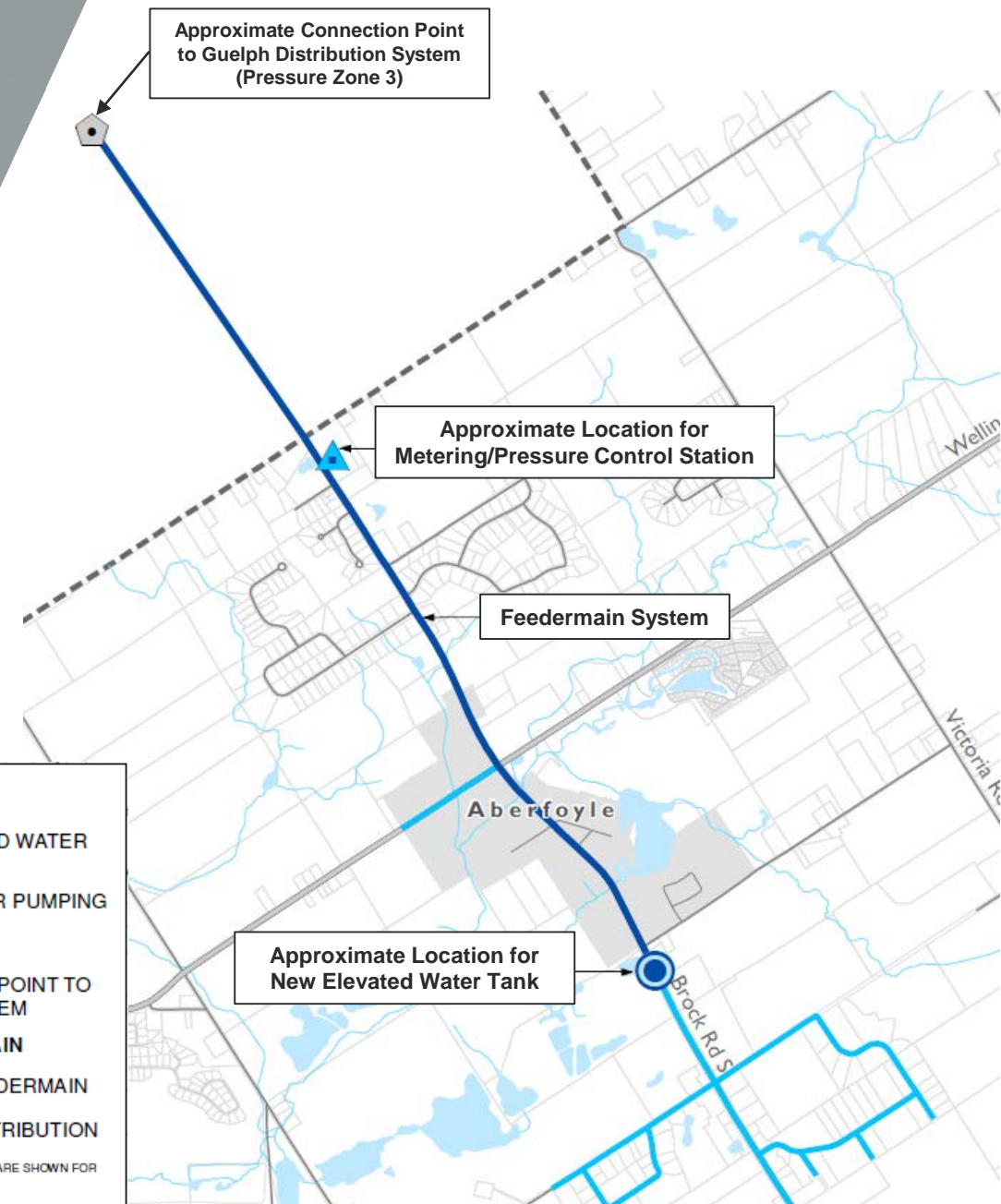
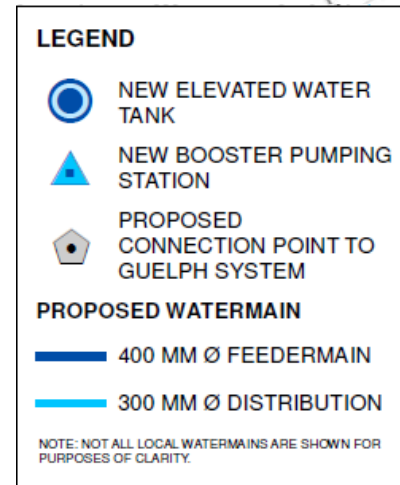
Option 1: Water Servicing Intra-Municipal

- Major components:
 - New groundwater supply source
 - New water treatment facility
 - New distribution system
 - New storage facility
 - Note: location of well subject to further review during subsequent EA Study
- High-level estimated construction cost:
 - \$23 million



Option 2: Water Servicing Inter-Municipal

- Major components:
 - Connect directly to CofG distribution system
 - New metering facility and potential pressure control station
 - New storage facility
 - New distribution system
- High-level estimated construction cost:
 - \$20 million
 - Note: estimate does not include any costs to upgrade Guelph infrastructure



Water Servicing – Preliminary Capital Cost Estimate

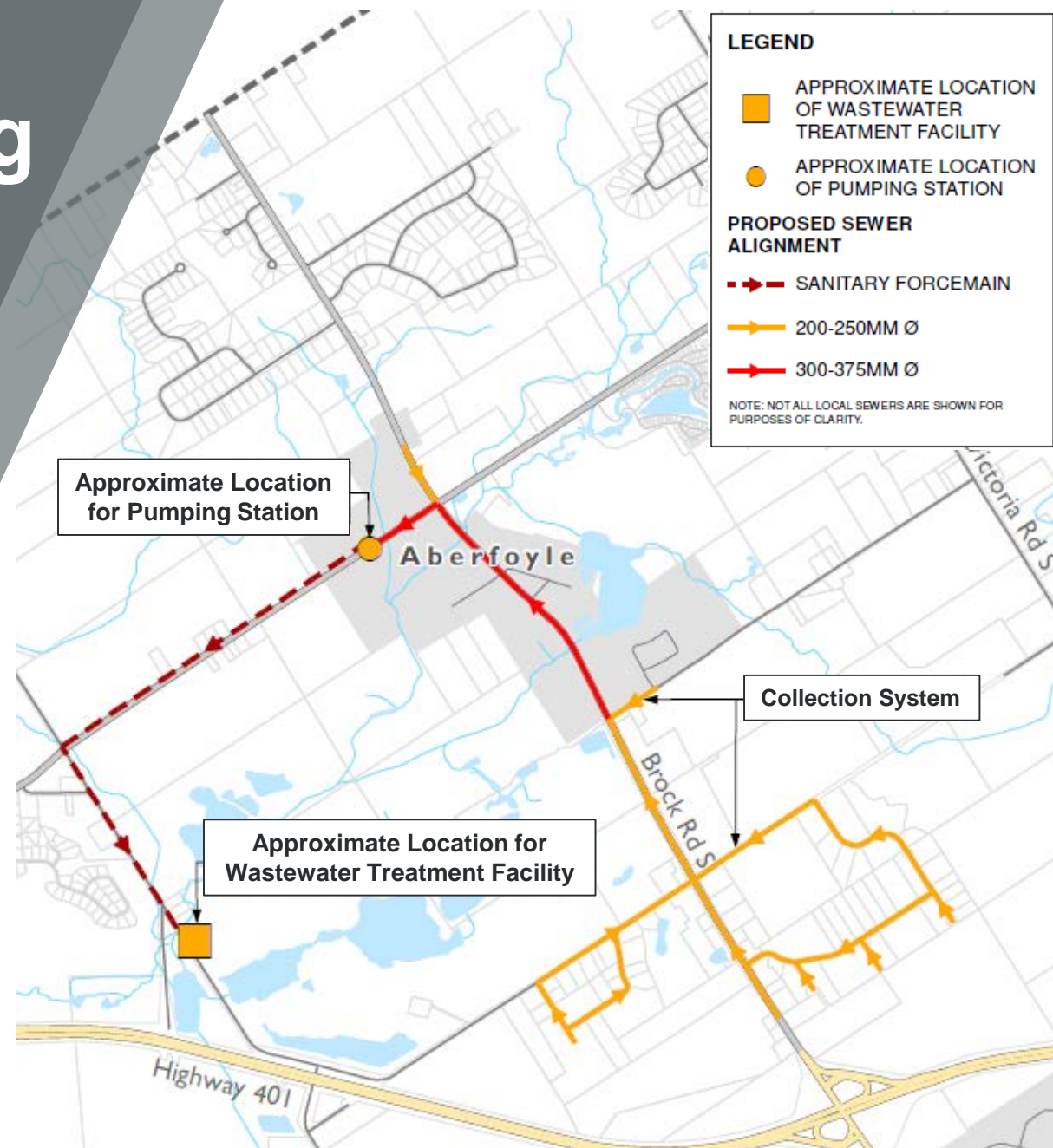
ITEM	OPTION 1 INTER-MUNICIPAL	OPTION 2 INTRA-MUNICIPAL
Construction		
Water Supply and Treatment	\$3.71	\$0.38
Water Storage Facility	\$3.50	\$3.50
Metering/Pressure Control Facility	N/A	\$1.50
Watermains	\$11.80	\$11.45
Sub-Total Construction	\$15.81	\$13.77
Land	\$0.60	\$0.45
Contingency (20%)	\$3.16	\$2.75
Engineering (15%)	\$2.37	\$2.06
TOTAL – Estimated Capital Cost	\$22.93	\$19.97
Estimated Annual O&M Cost	\$0.504	\$0.095

Notes:

1. Costs are presented in \$ millions, in 2019 CAD
2. Intra-municipal costs exclude any capital contribution costs to Guelph, or any bulk water supply costs. Costs to be established through negotiations with Guelph

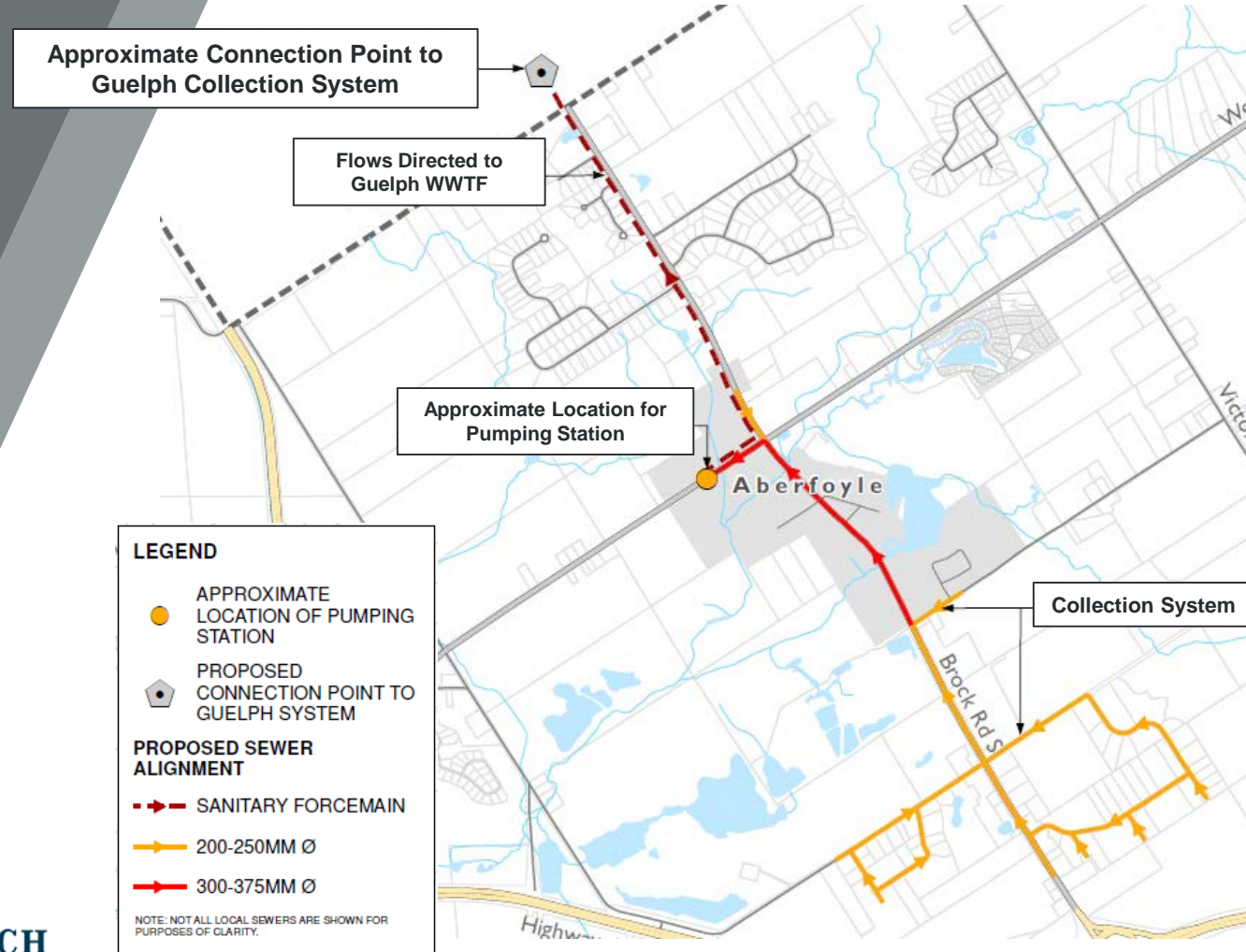
Option 1: Sewage Servicing Intra-Municipal

- Major components:
 - New gravity collection system
 - New pumping station
 - New wastewater treatment facility
 - Effluent discharge to Mill Creek (will be subject to an Assimilative Capacity Study)
- High-level estimated construction cost:
 - \$29 million



Option 2: Sewage Servicing Inter-Municipal

- Major components:
 - New gravity collection system
 - New pumping station
 - Discharge into the Guelph collection system for further treatment and disposal
- High-level estimated construction cost:
 - \$12 million
 - Note: does not include costs to upgrade Guelph Infrastructure



Wastewater Servicing – Preliminary Capital Cost Estimate

ITEM	OPTION 1 INTER-MUNICIPAL	OPTION 2 INTRA-MUNICIPAL
Construction		
Treatment and Disposal	\$13.12	See note 2.
Pumping	\$1.26	\$1.56
Collection (sewers)	\$5.29	\$5.29
Sub-Total - Construction	\$25.24	\$11.68
Land	\$0.60	\$0.45
Contingency (@ 20%)	\$4.20	\$1.69
Engineering (@ 15%)	\$3.78	\$1.52
Total – Estimated Capital Cost (excl. HST)	\$29.03	\$11.68
Estimated Annual O&M Cost (excl. HST)	\$0.71	\$0.16

Notes:

1. Costs are presented in \$ millions, in 2019 CAD
2. Intra-municipal costs exclude any capital contribution costs to Guelph. These Costs are to be established through negotiations with Guelph

Cost Recovery Options

	PRELIMINARY COST RECOVERY OPTIONS							
	WATER SERVICING				WASTEWATER SERVICING			
	OPTION 1		OPTION 2		OPTION 1		OPTION 2	
ASSUME NO FUNDING								
CAPITAL COST	\$22,935,500		\$19,976,700		\$29,036,580		\$11,683,080	
Average Servicing Cost Per Unit (128 connections)	\$179,184		\$156,068		\$226,848		\$91,274	
	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost
Estimated Cost - 10 Year Payback (4.0%)	\$1,814	\$21,770	\$1,580	\$18,961	\$2,297	\$27,561	\$924	\$11,089
Estimated Cost - 15 Year Payback (4.0%)	\$1,325	\$15,905	\$1,154	\$13,853	\$1,678	\$20,136	\$675	\$8,102
Estimated Cost - 20 Year Payback (4.0%)	\$1,086	\$13,030	\$946	\$11,349	\$1,375	\$16,496	\$553	\$6,637
ASSUME 2/3 FUNDING								
CAPITAL COST	\$22,935,500		\$19,976,700		\$29,036,580		\$11,683,080	
SUBSIDIZED COST	\$7,645,167		\$6,658,900		\$9,678,860		\$3,894,360	
Average Servicing Cost Per Unit (128 connections)	\$59,728		\$52,023		\$75,616		\$30,452	
	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost
Estimated Cost - 10 Year Payback (4.0%)	\$605	\$7,257	\$527	\$6,320	\$766	\$9,187	\$308	\$3,696
Estimated Cost - 15 Year Payback (4.0%)	\$442	\$5,302	\$385	\$4,618	\$559	\$6,712	\$225	\$2,701
Estimated Cost - 20 Year Payback (4.0%)	\$362	\$4,343	\$315	\$3,783	\$458	\$5,499	\$184	\$2,212

Notes:

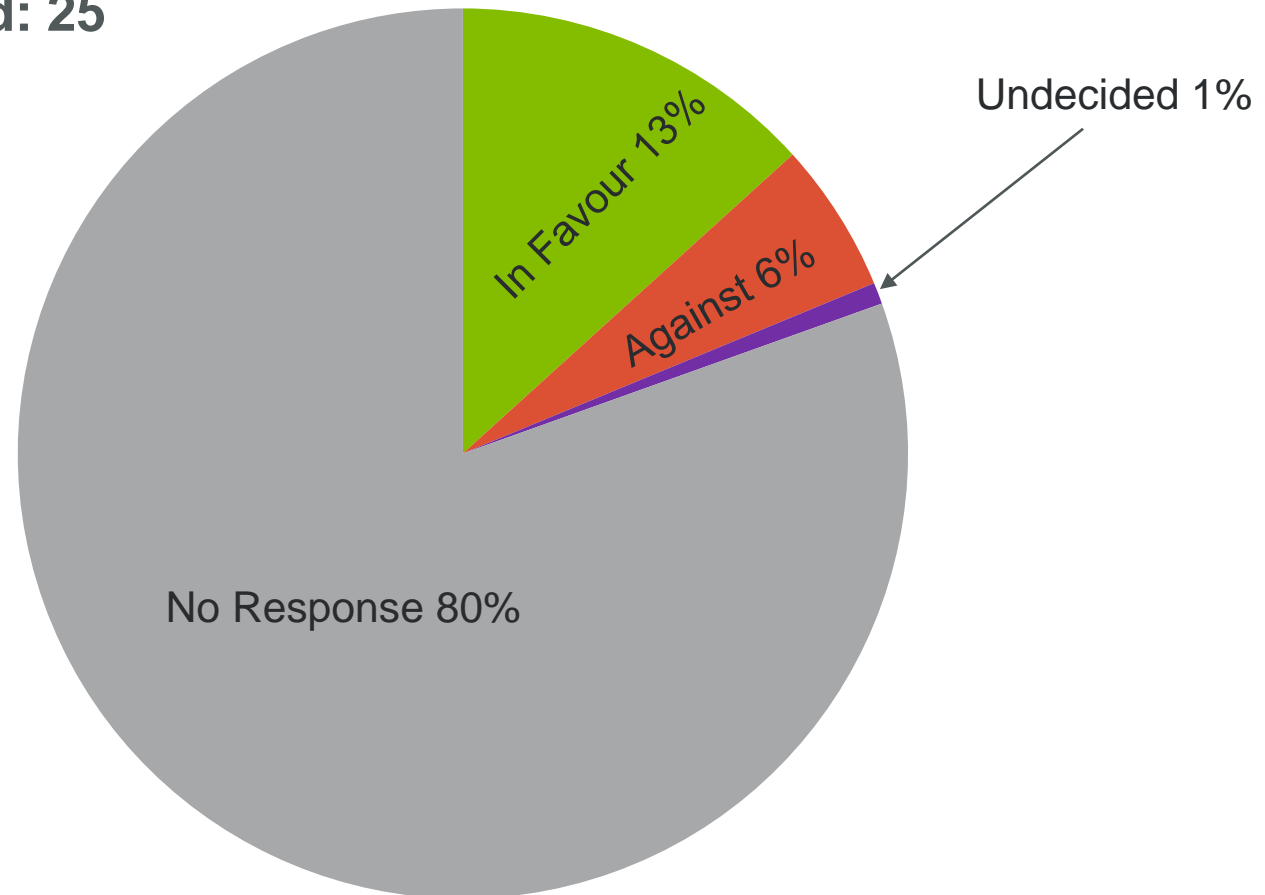
1. Payback amounts exclude Administration Fees (if any) charged by the Township to administer the loans
2. Final Cost Recovery Plan to be established through further Study as part of the Class EA Study

PIC Survey Response Summary - Combined Interest (Commercial + Industrial)

Number of Surveys Distributed: 128

Number of Responses Submitted: 25

- In Favour: 17
- Against: 7
- Undecided: 1
- No Response: 103



Questions?





REPORT FIN-2019-029

TO: Mayor and Members of Council

FROM: Mary Hasan, Director of Finance/Treasurer

MEETING DATE: September 18, 2019

SUBJECT: Community Benefits Charge – Bill 108
File No.: L11 MIN

RECOMMENDATIONS

THAT Report FIN-2019-029 regarding the Community Benefits Charge – Bill 108 be received.

Background

Bill 108, the More Homes, More Choice Act received Royal Assent on June 6, 2019 and included amendments to the Development Charges Act and the Planning Act. Many of the changes have yet to be proclaimed and some also require regulations or amendments to implement.

Purpose

The purpose of this report is to provide Council with an update on Bill 108.

Staff Update

The Township sent correspondence to John Ballantine from the Ministry of Municipal Affairs and Housing on May 31, 2019 based on Council's direction. The correspondence submitted by the Township supported the comments outlined in the communication from Watson & Associates dated May 29, 2019 regarding "Bill 108: Potential Changes to the Development Charges Act."

The Township sent further correspondence to John Ballantine from the Ministry of Municipal Affairs and Housing on August 16, 2019 based on Council's direction. This further correspondence submitted by the Township supported the comments outlined in the communications from Watson & Associates dated July 25, 2019 and the Municipal Finance Officers' Association of Ontario dated August 4, 2019 with respect to Bill 108 draft regulations for the Development Charges Act and Planning Act (Community Benefits Charge (CBC) Related).

Township staff received a request to complete a survey from the Ministry of Municipal Affairs and Housing on August 16, 2019 to provide information related to the Township's existing parkland dedication revenues, density bonusing revenues, and development charges for discounted services. The Township completed and submitted the survey on August 28, 2019 which outlined the current amounts received in cash in lieu of parkland and development charges for discounted services for each residential and non-residential development in the Township.

The correspondence received indicated that the province is committed to ongoing consultations with municipalities including that a priority area for consultation is the development of percentages of land value associated with the CBC to establish the maximum amount of CBC's payable. The province indicated that an important objective in the development of the prescribed percentages is to ensure municipalities are able to recover as much revenue from CBC's as they would have from density bonusing, parkland dedication, and development charges for discounted services.

Financial Implications

Discussed throughout the Report.

Applicable Legislation and Requirements

Development Charges Act

Planning Act

Attachments

None

TOWNSHIP OF PUSLINCH

ADDENDUM TO THE FEASIBILITY STUDY FOR WATER AND SEWAGE SERVICING IN THE TOWNSHIP OF PUSLINCH

August 26, 2019

2017-01 / T000866A

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Revision History

Version	Date	Prepared by (Deliverable Lead)	QC Reviewer	Project Manager Sign-off
v01	May 10, 2019	A. Laleva	S. Winchester	
e01	May 27, 2019	A. Laleva	S. Winchester	
e02	June 3, 2019	A. Laleva	S. Winchester	
e03	August 2, 2019	A. Laleva	S. Winchester	
e04	August 26, 2019	A. Laleva	S. Winchester	

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Appendix B – Probable Costs Estimates – Detailed Calculations

Appendix C – Preliminary Cost Recovery Estimates – Detailed Calculations

Appendix D – Public Information Centre Information

Appendix E – Response to PIC Comments

1. Introduction

1.1 Background

In 2018, the Township completed a Feasibility Study for Water and Sewage Servicing in the Township of Puslinch. The Original Study Area for the Feasibility Study included all properties, including both Residential and Employment lands, in an area bounded on the west by Highway 6 North (Hanlon Parkway), to the north by the City of Guelph, to the east by Victoria Road South, and to the south by Highway 401, but also including the community of Morriston, as shown in Figure 1. During the course of the Feasibility Study, significant objections were raised, in particular from the residential property Owners within the Original Study Area.

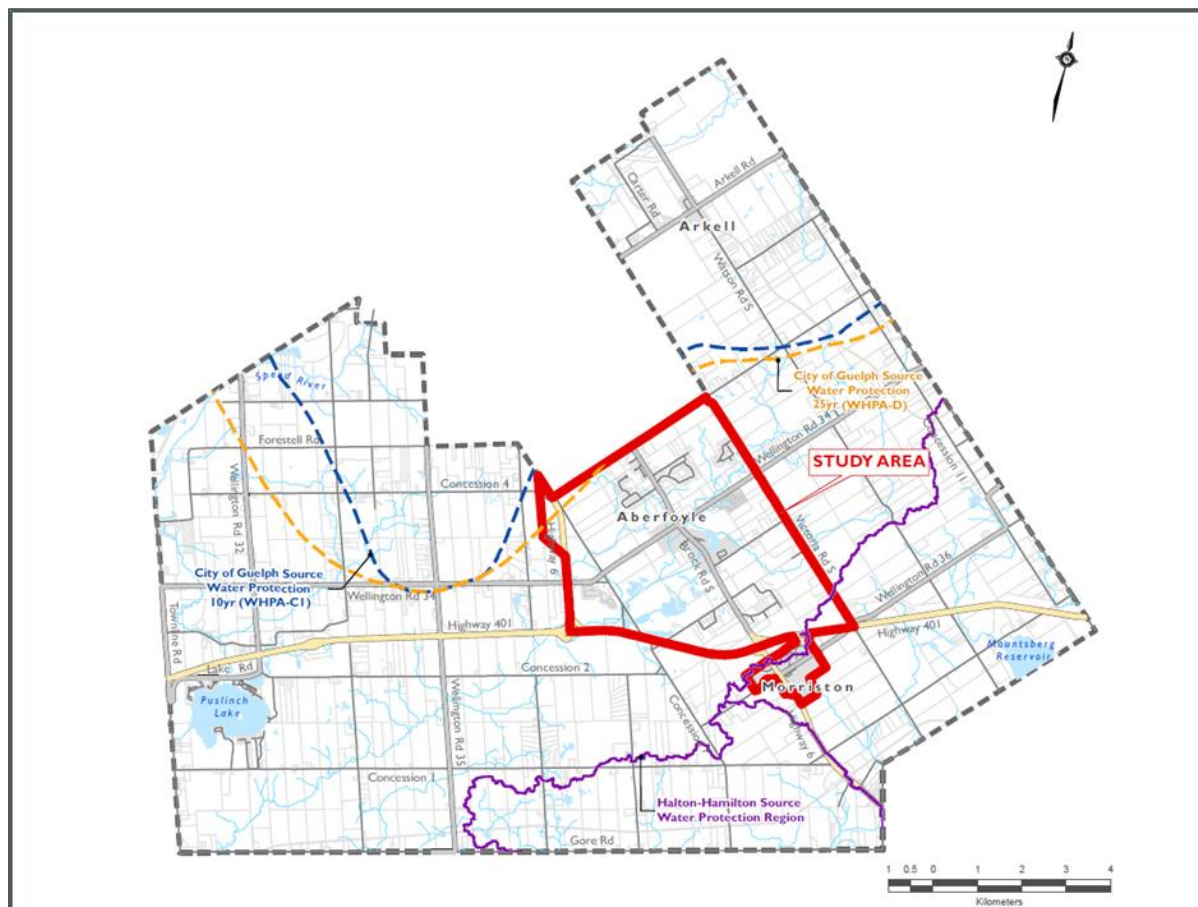


Figure 1: Original Study Area Map

In response to the concerns raised by the residential property owners within the Original Study Area, the Township decided to proceed with undertaking an additional Study, with a reduced Study Area and scope. The Township is now undertaking an Addendum to the Feasibility Study to assess the viability of implementing municipal water and sewage services for commercial and industrial properties bounded on the west by Concession 7 and Sideroad 25 N, to the south by Highway 401 and irregular boundaries (see Figure 2 Scoped Study Area Map).

Currently, water and sewage services in the Township consist of individual on-site wells and septic systems, as well as a few small and private communal water and sewage systems servicing individual developments.

The Township is surrounded by growing urban centres on all four sides with increasing demands for resources and land. The natural setting surrounding the Township and its accessibility to major markets and urban centres make this area an attractive place for development. Realizing this potential and the limitations on opportunities for growth resulting from lack of servicing, the need to assess the viability of implementing municipal water and sewage services to support the development of employment lands within the Township was identified.

1.2 Purpose of this Report

This Addendum to the original Feasibility Study Report (*Feasibility Study for Municipal Water and Sewage Servicing in the Township of Puslinch*, dated May 8, 2018) describes the key activities that have been undertaken as part of this assignment and the preliminary results of the additional study, including:

- A description of the scoped project Scoped Study Area; including current land use designations, employment projections, plans for future growth and development; and overview of existing key users;
- Development of preliminary estimates of future water demands and sewage flows for the Scoped Study Area based on analysis of existing available information and general design criteria, as recommended by the Ministry of the Environment, Conservation and Parks (MECP) for drinking water and sewage systems;
- Development of high-level water and sewage servicing options, including major infrastructure requirements and estimates of probable cost associated with each option;
- Results of high-level assessment of water and sewage servicing options, including key advantages and disadvantages for each servicing option considered in the study;
- A review of potential cost recovery tools available to fund the capital works associated with the servicing options and a preliminary assessment of the upfront and annual costs of each option.

2. Addendum Project Scoped Study Area

2.1 Overview

The Township of Puslinch is located in south-central Ontario in Wellington County, generally southeast of the City of Guelph. The Township, along with six other lower tier municipalities, make up the County of Wellington.

A potential servicing area has been delineated to comprise Water and Wastewater Services for the Industrial and Commercial users along Brock road in Aberfoyle and between Aberfoyle and Highway 401, as shown below in Figure 2.

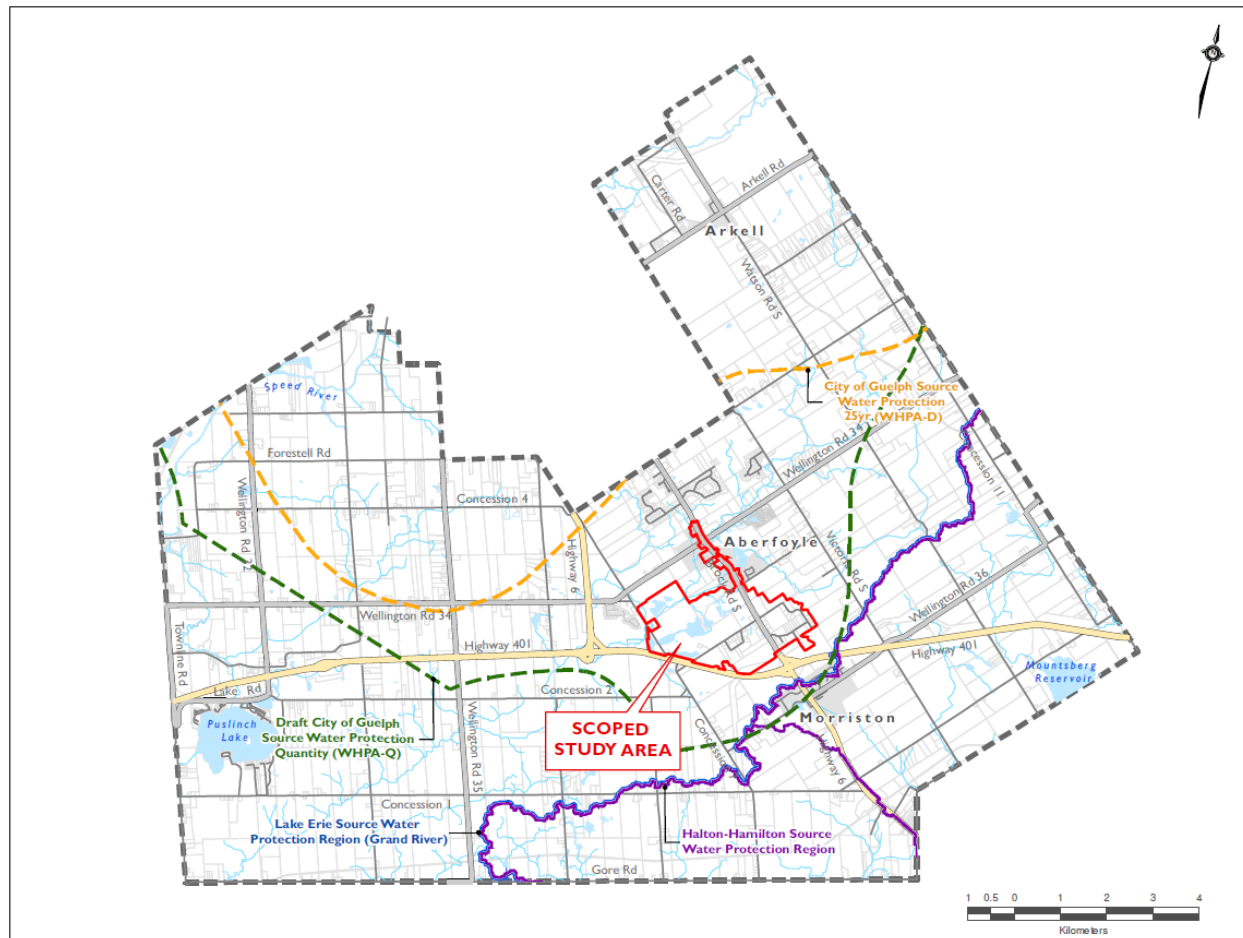


Figure 2: Scoped Study Area Map

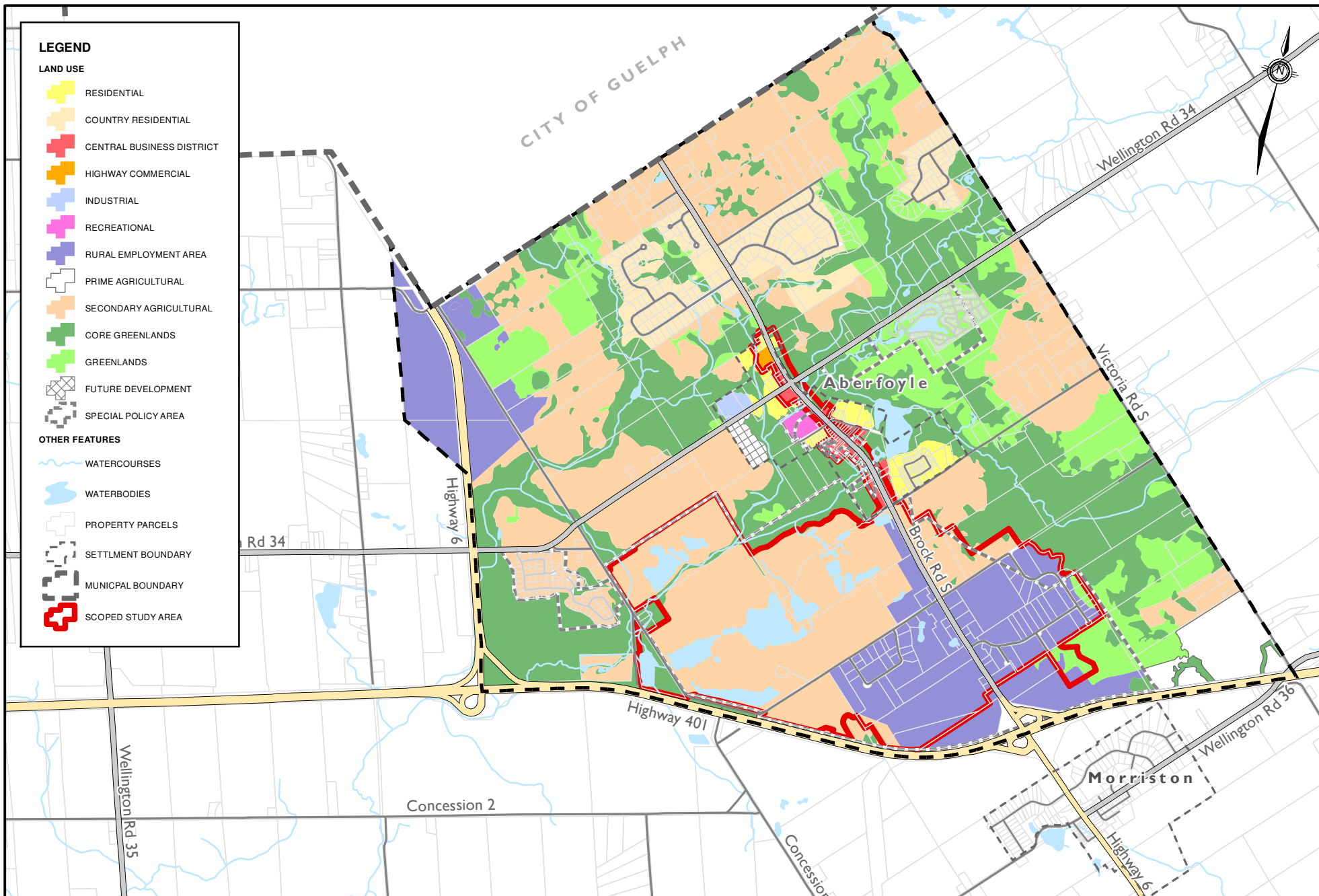
2.2 Commercial and Industrial Land Uses



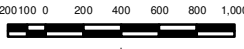
The County of Wellington provides Planning Services for all growth and development related issues for the Township of Puslinch. The County has developed the County Official Plan (OP), which is used to guide all land use, growth strategies and servicing decisions for the Township. Existing land use designations within the Scoped Study Area are graphically presented in Figure 3.

The Scoped Study Area contains the highest concentrations of employment lands in the Township. In general, the land uses are varied due to historic development patterns and influences of the nearby City of Guelph and major transportation corridors of Highway 401, Highway 6 north and south and Brock Road (the busiest County road in Wellington).

Aberfoyle's designated central business district is along Brock Road and is one focus of the potential servicing area. There is also a highway commercial parcel north of Wellington Road 34.

A major focus of the Scoped Study Area includes the rural employment area and Puslinch economic development area (PA7-1) designations north of Highway 401 and east and west of Brock Road South. With consideration to expand Go Transit access, this is the predominant location for business and industry in the Township.



	<p>CLIENT</p>  <p>TOWNSHIP OF PUSLINCH 1997</p>	<p>SCALE</p>  <p>200 100 0 200 400 600 800 1,000 meters 1:40,000</p>	<p>PROJECT NAME: FEASIBILITY STUDY FOR WATER AND SEWAGE SERVICING IN THE TOWNSHIP OF PUSLINCH</p> <p>SHEET TITLE: LAND USES</p>	<p>PROJECT No: T000866A</p> <p>DRAFTER: S. ELLIOTT</p> <p>APPROVER: S. RODRIGUEZ</p> <p>DATE: 5/24/2019</p>	<p>CLIENT FILE No: ---</p> <p>DRAWING No: 2</p> <p>SHEET No: 1 of 1</p>
-------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------

2.3 Source Water Protection Areas

The City of Guelph Wellhead Protection Areas extend into the Scoped Study Area (see Figure 2). The City of Guelph Wellhead Protection Areas (WHPA), corresponding to the 25-year time of travel, extend into the northwest portions of the Scoped Study Area. The WHPA's do not impact the employment lands under consideration as part of this Study.

Under the Guelph/Guelph-Eramosa Tier 3 Wellhead Protection Study, a draft Protection Area for Water Quantity (WHPA-Q) has been identified. The WHPA-Q covers the majority of the Scoped Study Area. Although policies are not in place yet, it is anticipated that there will be requirements on any new or renewed PTTW in the area, including any new municipal wells for the Township or City in the WHPA-Q.

In the event that the Township proceeds to develop a municipal Water system for the Scoped Study Area and develops new supply wells, new Well Head Protection Areas for Quality (A through D) will need to be created.

2.4 Population and Planning Projections

Projected growth within the Scoped Study Area has been set out in the County's Official Plan (OP).

According to the County OP, the majority of growth within the County will be directed to urban centers that offer municipal water and sewer servicing and, to a limited extent, to those urban centres and hamlets that offer partial, private communal, or individual on-site services. While there is anticipated residential growth in Aberfoyle and the surrounding areas, for the purpose of this addendum, the Scoped Study Area will only account for the projected water and sewage demands resulting from existing and planned development of employment lands.

For the purposes of this Study, it has been assumed that all Employment Growth identified within the County Official Plan will occur within the Aberfoyle service area. This assumption is considered to be reasonable since fully serviced employment lands would typically be more attractive to development, and that potential development of Employment Lands outside of the serviced area would likely be discouraged by the Township. Employment projections for the Scoped Study Area are shown in Table 1 below.

Table 1: Projected Employment Growth – Township of Puslinch

	Projected Growth / Planning Period ¹		
	2016	2036	2041
Total Employment	4,020	5,160	5,630
1. Projected Employment Growth as per Wellington County Official Plan May 6, 1999 (Last Revision June 1, 2018). Includes 'no fixed place of work' employment.			

2.5 Employment Projections

Based on the information provided by the County of Wellington, the 2016 employment population within the Scoped Study Area was estimated to be 2,224 persons, representing approximately 55% of the total employment population within the Township. For the purposes of this Feasibility Study, and based on discussions with staff from the County of Wellington, the following assumptions have been made:

- The 2016 industrial employment within the Scoped Study Area of 2,224 persons were employed by the major water users known to exist in the Scoped Study Area. As such, water demands from the 2016 employment population, have been captured in the water demands provided by the large users.
- As identified above, the projected employment growth of approximately 1,610 jobs by 2041 has been assumed to occur wholly within the Scoped Study Area. For the purposes of this Study, it is assumed that the Township will direct all development of Employment lands to the Aberfoyle service area. This projected employment growth within the scoped study area will include primary, work at home, industrial, commercial, institutional and no-fixed-place-of-work job types.

The assumptions noted above are considered conservative but adequate for the level of detail required in the Feasibility Study. Actual employment numbers within the existing users will need to be verified, should the project proceed beyond the Feasibility Study stage.

3. Existing Water and Sewage Services

Municipal servicing is currently not available in the Township. Water and sewage services in the Scoped Study Area currently consist of individual on-site wells, septic systems and a few on-site small and private communal water and sewage systems. The Township has an active role in monitoring the operation and efficiency of these private systems; however, all aspects of operation, monitoring, maintenance and repairs associated with private systems, are ultimately, the responsibility of the systems' owner.

Permits to Take Water (PTTW) issued by the Ontario Ministry of Environment, Conservation and Parks (MECP) require that each permit holder measure and record volumes and rates of water taken each day. Such records shall be submitted every year to the Ministry's Water Taking Reporting System (WTRS).

3.1 Industrial and Commercial Uses

As part of the original Study in 2018, all major industrial and commercial users within the Scoped Study Area were contacted directly and requested to provide the most up-to-date water and sewage usage data, including the latest water volumes reported to the Ministry's WTRS. The following section of this report presents a summary of water usage/consumption for each of the major large users within the Scoped Study Area, as per available operating records and

data provided to CIMA+ for 2015 and/or 2016. Large users are not required to monitor or measure sewage flows, and thus this information was not readily available. Sewage information that was provided to CIMA+, when measured and recorded by the user, has been included in the corresponding section for each major user.

The major industrial and commercial large water users within the Scoped Study Area, along with their permitted water takings, are listed below in Table 2. A brief overview of each of the large users and their reported water demands/consumptions are summarized in the following sections.

Table 2: Major Industrial and Commercial Users

ID	User Name	Usage Type	PTTW #	Max. Taking as per PTTW (L/s)	
				L/s	m³/d
1	Royal Canin Canada Company	Food processing	3782-AB6MMX	2.8	240
2	Con-Cast Pipe Inc.	Concrete pipe manufacturer	8724-9GFPQE	5.2	450
3	Maple Leaf Foods – Morguard Brock McLean Limited	Distribution centre	7431-96LRQ6	7.6	654
4	Nestle Canada Inc.	Water Bottling	1381-95ATPY	41.7	3,600
5	Dufferin Aggregates – CRH Canada Group Inc.	Aggregate extraction	7510-A34KZH	94.7	8,183
6	Capital Paving Inc.	Aggregate producers	4373-8TXQK3	212.6	18,371
7	CBM Aggregates – St. Mary's Cement	Aggregate extraction	5550-9V7HXS	272.8	23,568
			7028-7LTNV9	272.8	23,568
Total Industrial and Commercial Max. Permitted Taking =				910	78,634

3.1.1 Royal Canin Canada Company

Royal Canin is a pet food manufacturer located within the rural employment designated area, north of Highway 401 and east of Brock Road South. This facility uses water and generates both process and sanitary sewage. Their reported water usage is summarized in Table 3 below.

Table 3: Royal Canin Canada – Water Usage

Water Source	Reported Average Water Taking ¹		Max. PTTW Taking	Actual Taken / PTTW
	m ³ /d	L/s	L/s	%
Well PW-1	93.8	1.1	2.8	39%
1. Two-year average usage based on reported 2015 and 2016 data.				

Royal Canin uses separate sewage treatment systems for its process and domestic sewage. The amended ECA #1042-A3QQRY, allows a discharge of 30 m³/d of treated process and domestic flows for subsurface disposal. The process sewage treatment system consists of a 40 m³ equalization tank and a dissolved air flotation unit. A membrane bioreactor (rated treatment capacity of 75 m³/d) is approved to be incorporated into the existing process sewage treatment system, as well as a UV disinfection unit and osmosis unit for reuse of water for operations. The domestic sewage treatment system consists of a pump station, a sequencing batch reactor (SBR) (rated treatment capacity of 30 m³/d), and a sand filter (the filter is approved to be replaced with a drum filter). Both treated process and domestic sewage discharges to a shallow buried trench system that is laid out in two beds.

The average process and domestic sewage discharged for subsurface disposal by this facility are summarized in Table 4 below.

Table 4: Royal Canin Canada – Sewage Generation

Sewage Source	Reported Average Sewage Generation ¹		System Rated Capacity	Actual Generation / Rated Capacity
	m ³ /d	L/s	m ³ /d	%
Process and domestic sewage to buried trench	42	0.54	30	140%
1. One-year average sewage generation based on 2016 data.				

3.1.2 Con-Cast Pipe Inc.

Con-Cast Pipe Inc. is a precast concrete products manufacturer. The manufacturing facility is located within the rural employment designated area, north of Highway 401 and west of Brock Road South. Their footprint comprises a dry cast facility of approximately 120,000 square foot and a wet cast facility of approximately 30,000 square foot. Their report water usage is summarized in Table 5 below.

Table 5: Con-Cast Pipe Inc. – Water Usage

Water Source	Reported Average Water Taking ¹		Max. PTTW Taking	Actual Taken / PTTW
	m³/d	L/s	L/s	%
Well WSW 1	245.3	2.8	5.2	55%
Well WSW 2				
1. Two-year average usage based on reported 2015 and 2016 data.				

Con-Cast Pipe Inc. is allowed under Amended ECA #3621-6HRKGC to treat and dispose of process sewage at an average flow of 5.66 m³/d from its pre-cast concrete manufacturing facility. The treated process sewage is discharged to one of two on-site infiltration ponds. Based on information provided by Con-Cast Pipe Inc., process sewage flows are not monitored.

3.1.3 Maple Leaf Foods – Morguard Brock McLean Limited

Maple Leaf Foods has a distribution centre within the Township that distributes the company's prepared meats throughout central and eastern Ontario. Schenker Canada operates the distribution centre on behalf of Maple Leaf Foods. Based on information received from Schenker Canada, the water is used for the cooling tower/condenser and the sprinkler; however, their water use is restricted based on the capacity of their septic bed. Their reported water usage is summarized in Table 6 below.

Table 6: Maple Leaf Foods – Water Usage

Water Source	Reported Average Water Taking ¹		Max. PTTW Taking	Actual Taken / PTTW
	m³/d	L/s	L/s	%
TW1	21.6	0.2	7.6	3%
TW2				
1. Two-year average usage based on reported 2015 and 2016 data.				

In terms of sewage generation, Maple Leaf Foods is allowed under Amended ECA #7567-94EK2F to treat and dispose of 17 m³/d of treated domestic sewage. The sewage treatment system consists of two septic tanks (total capacity of 25 m³), a tertiary treatment septic tank (rated treatment capacity of 17 m³/d), and a polisher tank. The treated sewage is discharged to a raised stone and sand bed for subsurface disposal. The average domestic sewage generated by this facility are summarized in Table 7 below. Process sewage is not produced on-site as part of their operations.

Table 7: Maple Leaf Foods – Sewage Generation

Sewage Source	Reported Average Sewage Generation ¹		System Rated Capacity	Actual Generation / Rated Capacity
	m ³ /d	L/s	m ³ /d	%
Domestic sewage to septic system	14.3	0.17	17	90%
1. Two-year average sewage generation based on 2015 and 2016 data.				

3.1.4 Nestle Canada Inc.

Nestle Canada Inc. operates a water bottling facility, located within the rural employment designated area, south of Aberfoyle. Their reported water usage is summarized in Table 8.

Table 8: Nestle Canada Inc. – Water Usage

Water Source	Reported Average Water Taking ¹		Max. PTTW Taking ²	Actual Taken / PTTW
	m ³ /d	L/s	L/s	%
TW3-80	2,117.7	24.5	41.7	59%
TW2-11³	-	-	-	-
1. Two-year average usage based on reported 2015 and 2016 data. 2. As per PTTW, the total taking of 3,600 m ³ /d must not be exceeded for the combination of the water sources. 3. Well TW2-11 is to be used for miscellaneous purposes only (such as supplying water for firefighting purposes). As per information provided, no water was taken from Well TW2-11 in 2015 or 2016. Nestle Canada Inc. has recommended that the well be decommissioned.				

Nestle Canada Inc. operates under two separate approvals for its process and domestic sewage. Amended ECA #2766-8Z6QHV allows Nestle Waters to treat and dispose process sewage and stormwater at an approximate peak flow of 1,444 m³/week. The process sewage treatment system consists of a wet well/pump station, two aerated ponds, and six storage ponds. The treated process sewage discharges to Aberfoyle Creek, which is a tributary of Mill Creek and part of the Grand River watershed. Certificate of Approval (C of A) #3152-55LQ59 permits the treatment and disposal of 15.9m³/d of domestic sewage. The approved domestic sewage treatment system consists of pumping chambers, three septic tanks (total capacity of 41 m³), four tertiary treatment septic tanks (total rated treatment capacity of 20 m³/d), and a dosing chamber. The treated domestic sewage is approved to discharge to a leaching bed and a shallow buried trench.

Based on information provided by Nestle Canada Inc., process and domestic sewage flows are not monitored.

3.1.5 Dufferin Aggregates – CRH Canada Group Inc.

Dufferin Aggregate (a division of CRH Canada Group Inc.) is an aggregate extraction business and operates three extraction pits within the Township of Puslinch. Out of the three pits, only one (Aberfoyle Pit No.1) is within the rural employment designated area, at 125 Brock Road. Their washing operation consists of a closed-loop washing system where the wash water from

the wash plant is re-circulated through a settling pond system. Make-up water is periodically taken from the source pond to top-up the amount of water entering the wash plant to compensate from any loss water due to evaporation, infiltration or water adhering to aggregate products.

PTTW #5153-A49MT9 was also registered for this site as per MECP online records. In communication with CRH Canada Group Inc., it was clarified that this PTTW was for a concrete plant that was on the same site; however, the plant is no longer onsite, and water has not been taken from this source since 2010. Their reported water usage for the active wells is summarized in Table 9 below.

Table 9: Dufferin Aggregates – Water Usage

Water Source	Reported Average Water Taking ¹		Max. PTTW Taking ² L/s	Actual Taken / PTTW %
	m ³ /d	L/s		
Pond 5	8.64	0.10	94.7	0.1%
Make Up Pond 6	126.1	1.46	94.7	2%
Total	134.8	1.56	94.7	2%
1. Average usage based on reported 2016 data. 2. As per PTTW, the total taking amount may increase from 8,182 m ³ /d (94.7 L/s) to 12,274 m ³ /d (142 L/s) for any four months between April and November, and no water shall be taken in January and December. Water must also not be taken from one of the ponds for more than 10 consecutive days in February and March. At all times, water is not permitted to be taken from both ponds simultaneously.				

3.1.6 Capital Paving

Capital Paving is a civil construction company specializing in transportation. The head office location in Puslinch has an asphalt and concrete plant, and an aggregate pit on-site. They have four sources for water taking to supply their plant operations, aggregate washing, and office use. According to communication with Capital Paving, there are plans to build a full wash plant on site in the near future, which will increase the water demands for aggregate washing. Their reported water usage is summarized in Table 10 below.

Table 10: Capital Paving – Water Usage

Water Source	Reported Average Water Taking ¹		Max. PTTW Taking ² L/s	Actual Taken / PTTW %
	m ³ /d	L/s		
Pond B: Aggregate washing	166.1	1.92	196	1%
Well A: Office Use	2.4	0.03	1.3	2%
Well B: Asphalt Plant	51.7	0.60	6.0	10%
Well C: Concrete Plant	60.6	0.70	0.70	10%
Total	280.9	3.3	213	2%
1. Average usage based on reported 2015 and 2016 data.				

3.1.7 CBM Aggregates – St. Mary's Cement

CBM Aggregates (a division of St. Mary's Cement) is an aggregate extraction business and operates multiple extraction pits within the Township. The pits that have a wash plant on-site are the Aberfoyle and McNally pits, which operate under separate PTTWs to authorize aggregate washing in a closed loop system. Their reported water usage is summarized in Table 11 below.

Table 11: CBM Aggregates – Water Usage

Water Source	Reported Average Water Taking ¹		Max. PTTW Taking ²	Actual Taken / PTTW
	m ³ /d	L/s	L/s	%
Aberfoyle Main (North) Pit Pond	14,411	166.8	272.8	61%
McNally Supply Pond	13,726	158.9	272.8	58%
Total	28,137	325.7	545.6	60%
1. Average usage based on reported 2015 and 2016 data.				

3.2 Summary of Large Users Demands and Flows

3.2.1 Existing Water Demands

A summary of the water demands/usage that have been established for the large users, based on available 2015-2016 operating/recorded data, is presented in Table 12.

As shown below in Table 12, the majority of large industrial and commercial users, have current water demands in their systems below 60% of their permitted maximum water taking. A more representative assessment would involve a comparison between the maximum demands experienced by each system against the maximum permitted taking; however, in the absence of maximum day demand data, the average recorded flows have been compared relative to the maximum allowable water takings to provide a general indication of the current water demands for each user.

Table 12: Summary of Existing Water Demands / Usage – Large Industrial and Commercial Users

Large User Name	Average Water Taking ¹		Max. PTTW Taking	Actual Taken / PTTW
	m ³ /d	L/s	L/s	%
Royal Canin Canada Company	93.8	1.1	2.8	39%
Con-Cast Pipe Inc.	245.3	2.8	5.2	55%
Maple Leaf Foods – Morguard Brock McLean Limited	21.6	0.2	7.6	3%
Nestle Canada Inc.	2,117.7	24.5	41.7	59%
Dufferin Aggregates – CRH Canada Group Inc.	134.8	1.56	94.7	2%
Capital Paving Inc.	280.9	3.3	213	2%

Large User Name	Average Water Taking ¹		Max. PTTW Taking L/s	Actual Taken / PTTW %
	m ³ /d	L/s		
CBM Aggregates – St. Mary's Cement	28,137	325.7	545.6	60%
Total Large Industrial / Commercial Users =	31,030	359.1	910.1	39%

A review of Table 12 indicates that Con-Cast Pipe Inc., Nestle Canada and CBM Aggregates – St. Mary's Cement, are the users with the largest volumes of water usage, relative to their existing permitted water taking capacity. Although Con-Cast Pipe Inc. uses a high percentage of their permitted maximum taking capacity, the water demands for this system are very small compared to the amount of water used on an average daily basis by Nestle Canada Inc. and CBM Aggregates – St. Mary's Cement.

It should be noted that the average water taking by the large users is primarily for process water and is not necessarily indicative of the anticipated water demands for domestic purposes. Only domestic demands will be considered for further review under this Study.

3.2.2 Existing Sewage Flows

Based on information received directly from the majority of the large users, tracking of sewage generation is not required and thus, this information is generally not available. Sewage flow data was received from two users within the Scoped Study Area but considering the different nature of the activities that occur onsite, the data are considered specific to each user and is not deemed to be representative of the current sewage generation for the majority of the users in the Scoped Study Area. As such, these data have been omitted from further review.

For the purpose of the feasibility study, sewage flow generation has been calculated with consideration to the nature of the business and design guidelines provided by the MECP. Calculated sewage flows for the Scoped Study Area are presented in Section 4 of this report.

4. Water Demand and Sewage Flow Analysis

Establishing water distribution, sewage collection, and supply and treatment capacity design flows are integral to capital planning and are key drivers for establishing future needs and timelines for project implementation. This section describes the proposed preliminary design parameters, in terms of water demands and sewage flows, for municipal water and sewage servicing in the Scoped Study Area and the rationale for its development.

4.1 Water System

There are two major components to development of a new Municipal Water System; namely, the Water Supply System and the Water Distribution System.

4.1.1 Water Supply Design Basis

Water treatment systems are generally designed on the basis of projected flows for a 20-year period. A larger design period may be selected for larger systems, in cases where construction cost is an overriding factor or to satisfy the ultimate requirements of the official plan.

The drinking water system, including water supply sources, water treatment plant and treated water storage are typically designed to satisfy the projected maximum day water demand of the service area. As such, establishing the design average and maximum day demands for the system is a critical step in the planning of water systems.

In order to establish the water demands for the Scoped Study Area, a 25-year planning period which corresponds to the year 2041, has been assumed. Projected water demands have been calculated assuming the projected employment growth in the Puslinch service area, as established in the County's Official Plan. In terms of industrial and commercial water demands, maximum day demands for the service area have been projected based on current water usages for each of the large users and a design maximum day factor representative of the mix of industrial and commercial users in the Scoped Study Area.

The basis for calculating the design average and maximum day water demands for the Scoped Study Area are tabulated in Table 13.

Table 13: Water Design Basis

Criteria	Value	Units	Comments
Unit per Capita Consumption Rate	360	L/cap/d	Assumed (mid-point from MECP range of 270-450 L/cap/day).
Industrial/Commercial Max. Day Factor	3.0	-	Based on MECP suggested range between 2 and 4 for industrial uses.

4.1.2 Water Distribution Design Basis

The Water Distribution system should be designed to meet the MECP Design Guidelines. In particular, the system shall:

- Be capable of maintaining system pressures between 350 to 480 kPa (50 to 70 psi) under normal operating conditions.
- The maximum system pressure in the distribution system should not exceed 700 kPa (100 psi).
- System pressures shall not drop below 140 kPa (20 psi) under Maximum Day plus Fire Flow conditions.
- Provision of Fire Protection through the municipal water distribution system is a municipal decision. If the Township decides to provide fire protection via the municipal water system, the minimum fire flows should be established with consideration given to the latest Fire Underwriter's Survey document "Water Supply

for Public Fire Protection” and/or the MECP’s fire flows guidelines, whichever is judged more appropriate.

4.1.3 Preliminary Projected Water Demands

Preliminary projected water demands for the Scoped Study Area, based on the information available to-date, including employment, industrial and commercial uses are summarized in Tables 14 and 15 respectively. Existing water demands for each user are also included in the tables, where available, for comparative purposes.

Table 14: Preliminary Projected Employment Water Demands¹

Area	Employment ¹		2016 Existing Avg Day Demands	2041 Future Avg Day Demands ²	2041 Future Max. Day Demands ³
	2016	2041	L/s	L/s	L/s
Scoped Study Area	1,796	3,406	7.5	14.2	28.4
<p>1. Preliminary projected employment water demands shown in Table 14 reflect total employment count for the Scoped Study Area with the exception of industrial employment count records for 2016. Water demands for 2016 industrial employment have been captured and accounted for in the water demands received from the large users. For example; total 2016 employment as per OP is 4,020, out of which 2,224 corresponds to industrial employment. Since demands for industrial employment has been assumed under demands gathered from existing users, total 2016 employment numbers for Scoped Study Area is 1,796 (4,020 – 2,224). Total forecasted 2041 employment as per OP is 5,630, under the same assumption of industrial employment demands already captured, total 2041 employment numbers for Scoped Study Area is 3,408 (5,630 – 2,224).</p> <p>2. Future average day demands assume a unit consumption rate of 360 L/employment/day.</p> <p>3. Future max. day demands assume a max. day factor of 2.0.</p>					

Table 15: Preliminary Projected Industrial and Commercial Water Demands

Industrial / Commercial User	PTTW Capacity		2041 Future Avg. Day Demands ¹	2041 Future Max. Day Demands ²
	m ³ /d	L/s	L/s	L/s
Royal Canin Canada Company	240	2.8	1.1	2.8
Con-Cast Pipe Inc.	450	5.2	2.8	5.2
Maple Leaf Foods – Morguard Brock McLean Limited	654	7.6	0.2	0.7
Nestle Canada Inc.	3,600	41.7	24.5	41.7
Dufferin Aggregates – CRH Canada Group Inc.	8,183	94.7	1.6	4.7
Capital Paving Inc.	18,371	212.6	3.3	9.8
CBM Aggregates – St. Mary’s Cement	47,136	545.6	325.7	545.6
Total Existing Large Users =	78,634	910.1	359.1	610.4
Total Large Users (excluding Nestle Canada Inc. & St. Mary’s Cement) =	27,898	323	9.0	23.2
<p>1. Future average day demands for large users assume the current water usages reported for 2015 and 2016.</p> <p>2. Future maximum day demands assume a maximum day factor of 3.0. However, if the calculated maximum day demands for a user would exceed their existing PTTW taking capacity, the current PTTW rate would prevail and is shown in the table.</p>				

4.1.4 Considerations

Considering the financial stability of the Township for the provision of municipal services and the implementation feasibility of a municipal water system for the Scoped Study Area, the following was considered:

- Based on the nature and the character of their businesses, it would not be viable to provide municipal water services to Nestle Canada Inc. for bottling purposes, or to St. Mary's Cement for process and cooling water. It is assumed that these two large users will continue to use the sources that are currently permitted.
- Provision of municipal water services should account for all projected employment and most ICI uses within the Scoped Study Area. Municipal water servicing should also account for provision of municipal potable water to Nestle Canada Inc. and St. Mary's Cement for domestic purposes for the staff at these facilities.
- All other existing large users, considered in this study, would connect to the municipal system. Existing average day water demands recorded for the period 2015-2016 from large users will be maintained to the 2041 planning period. Maximum day demands will increase based on the assumed max. day factor of 3.0, or to the current Permit to Take Water (PTTW) rate, whichever rate is lower.

Subject to the above noted considerations, the preliminary projected water demands for the Scoped Study Area are summarized in Table 16. Detailed calculations are provided in Appendix A for further reference.

Table 16: Preliminary Proposed System Water Demands

Service Type	Design Average Day Demand		Design Maximum Day Demand	
	m ³ /d	L/s	m ³ /d	L/s
Industrial / Commercial / Recreational (excluding large users) ¹	1,226	14.2	2,452	28.4
Industrial / Commercial / Recreational (large users excluding Nestle and St. Mary's) ²	116	1.3	300	3.5
Allowance for Domestic Use at Nestle Canada Inc. and St. Mary's Cement ³	51	0.6	152	1.8
Total Proposed System Demands =	1,393	16.1	2,904	33.6
<ol style="list-style-type: none"> 1. The average day demand was found by combining the future employment population of various Industrial/ Commercial/ Recreational users while excluding the large users found in Table 15. A consideration was also made for the recommended design rate of 360 L/cap/d by the MECP. 2. Given that the average water takings reported for the large users in Table 12 is mostly for process water, an assumption has been made that only 15% allowance of their existing average daily taking by the PTTW rate, will contribute to domestic use. 3. An allowance for domestic uses at Nestle Canada Inc. and St. Mary's Cement has been included in the calculations. The allowance is approximately 1% of their existing PTTW rate. 				

Key considerations for sizing the different water system components include:

- Water supply may be from either a surface water or groundwater source. Given the lack of a significant surface water source within the Scoped Study Area and given the evidence of significant groundwater resources in the area, it is anticipated that a groundwater supply system would be proposed for any water servicing solution within the Township.
- The supply source for the new system should be able to meet the projected maximum design day demands. Multiple groundwater supply wells may be required to satisfy the projected maximum day demands.
- Treatment processes should be able to meet the projected maximum design day demands, with Peak Hour Demands, with Emergency and/or Fire demands provided from storage.
- Provision of Fire Protection through the Municipal water distribution system is a Municipal decision. Should the Township decide to provide fire protection via the municipal water system, the minimum fire flows should be established with consideration given to the latest Fire Underwriter's Survey document "Water Supply for Public Fire Protection" and/or the MECP's fire flows guidelines, whichever is judged more appropriate.
- The distribution system should be designed to maintain system pressures between 40 psi and 100 psi for a full range of demand scenarios. If the Township decides to provide Fire protection through the municipal system, the system should be sized to convey Maximum Day Demands plus Fire Flows while maintaining a minimum pressure of 20 psi throughout the system. The system should also be designed to minimize dead-end mains and excessive residence times which may lead to water quality issues. Watermain sizing would have a direct impact on the cost of the system, operation and maintenance requirements in addition to water quality considerations.

4.2 Sewage Design Basis

Sewage treatment facilities are typically designed for average day flows, while sewage conveyance systems are designed and rated to deliver peak sewage flows to the treatment facilities. Similar to the rationale used to develop the water design basis, a 25-year planning period which corresponds to the year 2041, has been assumed to calculate sewage generation in the Scoped Study Area.

The basis for calculating the design average and peak sewage flows for the Scoped Study Area are summarized in Table 17.

Table 17: Sewage Design Basis

Criteria	Value	Units	Comments
Unit per Capita Sewage Generation Rate	360	L/cap/day	Consistent with unit water consumption rate.
Peak Infiltration / Inflow Rate for Industrial / Commercial Areas	10,110	L/ha/day	Assumed based on the low end of MECP Guidelines as new system should have low I&I contribution.
Population densities for Industrial / Commercial	83	person/ha	Assuming 30 m ³ /ha/d (low end of MOECC Guideline) and 360 L/cap/d, this would equate to approx. 83 ppha.
Peak Factor	varies	-	Calculated for each drainage area based on Harmon Formula

4.2.1 Preliminary Projected Sewage Flows

Preliminary projected sewage flows for the Scoped Study Area for all industrial and commercial users are summarized in Table 18.

Table 18: Projected Industrial and Commercial Sewage Flows

Industrial / Commercial Areas	Drainage Area			2041 Future Avg. Day Flows ¹ (for treatment)	2041 Future Peak Day Flows ^{2,3} (for sewer capacity)
	Total	Contributing	Equivalent ICI Population		
	Ha	Ha	People	L/s	L/s
Within Aberfoyle	2,435 ⁴	67.8	5,630	23.5	82.9
1. Includes all employment categories, including industrial 2. Future average day flows for large users assume a unit generation rate of 360 L/cap/cay. 3. Future peak day flows assume an I&I rate of 10,110 L/ha/d and peak factor calculated based on Harmon Formula. 4. Includes existing gravel extraction areas that are excluded from current infiltration allowance calculations					

Sewage design flows for the Scoped Study Area are summarized in Table 19. The design flows noted in Table 19 do not account for process sewage generated by the large industries. Detailed calculations are provided in Appendix A for further reference.

Table 19: Proposed Sewage Design Flows

Servicing Category	Design Average Day Flow (for Treatment)		Design Peak Day Flow (for Sewer Capacity)	
	m ³ /d	L/s	m ³ /d	L/s
Industrial / Commercial / Recreational	2,027	23.5	6,479.4	82.9

4.3 Summary of Preliminary Projected Water Demands and Sewage Flows

The preliminary projected water demands and sewage flows for municipal servicing in the Scoped Study Area are summarized in Table 20.

Table 20: Summary of Preliminary Projected Water Demands and Sewage Flows

	Proposed Average Day Demands		Proposed Max. Day Demands	
	m ³ /d	L/s	m ³ /d	L/s
Preliminary System Water Demands	1,393	16.1	2,905	33.6
Preliminary System Sewage Flows	2,027	23.5	6,479	82.9

The preliminary water and wastewater demands are based on the projected employment population and exclude allowances for process water currently consumed by the large users. It is assumed that the large users will continue to source their individual process water demands from their current sources.

The preliminary projected sewage flow rates are significantly higher than the projected water demands for the scoped study area, as a result of the allowances for extraneous flows as recommended in the MECF guidelines. A review of the contributing area for the extraneous flow allowance should be completed during any further study for implementation of a communal sewage collection and treatment system.

The results of the analysis of water demands and sewage flows for the Scoped Study Area are preliminary in nature and a summary of the information obtained to-date, as part of the Addendum to the Feasibility Study.

5. High-level Water Servicing Options – Development and Assessment

As part of the Feasibility Study, potential servicing options for water servicing were developed based on the general criteria established in Section 4. The Servicing Options were developed assuming that municipal water services were provided to all industrial and commercial properties within the Potential Servicing Area. Each option was then assessed on a high-level, in terms of key advantages, disadvantages and estimated probable costs.

This section provides a description of the high-level water servicing options considered in this study. Two alternative options have been reviewed to determine the potential cost implications of each. The options selected consist of Option 1 – Intra-Municipal Water Servicing, and Option 2 – Inter-Municipal Water Servicing. Major infrastructure / process requirements, general schematics and preliminary capital, operating and life cycle costs for each option are also presented.

5.1 General Description

5.1.1 Option 1 – Intra-Municipal Water Servicing

The Intra-Municipal Water Servicing alternative consists on providing the required water supply and treatment capacity through a new water supply system owned and operated by the

Township. For the purposes of this Feasibility Study, it has been assumed that the new water supply system will be developed within the future well supply field areas identified in the City of Guelph Water and Wastewater Master Plan. However, should the Township decide to proceed with further consideration for a municipal drinking water system, alternative supply locations should be considered.

As part of Option 1, it is assumed that all existing individual on-site wells supplying industrial and commercial businesses within the Scoped Study Area, are expected to be decommissioned. Further consideration can be given to maintaining existing small private communal water systems during the Class EA stage; however, for the purpose of establishing high-level servicing options, it has been assumed that existing systems would no longer be in service. All small users and large users within the Scoped Study Area, with the exception of Nestle Canada Inc. and St. Mary's Cement, will be supplied by the new Municipal Water System. Nestle Canada Inc. and St. Mary's Cement will be provided with municipal water services for domestic uses only.

A hydrogeological investigation, including well drilling, well and aquifer testing, water quality characterization and groundwater modelling would be necessary to confirm the location and the production capacity of the new groundwater supply well(s) and any potential effects on existing natural heritage features within the area.

A new treatment facility would be required to provide the necessary treatment. A complete water quality characterization would be needed to confirm treatment requirements; however, for the purpose of option development and estimation of probable cost, it has been assumed that the water is of good quality, necessitating only treatment for disinfection.

A new storage facility will be provided as part of Option 1 in order to meet the required water storage requirements for equalization, emergency and fire flows. The storage facility may take the form of an in-ground reservoir, an elevated tank, or a combination of the two. For the purposes of this Study, we have assumed that the necessary storage will be provided by a new elevated tank in the Aberfoyle urban center, as this approach provides more operational flexibility, and would permit the Township to size their treatment system and pumping capacity based on Maximum Day Demands instead of Peak Hour Demands or Fire Flow conditions.

A description of the main infrastructure and process requirements for Option 1 – Intra-Municipal Water Servicing is provided in Table 21. A general schematic of the major components of Option 1 is shown in Figure 4.

Land acquisition would be anticipated for construction of the new treatment facility and the new elevated tank. All other linear infrastructure associated with Option 1 is expected to be constructed within existing road right-of-ways, with the exception of the Highway 401 crossing.

Table 21: Water Servicing Option 1 – Infrastructure / Process Requirements

Area	Option Requirements
Supply	<ul style="list-style-type: none"> A new groundwater supply source will be developed to provide a maximum day demand of 33.6 L/s (2.90 MLD).
Treatment	<ul style="list-style-type: none"> A new water treatment facility will be built to provide the required treatment requirements. It is assumed that the water is of good water quality and treatment will consist of only disinfection through chlorination. The new treatment system would be designed to provide a minimum treatment capacity of 2.90 MLD.
Pumping	<ul style="list-style-type: none"> The new supply well(s) will be equipped with well pumps with enough capacity to overcome system pressure and pump to the new elevated tower.
Storage	<ul style="list-style-type: none"> A new elevated water tank will be built to provide for required storage requirements. The new tank will have a minimum capacity of 2,500 m³.
Distribution	<ul style="list-style-type: none"> Approximately 4.9 km of 300 mm diameter watermain connecting the new supply wells/treatment facility to the new elevated water tank. Approximately 5.8 km of local distribution system consisting of 300 mm diameter watermain.



Approximate Location for New
Supply Well(s) and Treatment Facility



Feedermain System

Approximate Location for
New Elevated Water Tank



Aberfoyle

Wellington Rd 34

Victoria Rd S

Brock Rd S

Wellington Rd 36

Morriston

Highway 6

Highway 401

Concession 2

LEGEND



NEW ELEVATED WATER
TANK



NEW SUPPLY WELL(S) &
TREATMENT FACILITY

PROPOSED WATERMAIN



300 MM Ø FEEDERMAIN



300 MM Ø DISTRIBUTION

NOTE: NOT ALL LOCAL WATERMAINS ARE SHOWN FOR
PURPOSES OF CLARITY.



5.1.2 Option 2 – Inter-Municipal Water Servicing

The Inter-Municipal Water Servicing alternative consists of securing the required water supply and treatment capacity through the existing water supply system in the City of Guelph.

Preliminary discussions with staff from the City of Guelph have indicated that the City would be open to negotiations for establishing an Inter-Municipal Servicing arrangement. Through further consultation with the City, the City indicated that they do not have excess water supply capacity to support external servicing requests. The Township acknowledged that the City may not have available capacity to allocate to the Township of Puslinch, and further recognized that if capacity was available, allocation of that capacity would not be without cost. Correspondence associated with preliminary consultation with the City of Guelph is included in Appendix B for further reference.

The Township Council would need to submit a formal request to the City of Guelph to initiate formal consideration of this Option. All water supply, treatment and distribution systems in the City of Guelph would remain under the City's ownership.

Similar to Option 1, all existing individual on-site wells supplying industrial and commercial businesses within the Scoped Study Area, are expected to be decommissioned. All small users and large users within the Scoped Study Area, with the exception of Nestle Canada Inc. and St. Mary's Cement, will be supplied by the new Intra-Municipal Water System. Nestle Canada Inc. and St. Mary's Cement will be provided municipal water services for domestic uses only.

A new elevated water tank in the Aberfoyle urban center will be provided as part of Option 2 in order to meet the required water storage requirements for equalization, emergency and fire flows. A new metering facility will be required at the boundary between the City of Guelph System and the Township system. The metering facility may be combined with a pressure control station/re-chlorination system (either boosting or reduction) and may be required to control system pressures from the City of Guelph distribution system to meet the Township system requirements.

A description of the main infrastructure and process requirements for Option 2 – Inter-Municipal Water Servicing is provided in Table 22. A general schematic of the major components of Option 2 is shown in Figure 5.

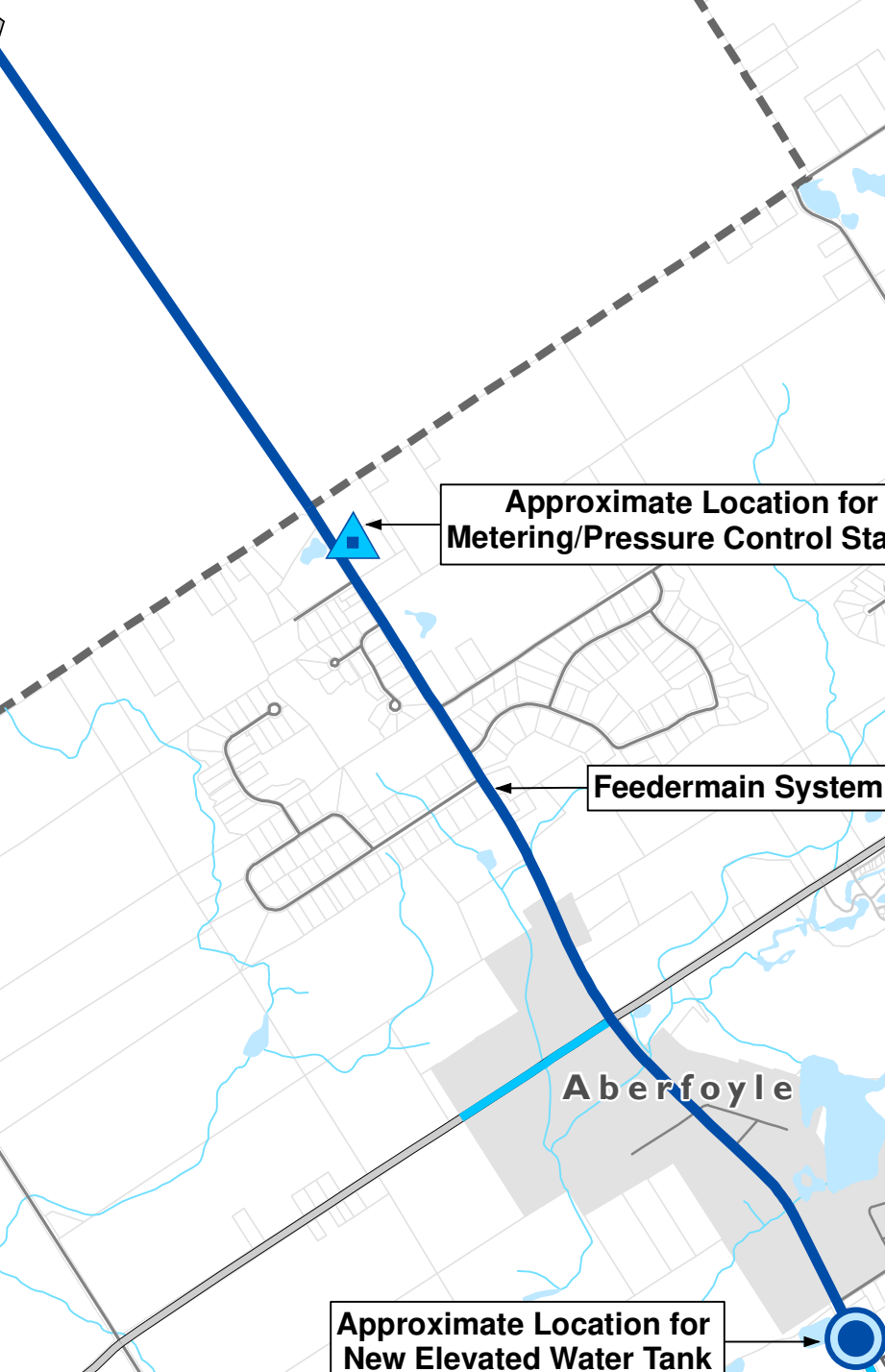
Land acquisition would be anticipated for construction of the new pressure control station and the new elevated water tank. All other linear infrastructure associated with Option 2 is expected to occur with the existing road right-of-ways.

Table 22: Water Servicing Option 2 – Infrastructure / Process Requirements

Area	Option Requirements
Supply	<ul style="list-style-type: none"> A direct connection to the City of Guelph distribution system, Pressure Zone 3. City of Guelph Water System should be able to provide a maximum day demand of 33.6 L/s (2,904 m³/d).
Treatment	<ul style="list-style-type: none"> Not required within the Township.
Facilities	<ul style="list-style-type: none"> A new metering facility with a potential pressure control station will be required to accommodate maximum day flows of 33.6 L/s (2,904 m³/d) to the new elevated tower in the Township. A new pressure control station may be required to control system pressures in the Township.
Storage	<ul style="list-style-type: none"> A new elevated water tank will be built to provide for required storage requirements. The new tank will have a capacity of 2,500 m³
Distribution	<ul style="list-style-type: none"> Approximately 2.3 km of 300 mm diameter watermain extension in Guelph to the Puslinch border, and a metering facility at the municipal boundary. Approximately 3.2 km of 300 mm diameter watermain from the metering facility to the new to the new elevated water tank. Approximately 5.7 km of local distribution system consisting of 300 mm diameter watermain.



Approximate Connection Point to
Guelph Distribution System
(Pressure Zone 3)



Approximate Location for
Metering/Pressure Control Station

Feedermain System

Approximate Location for
New Elevated Water Tank

LEGEND



NEW ELEVATED WATER
TANK



NEW BOOSTER PUMPING
STATION



PROPOSED
CONNECTION POINT TO
GUELPH SYSTEM

PROPOSED WATERMAIN



400 MM Ø FEEDERMAIN



300 MM Ø DISTRIBUTION

NOTE: NOT ALL LOCAL WATERMAINS ARE SHOWN FOR
PURPOSES OF CLARITY.

5.2 Estimates of Probable Cost – Water Servicing Options

Estimates of probable capital, operating and maintenance costs and life cycle costs have been developed. Capital costs include development of new supply, treatment and storage facilities, major process and treatment equipment such as pumps, piping and valves, instrumentation, treatment equipment, standby power supply and watermain installation. Operating and maintenance costs accounted for include power, chemical usage, regulatory requirements and other replacement and labour costs. Life cycle costs have been calculated based on a 20-year life expectancy.

The following general assumptions were made when developing the costs for the servicing options:

- Cost estimates are based on 2019 construction costs. Inflation and escalation to account for actual expected prices at the time of construction cannot be accounted for at this time.
- Estimates of probable capital costs have been developed on a conceptual level and based on prices and data in CIMA's possession, as well as previous experience from projects of similar nature and scope. The accuracy of conceptual estimates developed at this point, are assumed to be around +/- 30%.
- There is capital expenditure associated with the replacement of major pumping and treatment equipment every 30 years for water facilities.
- All taxes (including the 13% HST) have been excluded.
- The cost to decommission existing private groundwater wells and small communal water systems within the Scoped Study Area has not been accounted for in Water Servicing Options 1 and 2. Should this project proceed to the next phases (i.e., completion of a Class Environmental Assessment Study), an inventory of existing groundwater wells within the Scoped Study Area should be completed and the cost for decommissioning existing wells and private communal water systems should be added to CIMA's preliminary estimates.
- Capital costs associated with any required upgrades needed in the City of Guelph Water System to accommodate the inter-municipal connection and servicing, or any Capital Contributions to secure Supply capacity from Guelph are unknown at this point and have not been accounted for in the estimate for Option 2. The required capital costs would need to be identified through further negotiations between the Township and the City, as well as the mechanisms to pay for these upgrades. Similarly, a portion of the operation and maintenance (O&M) costs for Option 2 should be covered under a Bulk Water Rate that the Township would pay to the City, also to be established through further negotiations between the two parties.

Completion of Class Environmental Assessment (Class EA) studies as well as additional amendments to existing master plans, servicing studies, secondary plans, approved draft plans,

etc., have not been accounted for and should be included in the Capital Upgrade Costs, through consultation and negotiations between the Township and the City.

Life cycle costs have been estimated based on:

- A 20-year amortization period
- An inflation rate of 2% and an interest rate of 6% to give a market/discount rate of 4%

Estimates for probable capital, operating and life cycle costs for the water servicing options are summarized Table 23. Detailed costs calculations are included in Appendix C.

Table 23: Water Servicing Options – Probable Cost Estimates

Servicing Alternative	Capital Cost (\$ millions)	Annual Operating & Maintenance Cost	NPV 20-Year Life Cycle Cost ¹ (\$ millions)
Option 1 – Intra-Municipal Water Servicing	\$22.9	\$504,000	\$28.8
Option 2 – Inter-Municipal Water Servicing	\$19.9	\$95,400	\$20.3
1. Net Present Value (NPV) represents the value of the project in today's dollars. Calculated NPV for Option 2 gets reduced over time as a result of the lower O&M costs which represent cash outflows. Higher cash outflows, as in Option 1, results in a higher NPV.			

5.3 High-level Assessment

This section presents the results of the high-level assessment completed for the water servicing options considered in the Feasibility Study. Key advantages and disadvantages are summarized in Table 24.

Table 24: Water Servicing Options – High-Level Assessment Results

Servicing Option	Advantages	Disadvantages
Option 1 – Intra-Municipal Servicing	<ul style="list-style-type: none"> Option provides the Township with complete control of the operation and maintenance of the water supply system. Complete independent system from supply, to treatment and distribution. Township can provide desired level of robustness and flexibility to the system. Provision of municipal water servicing (coupled with wastewater servicing) in the area will provide an invitation for developers to invest in the Township and promote growth in accordance with the County Official Plan – population and employment. 	<ul style="list-style-type: none"> Option results in highest capital, O&M and life cycle costs. Option requires the largest amount of new infrastructure. Establishment of new quality WHPAs around the new municipal wells and associated Source Protection Plans for quality significant drinking water threats (i.e. fuel, chemicals, septic systems, etc.). This could lead to some restrictions on existing industries including risk management plans or amended provincial approvals and even an expanded septic inspection program.
Option 2 – Inter-Municipal Servicing	<ul style="list-style-type: none"> Option results in lower capital, O&M and life cycle costs when compared to Option 1. Option provides the Township with some control of the operation and maintenance of the water supply system – through a servicing agreement between the Township and the City. Option is able to optimize the use of some of the existing infrastructure (in City of Guelph) and reduces the need for new infrastructure. Water supply is dependant on City of Guelph supply but provision of an elevated tower in the Township would provide adequate level of robustness and flexibility to the system. City of Guelph has a proven track record of providing adequate level of water servicing to its residents, which create trust to potential future serviced areas in the Township. Option supports affordable and sustainable development between two municipalities. It may provide an opportunity for the two municipalities (City of Guelph and Township) to partner for funding opportunities and share existing resources. 	<ul style="list-style-type: none"> It most likely requires an amendment the City of Guelph Official Plan to allow the extension of the City's urban services for areas outside of the City's urban boundaries. This process may be long. Amendments to existing Secondary Plans and approve Draft Plans may be required. City of Guelph Water Servicing Master Plan would need to integrate servicing to the area in Township. Upgrades to existing water servicing infrastructure in Guelph Pressure Zone 3 may be required, directly or indirectly, to accommodate the inter-municipal transfer. An inter-municipal agreement will be required to establish an inter-municipal services scheme. The cost of any Capital Contribution and/or Capital Upgrades to secure supply from the City of Guelph is unknown at this time and may represent a significant impact to the overall project cost.

Servicing Option	Advantages	Disadvantages
	<ul style="list-style-type: none"> This coordinated approach to service delivery can result in efficiencies in infrastructure costs, water conservation, and allow for additional funds to be allocated to improved treatment and program delivery. Provision of municipal water servicing (coupled with wastewater servicing) will provide an invitation for developers to invest in the areas and promote growth in accordance with the County Official Plan – population and employment. 	
Common to Both Options	<ul style="list-style-type: none"> Depending on individual user rates, there could be possible reductions in cumulative water takings by removing private PTTW as they attach to the municipal system. Theoretically it would be easier to manage and monitor the single municipal system for water quality and quantity compared to many private takers, ultimately contributing to efficiency. The burden to obtain the private updated PTTWs and comply with any changes in condition would be removed from the individual users and responsibility will be placed on the Township. Competitive increase in the Township for economic development. Municipal water and sewage servicing encourages developers to invest and promote growth in the Township 	<ul style="list-style-type: none"> The Township will hold responsibility for the increased PTTW conditions related to the water quantity requirements in compliance to the WHPA-Q. Increased cost for the Township for enforcement of the new source protection requirements under the Clean Water Act.

6. High-level Sewage Servicing Options – Development and Assessment

6.1 General Description

Similar to the Water servicing options, potential servicing options for sewage servicing were developed based on the general criteria established in Section 4. The Servicing Options were developed assuming that municipal sewage services were provided to all industrial and commercial properties within the Scoped Study Area. Each option was then assessed on a high-level, in terms of key advantages, disadvantages and estimated probable costs.

This section provides a description of the high-level sewage servicing options considered in this study. Two alternative options have been reviewed to determine the potential cost implications of each. The options selected consist of Option 1 – Intra-Municipal Sewage Servicing, and Option 2 – Inter-Municipal Sewage Servicing. Major infrastructure / process requirements, general schematics and preliminary capital, operating and life cycle costs for each option are also presented.

6.1.1 Option 1 – Intra-Municipal Sewage Servicing

The Intra-Municipal Sewage Servicing alternative considers the development of a stand-alone system for wastewater collection, treatment and disposal. The system would be owned and operated by the Township.

On a preliminary basis, the system would consist of a conventional gravity collection system with a pumping station and forcemain system as required to accommodate ground elevation variations. A new treatment facility would be required, with discharge to a surface water course.

If the Township decides to proceed with further consideration of municipal sewage servicing, the Township will need to consider a full range of Alternative servicing schemes, including the “Do Nothing” Alternative and maintenance of the status quo. However, if the provision of municipal servicing is selected as the Preferred Alternative, then a full range of design alternatives will be considered including surface and sub-surface disposal. Other surface receivers should also be explored in the next stages, including but not limited to the Speed River. For the purpose of this Study, discharge to Mill Creek was selected given its proximity to the service area; however, discharge to this or any other surface receiver will be subject to the findings of an Assimilative Capacity Study.

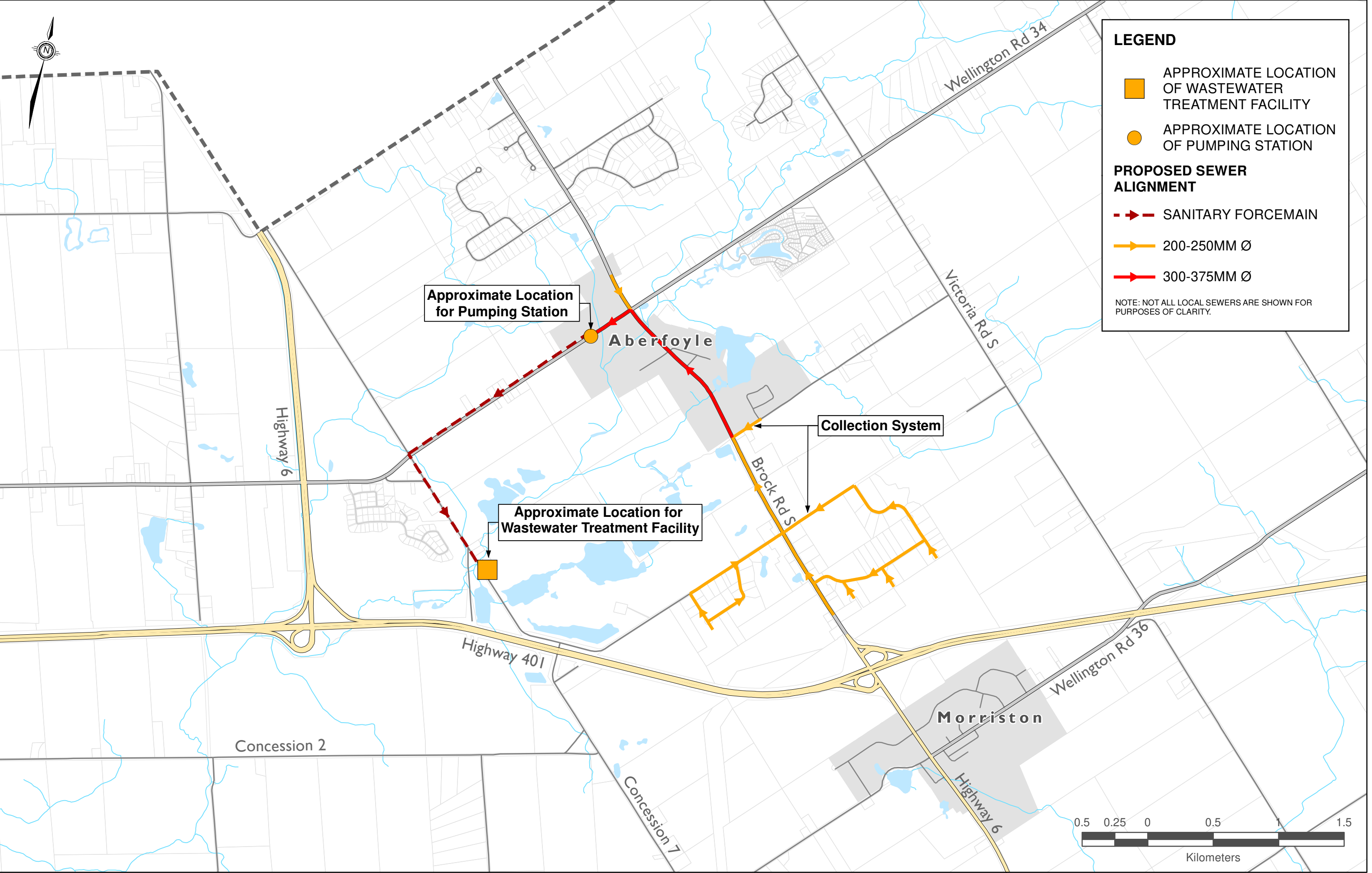
A communal sewage system would allow a stand-alone collection and treatment for the Scoped Study Area, that would be owned, operated and maintained by the Township. This option includes a conventional gravity sanitary collection system installed at standard depths of three (3) metres to five (5) below existing ground surface. However, in order to service the urban area of Aberfoyle, a pumping station and forcemain would be required to convey the wastewater to the site of the treatment facility.

As shown in Figure 6, a pumping station would be required for the collection and conveyance of Aberfoyle’s industrial and commercial sector and the surrounding area. The existing industrial/commercial lands north of Highway 401, and the areas east of Highway 6 could be serviced by gravity sewer to a waste water treatment facility generally located near Concession Road 7 and Mill Creek area.

A description of the main infrastructure is summarized for Option 1 – Intra-Municipal Sewage Servicing in Table 25 below. A general schematic of the major components of Option 1 is shown in Figure 6.

Table 25: Sewage Servicing Option 1 – Infrastructure / Process Requirements

Area	Option Requirements
Collection	<ul style="list-style-type: none"> A new conventional gravity collection system would be required in the Aberfoyle urban center and surrounding areas in order to collect wastewater from the individual properties. The sewer system would range in size from 200 mm diameter up to 375 mm diameter.
Pumping	<ul style="list-style-type: none"> One central pumping station would be required to convey the wastewater in Aberfoyle's industrial and commercial sector to the Treatment facility. The pumping station would be designed to convey the Peak Projected flow of 82.9 L/s. Local pumping station(s) may be required due to local topographic constraints. Provision of stand-by power and overflow storage would need to be considered during detailed design.
Treatment	<ul style="list-style-type: none"> A wastewater treatment facility would need to be constructed to provide the required treatment capacity. It is anticipated that construction of the facility would be staged to accommodate current populations plus anticipated growth over the design period, with provisions for expansion beyond the current planning horizon. A new treatment plant would need to be designed for a capacity of 6,479 m³/day.
Effluent Discharge	<ul style="list-style-type: none"> For the purpose of this study, it has been assumed that treated effluent may be discharged to Mill Creek. An Assimilative Capacity Study will be required to determine if Mill Creek can be used for this disposal of treated effluent, and to establish design parameters and effluent criteria and loading limits from this facility.



6.1.2 Option 2 – Inter-Municipal Sewage Servicing

The Inter-Municipal Sewage Servicing alternative consists of collection and conveyance of wastewater through a sanitary sewer network, a pumping station and forcemain, with an outlet to the Guelph collection system for ultimate treatment and disposal.

Option 2 will rely on the Guelph system for treatment, and therefore will require an inter-municipal servicing agreement. Preliminary discussions with staff from the City of Guelph have indicated that the City would be open to discussions necessary to establish an inter-municipal servicing agreement; however, no terms and/or conditions have been identified. Through further consultation with the City, the City indicated that they do not have excess sewage treatment capacity to support external servicing requests. The Township acknowledged that the City may not have available treatment capacity to allocate to the Township of Puslinch, and further recognized that if capacity was available, allocation of that capacity would not be without cost. Correspondence associated with preliminary consultation with the City of Guelph is included in Appendix B for further reference.

The Township Council would need to submit a formal request to the City of Guelph to initiate formal consideration of this Option.

The preliminary sewer alignment and location of the pumping station is similar to Option 1, in order to convey the wastewater flows to the Guelph system. In addition, a flow monitoring facility would be required at the discharge location to measure flows for billing purposes.

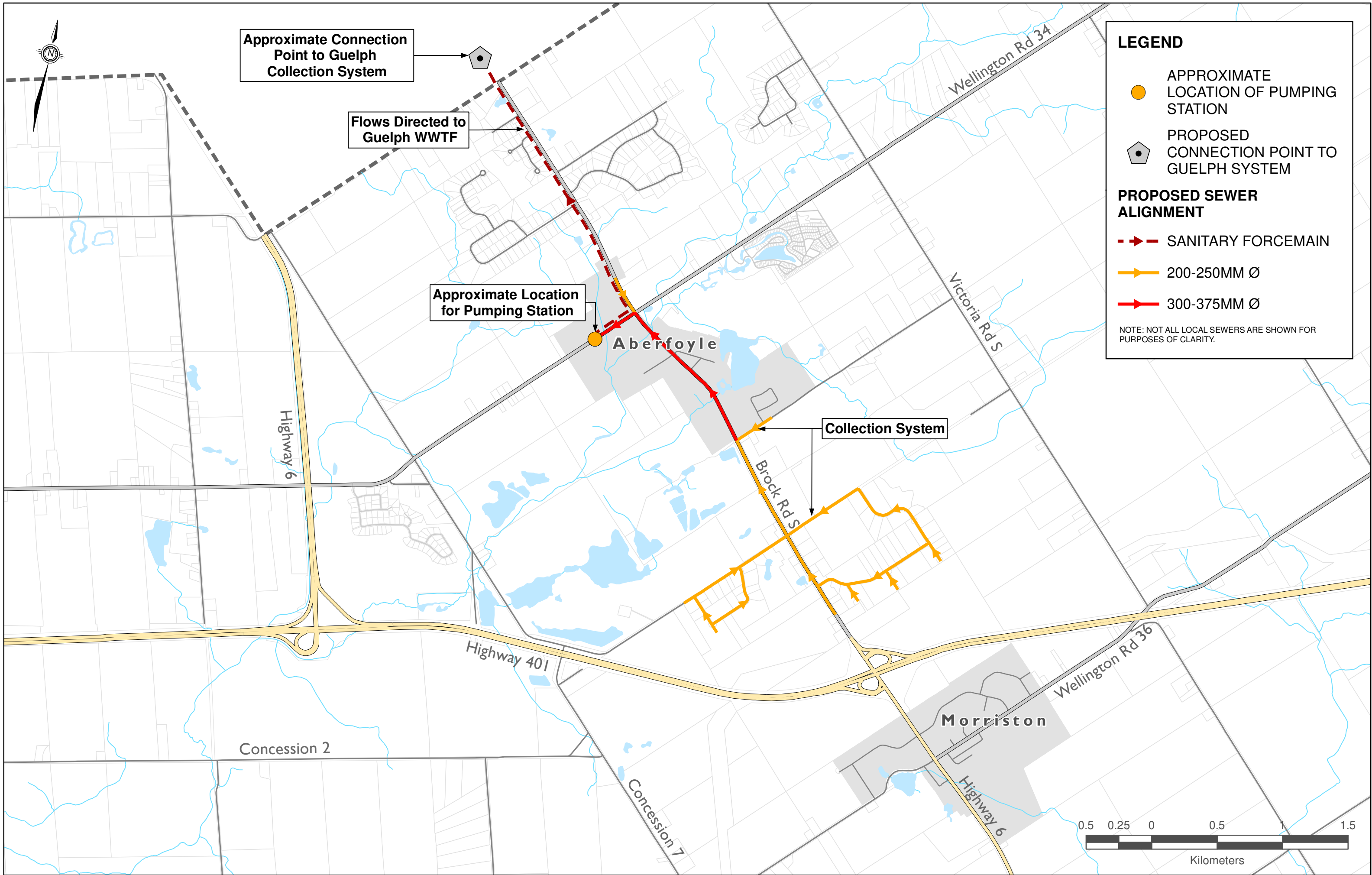
As with Option 1, this system includes sanitary sewer installed at standard depths of three (3) to five (5) metres below existing surface. Figure 7 provides an approximate location for a pumping station to service the industrial/commercial area surrounding Aberfoyle. The pumping station will have an associated forcemain system which will discharge to the gravity system prior to being pumped into Guelph.

A description of the main infrastructure is summarized for Option 2 – Inter-Municipal Sewage Servicing in Table 26 below. A general schematic of the major components of Option 2 is shown in Figure 7.

Table 26: Sewage Servicing Option 2 – Infrastructure / Process Requirements

Area	Option Requirements
Collection	<ul style="list-style-type: none"> A new gravity sewer system would be required in the Aberfoyle urban center and surrounding areas in order to collect the wastewater. The sewer system would range in size from 200 mm diameter up to 375 mm diameter.
Pumping	<ul style="list-style-type: none"> One pumping station would be required to convey the wastewater in Aberfoyle's industrial and commercial sector. The pumping station would be designed to convey the Peak Design Flow (82.9 L/s) to the Guelph System. Local pumping station(s) may be required due to topographic constraints.

As part of Option 2, all existing individual on-site septic tanks, and communal wastewater systems within the Scoped Study Area are expected to be decommissioned, and costs for decommissioning will be responsibility of the business property owners or through another mechanism, to be determined by the Township.



6.2 Estimates of Probable Cost – Sewage Servicing Options

Estimates of probable capital, operating and maintenance costs and life cycle costs have been developed. Capital costs include an allowance for property acquisition and the pumping station; and for Option 1, a treatment facility. Major process and treatment equipment such as pumps, piping and valves, instrumentation, treatment equipment, standby power supply are assumed to be included. Operating and maintenance costs accounted for include power, chemical usage, regulatory requirements and other replacement and labour costs. Life cycle costs have been calculated based on a 20-year life expectancy.

The following general assumptions were made when developing the costs for the servicing options:

- Cost estimates are based on 2019 construction costs. Inflation and escalation to account for actual expected prices at the time of construction cannot be accounted for at this time.
- Estimates of probable capital costs have been developed on a conceptual level and based on prices and data in CIMA's possession, as well as previous experience from projects of similar nature and scope. The accuracy of conceptual estimates developed at this point, are assumed to be +/- 30%.
- There is capital expenditure associated with the replacement of major pumping and treatment equipment every 30 years for wastewater facilities.
- The cost to decommission existing private septic systems within the Scoped Study Area has not been accounted for in Sewage Servicing Options 1 and 2.
- Capital costs associated with any required upgrades needed in the City of Guelph collection and treatment system to accommodate the inter-municipal Option, are unknown at this point and have not been accounted for. The required capital costs would need to be identified through further negotiations between the Township and the City, as well as the mechanisms to pay for these upgrades. Similarly, a portion of the City of Guelph's operation and maintenance (O&M) costs would need to be reviewed and negotiated for Option 2.
- Completion of a Class Environmental Assessment (Class EA) study as well as additional amendments to existing master plans, servicing studies, secondary plans, approved draft plans, etc., have not been accounted for and should be included in the Capital Upgrade Costs, through consultation and negotiation between the Township and the City.

Life cycle costs have been estimated based on:

- A 20-year amortization period
- An inflation rate of 2% and an interest rate of 6% to give a market/discount rate of 4%

Estimates for probable capital, operating and life cycle costs for the sewage servicing options are summarized Table 27.

Table 27: Sewage Servicing Options – Probable Cost Estimates

Servicing Alternative	Capital Cost (\$ millions)	Annual Operating & Maintenance Cost	NPV1. - 20-Year Life Cycle Cost (\$ millions)
Option 1 – Intra-Municipal Sewage Servicing	\$ 29.0	\$ 714,000	\$ 38.9
Option 2 – Inter-Municipal Sewage Servicing	\$ 11.7	\$ 164,000	\$ 13.9
1. Net Present Value (NPV) represents the value of the project in today's dollars. Higher cash outflows, as in Option 1, results in a higher NPV.			

6.3 High-level Assessment

This section presents the results of the high-level assessment completed for the sewage servicing options considered in the Feasibility. Key advantages and disadvantages are summarized in Table 28.

Table 28: Sewage Servicing Options – High-Level Assessment Results

Servicing Option	Advantages	Disadvantages
Option 1 – Intra-Municipal Servicing	<ul style="list-style-type: none"> Provides the Township with complete control of the operation and maintenance of the wastewater collection and treatment system. Complete independent system from collection, treatment and discharge/disposal. Township can provide desired level of robustness and flexibility to the system. Provision of municipal sewage servicing (coupled with water servicing) in the area will provide an invitation for developers to invest in the Township and promote growth in accordance with the County Official Plan – population and employment. 	<ul style="list-style-type: none"> Results in highest capital, O&M and life cycle costs. Option requires the largest amount of new infrastructure. Assimilative capacity of Mill Creek may limit capacity of treatment plant. An alternative effluent discharge location or method of disposal may be required.
Option 2 – Inter-Municipal Servicing	<ul style="list-style-type: none"> Option results in lowest capital, O&M and life cycle costs. Option provides the Township with control of the collection system and operation and maintenance, which is a lower complexity operations requirement. Operations costs for wastewater treatment will be fixed by Agreement 	<ul style="list-style-type: none"> It will most likely require an amendment the City of Guelph Official Plan to allow the extension of the City's services for areas outside of the City's urban boundaries. City of Guelph Wastewater Servicing Master Plan would

Servicing Option	Advantages	Disadvantages
	<p>with the City of Guelph and funded through rates established in the Agreement.</p> <ul style="list-style-type: none"> • May be able to optimize the existing infrastructure (in City of Guelph) and reduce the need for new infrastructure. • It may provide an opportunity for the two municipalities (City of Guelph and Township) to partner for funding opportunities and share existing resources. • The coordinated approach to service delivery can result in efficiencies in infrastructure costs, water conservation, and allow for additional funds to be allocated to improved treatment and program delivery. • Provision of municipal sewage servicing (coupled with water servicing) will provide an invitation for developers to invest in the areas and promote growth in accordance with the County Official Plan – population and employment. 	<p>need to integrate servicing to the area in Township.</p> <ul style="list-style-type: none"> • Upgrades to existing wastewater infrastructure in Guelph may be required, directly or indirectly, to accommodate the inter-municipal servicing. • An inter-municipal agreement will be required to establish an inter-municipal services scheme. • The cost of any Capital Contribution and/or Capital Upgrades to secure treatment and disposal from the City of Guelph is unknown at this time and may represent a significant impact to the overall project cost.

7. Overview of Cost Recovery and Funding Opportunities

As part of this Study, potential servicing options for provision of municipal water and sewage services in the Scoped Study Area have been explored, as described in Sections 5 and 6 of this report. However, affordability and issues such as how proposed servicing would be financed, and the potential cost burden on existing businesses and potential future development will need to be established.

A review of different approaches or tools, available to municipalities in Ontario to fund water and sewer servicing has been undertaken to identify ‘order of magnitude’ cost implications. This section provides a summary of the cost recovery tools that are available to fund the capital works considered under this Feasibility Study.

The estimates of probable costs identified in Sections 5.2 and 6.2 of this report are Preliminary and subject to refinement, should the Project proceed through to a Class EA Study and implementation. A detailed Financial Plan/Cost Recovery plan would be required as part of the Municipal Class EA Study.

7.1 Capital Connection Charges

Costs related to construction may be recovered through Capital Connection Charges, which can be levied under the Municipal Act, for existing businesses benefiting from municipal servicing. Capital Connection Charges are one-time fees imposed on new customers connecting to the municipal system(s) as a condition of service, in addition to any actual cost incurred to physically connect to the system(s). Benefiting owners may be allowed to spread payments over a period of time, typically between 10 to 30 years, depending on the magnitude of the Project and the municipality's debt financing capacity.

Capital Connection Charges may be levied in different ways. Costs may be allocated based on property frontage, property area, or by the number of benefiting units. In addition, different rates may be applied based on land use (i.e. industrial/commercial). These types of charges can be levied against all lands – developed and undeveloped. If Connection Charges are only imposed on developed lands, area-specific Development Charges should be enacted to recover monies from future benefitting lands.

Development Charges would be used to recover of the growth-related portion of the costs. A background study would need to be undertaken in accordance with the Municipal Act, in addition to completion of a public meeting process and passage of the appropriate by-law. Upon Council's direction, a separate background study and by-law will need to be prepared.

The Township does not currently use Capital Connection Charges to fund municipal servicing infrastructure, as existing services in the Scoped Study Area are provided through private and/or communal systems developed as part of the subdivision approval process. However, Capital Connection Charges is a tool commonly used by municipalities in Ontario to recover capital construction costs associated with the establishment or extension of municipal infrastructure to existing developed properties.

7.2 Development Charges

Development charges are fees levied against new development to help cover the initial capital cost of infrastructure required to service growth. Under the Development Charges Act, Municipalities in Ontario are able to recover certain costs associated with non-residential growth.

Municipalities undertake a range of studies to identify servicing needs to accommodate growing populations within the municipalities' boundaries, and use this information to develop their Background Study, Development Charge Bylaw and Development Charge rates.

The Township's current Development Charge By-law (054/14) does not recover any costs associated with provision of municipal water and Wastewater servicing within the Township or within the Scoped Study Area subject to this Feasibility Study. Should the Township proceed with the provision of water and sewage servicing, the Township will need to update their

Development Charge Background Study and consider adopting area-specific development charges for new development within the Scoped Study Area.

7.3 Water and Sewage User Rates

Water and sewer user rates fund the actual operating and routine maintenance costs for the water and wastewater systems, as well as provide funding for future maintenance and ultimate replacement of the infrastructure. Uniform utility rates per Class of users are levied against all users of the system.

In order to define the Water and Sewage Rates, the Township will need to undertake a Rate Study to identify annual operating and maintenance costs as well as the required contributions to the Township's Water and Wastewater reserves.

7.4 Federal and Provincial Grants

Grant funding from senior levels of government are available to assist municipalities in funding capital projects. The Government of Canada will invest more than \$180 billion over 12 years in public transit projects, green infrastructure, social infrastructure, trade and transportation routes, and Canada's rural and northern communities. The Ontario Government is committed to making the largest infrastructure investment in the Province's history – about \$190 billion over 13 years which started in 2014-2015.

Grant funding programs available to local governments for infrastructure projects have their own unique requirements, cost-sharing arrangements, eligibility requirements, and application procedures and deadlines.

Funding Opportunities on a Federal Level include:

- Municipalities for Climate Innovation Program (MCIP): eligible for projects addressing Climate Change Mitigation or Adaption. Applications for the 5-year (2017-2022) funding program will be accepted on a continuous basis.

Funding Opportunities on a Federal / Provincial Bi-Lateral Level include:

- Clean Water and Wastewater Fund (CWWF): Funding is available up to 75% of eligible costs per eligible project (50% federal; 25% provincial). The program targets projects that will contribute to the rehabilitation of both water treatment and distribution infrastructure and existing wastewater and storm water treatment systems; collection and conveyance infrastructure; and initiatives that improve asset management, system optimization, and planning for future upgrades to water and wastewater systems. Phase 1 Round is now closed (Projects to be completed by March 2019). Phase 2 Round is scheduled to be announced in spring 2019.

Funding Opportunities on a Provincial Level include:

- Ontario Community Infrastructure Fund (OCIF) which provides steady, long-term funding for small, rural and northern communities to develop and renew their infrastructure. The total fund is increasing to \$300 million per year by 2018-19. This funding includes a Formula-based and a Top-up Application Component. By 2019, the formula-based component will increase to a total allocation of \$200 million annually. Communities will not need to apply for the funding but will need to provide planning and reporting documents to the government to receive the grants. Eligible communities with critical infrastructure projects may submit proposals to the new top-up component to bring their total OCIF funding up to \$2 million over 2 years.

A clear and up-to-date understanding of grant funding available to local governments for infrastructure projects and the unique requirements and application process for each program is needed in order to take full advantage of the needed infrastructure dollars available from federal and provincial funds.

7.5 Preliminary Cost Recovery Estimates

To provide a rough order of magnitude for cost recovery estimates, it has been assumed that capital costs will be evenly distributed amongst the total number of benefiting units within the Scoped Study Area, including commercial, industrial and institutional, on an equivalent basis. A total of 128 commercial / industrial lots, or equivalent benefiting units, have been accounted for within the project Scoped Study Area. This preliminary assumption does not distinguish between the usage of the system amongst different users, nor does this assessment consider differences in property size or frontage. A financing annual rate of 4.0% has also been used in the preliminary calculations.

Two cost recovery scenarios have been assumed to provide a preliminary cost estimate, which include:

7.5.1 Scenario A – No Funding

This scenario assumes that all capital costs associated with the servicing options will be recovered entirely by all 128 benefiting units within the Scoped Study Area. A servicing cost per unit is calculated by dividing the capital cost of the option by the total number of units (128). Options are available for benefiting property owners to pay this amount upfront, or to finance the servicing costs over a period of time in an effort to reduce the annual costs. For preliminary calculation purposes, annual payments have been spread over 10, 15 and a 20-year time period.

Preliminary cost recovery estimates under Scenario A – No Funding, for the water and sewage servicing options, outlined in Sections 5.1 and 6.1, are summarized in Tables 29 and 30. Detailed calculations for cost recovery estimates are included in Appendix D.

Table 29: Cost Recovery Estimates for Water Servicing: Scenario A – No Funding

	Option 1 – Intra-Municipal Water Servicing	Option 2 – Inter-Municipal Water Servicing
Capital Cost (\$ Millions)	\$ 22.9 M	\$ 19.9 M
Total Benefiting Units	128	128
Servicing Cost Per Unit (128 connections)	\$ 179,184	\$ 156,068
Annual Interest Rate	4.0%	4.0%
Estimated Annual Cost Per Unit:		
10-Year Period	\$ 21,770	\$ 18,961
15-Year Period	\$ 15,905	\$ 13,853
20-Year Period	\$ 13,030	\$ 11,349

Table 30: Cost Recovery Estimates for Sewage Servicing: Scenario A – No Funding

	Option 1 – Intra-Municipal Sewage Servicing	Option 2 – Inter-Municipal Sewage Servicing
Capital Cost (\$ Millions)	\$ 29.0 M	\$ 11.7 M
Total Benefiting Units	128	128
Servicing Cost Per Unit (128 connections)	\$ 226,848	\$ 91,274
Annual Interest Rate	4.0%	4.0%
Estimated Annual Cost Per Unit:		
10-Year Period	\$ 27,561	\$ 11,089
15-Year Period	\$ 20,136	\$ 8,102
20-Year Period	\$ 16,496	\$ 6,637

7.5.2 Scenario B – Funding

This scenario assumes that 2/3 of the capital costs associated with the servicing options will be funded through government funds, while the remaining 1/3 of the capital costs will be recovered through all 128 benefiting units within the Scoped Study Area. A servicing cost per unit is calculated by dividing the remaining 1/3 capital cost of the option by the total number of units (128). Annual payments have been spread over 10, 15 and a 20-year time period.

Preliminary cost recovery estimates under Scenario B – 2/3 Funding, for the water and sewage servicing options, outlined in Sections 5.1 and 6.1, are summarized in Tables 31 and 32. Detailed calculations for cost recovery estimates are included in Appendix D.

Table 31: Cost Recovery Estimates for Water Servicing: Scenario B – 2/3 Funding

	Option 1 – Intra-Municipal Water Servicing	Option 2 – Inter-Municipal Water Servicing
Capital Cost (\$ Millions)	\$ 22.9 M	\$ 19.9 M
Subsidized Cost (\$ Millions)	\$ 7,645,167	\$ 19,976,700
Total Benefiting Units	128	128
Servicing Cost Per Unit (128 connections)	\$ 59,728	\$ 52,023
Annual Interest Rate	4.0%	4.0%
Estimated Annual Cost Per Unit:		
10-Year Period	\$ 7,257	\$ 6,320
15-Year Period	\$ 5,302	\$ 4,618
20-Year Period	\$ 4,343	\$ 3,783

Table 32: Cost Recovery Estimates for Sewage Servicing: Scenario B – 2/3 Funding

	Option 1 – Intra-Municipal Sewage Servicing	Option 2 – Inter-Municipal Sewage Servicing
Capital Cost (\$ Millions)	\$ 29.0 M	\$ 11.7 M
Subsidized Cost (\$ Millions)	\$ 9,678,860	\$ 3,894,360
Total Benefiting Units	128	128
Servicing Cost Per Unit (128 connections)	\$ 75,616	\$ 30,425
Annual Interest Rate	4.0%	4.0%
Estimated Annual Cost Per Unit:		
10-Year Period	\$ 9,187	\$ 3,696
15-Year Period	\$ 6,712	\$ 2,701
20-Year Period	\$ 5,499	\$ 2,212

7.5.3 System Connection Costs

In addition to the above noted costs, industrial and commercial businesses would be required to construct private water services and sanitary building drains to connect to the municipal services on the road right-of-way.

Extension of water and wastewater services on private property is controlled under the Building Code Act. Each property connecting to the municipal system would need to obtain a plumbing permit prior to undertaking the work. This cost of extending provides water and sanitary services will vary based upon a number of factors, including:

- Proximity of the connection from the building to the connection to the street
- Restoration requirements (i.e. turf areas, driveways, walkway, landscaping, etc.)

- Competitive pricing including the reputation, experience and quality of work of the contractor
- Any other improvements, such as the removal of existing groundwater wells, septic systems, which may be made at the same time the work is being done.
- Neighbours collectively retaining the same contractor to undertake the works at the same time.

For a typical industrial/commercial property, completion of the private water service and sanitary service will typically cost in the order of \$10,000 - \$15,000 per property; however, the actual costs will be subject to the building locations to be serviced on their respective properties.

As noted earlier in this report, the Feasibility Study has assumed that all existing private groundwater wells within the Scoped Study Area will be decommissioned and disconnected from the individual plumbing system to prevent cross connections with the municipal system. Well decommissioning is regulated under the Ontario Water Resources Act and must be completed in accordance with O. Reg. 903.

Consistent with the Act, private property owners that are required to decommission their well should use a licensed well contractor. The County of Wellington through its Rural Water Quality Program provides financial assistance to qualified landowners that apply best management practices that improve and protect ground and surface water quality; which include well decommissioning. The program is administered by the Grand River Conservation Authority. A formal application would need to be completed and is to be evaluated by a committee on the basis of the potential to improve and protect water quality. Grant rates for well decommissioning cover 100 per cent of the cost, up to a maximum of \$2,500. More information is available at <https://www.grandriver.ca/en/our-watershed/Wellington.aspx>.

7.5.4 Typical Usage Charges

Estimated preliminary user charges have been developed for a typical user consuming 10 m³ of drinking water and generating 10 m³ of wastewater daily (or 300 m³ monthly), on a monthly cost basis, as seen in Table 33. However, the preliminary user charge identified below does not include life cycle costs, nor does the estimated user costs for the Inter-Municipal Servicing Options include bulk water supply and wastewater treatment charges that may be imposed by the City of Guelph. Final user charges would be established following completion of a Rate Study to be undertaken following completion of construction.

Table 33 Estimated Preliminary User Charges

	Water Servicing		Wastewater Servicing	
	Option 1	Option 2 ¹	Option 1	Option 2 ¹
Monthly Cost	\$297	\$56	\$289	\$66
1. User Rates identified for Option 2 – Inter-Municipal Servicing do not include Bulk Water Rates or Wastewater Rates which would be imposed by the City of Guelph. The Bulk Water Rate and Wastewater disposal rate to be negotiated between the Township and the City as part of the Servicing Agreement(s).				

8. Public Communication and Consultation

Public communication and consultation initiatives will be implemented in the Feasibility Study with the objective of gathering preliminary input from the users within the Scoped Study Area on the general intent of the study as well as the preliminary results of the key activities completed as part of the study.

8.1 Public Information Centre

A Public Information Centre (PIC) was held on June 24, 2019 at the Puslinch Community Centre, in Puslinch, from 6:30 p.m. to approximately 8:30 p.m. Information packages were available for all attendees, along with a questionnaire. Following the PIC, a copy of the questionnaire was distributed to all businesses and industrial property Owners within the Study area. A summary of the responses from the questionnaire is included in Appendix E.

At the PIC, a formal presentation was provided, which covered the following topics:

- Need for the Feasibility Study
- Limits of the Scoped Study Area
- Purpose of PIC
- Preliminary growth projections
- High-level water and sewage servicing options considered in the study
- Results of a preliminary assessment of high-level water and sewage servicing options
- Next steps in the study.

9. Summary and Recommendations

Population and employment growth within the Scoped Study Area have been established consistently with the projections set out in the County's Official Plan. The majority of growth will be directed to urban centres that offer municipal water and sewer servicing and, to a limited extent, to the surrounding areas that offers partial, private communal or individual on-site services. Growth will also be directed, to a lesser extent, to secondary agricultural areas, provided that the planning policies for these areas are met.

An analysis of the water demands was undertaken with a reasonable amount of background data for existing water demands within the Scoped Study Area. Reasonable water demand rates for existing users were then developed and used to estimate preliminary water use projections based on the population projections outlined within the County's Official Plan. MECP Design Guidelines for Drinking Water Systems, 2008, were also used to validate and supplement any missing information.

For sewage flows, there was no background data available. As such, theoretical numbers based on MECP Design Guidelines for Sewage Works, 2008, were assumed. Potential Industrial/Commercial/Institutional growth areas were identified and a theoretical population density (typical for many GTA and southwestern Ontario areas) was applied to such areas. Sewage flow projections also include an allowance for infiltration into the collection system. For the purpose of this study, we assumed full development of the potential Employment land areas within the 20-year horizon.

Two potential high-level water and sewage servicing options for the Scoped Study Area were identified to include Option 1 – Intra-Municipal Water or Sewage Servicing, and Option 2 – Inter-Municipal Water or Sewage Servicing. Option 2 for water and sewage servicing, consists of reliance on the Guelph water and sewage system for treatment and disposal (in the case of sewage servicing), and therefore will require the appropriate inter-municipal servicing agreements. Preliminary discussions with staff from the City of Guelph have indicated that the City would be open to discussions necessary to establish an inter-municipal servicing agreement; however, no terms and/or conditions have been identified at this stage. The Township Council would need to submit a formal request to the City of Guelph to initiate formal consideration of this Option. There are more servicing design options that should be considered (i.e. alternative locations and routing for facilities); however, the basic options and assessments outlined in this report remain valid.

On a preliminary basis and from an economic impact perspective, it appears that the Inter-Municipal servicing options for both water and sewage servicing would be preferred. However, recent correspondence from the City of Guelph indicates that there is limited available capacity in the Guelph systems to provide servicing to the Township, and that significant Capital Upgrades would be required. The initial assessment would have to be re-visited once formal discussions and negotiations proceed with the City of Guelph, and once the impacts of any Capital Contributions, Capital Upgrades, and user rates are identified.

Preliminary cost recovery estimates have been calculated based on high-level estimates of probable capital costs for the servicing options and two different cost recovery scenarios explored as part of this Feasibility Study, which include no funding and a funding mechanism through government funds.

On a preliminary basis, it appears that implementation of any of the servicing options without any government funds would create a financial burden on the benefitting property owners. In addition, industrial and commercial businesses would be required to cover system connection costs as well, which are unknown at this point. In the end, the selected cost recovery option should be based on consultation between property owners and the municipality and is influenced by the length of time required to fully fund the infrastructure works.

Various funding opportunities from both federal and provincial levels of government are available and should be explored in the future to provide a more accurate estimate of the costs.



Appendix A

Water Demand and Sewage Flow Analysis – Design Calculations



Project Title:		Puslinch Water and Sewage Feasibility Study	
Client:	Township of Puslinch		
Project No.:	T000866A		
Task:	Option Development - Water		
Prepared By:	Alexandra Laleva	Date:	18-Apr-19
Reviewed by:	Stuart Winchester	Date:	2-May-19
Revision No.:			Revision Date:

ESTIMATE WATER DEMANDS FOR WHOLE STUDY AREA			
Design Criteria			
Description	Value	Units	Comments
MECP Residential Unit Rate	270-450	L/cap/day	MECP suggested range
Calculated for Ex. Communal Systems	353.0	L/cap/day	Calculated for Meadows of Aberfoyle
	294.4	L/cap/day	Calculated for Mini Lakes
Recommended Design Rate	360.0	L/cap/day	Assumed (mid-point from MECP range of 270-450 L/cap/day)
Residential Max. Day Factor	2.00	-	Based on future residential and employment population of 5,632 as per adjacent numbers and MECP Guidelines
Safety factor for ICI future conditions	1.00		Assumed
Industrial/Commercial Max. Day Factor	3.00	-	Assumed based on MECP range between 2 and 4 for industrial uses.

Employment Forecast ¹			
Employment Breakdown	2016	2041	Comments
Primary	116	114	55% of the Total employment in 2016
Work at Home	477	560	
Industrial	2224	3360	
Commercial / Population Related	653	866	
Institutional	138	182	
NFPOW	412	548	
Total =	4020	5630	Total employment projections consistent with County's OP numbers.
Notes:			
1. As per breakdown provided by County of Wellington. Source: Watson & Associates Economists Ltd. Wellington County 2014 Growth Analysis Final Report.			

Employment Water Demands - Existing and Future (Assumes all employment except for industrial employment numbers)							
			Existing (2016) Employment Water Demands		Future (2041) Employment Water Demands		
Employment Population within Study Area	Year		Ave.		Ave.		Max.
	2016	2041	m ³ /d	L/s	m ³ /d	L/s	L/s
Employment ¹	1796	3406	646.6	7.48	1226.2	14.19	28.38
Total for Study Area =	1,796	3,406	646.6	7.5	1226.2	14.2	28.4
Total Employment Population Increase =	1,610						
Notes:							
1. It has been assumed that the existing 2224 employment numbers in 2016 have been captured within the water demands received from ex. large users.							

Employment Water Demands - Existing and Future (Assumes all employment including industrial employment numbers)							
			Existing (2016) Employment Water Demands		Future (2041) Employment Water Demands		
Employment Population within Study Area	Year		Ave.		Ave.		Max.
	2016	2041	m ³ /d	L/s	m ³ /d	L/s	L/s
Employment ¹	4020	5630	1447.2	16.75	2026.8	23.46	46.92
Total for Study Area =	4,020	5,630	1447.2	16.8	2026.8	23.5	46.9
Total Employment Population Increase =	1,610						
Notes:							
1. Assumes all employment categories including industrial							

Industrial and Commercial Water Demands - Existing and Future										
				Existing (2016) ICI Water Demands ¹		Future (2041) ICI Water Demands ²				Ex. Ave. Usage / PTTW
Large Industrial/Commercial Users	PTTW Capacity			Ave.		Ave.		Max.		
	L/d	m ³ /d	L/s	m ³ /d	L/s	m ³ /d	L/s	m ³ /d	L/s	%
Royal Canin Canada Company	240,000	240	2.8	93.8	1.1	93.8	1.1	240.0	2.8	39%
Con-Cast Pipe Inc.	450,000	450	5.2	245.3	2.8	245.3	2.8	450.0	5.2	55%
Morguard Brock McLean Limited - Maple Leaf Foods	653,760	654	7.6	21.6	0.2	21.6	0.2	64.8	0.7	3%
Nestle Canada Inc.	3,600,000	3,600	41.7	2,117.7	24.5	2,117.7	24.5	3,600.0	41.7	59%
CRH Canada Group Inc. - Dufferin Aggregates	8,182,800	8,183	94.7	134.6	1.6	134.6	1.6	403.8	4.7	2%
Capital Paving Inc.	18,371,400	18,371	212.6	280.9	3.3	280.9	3.3	842.6	9.8	2%
St. Marys Cement Inc. (Canada)	47,136,000	47,136	545.6	28,136.5	325.7	28,136.5	325.7	47,136.0	545.6	60%
Total for Study Area =	78,633,960	78,634	910.1	31,030	359.1	31,030.3	359.1	52,737.1	610.4	39%
Total Excluding Nestle & St. Marys	27,897,960	27,898	323			776.1	9.0	2,001.1	23.2	

Notes:

1. Calculated as the 2-year average between data provided from ex. large users for period between 2015 and 2016.

2. It has been assumed that future water demands from large users will remain consistent with actual demands.

WATER DEMANDS SUMMARY - 2041							
Service Area	Scenario I (Only Domestic Use for Residential)				Scenario II (Only Domestic Use for Residential + Total Employment)		
	Ave. Day Demands		Max. Day Demands		Ave. Day Demands		Max. Day Demands
	m ³ /d	L/s	m ³ /d	L/s	m ³ /d	L/s	L/s
Industrial / Commercial / Recreational	0.0	0.0	0.0	0.0	2,026.8	23.5	4,053.6
Total =	0	0.0	0.0	0.0	2,027	23.5	4,053.6

150 mm pipe

300 mm pipe

Service Area	Scenario III (Domestic, and Industrial Uses based on current demands)				Scenario IV (Domestic and Industrial Uses based on PTTWW capacity)				Scenario V (Domestic and Industrial Uses - Excluding Nestle and St. Marys Cement)			
	Ave. Day Demands		Max. Day Demands		Ave. Day Demands		Max. Day Demands		Ave. Day Demands		Max. Day Demands	
	m ³ /d	L/s	m ³ /d	L/s	m ³ /d	L/s	m ³ /d	L/s	m ³ /d	L/s	m ³ /d	L/s
Industrial / Commercial / Recreational	32,256.4	373.3	55,189.4	638.8	48,937.0	566.4	81,086.3	938.5	2,002.3	23.2	4,453.4	51.5
Total =	32,256	373.3	55,189	638.8	48,937	566.4	81,086	938.5	2,002	23.2	4,453	51.5

600 mm pipe

min. 900 mm pipe

RECOMMENDED SCENARIO:				
Provide servicing to entire service area for domestic and ICI purposes. Nestle and St. Mary's Cement to be excluded; however, a 0.1% allocation of total PTTW flows have been assumed for domestic purposes in both Nestle and St. Marys.				
Industry Name	PTTW Capacity		0.1% Allocation for Domestic	
	m3/d	L/s	m3/d	L/s
Nestle Canada Inc.	3,600	41.7	3.60	0.04
St. Marys Cement Inc. (Canada)	47,136	545.6	47.14	0.55

RECOMMENDED SCENARIO:				
Provide servicing to entire service area for domestic and ICI purposes. The use of process water for the large industrial users to be excluded; however, a 15% allocation of total PTTW flows have been assumed for domestic purposes for large Industrial/ Commerical/ Recretational users (excluding Nestle and St. Mary's).				
Industry Name	PTTW Capacity		15% Allocation for Domestic	
	m3/d	L/s	m3/d	L/s
Industrial / Commercial / Recreational (large users excluding Nestle and St. Mary's)	776	9.0	116.42	1.35

Service Type	Scenario V (Domestic and Industrial Uses - Excluding Nestle and St. Marys Cement)					
	Ave. Day Demands		Max. Day Demands		Peak Hour Demands	
	m ³ /d	L/s	m ³ /d	L/s	m ³ /d	L/s
Industrial / Commercial / Recreational (outside large users)	1,226.2	14.2	2,452.3	28.4	3,678.5	42.6
Industrial / Commercial / Recreational (large users excluding Nestle and St. Marys)	116.4	1.3	300.2	3.5	349.2	4.0
Allowance for Domestic Use at Nestle and St. Marys	50.7	0.6	152.2	1.8	152.2	1.8
Total =	1,393	16.1	2,905	33.6	4,180	48.4

Project Title:	Puslinch Water and Sewage Feasibility Study		
Client:	Township of Puslinch		
Project No.:	T000866A		
Task:	Option Development - Water Option 1A - Intra-Municipal Servicing		
Prepared By:	Alexandra Laleva	Date:	18-Apr-19
Reviewed by:	Stuart Winchester	Date:	2-May-19
Revision No. :	Revision Date:		

Option 1A - Intra-Municipal Servicing
Key Components:
Water supply - Assumes one new groundwater well
One common treatment facility providing treatment for well water. Assume good water quality requiring treament for disinfection only.
Storage facility - assumes one elevated water tower. To be located south of Aberfoyle and close to ex. industrial/employment area.
Distribution system - Assumes connection to Guelph distribution system around southern boundary for pressure Zone 3.

1. System Design Demands			
Design Demands	Units		Comments
	m3/d	L/s	
Average Day Demands	1,393.3	16.1	
Max. Day Demands	2,904.7	33.6	
Peak Hour Demands	4,179.9	48.4	
Calculated Max. Day Factor	2.1		
Peak Hour Factor	3.0		

2. Well Supply			
Criteria	Value	Units	Comments
Required Supply Demand (System Max. Day Demands)	33.6	L/s	Assumes two wells, based on capacity
No. wells (assumed)	1.0		
Well Capacity (each)	33.6	L/s	
No. of well pumps	1.0		
Capacity of well pump (each)	33.6	L/s	

2. Treatment Facility - Provision of disinfection only assumed			
Criteria	Value	Units	Comments
Required Treatment Demand (System Max. Day Demands)	33.6	L/s	Assumes only one contact chamber providing full treatment capacity
No. chlorine contact chambers (assumed)	1.0		
Tratment capacity of contact chamber	33.6	L/s	

3. Storage Facility - Storage through an Elevated Water Tower			
3.a Storage Calculations based on Risk Analysis for Emergency Storage (no fire protection)			
Criteria	Value	Units	Comments
Emergency Storage Volume			Emergency storage volume equivalent to 2 x full day's demand
System Ave. Day Demands	16	L/s	
	1,393	m3/d	
Calculated Emergency Volume	2,787	m3	
3.b Storage Calculations based on MECP Guidelines (fire protection provided)			
Criteria	Value	Units	Comments
Minimum Required Storage Volume			Fire Storage + Equalization Storage (25% of Max. Day) + Emergency Storage (25% of Fire + Equalization Storage)
System Max . Day Demands	2,905	m3/d	
Fire Storage	1,145	m3	Fire storage based on ultimate euiqvalent population of 5632 people. Based on fire flow of 159 L/s for 3 hours as per MOE guidelines Table 8-1 (value interpolated)
Equalization Storage	726	m3	
Emergency Storage	467.7	m3	
Minimum Required Storage Volume as per MOECC	2,339	m3	Separate chlorine contact chambers will provide the required disinfection requirements
	2.3	ML	

4. Distribution System					
4.a Distribution main from treatment facility to Elevated Tower					
Criteria	Value	Units	Comments		
System Max . Day Demands	34	L/s			
Assumed Watermain Diameter	300	mm			
	12	inches			
Calculated Velocity	0.48	m/s	Velocity should be lower than 1.5 m/s		
From Elevated Tower to Business Areas					
Criteria	Value	Units	Comments		
System Peak Hour Demands	48	L/s	Assumes fire flow of 159 L/s for 3 hours as per MOE guidelines Table 8-1 (value interpolated) . Greatest value between max. day + fire & Peak hour		
System Max . Day Demands	34	L/s			
System Max . Day + Fire Demands	193	L/s			
Assumed Watermain Diameter	300	mm			
	12	inches			
Calculated Velocity	2.73	m/s	Velocity should be lower than 1.5 m/s		
From Guelph/treatment facility to New Elevated Tower in Aberfoyle					
Criteria	Value	Units			Comments
Set watermain diameter of	mm	400	300	200	Note that future watermain in south Guelph expected to be 400 mm diameter
	m	0.40	0.30	0.20	
Length of distribution watermain					Approx. distance from current upper boundary of Guelph Zone 3 @ Clair Road West to proposed location of new ET in Aberfoyle. Chose 300 mm mainly to be consistent with fire flows
	m	5,400	5,400	5,400	
Pipeline Area	m2	0.126	0.071	0.031	
Pipeline Volume	m3	678.6	381.7	169.6	
System Ultimate Average Daily Flow	L/s	16.1	16.1	16.1	
System Ultimate Max. Daily Flow	L/s	33.6	33.6	33.6	
System Ultimate Peak Hour Flow	L/s	48.4	48.4	48.4	
System Max. day + Fire Flow	L/s	192.6	192.6	192.6	
Velocity under Average Flows	m/s	0.1	0.2	0.5	
Velocity under Max. Flows	m/s	0.3	0.5	1.1	
Velocity under Peak Hour Flows	m/s	0.4	0.7	1.5	
Velocity under Max. day + Fire flows	m/s	1.53	2.73	6.13	
Retention Time under Ultimate Average Flows	hrs	11.7	6.6	2.9	
Retention Time under Max. Flows	hrs	5.6	3.2	1.4	
From New Elevated Tower in Aberfoyle to Industrial and Commercial areas					
Criteria	Value	Units	Comments		
Set watermain diameter of	mm	500	400	300	Approx. length for major industrial/employment area south of Aberfoyle
	m	0.50	0.40	0.30	
Length of distribution watermain	m	6,300	6,300	6,300	
Pipeline Area	m2	0.196	0.126	0.071	
Pipeline Volume	m3	1237.0	791.7	445.3	
System Ultimate Average Daily Flow	L/s	16.1	16.1	16.1	
System Ultimate Max. Daily Flow	L/s	33.6	33.6	33.6	
System Ultimate Peak Hour Flow	L/s	48.4	48.4	48.4	
System Max. day + Fire Flow	L/s	192.6	192.6	192.6	
Velocity under Average Flows	m/s	0.08	0.13	0.23	
Velocity under Max. Flows	m/s	0.17	0.27	0.48	
Velocity under Peak Hour Flows	m/s	0.25	0.38	0.68	
Velocity under Max. day + Fire flows	m/s	1.0	1.5	2.7	Chose 300 mm to satisfy max. day + fire flow conditions in major industrial/employment area
Retention Time under Ultimate Average Flows	hrs	21.3	13.6	7.7	
Retention Time under Max. Flows	hrs	10.2	6.5	3.7	

Project Title:	Puslinch Water and Sewage Feasibility Study		
Client:	Township of Puslinch		
Project No.:	T000866A		
Task:	Option Development - Wastewater		
Prepared By:	A. Laleva	Date:	29-Apr-19
Reviewed by:	S. Winchester	Date:	10-May-19
Revision No. :		Revision Date:	

ESTIMATE WATER DEMANDS FOR WHOLE STUDY AREA			
Design Criteria			
Description	Value	Units	Comments
Water Unit Consumption Rate	360.0	L/cap/day	Assumed
Wastewater Flow Rate	360.0	L/cap/day	Assumed to be consistent with water consumption - Very conservative
Peak Infiltration / Inflow Rate for Industrial / Commercial Areas	10,110	L/ha/day	Low end of MECP Guidelines, new system should have low I&I contribution
Population densities for Industrial / Commercial	83	person/ha	Assuming 30 m3/ha/d (low end of MOECC Guideline) and 360 L/cap/d, this would equeate to approx. 83 ppha.
Peak Factor	varies	-	Calculated for each area based on Harmon Formula

Industrial and Commercial Wastewater Flows - Existing (2016)								
					Existing ICI Wastewater Flows			
Large Industrial/Commercial/Recreational Users	Drainage Area		Equivalent ICI Population	Calculated Peak Factor	Average Flow (for Treatment)		Peak Flows (for Sewer Capacity)	
	Total	Contributing						
	Ha	Ha	people		m³/d	L/s	m³/d	L/s
Within Aberfoyle	2,435	48.4	4,020	3.33	1,447.2	16.75	4,821.2	83.82
Total for Study Area =	2,435	48.4	4,020	3.3	1,447	16.7	4,821	83.8
Notes: 1. Includes all employment categories including industrial. 2. Future average day flows for large users assume a unit generation rate of 360 L/cap/cay. 3. Future peak day flows assume an I&I rate of 10,110 L/ha/d and peak factor calculated based on Harmon Formula. 4. Includes existing gravel extraction areas that are excluded from current infiltration allowance calculations								

Industrial and Commercial Wastewater Flows - Future (2041)								
					Future ICI Wastewater Flows			
Large Industrial/Commercial/Recreational Users	Drainage Area		Equivalent ICI Population	Calculated Peak Factor	Average Flow (for Treatment)		Peak Flows (for Sewer Capacity)	
	Total	Contributing						
	Ha	Ha	people		m³/d	L/s	m³/d	L/s
Within Aberfoyle	2,435	67.8	5,630	3.20	2,026.8	23.46	6,479.4	82.93
Total for Study Area =	2,435	2,435	5,630	3.2	2,027	23.5	6,479	82.9
Notes: 1. Includes all employment categories including industrial. 2. Future average day flows for large users assume a unit generation rate of 360 L/cap/cay. 3. Future peak day flows assume an I&I rate of 10,110 L/ha/d and peak factor calculated based on Harmon Formula. 4. Includes existing gravel extraction areas that are excluded from current infiltration allowance calculations								

ICI FLOWS SUMMARY - 2041				
Service Area	Average Flow (for Treatment)		Peak Flows (for Sewer Capacity)	
	m³/d	L/s	m³/d	m³/d
Industrial / Commercial / Recreational	2,027	23.5	6,479.4	82.9

B

Appendix B

Probable Costs Estimates – Detailed Calculations

CAPITAL AND OPERATION & MAINTENANCE COST

Project Title: Puslinch Water and Sewage Feasibility Study

Client: Township of Puslinch

Project No.: T000866A

Task: Water Servicing Option Development - Option 1 Probable Cost

Prepared By: Alexandra Laleva

Reviewed by: S. Winchester

Revision No.: 1

Date: 18-Apr-19

Date: 2-May-19

Revision Date:

CAPITAL AND OPERATION & MAINTENANCE COST

Option 1A - Intra-Municipal System

System Description	Quantity	Unit	Material		Labour		Total Material & Labour	Sub Total Cost	Comments	
			Unit Cost	Total Material Cost	% of Material	Total Labour Cost				
Supply and Treatment										
Preliminary Studies and Approvals - hydrogeological study and testing	1	LS	\$ 500,000	\$ 500,000	50%	\$ 250,000	\$ 750,000			
Construction of new production wells (assumed 2), equipped with well pumps	1	LS	\$ 150,000	\$ 150,000	50%	\$ 75,000	\$ 225,000			
New treatment facility (assumes 15mx10m footprint)	150	m2	\$ 2,000	\$ 300,000	50%	\$ 150,000	\$ 450,000			
Piping, valves and fittings	1	LS	\$ 50,000	\$ 50,000	50%	\$ 25,000	\$ 75,000			
Instrumentation	1	LS	\$ 35,000	\$ 35,000	30%	\$ 10,500	\$ 45,500			
Sodium Hypochlorite System - disinfection	1	each	\$ 50,000	\$ 50,000	30%	\$ 15,000	\$ 65,000			
Electrical (standby diesel generator, service entrance, control panels, motor starters, controls and automation)	1	LS	\$ 450,000	\$ 450,000	50%	\$ 225,000	\$ 675,000			
Mechanical (HVAC system, lighting)	1	LS	\$ 75,000	\$ 75,000	50%	\$ 37,500	\$ 112,500			
Site Works (includes site grading, excavation, trenching, backfilling)	1	LS	\$ 250,000	\$ 250,000	50%	\$ 125,000	\$ 375,000			
Contact Chambers for disinfection	1	LS	\$ 250,000	\$ 250,000	50%	\$ 125,000	\$ 375,000			
Other site works (watermain, driveway, fences, gates, sodding, etc.)	1	LS	\$ 100,000	\$ 100,000	50%	\$ 50,000	\$ 150,000			
Power upgrades to 3 phase	1	LS	\$ 75,000	\$ 75,000	50%	\$ 37,500	\$ 112,500			
Property acquisition - treatment facility	1.0	acres	\$ 300,000	\$ 300,000		\$ -	\$ 300,000		Assumed \$300,000/acre as per info provide by real state agent in Puslinch.	
Property acquisition - storage facility	1.00	acres	\$ 300,000	\$ 300,000		\$ -	\$ 300,000		Assumed \$300,000/acre as per info provide by real state agent in Puslinch.	
Sub-total Capital Cost for New Well Pump =								\$ 4,010,500		
Storage and Distribution System										
New Elevated water tower (2,500 m3)	1	LS	\$ 3,500,000	\$ 3,500,000	incl		\$ 3,500,000		Provided by M. Elliott	
300 mm diameter watermain	11,700	m	\$ 710	\$ 8,307,000	incl		\$ 8,307,000		Measured from GIS	
Sub-total Capital Cost for Connecting Watermain =								\$ 11,807,000		
SUB-TOTAL CAPITAL COST IN CURRENT YEAR (2018) =								\$ 15,817,500		
Contingency (20%) =								\$ 3,163,500		
Engineering and Construction (15%) =								\$ 2,372,700		
Contractor Overhead (10%) =								\$ 1,581,800		
TOTAL CAPITAL COST IN CURRENT YEAR (2018) =								\$ 22,935,500		
OPERATION AND MAINTENANCE COST										
Area	Item	QTY	Unit	Unit Cost (\$)	Annual Cost	Subtotal	Comments			
Pumping Cost	Well Pumps Annual									
	Electrical Cost	\$ 1	LS	\$ 15,000	\$ 10,000					
Sub-Total Well Pumps =						\$ 10,000				
Chemical Systems	NaOCl at new well pump facility for primary disinfection									
		\$ 1	LS	\$ 5,000	\$ 5,000					
Sub-Total Chemical Systems =						\$ 5,000				
Miscellaneous O&M	Equipment maintenance, contracts and agreements	1	LS	\$ 30,000	\$ 30,000					
	Pumps parts and replacement, materials, for new facility	1	LS	\$ 15,000	\$ 15,000					
	Sub-Total Regulatory Requirements =					\$ 45,000				
Labour	Labour	1	LS	\$ 350,000	\$ 350,000		Assumed that Town will retain an Operating Agency to operate the system on their behalf. High-level cost provided by OCWA in email on February 20, 2018.			
	Sub-Total Regulatory Requirements =					\$ 350,000				
Regulatory Requirements	Lab and reporting	1	LS	\$ 10,000	\$ 10,000					
	Sub-Total Regulatory Requirements =					\$ 10,000				
TOTAL O&M COST IN CURRENT YEAR (2018) =						\$ 420,000				
Contingency (20%) =						\$ 84,000				
TOTAL O&M COST IN CURRENT YEAR (2018) =						\$ 504,000				

Project Title: Puslinch Water and Sewage Feasibility Study

Client: Township of Puslinch

Project No.: T000866A

Task: Water Servicing Option Development - Option 1 Probable Cost

Prepared By: Alexandra Laleva

Reviewed by: S. Winchester

Revision No. : 2

Date: 18-Apr-19

Date: 2-May-19

Revision Date:

LIFE CYCLE COST

Option 1A - Intra-Municipal System

Economic Factors

Interest rate (%) 6%

Inflation rate (%) 2.0%

Project Start Year (Year n) 2020

Planning Period (yrs) 20

Cost in Year n = Cost in Current Year x (1+inflation Rate)^(Year n - Current Year)

Present Value = Cost / ((1+Interest Rate)^(Year n - Current Year))

20-Year NPV					
Year	Capital Cost	NPV Capital Cost	Operating Cost	NPV Operating Cost	Capital and Operating NPV
2018	\$22,935,500		\$504,000		
2019	\$0		\$0		
2020	\$23,862,094	\$21,237,179	\$524,362	\$466,680	\$21,703,859
2021	\$0	\$0	\$534,849	\$449,069	\$449,069
2022	\$0	\$0	\$545,546	\$432,123	\$432,123
2023	\$0	\$0	\$556,457	\$415,817	\$415,817
2024	\$0	\$0	\$567,586	\$400,126	\$400,126
2025	\$0	\$0	\$578,938	\$385,027	\$385,027
2026	\$0	\$0	\$590,516	\$370,497	\$370,497
2027	\$0	\$0	\$602,327	\$356,516	\$356,516
2028	\$0	\$0	\$614,373	\$343,063	\$343,063
2029	\$0	\$0	\$626,661	\$330,117	\$330,117
2030	\$862,404	\$428,589	\$639,194	\$317,660	\$746,248
2031	\$0	\$0	\$651,978	\$305,673	\$305,673
2032	\$0	\$0	\$665,017	\$294,138	\$294,138
2033	\$0	\$0	\$678,318	\$283,038	\$283,038
2034	\$0	\$0	\$691,884	\$272,358	\$272,358
2035	\$0	\$0	\$705,722	\$262,080	\$262,080
2036	\$0	\$0	\$719,836	\$252,190	\$252,190
2037	\$0	\$0	\$734,233	\$242,674	\$242,674
2038	\$0	\$0	\$748,917	\$233,516	\$233,516
2039	\$0	\$0	\$763,896	\$224,704	\$224,704
2040	\$1,051,266	\$291,732	\$779,174	\$216,225	\$507,956
Sub-Total NPV value =		\$21,957,499		\$6,853,289	
Total NPV value (20 years) =			\$28,810,800		\$28,810,800

Capital Cost Breakdown Every 10 Years :

Well Pump House	Cost every 10 years	Comments
Building envelope, disinfection system, media regeneration, equipment =	\$100,000	Assumed
Well rehabilitation (2 wells) =	\$80,000	Assumed
Elevated Tank (inspection, coating, etc.) =	\$500,000	
Total Capital Cost New Well Pump House / 10 years	\$680,000	

Total Additional Capital Cost / 10 years = \$680,000

CAPITAL AND OPERATION & MAINTENANCE COST

Project Title: Puslinch Water and Sewage Feasibility Study

Client: Township of Puslinch

Project No.: T000866A

Task: Water Servicing Option Development - Option 2 Probable Cost

Prepared By: Alexandra Laleva

Reviewed by: S. Winchester

Revision No.: 1

Date: 18-Apr-19

Date: 2-May-19

Revision Date:

CAPITAL AND OPERATION & MAINTENANCE COST

Option 1B - Inter-Municipal System

System Description	Quantity	Unit	Material		Labour		Total Material & Labour	Sub Total Cost	Comments
			Unit Cost	Total Material Cost	% of Material	Total Labour Cost			
Supply									
Connection to ex. Guelph distribution system, including metering facility	1	LS	\$ 250,000	\$ 250,000	50%	\$ 125,000	\$ 375,000		
Pressure Control Station	1	LS	\$ 1,000,000	\$ 1,000,000	50%	\$ 500,000	\$ 1,500,000		Assumed by S.Rodriguez
Property acquisition - Pressure Control station	0.5	acres	\$ 300,000	\$ 150,000		\$ -	\$ 150,000		Assumed \$300,000/acre as per info provide by real state agent in Puslinch.
Property acquisition - storage facility	1.0	acres	\$ 300,000	\$ 300,000		\$ -	\$ 300,000		Assumed \$300,000/acre as per info provide by real state agent in Puslinch.
Sub-total Capital Cost for New Well Pump =								\$ 2,325,000	
Storage and Distribution									
New Elevated water tower (2,500 m3)	1	LS	\$ 3,500,000	\$ 3,500,000	incl		\$ 3,500,000		Provided by M. Elliott
300 mm diameter watermain	11,200	m	\$ 710	\$ 7,952,000	incl		\$ 7,952,000		Assumes installation in shoulder of road
Sub-total Capital Cost for Connecting Watermain =							\$ 11,452,000		
SUB-TOTAL CAPITAL COST IN CURRENT YEAR (2018) =							\$ 13,777,000		
Contingency (20%) =							\$ 2,755,400		
Engineering and Construction (15%) =							\$ 2,066,600		
Contractor Overhead (10%) =							\$ 1,377,700		
TOTAL CAPITAL COST IN CURRENT YEAR (2018) =							\$ 19,976,700		

OPERATION AND MAINTENANCE COST

Area	Item	QTY	Unit	Unit Cost (\$)	Annual Cost	Subtotal	Comments
Pumping Cost	Well Pumps Annual Electrical Cost	\$ 1	LS	\$ 15,000	\$ 10,000		
	Sub-Total Well Pumps =					\$ 10,000	
Chemical Systems	NaOCl at new well pump facility for primary disinfection	\$ 1	LS	\$ 2,000	\$ 2,000		In case they want to do re-chlorination at the storage facility
	Sub-Total Chemical Systems =					\$ 2,000	
Miscellaneous O&M	Equipment maintenance, contracts and agreements	1	LS	\$ 10,000	\$ 10,000		
	Pumps parts and replacement, materials, for new facility	1	LS	\$ 5,000	\$ 5,000		
	Sub-Total Regulatory Requirements =					\$ 15,000	
Labour	Labour	1	LS		\$ 50,000		Assumed
	Sub-Total Regulatory Requirements =					\$ 50,000	
Regulatory Requirements	Lab and reporting	1	LS	\$ 2,500	\$ 2,500		
	Sub-Total Regulatory Requirements =					\$ 2,500	
TOTAL O&M COST IN CURRENT YEAR (2018) =						\$ 79,500	
Contingency (20%) =						\$ 15,900	
TOTAL O&M COST IN CURRENT YEAR (2018) =						\$ 95,400	

Project Title: Puslinch Water and Sewage Feasibility Study

Client: Township of Puslinch

Project No.: T000866A

Task: Water Servicing Option Development - Option 2 Probable Cost

Prepared By: Alexandra Laleva

Date: 18-Apr-19

Reviewed by: S. Winchester

Date: 8-May-19

Revision No.: 2

Revision Date: 13-May-19

LIFE CYCLE COST

Option 1B - Inter-Municipal System

Economic Factors

Interest rate (%) 6%

Inflation rate (%) 2.0%

Project Start Year (Year n) 2020

Planning Period (yrs) 20

Cost in Year n = Cost in Current Year x (1+inflation Rate)^(Year n - Current Year)

Present Value = Cost / ((1+Interest Rate)^(Year n - Current Year))

20-Year NPV

Year	Capital Cost	NPV Capital Cost	Operating Cost	NPV Operating Cost	Capital and Operating NPV
2018	\$19,976,700		\$95,400		
2019	\$0		\$0		
2020	\$20,783,759	\$18,497,471	\$99,254	\$88,336	\$18,585,807
2021	\$0	\$0	\$101,239	\$85,002	\$85,002
2022	\$0	\$0	\$103,264	\$81,795	\$81,795
2023	\$0	\$0	\$105,329	\$78,708	\$78,708
2024	\$0	\$0	\$107,436	\$75,738	\$75,738
2025	\$0	\$0	\$109,585	\$72,880	\$72,880
2026	\$0	\$0	\$111,776	\$70,130	\$70,130
2027	\$0	\$0	\$114,012	\$67,483	\$67,483
2028	\$0	\$0	\$116,292	\$64,937	\$64,937
2029	\$0	\$0	\$118,618	\$62,486	\$62,486
2030	\$697,533	\$346,653	\$120,990	\$60,128	\$406,781
2031	\$0	\$0	\$123,410	\$57,859	\$57,859
2032	\$0	\$0	\$125,878	\$55,676	\$55,676
2033	\$0	\$0	\$128,396	\$53,575	\$53,575
2034	\$0	\$0	\$130,964	\$51,553	\$51,553
2035	\$0	\$0	\$133,583	\$49,608	\$49,608
2036	\$0	\$0	\$136,255	\$47,736	\$47,736
2037	\$0	\$0	\$138,980	\$45,935	\$45,935
2038	\$0	\$0	\$141,759	\$44,201	\$44,201
2039	\$0	\$0	\$144,595	\$42,533	\$42,533
2040	\$850,289	\$235,959	\$147,486	\$40,928	\$276,888
Sub-Total NPV value =		\$19,080,083		\$1,297,230	
Total NPV value (20 years) =			\$20,377,400		\$20,377,400

Capital Cost Breakdown Every 10 Years :

Well Pump House	Cost every 10 years	Comments
PS building envelope, equipment =	\$50,000	Assumed
Elevated Tank (inspection, coating, etc.) =	\$500,000	
Total Capital Cost New Well Pump House / 10 years	\$550,000	

Total Additional Capital Cost / 10 years = \$550,000



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Statement of Probable Costs (+/- 35%)

Wastewater Servicing Option 1

CIMA Project No: T000866A
Date: 10/05/2019

1.0 Construction

1.10	Gravity Sanitary Sewer	\$	5,290,000.00
1.20	Pumping Station	\$	1,266,000.00
1.30	Forcemains	\$	1,365,000.00
1.40	Wastewater Treatment	\$	13,120,000.00
Sub-total		\$	21,041,000.00
Contingency Allowance (@20%)			\$4,208,200.00
Sub-Total - Construction		\$	25,249,200.00
Engineering (@ 15%)			\$3,787,380.00
Sub-Total - Project		\$	29,036,580.00

2.0 Operating and Maintenance

2.10	Gravity Sanitary Sewer	\$	50,000.00
2.20	Pumping Station	\$	75,000.00
2.30	Forcemains	\$	39,000.00
2.40	Wastewater Treatment	\$	550,000.00
Annual Operating and Maintenance Costs		\$	714,000.00

3.0 20 Year Life Cycle Costs

3.10	Net Present Value - Construction	\$	29,036,580.00
3.20	Net Present Value - Operating and Maintenance	\$	9,829,495.20
Net Present Value - Option 1		\$	38,866,075.20

Date: Friday, May 10, 2019
Date: Monday, May 13, 2019

Prepared By: A. Laleva
Checked By: S. Wincehster, P.Eng.

Puslinch Water and Wastewater Feasibility Study
PRELIMINARY COST ESTIMATE for WASTEWATER SERVICING
PROBABLE COST BREAKDOWN

SECTION 1 - Gravity Sewer System

Item No.	Description	Est. Quantity	Unit	Unit Price	Total Price
1.00	Gravity Sanitary Sewer	8,510			\$5,287,500.00
a)	200mm dia. to 250mm dia.	6,940	Lm	\$500.00	\$3,470,000.00
b)	300mm dia. To 375mm dia.	1,570	Lm	\$750.00	\$1,177,500.00
1.01	200mm dia. Service Connections	128	ea.	\$5,000.00	\$640,000.00

TOTAL SECTION 1
(Transfer to Summary Sheet)

\$5,290,000.00

SECTION 2 - Pump Station

Item No.	Description	Est. Quantity	Unit	Unit Price	Total Price
2.00	Pumping Station (Aberfoyle) Peak flow for 2041 = 83.0 L/s	1	LS	-	\$1,266,000.00
a)	Site acquisition	1	LS	\$200,000.00	\$200,000.00
b)	Inlet chamber	1	LS	\$15,000.00	\$15,000.00
c)	Wet/dry-well	1	LS	\$525,000.00	\$525,000.00
d)	Pumps	3	LS	\$4,500.00	\$13,500.00
e)	Structure	1	LS	\$250,000.00	\$250,000.00
f)	Piping	30	Lm	\$750.00	\$22,500.00
g)	Electrical/Mechanical/SCADA	1	LS	\$150,000.00	\$150,000.00
h)	Civil site works	1	LS	\$90,000.00	\$90,000.00
i)	Operation and Maintenance Cost	1	LS	\$25,000.00	\$25,000.00

TOTAL SECTION 2
(Transfer to Summary Sheet)

\$1,266,000.00

SECTION 3 - Sanitary Forcemain

Item No.	Description	Est. Quantity	Unit	Unit Price	Total Price
3.00	Sanitary Forcemain				
a)	250mm Ø including all appurtenances	2730	m	\$500.00	\$1,365,000.00

TOTAL SECTION 3
(Transfer to Summary Sheet)

\$1,365,000.00

SECTION 4 - Wastewater Treatment

Item No.	Description	Est. Quantity	Unit	Unit Price	Total Price
4.00	6500m3/day WWTP	6,500	m3	\$1,930.00	\$12,545,000.00
a)	Site Acquisition	1	LS	\$500,000.00	\$500,000.00
b)	Division 1 - General Requirements	1	LS		\$620,000.00
c)	Division 2 - Site Works	1	LS		\$1,130,000.00
d)	Division 3 - Concrete	1	LS		\$3,340,000.00
e)	Division 4 - Masonry	1	LS		\$510,000.00
f)	Division 5 - Metals	1	LS		\$640,000.00
g)	Division 6 - Wood and Plastics	1	LS		\$60,000.00
h)	Division 7 - Thermal and Moisture Protection	1	LS		\$260,000.00
i)	Division 8 - Doors and Windows	1	LS		\$180,000.00
j)	Division 9 - Finishes	1	LS		\$130,000.00
k)	Division 10 - Specialties	1	LS		\$20,000.00
l)	Division 11 - Equipment	1	LS		\$3,570,000.00
m)	Division 12 - Special Construction	1	LS		\$30,000.00
n)	Division 13 - Control and Instrumentation	1	LS		\$390,000.00
o)	Division 14 - Conveying and Hoisting Equipment	1	LS		\$20,000.00
p)	Division 15 - Mechanical	1	LS		\$580,000.00
q)	Division 16 - Electrical	1	LS		\$1,140,000.00
r)	Operation and Maintenance Cost	1	Yr	\$550,000.00	\$550,000.00

TOTAL SECTION 4
(Transfer to Summary Sheet)

\$13,120,000.00



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101 Frederick Street, Suite 900
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Statement of Probable Costs (+/- 35%)

Wastewater Servicing Option 2

CIMA Project No: T000866A
Date: 10/05/2019

1.0 Construction

1.10	Gravity Sanitary Sewer	\$	5,290,000.00
1.20	Pumping Stations	\$	1,566,000.00
1.30	Forcemains	\$	1,610,000.00
Sub-total		\$	8,466,000.00
Contingency Allowance (@20%)			\$1,693,200.00
Sub-Total - Construction		\$	10,159,200.00
Engineering (@ 15%)			\$1,523,880.00
Sub-Total - Construction		\$	11,683,080.00

2.0 Operating and Maintenance

2.10	Gravity Sanitary Sewer	\$	50,000.00
2.20	Pumping Stations	\$	75,000.00
2.30	Forcemains	\$	39,000.00
Annual Operating and Maintenance Costs		\$	164,000.00

3.0 20 Year Life Cycle Costs

3.10	Net Present Value - Construction	\$	11,683,080.00
3.20	Net Present Value - Operating and Maintenance	\$	2,257,755.20
Net Present Value - Option 2		\$	13,940,835.20

Date: Friday, May 10, 2019
Date: Monday, May 13, 2019

Prepared By: A. Laleva
Checked By: S. Wincehster, P.Eng.

Puslinch Water and Wastewater Feasibility Study
PRELIMINARY COST ESTIMATE for WASTEWATER SERVICING
PROBABLE COST BREAKDOWN

SECTION 1 - Gravity Sewer System

Item No.	Description	Est. Quantity	Unit	Unit Price	Total Price
1.00	Gravity Sanitary Sewer	8,510			\$5,287,500.00
a)	200mm dia. To 250mm dia.	6,940	Lm	\$500.00	\$3,470,000.00
b)	300mm dia. To 375mm dia.	1,570	Lm	\$750.00	\$1,177,500.00
1.03	200mm dia. Service Connections	128	ea.	\$5,000.00	\$640,000.00

TOTAL SECTION 1
(Transfer to Summary Sheet) **\$5,290,000.00**

SECTION 2 - Pump Station

Item No.	Description	Est. Quantity	Unit	Unit Price	Total Price
2.00	Pumping Station (Aberfoyle) Peak flow for 2041 = 83.0 L/s	1	LS	-	\$1,566,000.00
a)	Site acquisition	1	LS	\$200,000.00	\$200,000.00
b)	Inlet chaimber	1	LS	\$15,000.00	\$15,000.00
c)	Wet/dry-well	1	LS	\$525,000.00	\$525,000.00
d)	Pumps	3	LS	\$4,500.00	\$13,500.00
e)	Structure	1	LS	\$250,000.00	\$250,000.00
f)	Piping	30	Lm	\$750.00	\$22,500.00
g)	Electrical/Mechanical/SCADA	1	LS	\$150,000.00	\$150,000.00
h)	Civil site works	1	LS	\$90,000.00	\$90,000.00
i)	Emergency Storage	1	LS	\$300,000.00	\$300,000.00
j)	Operation and Maintenance Cost	1	LS	\$30,000.00	\$30,000.00

TOTAL SECTION 2
(Transfer to Summary Sheet) **\$1,566,000.00**

SECTION 3 - Sanitary Forcemain

Item No.	Description	Est. Quantity	Unit	Unit Price	Total Price
3.00	Sanitary Forcemain				
	250mm Ø including all appurtenances	3220	m	\$500.00	\$1,610,000.00

TOTAL SECTION 3
(Transfer to Summary Sheet) **\$1,610,000.00**

WATER SERVICING INFRASTRUCTURE AVERAGE UNIT PRICES (2019 - Southwestern Region)

A) Watermain Installation with Minimum Restoration (Top Soil and Seed only) (FOR INSTALLATION IN DITCHES)

	Nom. Pipe Size	Outer Diameter	Depth to Invert	Minimum Trench Width	Excavation		Bedding		Pipe		Backfill		Restoration Allowance	Subtotal Unit Cost	Appurtenance Allowance	Subtotal Unit Cost	Dewatering Allowance	Subtotal Unit Cost	Conting @20%	Eng. @15%	TOTAL (excl. HST)
	Vol.	Cost	Vol.	Cost	Cost	Installation	Vol.	Cost													
	(mm)	(m)	(m)	(m)	(m³)	(\$/m)	(m³)	(\$/m)	(\$/m)	(\$/m)	(m³)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)
PVC	100	0.14	2.4	0.74	2.8	16.80	0.44	19.70	24.80	2.48	2.80	14.00	40.00	117.78	59.00	176.78	10	186.78	37.40	33.60	260.00
	150	0.20	2.4	0.80	3.10	18.60	0.52	23.40	38.25	3.83	2.85	14.30	40.00	138.38	59.00	197.38	10	207.38	41.50	31.11	280.00
	200	0.26	2.4	0.86	3.4	20.40	0.61	27.50	63.00	6.30	2.90	14.50	40.00	171.70	64.00	235.70	10	245.70	49.10	36.86	340.00
	250	0.33	2.4	0.93	3.7	22.20	0.73	32.70	91.00	9.10	2.95	14.80	40.00	209.80	67.00	276.80	10	286.80	57.40	43.02	390.00
	300	0.38	2.4	0.98	4.0	24.00	0.81	36.70	124.50	12.45	3.00	15.00	40.00	252.65	80.00	332.65	15	347.65	69.50	52.15	470.00
	350	0.45	2.4	1.05	4.4	26.40	0.94	42.60	279.00	27.90	3.00	15.00	40.00	430.90	85.00	515.90	15	530.90	106.20	79.64	720.00
	400	0.50	2.4	1.10	4.5	27.00	1.04	47.10	312.00	31.20	3.05	15.30	40.00	472.60	103.00	575.60	15	590.60	118.10	88.59	800.00
	450	0.55	2.4	1.15	4.6	27.60	1.15	51.80	385.00	38.50	3.05	15.30	40.00	558.20	123.00	681.20	15	696.20	139.20	104.43	940.00
	500	0.60	2.4	1.20	4.9	29.40	1.26	56.70	450.00	45.00	3.05	15.30	40.00	636.40	134.00	770.40	20	790.40	158.10	118.56	1,070.00
600	0.73	2.4	1.33	5.8	34.80	1.57	70.70	719.00	71.90	3.05	15.30	40.00	951.70	174.00	1,125.70	20	1,145.70	229.10	171.86	1,550.00	
CPP	750	0.90	2.4	1.50	7.0	42.00	2.02	91.20	850.00	85.00	3.00	15.00	40.00	1,123.20	150.00	1,273.20	20	1,293.20	258.60	193.98	1,750.00
	900	1.10	3.0	1.70	8.7	52.20	2.63	118.60	1,000.00	100.00	3.35	16.80	40.00	1,327.60	180.00	1,507.60	20	1,527.60	305.50	229.14	2,070.00

B) Watermain Installation with Granular Road Restoration

	Nom. Pipe Size	Outer Diameter	Depth to Invert	Minimum Trench Width	Excavation		Bedding		Pipe		Backfill		Restoration Allowance	Subtotal Unit Cost	Appurtenance Allowance	Subtotal Unit Cost	Dewatering Allowance	Subtotal Unit Cost	Conting @20%	Eng. @15%	TOTAL (excl. HST)
					Vol.	Cost	Vol.	Cost	Cost	Installation	Vol.	Cost									
	(mm)	(m)	(m)	(m)	(m³)	(\$/m)	(m³)	(\$/m)	(\$/m)	(\$/m)	(m³)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)
PVC	100	0.14	2.4	0.74	2.8	16.80	0.44	19.70	24.80	2.48	2.80	14.00	72.00	149.78	59.00	208.78	10	218.78	43.80	39.40	310.00
	150	0.20	2.4	0.80	3.10	18.60	0.52	23.40	38.25	3.83	2.85	14.30	72.00	170.38	59.00	229.38	10	239.38	47.90	35.91	330.00
	200	0.26	2.4	0.86	3.4	20.40	0.61	27.50	63.00	6.30	2.90	14.50	72.00	203.70	64.00	267.70	10	277.70	55.50	41.66	380.00
	250	0.33	2.4	0.93	3.7	22.20	0.73	32.70	91.00	9.10	2.95	14.80	72.00	241.80	67.00	308.80	10	318.80	63.80	47.82	440.00
	300	0.38	2.4	0.98	4.0	24.00	0.81	36.70	124.50	12.45	3.00	15.00	72.00	284.65	80.00	364.65	15	379.65	75.90	56.95	520.00
	350	0.45	2.4	1.05	4.4	26.40	0.94	42.60	279.00	27.90	3.00	15.00	72.00	462.90	105.00	567.90	15	582.90	116.60	87.44	790.00
	400	0.50	2.4	1.10	4.5	27.00	1.04	47.10	312.00	31.20	3.05	15.30	72.00	504.60	123.00	627.60	15	642.60	128.50	96.39	870.00
	450	0.55	2.4	1.15	4.6	27.60	1.15	51.80	385.00	38.50	3.05	15.30	72.00	590.20	153.00	743.20	15	758.20	151.60	113.73	1,030.00
	500	0.60	2.4	1.20	4.9	29.40	1.26	56.70	450.00	45.00	3.05	15.30	72.00	668.40	164.00	832.40	20	852.40	170.50	127.86	1,160.00
600	0.73	2.4	1.33	5.8	34.80	1.57	70.70	719.00	71.90	3.05	15.30	72.00	983.70	194.00	1,177.70	20	1,197.70	239.50	179.66	1,620.00	
CPP	750	0.90	2.4	1.50	7.0	42.00	2.02	91.20	850.00	85.00	3.00	15.00	72.00	1,155.20	150.00	1,305.20	20	1,325.20	265.00	198.78	1,790.00
	900	1.10	3.0	1.70	8.7	52.20	2.63	118.60	1,000.00	100.00	3.35	16.80	72.00	1,359.60	180.00	1,539.60	20	1,559.60	311.90	233.94	2,110.00

C) Watermain Installation with with Road Restoration (Assumes 1 Lane restored, along with Curb & Gutter, and Sidewalk one side)

	Nom. Pipe Size	Outer Diameter	Depth to Invert	Minimum Trench Width	Excavation		Bedding		Pipe		Backfill		Restoration Allowance	Subtotal Unit Cost	Appurtenance Allowance	Subtotal Unit Cost	Dewatering Allowance	Subtotal Unit Cost	Conting @20%	Eng. @15%	TOTAL (excl. HST)
	Vol.	Cost	Vol.	Cost	Cost	Installation	Vol.	Cost													
	(mm)	(m)	(m)	(m)	(m³)	(\$/m)	(m³)	(\$/m)	(\$/m)	(\$/m)	(m³)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)
PVC	100	0.14	2.4	0.74	2.8	16.80	0.44	19.70	24.80	2.48	2.80	14.00	214.12	291.90	59.00	350.90	10	360.90	72.20	65.00	500.00
	150	0.20	2.4	0.80	3.1	18.60	0.52	23.40	38.25	3.83	2.85	14.30	214.12	312.50	59.00	371.50	10	381.50	76.30	57.22	520.00
	200	0.26	2.4	0.86	3.4	20.40	0.61	27.50	63.00	6.30	2.90	14.50	214.12	345.82	64.00	409.82	10	419.82	84.00	62.97	570.00
	250	0.33	2.4	0.93	3.7	22.20	0.73	32.70	91.00	9.10	2.95	14.80	214.12	383.92	67.00	450.92	10	460.92	92.20	69.14	630.00
	300	0.38	2.4	0.98	4.0	24.00	0.81	36.70	124.50	12.45	3.00	15.00	214.12	426.77	80.00	506.77	15	521.77	104.40	78.27	710.00
	350	0.45	2.4	1.05	4.4	26.40	0.94	42.60	279.00	27.90	3.00	15.00	214.12	605.02	105.00	710.02	15	725.02	145.00	108.75	980.00
	400	0.50	2.4	1.10	4.5	27.00	1.04	47.10	312.00	31.20	3.05	15.30	214.12	646.72	123.00	769.72	15	784.72	156.90	117.71	1,060.00
	450	0.55	2.4	1.15	4.6	27.60	1.15	51.80	385.00	38.50	3.05	15.30	214.12	732.32	153.00	885.32	15	900.32	180.10	135.05	1,220.00
	500	0.60	2.4	1.20	4.9	29.40	1.26	56.70	450.00	45.00	3.05	15.30	214.12	810.52	164.00	974.52	20	994.52	198.90	149.18	1,350.00
600	0.73	2.4	1.33	5.8	34.80	1.57	70.70	719.00	71.90	3.05	15.30	214.12	1,125.82	194.00	1,319.82	20	1,339.82	268.00	200.97	1,810.00	
CPP	750	0.90	2.4	1.50	7	42.00	2.02	91.20	850.00	85.00	3.00	15.00	214.12	1,297.32	150.00	1,447.32	20	1,467.32	293.50	220.10	1,990.00
	900	1.10	3.0	1.70	8.7	52.20	2.63	118.60	1,000.00	100.00	3.35	16.80	214.12	1,501.72	180.00	1,681.72	20	1,701.72	340.30	255.26	2,300.00

Notes

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| 1) Cost of excavation: \$6/m3 | 6) Includes costs for mainline valves and hydrant sets. No hydrants connected to 750mm and larger mains. Service connections and special appurtenances excluded |
| 2) Cost of bedding/pipe surrounding: \$45/m3 includes supply and place | 7) Restoration for route along existing road allowance (Cost varies with type of restoration). Minimum 4.0m width of restoration (2.0m trench plus 1.0 m each side) |
| 3) PVC Pipe (up to 600 mm) Cost provided by IPEX on 30 Oct 17 | 8) Includes allowance for dewatering |
| 4) Pipe Installation Allowance based on 10% of pipe cost | 9) PVC DR18 (100mm to 600mm) |
| 5) Backfill trench \$5/m3 based on replacement of native material and compaction | |

Prepared By:	<u>D. Prashad</u>	Date:	<u>30-Nov-17</u>
Checked By:	<u>S. Winchester</u>	Date:	<u>30-Nov-17</u>

WASTEWATER SERVICING INFRASTRUCTURE - Average Unit Prices (Southwestern Ontario Region) for 2019

Nom. Pipe Size	Depth to Invert	Shoring System Cost	Outer pipe Diameter	Excavation		Granular Bed. Surr.		Backfill		Pipe		MH Allowance	Subtotal	Dewatering Allowance	TOTAL (excluding restoration)	Road Restoration	TOTAL (including restoration)
				Vol.	Cost	Vol.	Cost	Vol.	Cost	Cost	Installation Allowance						
(mm)	(m)	(\$/m)	(m)	(m3)	(\$/m)	(m3)	(\$/m)	(m3)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)	(\$/m)
200	5	10.00	0.213	6.2	37.20	0.6	27.00	5.6	28.00	55.65	5.57	94.00	257.42	20.00	280	214	494
250	5	10.00	0.267	6.2	37.2	0.7	31.5	5.5	27.5	85.30	8.53	94.00	294.03	20.00	320	214	534
300	5	10.00	0.318	6.2	37.20	0.8	36.00	5.4	27.00	120.25	12.03	94.00	336.48	20.00	360	214	574
375	5	10.00	0.389	6.2	37.20	0.9	40.50	5.3	26.50	162.45	16.25	94.00	386.90	20.00	410	214	624
450	5	10.00	0.622	7.3	43.80	1.2	54.00	6.1	30.50	101.30	30.39	94.00	363.99	20.00	390	214	604
525	5	10.00	0.711	7.8	46.80	1.4	63.00	6.4	32.00	129.00	38.70	135.00	454.50	20.00	480	214	694
600	5	10.00	0.800	8.2	49.20	1.5	67.50	6.7	33.50	170.90	51.27	135.00	517.37	20.00	540	214	754
675	5	15.00	0.889	8.7	52.20	1.6	72.00	7.1	35.50	259.60	77.88	135.00	647.18	20.00	670	271	941
750	5	15.00	0.978	9.2	55.20	1.8	81.00	7.4	37.00	343.50	103.05	135.00	769.75	20.00	790	271	1,061
825	5	15.00	1.067	9.6	57.60	1.9	85.50	7.7	38.50	443.40	133.02	172.00	945.02	20.00	970	271	1,241
900	5	15.00	1.156	10.4	62.40	2.1	94.50	8.3	41.50	478.40	143.52	172.00	1,007.32	20.00	1,030	271	1,301
975	5	20.00	1.245	10.8	64.80	2.2	99.00	8.6	43.00	549.70	164.91	172.00	1,113.41	20.00	1,140	271	1,411
1050	5	20.00	1.334	11.3	67.80	2.4	108.00	8.9	44.50	632.00	189.60	303.00	1,364.90	20.00	1,390	271	1,661
1200	5	20.00	1.511	12.2	73.20	2.7	121.50	9.5	47.50	791.50	237.45	303.00	1,594.15	20.00	1,620	271	1,891
200	7	10.00	0.213	8.6	51.60	0.6	27.00	8.0	40.00	55.65	5.57	150.00	339.82	20.00	360	214	574
250	7	10.00	0.267	8.6	51.60	0.7	31.5	7.9	39.50	85.30	8.53	150.00	376.43	20.00	400.00	214	614
300	7	15.00	0.318	8.6	51.60	0.8	36.00	7.8	39.00	120.25	12.03	150.00	423.88	20.00	450	214	664
375	7	15.00	0.389	8.6	51.60	0.9	40.50	7.7	38.50	162.45	16.25	150.00	474.30	20.00	500	214	714
450	7	15.00	0.622	10.2	61.20	1.2	54.00	9.0	45.00	101.30	30.39	150.00	456.89	20.00	480	214	694
525	7	15.00	0.711	10.8	64.80	1.4	63.00	9.4	47.00	129.00	38.70	189.00	546.50	20.00	570	214	784
600	7	20.00	0.800	11.4	68.40	1.5	67.50	9.9	49.50	170.90	51.27	189.00	616.57	20.00	640	214	854
675	7	20.00	0.889	12.1	72.60	1.6	72.00	10.5	52.50	259.60	77.88	189.00	743.58	20.00	770	271	1,041
750	7	20.00	0.978	12.7	76.20	1.8	81.00	10.9	54.50	343.50	103.05	189.00	867.25	20.00	890	271	1,161
825	7	20.00	1.067	13.3	79.80	1.9	85.50	11.4	57.00	443.40	133.02	226.00	1,044.72	20.00	1,070	271	1,341
900	7	30.00	1.156	14.3	85.80	2.1	94.50	12.2	61.00	478.40	143.52	226.00	1,119.22	20.00	1,140	271	1,411
975	7	30.00	1.245	14.9	89.40	2.2	99.00	12.7	63.50	549.70	164.91	226.00	1,222.51	20.00	1,250	271	1,521
1050	7	40.00	1.334	15.6	93.60	2.4	108.00	13.2	66.00	632.00	189.60	356.00	1,485.20	20.00	1,510	271	1,781
1200	7	40.00	1.511	16.9	101.40	2.7	121.50	14.2	71.00	791.50	237.45	356.00	1,718.85	20.00	1,740	271	2,011

Notes

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| <p>1) Cost of excavation \$6/m³</p> <p>2) For 200mm to 375 mm sewer pipe, supply cost taken from Royal Pipe Products (PVC) 2018 Price Installation Cost 10% of pipe supply cost</p> <p>3) For sewer pipe 450mm dia and larger, supply cost taken from M-Con Products 2017 Price list for Installation Cost 30% of pipe cost for concrete pipe</p> <p>4) Backfill trench \$5/m3 based on replacement of native material and compaction</p> | <p>5) Cost of granular bedding \$45/m³</p> <p>6) Manhole Spacing 100 m</p> <p>7) Service Laterals excluded from this estimate,</p> <p>8) Restoration cost for sewers 600mm dia and smaller includes 300mm subbase, 150mm base, 60mm binder, and 40mm binder</p> <p>9) Restoration cost for sewers larger than 600mm dia includes 450mm subbase, 150mm base, 100mm binder, and 40mm surface</p> <p>10) Engineering and HST not included</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Prepared By: <u>S. Mayirou</u>	Date: <u>9/1/2018</u>
Checked By: <u>S. Winchester</u>	Date: <u>15/01/18</u>

MH	Dia	Depth	List Price ¹	Additional Items ²	Sub-Total _ Supply Cost	Installation @ 100%	Total Cost per Installed	Cost per m
	1200	5	\$3,834.00	\$862.80	\$4,696.80	\$4,696.80	\$9,400.00	\$94.00
	1500	5	\$5,630.00	\$1,112.80	\$6,742.80	\$6,742.80	\$13,500.00	\$135.00
	1800	5	\$7,128.00	\$1,462.80	\$8,590.80	\$8,590.80	\$17,200.00	\$172.00
	2400	5	\$13,265.00	\$1,862.80	\$15,127.80	\$15,127.80	\$30,300.00	\$303.00
	1200	7	\$6,593.00	\$862.80	\$7,455.80	\$7,455.80	\$15,000.00	\$150.00
	1500	7	\$8,293.00	\$1,112.80	\$9,405.80	\$9,405.80	\$18,900.00	\$189.00
	1800	7	\$9,791.00	\$1,462.80	\$11,253.80	\$11,253.80	\$22,600.00	\$226.00
	2400	7	\$15,927.00	\$1,862.80	\$17,789.80	\$17,789.80	\$35,600.00	\$356.00

Note:

1 Based on 2017 List Price from M-Con Products. Safety Landing included for MH depths > 5.0 m

2 Allowance for castings, grade rings, benching, flexible connectors

Flexible Connectors

300	\$312.30
375	\$375.30
450	\$474.80
525	\$560.50
600	\$664.40
675	Not listed
750	Not listed
825	Not listed
900	Not listed
975	Not listed
1050	Not listed
1200	Not listed

Excavation Quantities for Sewers laid at Different Depths

For Depth to Invert = 5.0 m

Nom. Pipe Size	Outer Pipe Dia.	Depth To Invert	Bottom Trench			Middle Trench			Top Trench				Total Area
			Width	Depth	Area	Width	Depth	Area	Bottom Width	Top Width	Depth	Area	
mm	m	m	m	m	m2	m	m	m2	m	m	m	m2	m2
200	0.260	5	1.010	1	1.0	1.510	3	4.5	1.510	3.510	1	2.5	8.1
250	0.318	5	1.068	1	1.1	1.568	3	4.7	1.568	3.568	1	2.6	8.3
300	0.445	5	1.195	1	1.2	1.695	3	5.1	1.695	3.695	1	2.7	9.0
375	0.520	5	1.270	1	1.3	1.770	3	5.3	1.770	3.770	1	2.8	9.4
450	0.580	5	1.330	1	1.3	1.830	3	5.5	1.830	3.830	1	2.8	9.7
525	0.665	5	1.415	1	1.4	1.915	3	5.7	1.915	3.915	1	2.9	10.1
600	0.755	5	1.505	1	1.5	2.005	3	6.0	2.005	4.005	1	3.0	10.5
675	0.880	5	1.630	1	1.6	2.130	3	6.4	2.130	4.130	1	3.1	11.2
750	0.970	5	1.720	1	1.7	2.220	3	6.7	2.220	4.220	1	3.2	11.6
825	1.055	5	1.805	1	1.8	2.305	3	6.9	2.305	4.305	1	3.3	12.0

For Depth to Invert = 7.0 m

Nom. Pipe Size	Outer Pipe Dia.	Depth To Invert	Bottom Trench			Middle Trench			Top Trench				Total Area
			Width	Depth	Area	Width	Depth	Area	Bottom Width	Top Width	Depth	Area	
mm	m	m	m	m	m2	m	m	m2	m	m	m	m2	m2
250	0.318	7	1.068	1	1.1	1.568	5	7.8	1.568	3.568	1	2.6	11.5
300	0.445	7	1.195	1	1.2	1.695	5	8.5	1.695	3.695	1	2.7	12.4
375	0.520	7	1.270	1	1.3	1.770	5	8.9	1.770	3.770	1	2.8	12.9
450	0.580	7	1.330	1	1.3	1.830	5	9.2	1.830	3.830	1	2.8	13.3
525	0.665	7	1.415	1	1.4	1.915	5	9.6	1.915	3.915	1	2.9	13.9
600	0.755	7	1.505	1	1.5	2.005	5	10.0	2.005	4.005	1	3.0	14.5
675	0.880	7	1.630	1	1.6	2.130	5	10.7	2.130	4.130	1	3.1	15.4
750	0.970	7	1.720	1	1.7	2.220	5	11.1	2.220	4.220	1	3.2	16.0
825	1.055	7	1.805	1	1.8	2.305	5	11.5	2.305	4.305	1	3.3	16.6

For Depth to Invert = 9.0 m

Nom. Pipe Size	Outer Pipe Dia.	Depth To Invert	Bottom Trench			Middle Trench			Top Trench				Total Area
			Width	Depth	Area	Width	Depth	Area	Bottom Width	Top Width	Depth	Area	
mm	m	m	m	m	m2	m	m	m2	m	m	m	m2	m2
250	0.318	9	1.068	1	1.1	1.568	6	9.4	1.568	5.568	2	7.1	17.6
300	0.445	9	1.195	1	1.2	1.695	6	10.2	1.695	5.695	2	7.4	18.8
375	0.520	9	1.270	1	1.3	1.770	6	10.6	1.770	5.770	2	7.5	19.4
450	0.580	9	1.330	1	1.3	1.830	6	11.0	1.830	5.830	2	7.7	20.0
525	0.665	9	1.415	1	1.4	1.915	6	11.5	1.915	5.915	2	7.8	20.7
600	0.755	9	1.505	1	1.5	2.005	6	12.0	2.005	6.005	2	8.0	21.5
675	0.880	9	1.630	1	1.6	2.130	6	12.8	2.130	6.130	2	8.3	22.7
750	0.970	9	1.720	1	1.7	2.220	6	13.3	2.220	6.220	2	8.4	23.5
825	1.055	9	1.805	1	1.8	2.305	6	13.8	2.305	6.305	2	8.6	24.2

RESTORATION UNIT COST FOR SEWERS

Nom. Pipe Size	Outer Pipe Dia.	Depth To Invert	Surface Area of Trench	Topsoil+ Seed Cost @ \$7.5/m ²	Topsoil+ Sod Cost @ \$10.00/m ²	Granular Restoration & Sub-base Base		Asphalt including Granular Base	
						Local Street @ \$18.0/m ²	Collector Street @ \$23.4/m ²	Local Street @ \$41.0/m ²	Collector Street @ \$55.3/m ²
mm	m	m	m ² /m	\$/m	\$/m	\$/m	\$/m	\$/m	\$/m
300	0.445	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0
375	0.533	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0
450	0.622	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0
525	0.711	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0
600	0.800	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0
675	0.889	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0
750	0.978	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0
825	1.067	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0
900	1.156	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0
975	1.245	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0
105	1.334	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0
1200	1.511	5	4.0	30.2	40.0	72.0	93.6	214.1	271.0

UNIT COST FOR DIFFERENT LAYERS

Item	Local Street		Collector Street		Remarks	
		\$/m ²		\$/m ²		
Subbase	300 mm "B"	10.8	450 mm "B"	16.2	"B" @ \$15/tonne (2.4 t/m ³)	
Base	150 mm "A"	7.2	150 mm "A"	7.2	"A" @ \$20/tonne (2.4 t/m ³)	
Subtotal		18.0		23.4		
Binder	60 HL4	13.2	100 HL4	22.1	"HL4" @ \$90/tonne (2.45 t/m ³)	
Surface	40 HL3	9.8	40 HL3	9.8	"HL3" @ \$100/tonne (2.45 t/m ³)	
Total		41.0		55.3		
Curb (one side)		50.0		50.0		



Appendix C

Preliminary Cost Recovery Estimates – Detailed Calculations



Project Title:		Water and Sewage Feasibility Study	
Client:	Township of Puslinch		
Project No.:	T000866A		
Task:	Cost Recovery Calculations		
Prepared By:	A. Laleva	Date:	16-May-19
Reviewed by:	S. Winchester	Date:	20-May-19
Revision No. :		Revision Date:	

	PRELIMINARY COST RECOVERY OPTIONS							
	WATER SERVICING				WASTEWATER SERVICING			
	OPTION 1		OPTION 2		OPTION 1		OPTION 2	
ASSUME NO FUNDING								
CAPITAL COST	\$22,935,500		\$19,976,700		\$29,036,580		\$11,683,080	
Servicing Cost Per Unit (128 connections)	\$179,184		\$156,068		\$226,848		\$91,274	
	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost
Estimated Cost - 10 Year Payback (4.0%)	\$1,814	\$21,770	\$1,580	\$18,961	\$2,297	\$27,561	\$924	\$11,089
Estimated Cost - 15 Year Payback (4.0%)	\$1,325	\$15,905	\$1,154	\$13,853	\$1,678	\$20,136	\$675	\$8,102
Estimated Cost - 20 Year Payback (4.0%)	\$1,086	\$13,030	\$946	\$11,349	\$1,375	\$16,496	\$553	\$6,637
ASSUME 2/3 FUNDING								
CAPITAL COST	\$22,935,500		\$19,976,700		\$29,036,580		\$11,683,080	
SUBSIDIZED COST	\$7,645,167		\$6,658,900		\$9,678,860		\$3,894,360	
Servicing Cost Per Unit (128 connections)	\$59,728		\$52,023		\$75,616		\$30,425	
	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost	Monthly Cost	Annual Cost
Estimated Cost - 10 Year Payback (4.0%)	\$605	\$7,257	\$527	\$6,320	\$766	\$9,187	\$308	\$3,696
Estimated Cost - 15 Year Payback (4.0%)	\$442	\$5,302	\$385	\$4,618	\$559	\$6,712	\$225	\$2,701
Estimated Cost - 20 Year Payback (4.0%)	\$362	\$4,343	\$315	\$3,783	\$458	\$5,499	\$184	\$2,212

Note: Payback amounts exclude Administration Fees (if any) charged by the Township to administer the loans

Calculate Discount FactorS

For 10 Year Cost Recovery

	A =	$((i*(1+i)^n) / ((1+i)^n -1))$	Capital Recovery Factor (Eq'n 3.18, Engineering Economic Analysis)
where	i =	interest rate per period	
	i _a =	4.0 %	Assumed Annual Interest Rate
	=	0.333333 %	
	=	0.003333	
	n =	120	Number of Monthly PaymentPayments
	A =	0.010125	
	D =	98.77017	Discount Factor (=1/A)

For 15 Year Cost Recovery

	A =	$((i*(1+i)^n) / ((1+i)^n -1))$	
where	i =	interest rate per period	
	i _a =	4.0 %	Assumed Annual Interest Rate
	=	0.333333 %	
	=	0.003333	
	n =	180	Number of Monthly PaymentPayments
	A =	0.007397	
	D =	135.1921	Discount Factor (=1/A)

For 20 Year Cost Recovery

	A =	$((i*(1+i)^n) / ((1+i)^n -1))$	
where	i =	interest rate per period	
	i _a =	4.0 %	Assumed Annual Interest Rate
	=	0.333333 %	
	=	0.003333	
	n =	240	Number of Monthly PaymentPayments
	A =	0.00606	
	D =	165.0219	Discount Factor (=1/A)

TOWNSHIP OF PUSLINCH
Water Servicing - Option W1

Estimated Capital Cost: \$22,935,500
Number of Benefitting Properties: 128
Cost per Connection: \$179,183.59

Capital Cost Recovery Factor - A = 0.010124514
Monthly Cost -P = \$1,814.15

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$179,184.00	4.00%	10	\$1,814.15		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
1	\$179,184.00	\$597.28	\$1,216.87	\$177,967.13	\$597.28
2	\$177,967.13	\$593.22	\$1,220.93	\$176,746.20	\$1,190.50
3	\$176,746.20	\$589.15	\$1,225.00	\$175,521.21	\$1,779.66
4	\$175,521.21	\$585.07	\$1,229.08	\$174,292.12	\$2,364.73
5	\$174,292.12	\$580.97	\$1,233.18	\$173,058.95	\$2,945.70
6	\$173,058.95	\$576.86	\$1,237.29	\$171,821.66	\$3,522.57
7	\$171,821.66	\$572.74	\$1,241.41	\$170,580.25	\$4,095.30
8	\$170,580.25	\$568.60	\$1,245.55	\$169,334.70	\$4,663.91
9	\$169,334.70	\$564.45	\$1,249.70	\$168,085.00	\$5,228.35
10	\$168,085.00	\$560.28	\$1,253.87	\$166,831.13	\$5,788.64
11	\$166,831.13	\$556.10	\$1,258.05	\$165,573.08	\$6,344.74
12	\$165,573.08	\$551.91	\$1,262.24	\$164,310.84	\$6,896.65
13	\$164,310.84	\$547.70	\$1,266.45	\$163,044.39	\$7,444.35
14	\$163,044.39	\$543.48	\$1,270.67	\$161,773.72	\$7,987.84
15	\$161,773.72	\$539.25	\$1,274.91	\$160,498.82	\$8,527.08
16	\$160,498.82	\$535.00	\$1,279.15	\$159,219.66	\$9,062.08
17	\$159,219.66	\$530.73	\$1,283.42	\$157,936.24	\$9,592.81
18	\$157,936.24	\$526.45	\$1,287.70	\$156,648.55	\$10,119.26
19	\$156,648.55	\$522.16	\$1,291.99	\$155,356.56	\$10,641.43
20	\$155,356.56	\$517.86	\$1,296.30	\$154,060.26	\$11,159.28
21	\$154,060.26	\$513.53	\$1,300.62	\$152,759.65	\$11,672.81
22	\$152,759.65	\$509.20	\$1,304.95	\$151,454.69	\$12,182.01
23	\$151,454.69	\$504.85	\$1,309.30	\$150,145.39	\$12,686.86
24	\$150,145.39	\$500.48	\$1,313.67	\$148,831.73	\$13,187.35
25	\$148,831.73	\$496.11	\$1,318.05	\$147,513.68	\$13,683.45
26	\$147,513.68	\$491.71	\$1,322.44	\$146,191.24	\$14,175.17
27	\$146,191.24	\$487.30	\$1,326.85	\$144,864.40	\$14,662.47
28	\$144,864.40	\$482.88	\$1,331.27	\$143,533.13	\$15,145.35
29	\$143,533.13	\$478.44	\$1,335.71	\$142,197.42	\$15,623.79
30	\$142,197.42	\$473.99	\$1,340.16	\$140,857.26	\$16,097.79
31	\$140,857.26	\$469.52	\$1,344.63	\$139,512.63	\$16,567.31
32	\$139,512.63	\$465.04	\$1,349.11	\$138,163.52	\$17,032.35
33	\$138,163.52	\$460.55	\$1,353.61	\$136,809.92	\$17,492.90
34	\$136,809.92	\$456.03	\$1,358.12	\$135,451.80	\$17,948.93
35	\$135,451.80	\$451.51	\$1,362.64	\$134,089.16	\$18,400.44
36	\$134,089.16	\$446.96	\$1,367.19	\$132,721.97	\$18,847.40
37	\$132,721.97	\$442.41	\$1,371.74	\$131,350.22	\$19,289.81
38	\$131,350.22	\$437.83	\$1,376.32	\$129,973.91	\$19,727.64
39	\$129,973.91	\$433.25	\$1,380.90	\$128,593.00	\$20,160.89
40	\$128,593.00	\$428.64	\$1,385.51	\$127,207.50	\$20,589.53
41	\$127,207.50	\$424.02	\$1,390.13	\$125,817.37	\$21,013.56
42	\$125,817.37	\$419.39	\$1,394.76	\$124,422.61	\$21,432.95
43	\$124,422.61	\$414.74	\$1,399.41	\$123,023.20	\$21,847.69
44	\$123,023.20	\$410.08	\$1,404.07	\$121,619.13	\$22,257.77
45	\$121,619.13	\$405.40	\$1,408.75	\$120,210.37	\$22,663.16
46	\$120,210.37	\$400.70	\$1,413.45	\$118,796.92	\$23,063.86
47	\$118,796.92	\$395.99	\$1,418.16	\$117,378.76	\$23,459.85
48	\$117,378.76	\$391.26	\$1,422.89	\$115,955.87	\$23,851.12
49	\$115,955.87	\$386.52	\$1,427.63	\$114,528.24	\$24,237.64
50	\$114,528.24	\$381.76	\$1,432.39	\$113,095.85	\$24,619.40
51	\$113,095.85	\$376.99	\$1,437.16	\$111,658.69	\$24,996.38
52	\$111,658.69	\$372.20	\$1,441.96	\$110,216.73	\$25,368.58
53	\$110,216.73	\$367.39	\$1,446.76	\$108,769.97	\$25,735.97
54	\$108,769.97	\$362.57	\$1,451.58	\$107,318.39	\$26,098.53
55	\$107,318.39	\$357.73	\$1,456.42	\$105,861.96	\$26,456.26
56	\$105,861.96	\$352.87	\$1,461.28	\$104,400.69	\$26,809.14
57	\$104,400.69	\$348.00	\$1,466.15	\$102,934.54	\$27,157.14
58	\$102,934.54	\$343.12	\$1,471.04	\$101,463.50	\$27,500.25
59	\$101,463.50	\$338.21	\$1,475.94	\$99,987.56	\$27,838.46
60	\$99,987.56	\$333.29	\$1,480.86	\$98,506.70	\$28,171.76
61	\$98,506.70	\$328.36	\$1,485.80	\$97,020.91	\$28,500.11

TOWNSHIP OF PUSLINCH
Water Servicing - Option W1

Estimated Capital Cost: \$22,935,500
Number of Benefitting Properties: 128
Cost per Connection: \$179,183.59

Capital Cost Recovery Factor - A = 0.010124514
Monthly Cost -P = \$1,814.15

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$179,184.00	4.00%	10	\$1,814.15		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
62	\$97,020.91	\$323.40	\$1,490.75	\$95,530.16	\$28,823.52
63	\$95,530.16	\$318.43	\$1,495.72	\$94,034.44	\$29,141.95
64	\$94,034.44	\$313.45	\$1,500.70	\$92,533.74	\$29,455.40
65	\$92,533.74	\$308.45	\$1,505.71	\$91,028.04	\$29,763.84
66	\$91,028.04	\$303.43	\$1,510.72	\$89,517.31	\$30,067.27
67	\$89,517.31	\$298.39	\$1,515.76	\$88,001.55	\$30,365.66
68	\$88,001.55	\$293.34	\$1,520.81	\$86,480.74	\$30,659.00
69	\$86,480.74	\$288.27	\$1,525.88	\$84,954.86	\$30,947.27
70	\$84,954.86	\$283.18	\$1,530.97	\$83,423.89	\$31,230.45
71	\$83,423.89	\$278.08	\$1,536.07	\$81,887.82	\$31,508.53
72	\$81,887.82	\$272.96	\$1,541.19	\$80,346.63	\$31,781.49
73	\$80,346.63	\$267.82	\$1,546.33	\$78,800.30	\$32,049.31
74	\$78,800.30	\$262.67	\$1,551.48	\$77,248.82	\$32,311.98
75	\$77,248.82	\$257.50	\$1,556.65	\$75,692.16	\$32,569.48
76	\$75,692.16	\$252.31	\$1,561.84	\$74,130.32	\$32,821.78
77	\$74,130.32	\$247.10	\$1,567.05	\$72,563.27	\$33,068.88
78	\$72,563.27	\$241.88	\$1,572.27	\$70,990.99	\$33,310.76
79	\$70,990.99	\$236.64	\$1,577.51	\$69,413.48	\$33,547.40
80	\$69,413.48	\$231.38	\$1,582.77	\$67,830.71	\$33,778.78
81	\$67,830.71	\$226.10	\$1,588.05	\$66,242.66	\$34,004.88
82	\$66,242.66	\$220.81	\$1,593.34	\$64,649.32	\$34,225.69
83	\$64,649.32	\$215.50	\$1,598.65	\$63,050.66	\$34,441.19
84	\$63,050.66	\$210.17	\$1,603.98	\$61,446.68	\$34,651.36
85	\$61,446.68	\$204.82	\$1,609.33	\$59,837.35	\$34,856.18
86	\$59,837.35	\$199.46	\$1,614.69	\$58,222.66	\$35,055.64
87	\$58,222.66	\$194.08	\$1,620.08	\$56,602.58	\$35,249.71
88	\$56,602.58	\$188.68	\$1,625.48	\$54,977.11	\$35,438.39
89	\$54,977.11	\$183.26	\$1,630.89	\$53,346.21	\$35,621.64
90	\$53,346.21	\$177.82	\$1,636.33	\$51,709.88	\$35,799.46
91	\$51,709.88	\$172.37	\$1,641.78	\$50,068.10	\$35,971.83
92	\$50,068.10	\$166.89	\$1,647.26	\$48,420.84	\$36,138.72
93	\$48,420.84	\$161.40	\$1,652.75	\$46,768.09	\$36,300.13
94	\$46,768.09	\$155.89	\$1,658.26	\$45,109.84	\$36,456.02
95	\$45,109.84	\$150.37	\$1,663.78	\$43,446.05	\$36,606.39
96	\$43,446.05	\$144.82	\$1,669.33	\$41,776.72	\$36,751.21
97	\$41,776.72	\$139.26	\$1,674.90	\$40,101.83	\$36,890.46
98	\$40,101.83	\$133.67	\$1,680.48	\$38,421.35	\$37,024.13
99	\$38,421.35	\$128.07	\$1,686.08	\$36,735.27	\$37,152.21
100	\$36,735.27	\$122.45	\$1,691.70	\$35,043.57	\$37,274.66
101	\$35,043.57	\$116.81	\$1,697.34	\$33,346.23	\$37,391.47
102	\$33,346.23	\$111.15	\$1,703.00	\$31,643.23	\$37,502.62
103	\$31,643.23	\$105.48	\$1,708.67	\$29,934.56	\$37,608.10
104	\$29,934.56	\$99.78	\$1,714.37	\$28,220.19	\$37,707.88
105	\$28,220.19	\$94.07	\$1,720.08	\$26,500.11	\$37,801.95
106	\$26,500.11	\$88.33	\$1,725.82	\$24,774.29	\$37,890.28
107	\$24,774.29	\$82.58	\$1,731.57	\$23,042.72	\$37,972.86
108	\$23,042.72	\$76.81	\$1,737.34	\$21,305.38	\$38,049.67
109	\$21,305.38	\$71.02	\$1,743.13	\$19,562.24	\$38,120.69
110	\$19,562.24	\$65.21	\$1,748.94	\$17,813.30	\$38,185.90
111	\$17,813.30	\$59.38	\$1,754.77	\$16,058.53	\$38,245.28
112	\$16,058.53	\$53.53	\$1,760.62	\$14,297.91	\$38,298.80
113	\$14,297.91	\$47.66	\$1,766.49	\$12,531.41	\$38,346.46
114	\$12,531.41	\$41.77	\$1,772.38	\$10,759.04	\$38,388.24
115	\$10,759.04	\$35.86	\$1,778.29	\$8,980.75	\$38,424.10
116	\$8,980.75	\$29.94	\$1,784.22	\$7,196.53	\$38,454.04
117	\$7,196.53	\$23.99	\$1,790.16	\$5,406.37	\$38,478.02
118	\$5,406.37	\$18.02	\$1,796.13	\$3,610.24	\$38,496.04
119	\$3,610.24	\$12.03	\$1,802.12	\$1,808.12	\$38,508.08
120	\$1,808.12	\$6.03	\$1,808.12	\$0.00	\$38,514.11

TOWNSHIP OF PUSLINCH
Water Servicing - Option W1

Estimated Capital Cost: \$22,935,500
Number of Benefitting Properties: 128
Cost per Connection: \$179,183.59

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$1,325.40

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$179,184.00	4.00%	15	\$1,325.40		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
1	\$179,184.00	\$597.28	\$728.12	\$178,455.88	\$597.28
2	\$178,455.88	\$594.85	\$730.55	\$177,725.33	\$1,192.13
3	\$177,725.33	\$592.42	\$732.98	\$176,992.34	\$1,784.55
4	\$176,992.34	\$589.97	\$735.43	\$176,256.92	\$2,374.53
5	\$176,256.92	\$587.52	\$737.88	\$175,519.04	\$2,962.05
6	\$175,519.04	\$585.06	\$740.34	\$174,778.70	\$3,547.11
7	\$174,778.70	\$582.60	\$742.81	\$174,035.89	\$4,129.71
8	\$174,035.89	\$580.12	\$745.28	\$173,290.61	\$4,709.83
9	\$173,290.61	\$577.64	\$747.77	\$172,542.84	\$5,287.46
10	\$172,542.84	\$575.14	\$750.26	\$171,792.58	\$5,862.61
11	\$171,792.58	\$572.64	\$752.76	\$171,039.82	\$6,435.25
12	\$171,039.82	\$570.13	\$755.27	\$170,284.55	\$7,005.38
13	\$170,284.55	\$567.62	\$757.79	\$169,526.76	\$7,572.99
14	\$169,526.76	\$565.09	\$760.31	\$168,766.45	\$8,138.08
15	\$168,766.45	\$562.55	\$762.85	\$168,003.60	\$8,700.64
16	\$168,003.60	\$560.01	\$765.39	\$167,238.21	\$9,260.65
17	\$167,238.21	\$557.46	\$767.94	\$166,470.27	\$9,818.11
18	\$166,470.27	\$554.90	\$770.50	\$165,699.77	\$10,373.01
19	\$165,699.77	\$552.33	\$773.07	\$164,926.70	\$10,925.35
20	\$164,926.70	\$549.76	\$775.65	\$164,151.05	\$11,475.10
21	\$164,151.05	\$547.17	\$778.23	\$163,372.82	\$12,022.27
22	\$163,372.82	\$544.58	\$780.83	\$162,591.99	\$12,566.85
23	\$162,591.99	\$541.97	\$783.43	\$161,808.56	\$13,108.82
24	\$161,808.56	\$539.36	\$786.04	\$161,022.52	\$13,648.18
25	\$161,022.52	\$536.74	\$788.66	\$160,233.86	\$14,184.92
26	\$160,233.86	\$534.11	\$791.29	\$159,442.57	\$14,719.04
27	\$159,442.57	\$531.48	\$793.93	\$158,648.65	\$15,250.51
28	\$158,648.65	\$528.83	\$796.57	\$157,852.07	\$15,779.34
29	\$157,852.07	\$526.17	\$799.23	\$157,052.84	\$16,305.51
30	\$157,052.84	\$523.51	\$801.89	\$156,250.95	\$16,829.02
31	\$156,250.95	\$520.84	\$804.57	\$155,446.39	\$17,349.86
32	\$155,446.39	\$518.15	\$807.25	\$154,639.14	\$17,868.02
33	\$154,639.14	\$515.46	\$809.94	\$153,829.20	\$18,383.48
34	\$153,829.20	\$512.76	\$812.64	\$153,016.56	\$18,896.24
35	\$153,016.56	\$510.06	\$815.35	\$152,201.21	\$19,406.30
36	\$152,201.21	\$507.34	\$818.07	\$151,383.15	\$19,913.64
37	\$151,383.15	\$504.61	\$820.79	\$150,562.36	\$20,418.25
38	\$150,562.36	\$501.87	\$823.53	\$149,738.83	\$20,920.12
39	\$149,738.83	\$499.13	\$826.27	\$148,912.56	\$21,419.25
40	\$148,912.56	\$496.38	\$829.03	\$148,083.53	\$21,915.63
41	\$148,083.53	\$493.61	\$831.79	\$147,251.74	\$22,409.24
42	\$147,251.74	\$490.84	\$834.56	\$146,417.17	\$22,900.08
43	\$146,417.17	\$488.06	\$837.35	\$145,579.83	\$23,388.13
44	\$145,579.83	\$485.27	\$840.14	\$144,739.69	\$23,873.40
45	\$144,739.69	\$482.47	\$842.94	\$143,896.76	\$24,355.87
46	\$143,896.76	\$479.66	\$845.75	\$143,051.01	\$24,835.52
47	\$143,051.01	\$476.84	\$848.57	\$142,202.44	\$25,312.36
48	\$142,202.44	\$474.01	\$851.39	\$141,351.05	\$25,786.37
49	\$141,351.05	\$471.17	\$854.23	\$140,496.82	\$26,257.54
50	\$140,496.82	\$468.32	\$857.08	\$139,639.74	\$26,725.86
51	\$139,639.74	\$465.47	\$859.94	\$138,779.80	\$27,191.32
52	\$138,779.80	\$462.60	\$862.80	\$137,917.00	\$27,653.92
53	\$137,917.00	\$459.72	\$865.68	\$137,051.32	\$28,113.65
54	\$137,051.32	\$456.84	\$868.56	\$136,182.75	\$28,570.48
55	\$136,182.75	\$453.94	\$871.46	\$135,311.29	\$29,024.43
56	\$135,311.29	\$451.04	\$874.36	\$134,436.93	\$29,475.47
57	\$134,436.93	\$448.12	\$877.28	\$133,559.65	\$29,923.59
58	\$133,559.65	\$445.20	\$880.20	\$132,679.45	\$30,368.79
59	\$132,679.45	\$442.26	\$883.14	\$131,796.31	\$30,811.05
60	\$131,796.31	\$439.32	\$886.08	\$130,910.23	\$31,250.37
61	\$130,910.23	\$436.37	\$889.03	\$130,021.19	\$31,686.74

TOWNSHIP OF PUSLINCH
Water Servicing - Option W1

Estimated Capital Cost: \$22,935,500
Number of Benefitting Properties: 128
Cost per Connection: \$179,183.59

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$1,325.40

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$179,184.00	4.00%	15	\$1,325.40		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
62	\$130,021.19	\$433.40	\$892.00	\$129,129.19	\$32,120.14
63	\$129,129.19	\$430.43	\$894.97	\$128,234.22	\$32,550.57
64	\$128,234.22	\$427.45	\$897.96	\$127,336.27	\$32,978.02
65	\$127,336.27	\$424.45	\$900.95	\$126,435.32	\$33,402.48
66	\$126,435.32	\$421.45	\$903.95	\$125,531.37	\$33,823.93
67	\$125,531.37	\$418.44	\$906.96	\$124,624.40	\$34,242.37
68	\$124,624.40	\$415.41	\$909.99	\$123,714.42	\$34,657.78
69	\$123,714.42	\$412.38	\$913.02	\$122,801.40	\$35,070.16
70	\$122,801.40	\$409.34	\$916.06	\$121,885.33	\$35,479.50
71	\$121,885.33	\$406.28	\$919.12	\$120,966.21	\$35,885.78
72	\$120,966.21	\$403.22	\$922.18	\$120,044.03	\$36,289.00
73	\$120,044.03	\$400.15	\$925.26	\$119,118.78	\$36,689.15
74	\$119,118.78	\$397.06	\$928.34	\$118,190.44	\$37,086.21
75	\$118,190.44	\$393.97	\$931.43	\$117,259.00	\$37,480.18
76	\$117,259.00	\$390.86	\$934.54	\$116,324.46	\$37,871.05
77	\$116,324.46	\$387.75	\$937.65	\$115,386.81	\$38,258.79
78	\$115,386.81	\$384.62	\$940.78	\$114,446.03	\$38,643.42
79	\$114,446.03	\$381.49	\$943.92	\$113,502.11	\$39,024.90
80	\$113,502.11	\$378.34	\$947.06	\$112,555.05	\$39,403.24
81	\$112,555.05	\$375.18	\$950.22	\$111,604.83	\$39,778.43
82	\$111,604.83	\$372.02	\$953.39	\$110,651.45	\$40,150.44
83	\$110,651.45	\$368.84	\$956.56	\$109,694.88	\$40,519.28
84	\$109,694.88	\$365.65	\$959.75	\$108,735.13	\$40,884.93
85	\$108,735.13	\$362.45	\$962.95	\$107,772.18	\$41,247.38
86	\$107,772.18	\$359.24	\$966.16	\$106,806.01	\$41,606.62
87	\$106,806.01	\$356.02	\$969.38	\$105,836.63	\$41,962.64
88	\$105,836.63	\$352.79	\$972.61	\$104,864.02	\$42,315.43
89	\$104,864.02	\$349.55	\$975.86	\$103,888.16	\$42,664.98
90	\$103,888.16	\$346.29	\$979.11	\$102,909.05	\$43,011.27
91	\$102,909.05	\$343.03	\$982.37	\$101,926.68	\$43,354.30
92	\$101,926.68	\$339.76	\$985.65	\$100,941.04	\$43,694.06
93	\$100,941.04	\$336.47	\$988.93	\$99,952.10	\$44,030.53
94	\$99,952.10	\$333.17	\$992.23	\$98,959.87	\$44,363.70
95	\$98,959.87	\$329.87	\$995.54	\$97,964.34	\$44,693.57
96	\$97,964.34	\$326.55	\$998.85	\$96,965.48	\$45,020.11
97	\$96,965.48	\$323.22	\$1,002.18	\$95,963.30	\$45,343.33
98	\$95,963.30	\$319.88	\$1,005.52	\$94,957.77	\$45,663.21
99	\$94,957.77	\$316.53	\$1,008.88	\$93,948.90	\$45,979.74
100	\$93,948.90	\$313.16	\$1,012.24	\$92,936.66	\$46,292.90
101	\$92,936.66	\$309.79	\$1,015.61	\$91,921.04	\$46,602.69
102	\$91,921.04	\$306.40	\$1,019.00	\$90,902.05	\$46,909.09
103	\$90,902.05	\$303.01	\$1,022.40	\$89,879.65	\$47,212.10
104	\$89,879.65	\$299.60	\$1,025.80	\$88,853.85	\$47,511.70
105	\$88,853.85	\$296.18	\$1,029.22	\$87,824.62	\$47,807.88
106	\$87,824.62	\$292.75	\$1,032.65	\$86,791.97	\$48,100.63
107	\$86,791.97	\$289.31	\$1,036.10	\$85,755.87	\$48,389.93
108	\$85,755.87	\$285.85	\$1,039.55	\$84,716.32	\$48,675.79
109	\$84,716.32	\$282.39	\$1,043.01	\$83,673.31	\$48,958.17
110	\$83,673.31	\$278.91	\$1,046.49	\$82,626.82	\$49,237.08
111	\$82,626.82	\$275.42	\$1,049.98	\$81,576.84	\$49,512.51
112	\$81,576.84	\$271.92	\$1,053.48	\$80,523.36	\$49,784.43
113	\$80,523.36	\$268.41	\$1,056.99	\$79,466.37	\$50,052.84
114	\$79,466.37	\$264.89	\$1,060.51	\$78,405.85	\$50,317.73
115	\$78,405.85	\$261.35	\$1,064.05	\$77,341.80	\$50,579.08
116	\$77,341.80	\$257.81	\$1,067.60	\$76,274.21	\$50,836.89
117	\$76,274.21	\$254.25	\$1,071.16	\$75,203.05	\$51,091.14
118	\$75,203.05	\$250.68	\$1,074.73	\$74,128.33	\$51,341.81
119	\$74,128.33	\$247.09	\$1,078.31	\$73,050.02	\$51,588.91
120	\$73,050.02	\$243.50	\$1,081.90	\$71,968.12	\$51,832.41
121	\$71,968.12	\$239.89	\$1,085.51	\$70,882.61	\$52,072.30
122	\$70,882.61	\$236.28	\$1,089.13	\$69,793.48	\$52,308.58

TOWNSHIP OF PUSLINCH
Water Servicing - Option W1

Estimated Capital Cost: \$22,935,500
Number of Benefitting Properties: 128
Cost per Connection: \$179,183.59

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$1,325.40

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$179,184.00	4.00%	15	\$1,325.40		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
123	\$69,793.48	\$232.64	\$1,092.76	\$68,700.72	\$52,541.22
124	\$68,700.72	\$229.00	\$1,096.40	\$67,604.32	\$52,770.22
125	\$67,604.32	\$225.35	\$1,100.05	\$66,504.27	\$52,995.57
126	\$66,504.27	\$221.68	\$1,103.72	\$65,400.55	\$53,217.25
127	\$65,400.55	\$218.00	\$1,107.40	\$64,293.15	\$53,435.25
128	\$64,293.15	\$214.31	\$1,111.09	\$63,182.06	\$53,649.56
129	\$63,182.06	\$210.61	\$1,114.80	\$62,067.26	\$53,860.17
130	\$62,067.26	\$206.89	\$1,118.51	\$60,948.75	\$54,067.06
131	\$60,948.75	\$203.16	\$1,122.24	\$59,826.51	\$54,270.22
132	\$59,826.51	\$199.42	\$1,125.98	\$58,700.53	\$54,469.65
133	\$58,700.53	\$195.67	\$1,129.73	\$57,570.79	\$54,665.31
134	\$57,570.79	\$191.90	\$1,133.50	\$56,437.29	\$54,857.22
135	\$56,437.29	\$188.12	\$1,137.28	\$55,300.02	\$55,045.34
136	\$55,300.02	\$184.33	\$1,141.07	\$54,158.95	\$55,229.67
137	\$54,158.95	\$180.53	\$1,144.87	\$53,014.07	\$55,410.20
138	\$53,014.07	\$176.71	\$1,148.69	\$51,865.38	\$55,586.92
139	\$51,865.38	\$172.88	\$1,152.52	\$50,712.87	\$55,759.80
140	\$50,712.87	\$169.04	\$1,156.36	\$49,556.51	\$55,928.85
141	\$49,556.51	\$165.19	\$1,160.21	\$48,396.29	\$56,094.03
142	\$48,396.29	\$161.32	\$1,164.08	\$47,232.21	\$56,255.35
143	\$47,232.21	\$157.44	\$1,167.96	\$46,064.25	\$56,412.80
144	\$46,064.25	\$153.55	\$1,171.85	\$44,892.40	\$56,566.34
145	\$44,892.40	\$149.64	\$1,175.76	\$43,716.63	\$56,715.98
146	\$43,716.63	\$145.72	\$1,179.68	\$42,536.95	\$56,861.71
147	\$42,536.95	\$141.79	\$1,183.61	\$41,353.34	\$57,003.50
148	\$41,353.34	\$137.84	\$1,187.56	\$40,165.78	\$57,141.34
149	\$40,165.78	\$133.89	\$1,191.52	\$38,974.27	\$57,275.23
150	\$38,974.27	\$129.91	\$1,195.49	\$37,778.78	\$57,405.14
151	\$37,778.78	\$125.93	\$1,199.47	\$36,579.31	\$57,531.07
152	\$36,579.31	\$121.93	\$1,203.47	\$35,375.83	\$57,653.00
153	\$35,375.83	\$117.92	\$1,207.48	\$34,168.35	\$57,770.92
154	\$34,168.35	\$113.89	\$1,211.51	\$32,956.84	\$57,884.82
155	\$32,956.84	\$109.86	\$1,215.55	\$31,741.30	\$57,994.67
156	\$31,741.30	\$105.80	\$1,219.60	\$30,521.70	\$58,100.48
157	\$30,521.70	\$101.74	\$1,223.66	\$29,298.04	\$58,202.21
158	\$29,298.04	\$97.66	\$1,227.74	\$28,070.29	\$58,299.87
159	\$28,070.29	\$93.57	\$1,231.83	\$26,838.46	\$58,393.44
160	\$26,838.46	\$89.46	\$1,235.94	\$25,602.52	\$58,482.90
161	\$25,602.52	\$85.34	\$1,240.06	\$24,362.46	\$58,568.25
162	\$24,362.46	\$81.21	\$1,244.19	\$23,118.26	\$58,649.45
163	\$23,118.26	\$77.06	\$1,248.34	\$21,869.92	\$58,726.51
164	\$21,869.92	\$72.90	\$1,252.50	\$20,617.42	\$58,799.41
165	\$20,617.42	\$68.72	\$1,256.68	\$19,360.74	\$58,868.14
166	\$19,360.74	\$64.54	\$1,260.87	\$18,099.87	\$58,932.67
167	\$18,099.87	\$60.33	\$1,265.07	\$16,834.80	\$58,993.01
168	\$16,834.80	\$56.12	\$1,269.29	\$15,565.52	\$59,049.12
169	\$15,565.52	\$51.89	\$1,273.52	\$14,292.00	\$59,101.01
170	\$14,292.00	\$47.64	\$1,277.76	\$13,014.24	\$59,148.65
171	\$13,014.24	\$43.38	\$1,282.02	\$11,732.22	\$59,192.03
172	\$11,732.22	\$39.11	\$1,286.30	\$10,445.92	\$59,231.14
173	\$10,445.92	\$34.82	\$1,290.58	\$9,155.34	\$59,265.96
174	\$9,155.34	\$30.52	\$1,294.88	\$7,860.45	\$59,296.47
175	\$7,860.45	\$26.20	\$1,299.20	\$6,561.25	\$59,322.68
176	\$6,561.25	\$21.87	\$1,303.53	\$5,257.72	\$59,344.55
177	\$5,257.72	\$17.53	\$1,307.88	\$3,949.85	\$59,362.07
178	\$3,949.85	\$13.17	\$1,312.24	\$2,637.61	\$59,375.24
179	\$2,637.61	\$8.79	\$1,316.61	\$1,321.00	\$59,384.03
180	\$1,321.00	\$4.40	\$1,321.00	\$0.00	\$59,388.43

TOWNSHIP OF PUSLINCH
Water Servicing - Option W1

Estimated Capital Cost: \$22,935,500
Number of Benefitting Properties: 128
Cost per Connection: \$179,183.59

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$1,085.82

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$179,184.00	4.00%	20	\$1,085.82		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
1	\$179,184.00	\$597.28	\$488.54	\$178,695.46	\$597.28
2	\$178,695.46	\$595.65	\$490.17	\$178,205.29	\$1,192.93
3	\$178,205.29	\$594.02	\$491.80	\$177,713.49	\$1,786.95
4	\$177,713.49	\$592.38	\$493.44	\$177,220.05	\$2,379.33
5	\$177,220.05	\$590.73	\$495.09	\$176,724.96	\$2,970.06
6	\$176,724.96	\$589.08	\$496.74	\$176,228.23	\$3,559.14
7	\$176,228.23	\$587.43	\$498.39	\$175,729.83	\$4,146.57
8	\$175,729.83	\$585.77	\$500.05	\$175,229.78	\$4,732.34
9	\$175,229.78	\$584.10	\$501.72	\$174,728.06	\$5,316.44
10	\$174,728.06	\$582.43	\$503.39	\$174,224.67	\$5,898.86
11	\$174,224.67	\$580.75	\$505.07	\$173,719.59	\$6,479.61
12	\$173,719.59	\$579.07	\$506.75	\$173,212.84	\$7,058.68
13	\$173,212.84	\$577.38	\$508.44	\$172,704.40	\$7,636.05
14	\$172,704.40	\$575.68	\$510.14	\$172,194.26	\$8,211.74
15	\$172,194.26	\$573.98	\$511.84	\$171,682.42	\$8,785.72
16	\$171,682.42	\$572.27	\$513.55	\$171,168.87	\$9,357.99
17	\$171,168.87	\$570.56	\$515.26	\$170,653.62	\$9,928.55
18	\$170,653.62	\$568.85	\$516.97	\$170,136.64	\$10,497.40
19	\$170,136.64	\$567.12	\$518.70	\$169,617.95	\$11,064.52
20	\$169,617.95	\$565.39	\$520.43	\$169,097.52	\$11,629.91
21	\$169,097.52	\$563.66	\$522.16	\$168,575.36	\$12,193.57
22	\$168,575.36	\$561.92	\$523.90	\$168,051.46	\$12,755.49
23	\$168,051.46	\$560.17	\$525.65	\$167,525.81	\$13,315.66
24	\$167,525.81	\$558.42	\$527.40	\$166,998.41	\$13,874.08
25	\$166,998.41	\$556.66	\$529.16	\$166,469.25	\$14,430.74
26	\$166,469.25	\$554.90	\$530.92	\$165,938.33	\$14,985.64
27	\$165,938.33	\$553.13	\$532.69	\$165,405.63	\$15,538.77
28	\$165,405.63	\$551.35	\$534.47	\$164,871.17	\$16,090.12
29	\$164,871.17	\$549.57	\$536.25	\$164,334.92	\$16,639.69
30	\$164,334.92	\$547.78	\$538.04	\$163,796.88	\$17,187.47
31	\$163,796.88	\$545.99	\$539.83	\$163,257.05	\$17,733.46
32	\$163,257.05	\$544.19	\$541.63	\$162,715.42	\$18,277.65
33	\$162,715.42	\$542.38	\$543.44	\$162,171.99	\$18,820.04
34	\$162,171.99	\$540.57	\$545.25	\$161,626.74	\$19,360.61
35	\$161,626.74	\$538.76	\$547.06	\$161,079.67	\$19,899.37
36	\$161,079.67	\$536.93	\$548.89	\$160,530.79	\$20,436.30
37	\$160,530.79	\$535.10	\$550.72	\$159,980.07	\$20,971.40
38	\$159,980.07	\$533.27	\$552.55	\$159,427.52	\$21,504.67
39	\$159,427.52	\$531.43	\$554.39	\$158,873.12	\$22,036.09
40	\$158,873.12	\$529.58	\$556.24	\$158,316.88	\$22,565.67
41	\$158,316.88	\$527.72	\$558.10	\$157,758.78	\$23,093.39
42	\$157,758.78	\$525.86	\$559.96	\$157,198.83	\$23,619.26
43	\$157,198.83	\$524.00	\$561.82	\$156,637.00	\$24,143.25
44	\$156,637.00	\$522.12	\$563.70	\$156,073.31	\$24,665.38
45	\$156,073.31	\$520.24	\$565.58	\$155,507.73	\$25,185.62
46	\$155,507.73	\$518.36	\$567.46	\$154,940.27	\$25,703.98
47	\$154,940.27	\$516.47	\$569.35	\$154,370.92	\$26,220.45
48	\$154,370.92	\$514.57	\$571.25	\$153,799.67	\$26,735.02
49	\$153,799.67	\$512.67	\$573.15	\$153,226.51	\$27,247.68
50	\$153,226.51	\$510.76	\$575.06	\$152,651.45	\$27,758.44
51	\$152,651.45	\$508.84	\$576.98	\$152,074.47	\$28,267.28
52	\$152,074.47	\$506.91	\$578.90	\$151,495.56	\$28,774.19
53	\$151,495.56	\$504.99	\$580.83	\$150,914.73	\$29,279.18
54	\$150,914.73	\$503.05	\$582.77	\$150,331.96	\$29,782.23
55	\$150,331.96	\$501.11	\$584.71	\$149,747.24	\$30,283.33
56	\$149,747.24	\$499.16	\$586.66	\$149,160.58	\$30,782.49
57	\$149,160.58	\$497.20	\$588.62	\$148,571.96	\$31,279.69
58	\$148,571.96	\$495.24	\$590.58	\$147,981.38	\$31,774.93
59	\$147,981.38	\$493.27	\$592.55	\$147,388.83	\$32,268.20
60	\$147,388.83	\$491.30	\$594.52	\$146,794.31	\$32,759.50
61	\$146,794.31	\$489.31	\$596.51	\$146,197.81	\$33,248.81

TOWNSHIP OF PUSLINCH
Water Servicing - Option W1

Estimated Capital Cost: \$22,935,500
Number of Benefitting Properties: 128
Cost per Connection: \$179,183.59

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$1,085.82

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$179,184.00	4.00%	20	\$1,085.82		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
62	\$146,197.81	\$487.33	\$598.49	\$145,599.31	\$33,736.14
63	\$145,599.31	\$485.33	\$600.49	\$144,998.82	\$34,221.47
64	\$144,998.82	\$483.33	\$602.49	\$144,396.33	\$34,704.80
65	\$144,396.33	\$481.32	\$604.50	\$143,791.83	\$35,186.12
66	\$143,791.83	\$479.31	\$606.51	\$143,185.32	\$35,665.43
67	\$143,185.32	\$477.28	\$608.54	\$142,576.78	\$36,142.71
68	\$142,576.78	\$475.26	\$610.56	\$141,966.22	\$36,617.97
69	\$141,966.22	\$473.22	\$612.60	\$141,353.62	\$37,091.19
70	\$141,353.62	\$471.18	\$614.64	\$140,738.98	\$37,562.37
71	\$140,738.98	\$469.13	\$616.69	\$140,122.29	\$38,031.50
72	\$140,122.29	\$467.07	\$618.75	\$139,503.55	\$38,498.57
73	\$139,503.55	\$465.01	\$620.81	\$138,882.74	\$38,963.58
74	\$138,882.74	\$462.94	\$622.88	\$138,259.86	\$39,426.52
75	\$138,259.86	\$460.87	\$624.95	\$137,634.91	\$39,887.39
76	\$137,634.91	\$458.78	\$627.04	\$137,007.87	\$40,346.17
77	\$137,007.87	\$456.69	\$629.13	\$136,378.74	\$40,802.87
78	\$136,378.74	\$454.60	\$631.22	\$135,747.52	\$41,257.46
79	\$135,747.52	\$452.49	\$633.33	\$135,114.19	\$41,709.95
80	\$135,114.19	\$450.38	\$635.44	\$134,478.75	\$42,160.34
81	\$134,478.75	\$448.26	\$637.56	\$133,841.19	\$42,608.60
82	\$133,841.19	\$446.14	\$639.68	\$133,201.51	\$43,054.74
83	\$133,201.51	\$444.01	\$641.81	\$132,559.70	\$43,498.74
84	\$132,559.70	\$441.87	\$643.95	\$131,915.74	\$43,940.61
85	\$131,915.74	\$439.72	\$646.10	\$131,269.64	\$44,380.32
86	\$131,269.64	\$437.57	\$648.25	\$130,621.39	\$44,817.89
87	\$130,621.39	\$435.40	\$650.42	\$129,970.97	\$45,253.29
88	\$129,970.97	\$433.24	\$652.58	\$129,318.39	\$45,686.53
89	\$129,318.39	\$431.06	\$654.76	\$128,663.63	\$46,117.59
90	\$128,663.63	\$428.88	\$656.94	\$128,006.69	\$46,546.47
91	\$128,006.69	\$426.69	\$659.13	\$127,347.56	\$46,973.16
92	\$127,347.56	\$424.49	\$661.33	\$126,686.23	\$47,397.65
93	\$126,686.23	\$422.29	\$663.53	\$126,022.70	\$47,819.94
94	\$126,022.70	\$420.08	\$665.74	\$125,356.95	\$48,240.02
95	\$125,356.95	\$417.86	\$667.96	\$124,688.99	\$48,657.87
96	\$124,688.99	\$415.63	\$670.19	\$124,018.80	\$49,073.50
97	\$124,018.80	\$413.40	\$672.42	\$123,346.38	\$49,486.90
98	\$123,346.38	\$411.15	\$674.67	\$122,671.71	\$49,898.05
99	\$122,671.71	\$408.91	\$676.91	\$121,994.80	\$50,306.96
100	\$121,994.80	\$406.65	\$679.17	\$121,315.63	\$50,713.61
101	\$121,315.63	\$404.39	\$681.43	\$120,634.19	\$51,117.99
102	\$120,634.19	\$402.11	\$683.71	\$119,950.49	\$51,520.11
103	\$119,950.49	\$399.83	\$685.98	\$119,264.50	\$51,919.94
104	\$119,264.50	\$397.55	\$688.27	\$118,576.23	\$52,317.49
105	\$118,576.23	\$395.25	\$690.57	\$117,885.67	\$52,712.74
106	\$117,885.67	\$392.95	\$692.87	\$117,192.80	\$53,105.70
107	\$117,192.80	\$390.64	\$695.18	\$116,497.62	\$53,496.34
108	\$116,497.62	\$388.33	\$697.49	\$115,800.13	\$53,884.66
109	\$115,800.13	\$386.00	\$699.82	\$115,100.31	\$54,270.67
110	\$115,100.31	\$383.67	\$702.15	\$114,398.16	\$54,654.33
111	\$114,398.16	\$381.33	\$704.49	\$113,693.66	\$55,035.66
112	\$113,693.66	\$378.98	\$706.84	\$112,986.82	\$55,414.64
113	\$112,986.82	\$376.62	\$709.20	\$112,277.63	\$55,791.26
114	\$112,277.63	\$374.26	\$711.56	\$111,566.06	\$56,165.52
115	\$111,566.06	\$371.89	\$713.93	\$110,852.13	\$56,537.41
116	\$110,852.13	\$369.51	\$716.31	\$110,135.82	\$56,906.91
117	\$110,135.82	\$367.12	\$718.70	\$109,417.12	\$57,274.03
118	\$109,417.12	\$364.72	\$721.10	\$108,696.02	\$57,638.76
119	\$108,696.02	\$362.32	\$723.50	\$107,972.52	\$58,001.08
120	\$107,972.52	\$359.91	\$725.91	\$107,246.61	\$58,360.99
121	\$107,246.61	\$357.49	\$728.33	\$106,518.28	\$58,718.47
122	\$106,518.28	\$355.06	\$730.76	\$105,787.52	\$59,073.54

TOWNSHIP OF PUSLINCH
Water Servicing - Option W1

Estimated Capital Cost: \$22,935,500
Number of Benefitting Properties: 128
Cost per Connection: \$179,183.59

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$1,085.82

Loan Amount	Interest Rate	Term in Years	Monthly Payment
\$179,184.00	4.00%	20	\$1,085.82

Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
123	\$105,787.52	\$352.63	\$733.19	\$105,054.33	\$59,426.16
124	\$105,054.33	\$350.18	\$735.64	\$104,318.69	\$59,776.34
125	\$104,318.69	\$347.73	\$738.09	\$103,580.60	\$60,124.07
126	\$103,580.60	\$345.27	\$740.55	\$102,840.05	\$60,469.34
127	\$102,840.05	\$342.80	\$743.02	\$102,097.03	\$60,812.14
128	\$102,097.03	\$340.32	\$745.50	\$101,351.53	\$61,152.46
129	\$101,351.53	\$337.84	\$747.98	\$100,603.55	\$61,490.30
130	\$100,603.55	\$335.35	\$750.47	\$99,853.07	\$61,825.65
131	\$99,853.07	\$332.84	\$752.98	\$99,100.10	\$62,158.49
132	\$99,100.10	\$330.33	\$755.49	\$98,344.61	\$62,488.82
133	\$98,344.61	\$327.82	\$758.00	\$97,586.61	\$62,816.64
134	\$97,586.61	\$325.29	\$760.53	\$96,826.08	\$63,141.93
135	\$96,826.08	\$322.75	\$763.07	\$96,063.01	\$63,464.68
136	\$96,063.01	\$320.21	\$765.61	\$95,297.40	\$63,784.89
137	\$95,297.40	\$317.66	\$768.16	\$94,529.24	\$64,102.55
138	\$94,529.24	\$315.10	\$770.72	\$93,758.52	\$64,417.65
139	\$93,758.52	\$312.53	\$773.29	\$92,985.22	\$64,730.18
140	\$92,985.22	\$309.95	\$775.87	\$92,209.36	\$65,040.13
141	\$92,209.36	\$307.36	\$778.46	\$91,430.90	\$65,347.49
142	\$91,430.90	\$304.77	\$781.05	\$90,649.85	\$65,652.26
143	\$90,649.85	\$302.17	\$783.65	\$89,866.20	\$65,954.43
144	\$89,866.20	\$299.55	\$786.27	\$89,079.93	\$66,253.98
145	\$89,079.93	\$296.93	\$788.89	\$88,291.04	\$66,550.91
146	\$88,291.04	\$294.30	\$791.52	\$87,499.53	\$66,845.22
147	\$87,499.53	\$291.67	\$794.15	\$86,705.37	\$67,136.88
148	\$86,705.37	\$289.02	\$796.80	\$85,908.57	\$67,425.90
149	\$85,908.57	\$286.36	\$799.46	\$85,109.11	\$67,712.26
150	\$85,109.11	\$283.70	\$802.12	\$84,306.99	\$67,995.96
151	\$84,306.99	\$281.02	\$804.80	\$83,502.19	\$68,276.98
152	\$83,502.19	\$278.34	\$807.48	\$82,694.71	\$68,555.32
153	\$82,694.71	\$275.65	\$810.17	\$81,884.54	\$68,830.97
154	\$81,884.54	\$272.95	\$812.87	\$81,071.67	\$69,103.92
155	\$81,071.67	\$270.24	\$815.58	\$80,256.09	\$69,374.16
156	\$80,256.09	\$267.52	\$818.30	\$79,437.79	\$69,641.68
157	\$79,437.79	\$264.79	\$821.03	\$78,616.76	\$69,906.47
158	\$78,616.76	\$262.06	\$823.76	\$77,793.00	\$70,168.53
159	\$77,793.00	\$259.31	\$826.51	\$76,966.49	\$70,427.84
160	\$76,966.49	\$256.55	\$829.26	\$76,137.23	\$70,684.39
161	\$76,137.23	\$253.79	\$832.03	\$75,305.20	\$70,938.18
162	\$75,305.20	\$251.02	\$834.80	\$74,470.39	\$71,189.20
163	\$74,470.39	\$248.23	\$837.59	\$73,632.81	\$71,437.44
164	\$73,632.81	\$245.44	\$840.38	\$72,792.43	\$71,682.88
165	\$72,792.43	\$242.64	\$843.18	\$71,949.25	\$71,925.52
166	\$71,949.25	\$239.83	\$845.99	\$71,103.27	\$72,165.35
167	\$71,103.27	\$237.01	\$848.81	\$70,254.46	\$72,402.36
168	\$70,254.46	\$234.18	\$851.64	\$69,402.82	\$72,636.54
169	\$69,402.82	\$231.34	\$854.48	\$68,548.34	\$72,867.89
170	\$68,548.34	\$228.49	\$857.33	\$67,691.02	\$73,096.38
171	\$67,691.02	\$225.64	\$860.18	\$66,830.83	\$73,322.02
172	\$66,830.83	\$222.77	\$863.05	\$65,967.78	\$73,544.79
173	\$65,967.78	\$219.89	\$865.93	\$65,101.85	\$73,764.68
174	\$65,101.85	\$217.01	\$868.81	\$64,233.04	\$73,981.69
175	\$64,233.04	\$214.11	\$871.71	\$63,361.33	\$74,195.80
176	\$63,361.33	\$211.20	\$874.62	\$62,486.72	\$74,407.00
177	\$62,486.72	\$208.29	\$877.53	\$61,609.19	\$74,615.29
178	\$61,609.19	\$205.36	\$880.46	\$60,728.73	\$74,820.65
179	\$60,728.73	\$202.43	\$883.39	\$59,845.34	\$75,023.08
180	\$59,845.34	\$199.48	\$886.34	\$58,959.00	\$75,222.57
181	\$58,959.00	\$196.53	\$889.29	\$58,069.71	\$75,419.10
182	\$58,069.71	\$193.57	\$892.25	\$57,177.46	\$75,612.66
183	\$57,177.46	\$190.59	\$895.23	\$56,282.23	\$75,803.25

TOWNSHIP OF PUSLINCH
Water Servicing - Option W1

Estimated Capital Cost: \$22,935,500
Number of Benefitting Properties: 128
Cost per Connection: \$179,183.59

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$1,085.82

Loan Amount	Interest Rate	Term in Years	Monthly Payment
\$179,184.00	4.00%	20	\$1,085.82

Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
184	\$56,282.23	\$187.61	\$898.21	\$55,384.02	\$75,990.86
185	\$55,384.02	\$184.61	\$901.21	\$54,482.81	\$76,175.47
186	\$54,482.81	\$181.61	\$904.21	\$53,578.60	\$76,357.08
187	\$53,578.60	\$178.60	\$907.22	\$52,671.38	\$76,535.68
188	\$52,671.38	\$175.57	\$910.25	\$51,761.13	\$76,711.25
189	\$51,761.13	\$172.54	\$913.28	\$50,847.85	\$76,883.79
190	\$50,847.85	\$169.49	\$916.33	\$49,931.52	\$77,053.28
191	\$49,931.52	\$166.44	\$919.38	\$49,012.14	\$77,219.72
192	\$49,012.14	\$163.37	\$922.45	\$48,089.69	\$77,383.09
193	\$48,089.69	\$160.30	\$925.52	\$47,164.17	\$77,543.39
194	\$47,164.17	\$157.21	\$928.61	\$46,235.57	\$77,700.61
195	\$46,235.57	\$154.12	\$931.70	\$45,303.86	\$77,854.72
196	\$45,303.86	\$151.01	\$934.81	\$44,369.06	\$78,005.74
197	\$44,369.06	\$147.90	\$937.92	\$43,431.13	\$78,153.63
198	\$43,431.13	\$144.77	\$941.05	\$42,490.09	\$78,298.40
199	\$42,490.09	\$141.63	\$944.19	\$41,545.90	\$78,440.04
200	\$41,545.90	\$138.49	\$947.33	\$40,598.57	\$78,578.52
201	\$40,598.57	\$135.33	\$950.49	\$39,648.07	\$78,713.85
202	\$39,648.07	\$132.16	\$953.66	\$38,694.41	\$78,846.01
203	\$38,694.41	\$128.98	\$956.84	\$37,737.58	\$78,974.99
204	\$37,737.58	\$125.79	\$960.03	\$36,777.55	\$79,100.79
205	\$36,777.55	\$122.59	\$963.23	\$35,814.32	\$79,223.38
206	\$35,814.32	\$119.38	\$966.44	\$34,847.88	\$79,342.76
207	\$34,847.88	\$116.16	\$969.66	\$33,878.22	\$79,458.92
208	\$33,878.22	\$112.93	\$972.89	\$32,905.33	\$79,571.85
209	\$32,905.33	\$109.68	\$976.14	\$31,929.19	\$79,681.53
210	\$31,929.19	\$106.43	\$979.39	\$30,949.80	\$79,787.96
211	\$30,949.80	\$103.17	\$982.65	\$29,967.15	\$79,891.13
212	\$29,967.15	\$99.89	\$985.93	\$28,981.22	\$79,991.02
213	\$28,981.22	\$96.60	\$989.22	\$27,992.01	\$80,087.62
214	\$27,992.01	\$93.31	\$992.51	\$26,999.49	\$80,180.93
215	\$26,999.49	\$90.00	\$995.82	\$26,003.67	\$80,270.93
216	\$26,003.67	\$86.68	\$999.14	\$25,004.53	\$80,357.61
217	\$25,004.53	\$83.35	\$1,002.47	\$24,002.06	\$80,440.95
218	\$24,002.06	\$80.01	\$1,005.81	\$22,996.25	\$80,520.96
219	\$22,996.25	\$76.65	\$1,009.17	\$21,987.08	\$80,597.62
220	\$21,987.08	\$73.29	\$1,012.53	\$20,974.55	\$80,670.91
221	\$20,974.55	\$69.92	\$1,015.90	\$19,958.65	\$80,740.82
222	\$19,958.65	\$66.53	\$1,019.29	\$18,939.36	\$80,807.35
223	\$18,939.36	\$63.13	\$1,022.69	\$17,916.67	\$80,870.48
224	\$17,916.67	\$59.72	\$1,026.10	\$16,890.57	\$80,930.20
225	\$16,890.57	\$56.30	\$1,029.52	\$15,861.05	\$80,986.50
226	\$15,861.05	\$52.87	\$1,032.95	\$14,828.10	\$81,039.38
227	\$14,828.10	\$49.43	\$1,036.39	\$13,791.71	\$81,088.80
228	\$13,791.71	\$45.97	\$1,039.85	\$12,751.86	\$81,134.77
229	\$12,751.86	\$42.51	\$1,043.31	\$11,708.55	\$81,177.28
230	\$11,708.55	\$39.03	\$1,046.79	\$10,661.76	\$81,216.31
231	\$10,661.76	\$35.54	\$1,050.28	\$9,611.48	\$81,251.85
232	\$9,611.48	\$32.04	\$1,053.78	\$8,557.69	\$81,283.89
233	\$8,557.69	\$28.53	\$1,057.29	\$7,500.40	\$81,312.41
234	\$7,500.40	\$25.00	\$1,060.82	\$6,439.58	\$81,337.41
235	\$6,439.58	\$21.47	\$1,064.35	\$5,375.23	\$81,358.88
236	\$5,375.23	\$17.92	\$1,067.90	\$4,307.33	\$81,376.80
237	\$4,307.33	\$14.36	\$1,071.46	\$3,235.86	\$81,391.15
238	\$3,235.86	\$10.79	\$1,075.03	\$2,160.83	\$81,401.94
239	\$2,160.83	\$7.20	\$1,078.62	\$1,082.21	\$81,409.14
240	\$1,082.21	\$3.61	\$1,082.21	\$0.00	\$81,412.75

TOWNSHIP OF PUSLINCH
Water Servicing - Option W2

Estimated Capital Cost: \$19,976,700
Number of Benefitting Properties: 128
Cost per Connection: \$156,067.97

Capital Cost Recovery Factor - A = 0.010124514
Monthly Cost -P = \$1,580.11

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$156,068.00	4.00%	10	\$1,580.11		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
1	\$156,068.00	\$520.23	\$1,059.89	\$155,008.11	\$520.23
2	\$155,008.11	\$516.69	\$1,063.42	\$153,944.70	\$1,036.92
3	\$153,944.70	\$513.15	\$1,066.96	\$152,877.73	\$1,550.07
4	\$152,877.73	\$509.59	\$1,070.52	\$151,807.21	\$2,059.66
5	\$151,807.21	\$506.02	\$1,074.09	\$150,733.12	\$2,565.69
6	\$150,733.12	\$502.44	\$1,077.67	\$149,655.45	\$3,068.13
7	\$149,655.45	\$498.85	\$1,081.26	\$148,574.19	\$3,566.98
8	\$148,574.19	\$495.25	\$1,084.87	\$147,489.33	\$4,062.23
9	\$147,489.33	\$491.63	\$1,088.48	\$146,400.85	\$4,553.86
10	\$146,400.85	\$488.00	\$1,092.11	\$145,308.74	\$5,041.86
11	\$145,308.74	\$484.36	\$1,095.75	\$144,212.99	\$5,526.22
12	\$144,212.99	\$480.71	\$1,099.40	\$143,113.58	\$6,006.93
13	\$143,113.58	\$477.05	\$1,103.07	\$142,010.52	\$6,483.98
14	\$142,010.52	\$473.37	\$1,106.74	\$140,903.77	\$6,957.35
15	\$140,903.77	\$469.68	\$1,110.43	\$139,793.34	\$7,427.03
16	\$139,793.34	\$465.98	\$1,114.13	\$138,679.20	\$7,893.01
17	\$138,679.20	\$462.26	\$1,117.85	\$137,561.35	\$8,355.27
18	\$137,561.35	\$458.54	\$1,121.57	\$136,439.78	\$8,813.81
19	\$136,439.78	\$454.80	\$1,125.31	\$135,314.47	\$9,268.61
20	\$135,314.47	\$451.05	\$1,129.06	\$134,185.40	\$9,719.65
21	\$134,185.40	\$447.28	\$1,132.83	\$133,052.57	\$10,166.94
22	\$133,052.57	\$443.51	\$1,136.60	\$131,915.97	\$10,610.45
23	\$131,915.97	\$439.72	\$1,140.39	\$130,775.58	\$11,050.17
24	\$130,775.58	\$435.92	\$1,144.19	\$129,631.38	\$11,486.09
25	\$129,631.38	\$432.10	\$1,148.01	\$128,483.38	\$11,918.19
26	\$128,483.38	\$428.28	\$1,151.83	\$127,331.54	\$12,346.47
27	\$127,331.54	\$424.44	\$1,155.67	\$126,175.87	\$12,770.91
28	\$126,175.87	\$420.59	\$1,159.53	\$125,016.34	\$13,191.49
29	\$125,016.34	\$416.72	\$1,163.39	\$123,852.95	\$13,608.21
30	\$123,852.95	\$412.84	\$1,167.27	\$122,685.68	\$14,021.06
31	\$122,685.68	\$408.95	\$1,171.16	\$121,514.52	\$14,430.01
32	\$121,514.52	\$405.05	\$1,175.06	\$120,339.45	\$14,835.06
33	\$120,339.45	\$401.13	\$1,178.98	\$119,160.47	\$15,236.19
34	\$119,160.47	\$397.20	\$1,182.91	\$117,977.56	\$15,633.39
35	\$117,977.56	\$393.26	\$1,186.85	\$116,790.71	\$16,026.65
36	\$116,790.71	\$389.30	\$1,190.81	\$115,599.90	\$16,415.95
37	\$115,599.90	\$385.33	\$1,194.78	\$114,405.12	\$16,801.29
38	\$114,405.12	\$381.35	\$1,198.76	\$113,206.36	\$17,182.64
39	\$113,206.36	\$377.35	\$1,202.76	\$112,003.60	\$17,559.99
40	\$112,003.60	\$373.35	\$1,206.77	\$110,796.83	\$17,933.34
41	\$110,796.83	\$369.32	\$1,210.79	\$109,586.04	\$18,302.66
42	\$109,586.04	\$365.29	\$1,214.83	\$108,371.22	\$18,667.95
43	\$108,371.22	\$361.24	\$1,218.88	\$107,152.34	\$19,029.18
44	\$107,152.34	\$357.17	\$1,222.94	\$105,929.40	\$19,386.36
45	\$105,929.40	\$353.10	\$1,227.01	\$104,702.39	\$19,739.46
46	\$104,702.39	\$349.01	\$1,231.10	\$103,471.28	\$20,088.46
47	\$103,471.28	\$344.90	\$1,235.21	\$102,236.07	\$20,433.37
48	\$102,236.07	\$340.79	\$1,239.33	\$100,996.75	\$20,774.15
49	\$100,996.75	\$336.66	\$1,243.46	\$99,753.29	\$21,110.81
50	\$99,753.29	\$332.51	\$1,247.60	\$98,505.69	\$21,443.32
51	\$98,505.69	\$328.35	\$1,251.76	\$97,253.93	\$21,771.67
52	\$97,253.93	\$324.18	\$1,255.93	\$95,998.00	\$22,095.85
53	\$95,998.00	\$319.99	\$1,260.12	\$94,737.88	\$22,415.85
54	\$94,737.88	\$315.79	\$1,264.32	\$93,473.56	\$22,731.64
55	\$93,473.56	\$311.58	\$1,268.53	\$92,205.02	\$23,043.22
56	\$92,205.02	\$307.35	\$1,272.76	\$90,932.26	\$23,350.57
57	\$90,932.26	\$303.11	\$1,277.01	\$89,655.26	\$23,653.68
58	\$89,655.26	\$298.85	\$1,281.26	\$88,373.99	\$23,952.53
59	\$88,373.99	\$294.58	\$1,285.53	\$87,088.46	\$24,247.11
60	\$87,088.46	\$290.29	\$1,289.82	\$85,798.64	\$24,537.40

TOWNSHIP OF PUSLINCH
Water Servicing - Option W2

Estimated Capital Cost: \$19,976,700
Number of Benefitting Properties: 128
Cost per Connection: \$156,067.97

Capital Cost Recovery Factor - A = 0.010124514
Monthly Cost -P = \$1,580.11

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$156,068.00	4.00%	10	\$1,580.11		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
61	\$85,798.64	\$286.00	\$1,294.12	\$84,504.53	\$24,823.40
62	\$84,504.53	\$281.68	\$1,298.43	\$83,206.10	\$25,105.08
63	\$83,206.10	\$277.35	\$1,302.76	\$81,903.34	\$25,382.43
64	\$81,903.34	\$273.01	\$1,307.10	\$80,596.24	\$25,655.44
65	\$80,596.24	\$268.65	\$1,311.46	\$79,284.78	\$25,924.10
66	\$79,284.78	\$264.28	\$1,315.83	\$77,968.95	\$26,188.38
67	\$77,968.95	\$259.90	\$1,320.22	\$76,648.73	\$26,448.28
68	\$76,648.73	\$255.50	\$1,324.62	\$75,324.11	\$26,703.77
69	\$75,324.11	\$251.08	\$1,329.03	\$73,995.08	\$26,954.85
70	\$73,995.08	\$246.65	\$1,333.46	\$72,661.62	\$27,201.50
71	\$72,661.62	\$242.21	\$1,337.91	\$71,323.71	\$27,443.71
72	\$71,323.71	\$237.75	\$1,342.37	\$69,981.35	\$27,681.45
73	\$69,981.35	\$233.27	\$1,346.84	\$68,634.50	\$27,914.73
74	\$68,634.50	\$228.78	\$1,351.33	\$67,283.17	\$28,143.51
75	\$67,283.17	\$224.28	\$1,355.84	\$65,927.34	\$28,367.78
76	\$65,927.34	\$219.76	\$1,360.35	\$64,566.98	\$28,587.54
77	\$64,566.98	\$215.22	\$1,364.89	\$63,202.09	\$28,802.77
78	\$63,202.09	\$210.67	\$1,369.44	\$61,832.65	\$29,013.44
79	\$61,832.65	\$206.11	\$1,374.00	\$60,458.65	\$29,219.55
80	\$60,458.65	\$201.53	\$1,378.58	\$59,080.07	\$29,421.08
81	\$59,080.07	\$196.93	\$1,383.18	\$57,696.89	\$29,618.01
82	\$57,696.89	\$192.32	\$1,387.79	\$56,309.10	\$29,810.33
83	\$56,309.10	\$187.70	\$1,392.42	\$54,916.68	\$29,998.03
84	\$54,916.68	\$183.06	\$1,397.06	\$53,519.63	\$30,181.09
85	\$53,519.63	\$178.40	\$1,401.71	\$52,117.91	\$30,359.48
86	\$52,117.91	\$173.73	\$1,406.39	\$50,711.53	\$30,533.21
87	\$50,711.53	\$169.04	\$1,411.07	\$49,300.45	\$30,702.25
88	\$49,300.45	\$164.33	\$1,415.78	\$47,884.67	\$30,866.58
89	\$47,884.67	\$159.62	\$1,420.50	\$46,464.18	\$31,026.20
90	\$46,464.18	\$154.88	\$1,425.23	\$45,038.94	\$31,181.08
91	\$45,038.94	\$150.13	\$1,429.98	\$43,608.96	\$31,331.21
92	\$43,608.96	\$145.36	\$1,434.75	\$42,174.21	\$31,476.57
93	\$42,174.21	\$140.58	\$1,439.53	\$40,734.68	\$31,617.15
94	\$40,734.68	\$135.78	\$1,444.33	\$39,290.35	\$31,752.94
95	\$39,290.35	\$130.97	\$1,449.14	\$37,841.21	\$31,883.90
96	\$37,841.21	\$126.14	\$1,453.98	\$36,387.23	\$32,010.04
97	\$36,387.23	\$121.29	\$1,458.82	\$34,928.41	\$32,131.33
98	\$34,928.41	\$116.43	\$1,463.68	\$33,464.72	\$32,247.76
99	\$33,464.72	\$111.55	\$1,468.56	\$31,996.16	\$32,359.31
100	\$31,996.16	\$106.65	\$1,473.46	\$30,522.70	\$32,465.96
101	\$30,522.70	\$101.74	\$1,478.37	\$29,044.33	\$32,567.71
102	\$29,044.33	\$96.81	\$1,483.30	\$27,561.03	\$32,664.52
103	\$27,561.03	\$91.87	\$1,488.24	\$26,072.79	\$32,756.39
104	\$26,072.79	\$86.91	\$1,493.20	\$24,579.59	\$32,843.30
105	\$24,579.59	\$81.93	\$1,498.18	\$23,081.41	\$32,925.23
106	\$23,081.41	\$76.94	\$1,503.17	\$21,578.23	\$33,002.17
107	\$21,578.23	\$71.93	\$1,508.19	\$20,070.05	\$33,074.10
108	\$20,070.05	\$66.90	\$1,513.21	\$18,556.83	\$33,141.00
109	\$18,556.83	\$61.86	\$1,518.26	\$17,038.58	\$33,202.85
110	\$17,038.58	\$56.80	\$1,523.32	\$15,515.26	\$33,259.65
111	\$15,515.26	\$51.72	\$1,528.40	\$13,986.86	\$33,311.37
112	\$13,986.86	\$46.62	\$1,533.49	\$12,453.38	\$33,357.99
113	\$12,453.38	\$41.51	\$1,538.60	\$10,914.77	\$33,399.50
114	\$10,914.77	\$36.38	\$1,543.73	\$9,371.04	\$33,435.88
115	\$9,371.04	\$31.24	\$1,548.88	\$7,822.17	\$33,467.12
116	\$7,822.17	\$26.07	\$1,554.04	\$6,268.13	\$33,493.19
117	\$6,268.13	\$20.89	\$1,559.22	\$4,708.91	\$33,514.09
118	\$4,708.91	\$15.70	\$1,564.42	\$3,144.49	\$33,529.78
119	\$3,144.49	\$10.48	\$1,569.63	\$1,574.86	\$33,540.27
120	\$1,574.86	\$5.25	\$1,574.86	\$0.00	\$33,545.51

TOWNSHIP OF PUSLINCH
Water Servicing - Option W2

Estimated Capital Cost: \$19,976,700
Number of Benefitting Properties: 128
Cost per Connection: \$156,067.97

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$1,154.42

Loan Amount	Interest Rate	Term in Years	Monthly Payment
\$156,068.00	4.00%	15	\$1,154.42

Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
1	\$156,068.00	\$520.23	\$634.19	\$155,433.81	\$520.23
2	\$155,433.81	\$518.11	\$636.30	\$154,797.51	\$1,038.34
3	\$154,797.51	\$515.99	\$638.42	\$154,159.08	\$1,554.33
4	\$154,159.08	\$513.86	\$640.55	\$153,518.53	\$2,068.19
5	\$153,518.53	\$511.73	\$642.69	\$152,875.84	\$2,579.92
6	\$152,875.84	\$509.59	\$644.83	\$152,231.01	\$3,089.51
7	\$152,231.01	\$507.44	\$646.98	\$151,584.03	\$3,596.95
8	\$151,584.03	\$505.28	\$649.14	\$150,934.90	\$4,102.23
9	\$150,934.90	\$503.12	\$651.30	\$150,283.60	\$4,605.34
10	\$150,283.60	\$500.95	\$653.47	\$149,630.13	\$5,106.29
11	\$149,630.13	\$498.77	\$655.65	\$148,974.48	\$5,605.05
12	\$148,974.48	\$496.58	\$657.83	\$148,316.64	\$6,101.64
13	\$148,316.64	\$494.39	\$660.03	\$147,656.62	\$6,596.03
14	\$147,656.62	\$492.19	\$662.23	\$146,994.39	\$7,088.21
15	\$146,994.39	\$489.98	\$664.43	\$146,329.95	\$7,578.20
16	\$146,329.95	\$487.77	\$666.65	\$145,663.30	\$8,065.96
17	\$145,663.30	\$485.54	\$668.87	\$144,994.43	\$8,551.51
18	\$144,994.43	\$483.31	\$671.10	\$144,323.33	\$9,034.82
19	\$144,323.33	\$481.08	\$673.34	\$143,649.99	\$9,515.90
20	\$143,649.99	\$478.83	\$675.58	\$142,974.41	\$9,994.73
21	\$142,974.41	\$476.58	\$677.83	\$142,296.57	\$10,471.31
22	\$142,296.57	\$474.32	\$680.09	\$141,616.48	\$10,945.64
23	\$141,616.48	\$472.05	\$682.36	\$140,934.12	\$11,417.69
24	\$140,934.12	\$469.78	\$684.64	\$140,249.48	\$11,887.47
25	\$140,249.48	\$467.50	\$686.92	\$139,562.56	\$12,354.97
26	\$139,562.56	\$465.21	\$689.21	\$138,873.36	\$12,820.18
27	\$138,873.36	\$462.91	\$691.50	\$138,181.85	\$13,283.09
28	\$138,181.85	\$460.61	\$693.81	\$137,488.04	\$13,743.69
29	\$137,488.04	\$458.29	\$696.12	\$136,791.92	\$14,201.99
30	\$136,791.92	\$455.97	\$698.44	\$136,093.48	\$14,657.96
31	\$136,093.48	\$453.64	\$700.77	\$135,392.71	\$15,111.61
32	\$135,392.71	\$451.31	\$703.11	\$134,689.60	\$15,562.92
33	\$134,689.60	\$448.97	\$705.45	\$133,984.15	\$16,011.88
34	\$133,984.15	\$446.61	\$707.80	\$133,276.35	\$16,458.49
35	\$133,276.35	\$444.25	\$710.16	\$132,566.18	\$16,902.75
36	\$132,566.18	\$441.89	\$712.53	\$131,853.65	\$17,344.64
37	\$131,853.65	\$439.51	\$714.90	\$131,138.75	\$17,784.15
38	\$131,138.75	\$437.13	\$717.29	\$130,421.46	\$18,221.28
39	\$130,421.46	\$434.74	\$719.68	\$129,701.79	\$18,656.02
40	\$129,701.79	\$432.34	\$722.08	\$128,979.71	\$19,088.35
41	\$128,979.71	\$429.93	\$724.48	\$128,255.23	\$19,518.29
42	\$128,255.23	\$427.52	\$726.90	\$127,528.33	\$19,945.80
43	\$127,528.33	\$425.09	\$729.32	\$126,799.00	\$20,370.90
44	\$126,799.00	\$422.66	\$731.75	\$126,067.25	\$20,793.56
45	\$126,067.25	\$420.22	\$734.19	\$125,333.06	\$21,213.79
46	\$125,333.06	\$417.78	\$736.64	\$124,596.42	\$21,631.56
47	\$124,596.42	\$415.32	\$739.09	\$123,857.33	\$22,046.88
48	\$123,857.33	\$412.86	\$741.56	\$123,115.77	\$22,459.74
49	\$123,115.77	\$410.39	\$744.03	\$122,371.74	\$22,870.13
50	\$122,371.74	\$407.91	\$746.51	\$121,625.23	\$23,278.03
51	\$121,625.23	\$405.42	\$749.00	\$120,876.23	\$23,683.45
52	\$120,876.23	\$402.92	\$751.50	\$120,124.73	\$24,086.37
53	\$120,124.73	\$400.42	\$754.00	\$119,370.73	\$24,486.79
54	\$119,370.73	\$397.90	\$756.51	\$118,614.22	\$24,884.69
55	\$118,614.22	\$395.38	\$759.04	\$117,855.18	\$25,280.07
56	\$117,855.18	\$392.85	\$761.57	\$117,093.62	\$25,672.92
57	\$117,093.62	\$390.31	\$764.10	\$116,329.51	\$26,063.23
58	\$116,329.51	\$387.77	\$766.65	\$115,562.86	\$26,451.00
59	\$115,562.86	\$385.21	\$769.21	\$114,793.66	\$26,836.21
60	\$114,793.66	\$382.65	\$771.77	\$114,021.89	\$27,218.85
61	\$114,021.89	\$380.07	\$774.34	\$113,247.54	\$27,598.93

TOWNSHIP OF PUSLINCH
Water Servicing - Option W2

Estimated Capital Cost: \$19,976,700
Number of Benefitting Properties: 128
Cost per Connection: \$156,067.97

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$1,154.42

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$156,068.00	4.00%	15	\$1,154.42		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
62	\$113,247.54	\$377.49	\$776.92	\$112,470.62	\$27,976.42
63	\$112,470.62	\$374.90	\$779.51	\$111,691.10	\$28,351.32
64	\$111,691.10	\$372.30	\$782.11	\$110,908.99	\$28,723.62
65	\$110,908.99	\$369.70	\$784.72	\$110,124.27	\$29,093.32
66	\$110,124.27	\$367.08	\$787.34	\$109,336.94	\$29,460.40
67	\$109,336.94	\$364.46	\$789.96	\$108,546.98	\$29,824.86
68	\$108,546.98	\$361.82	\$792.59	\$107,754.38	\$30,186.68
69	\$107,754.38	\$359.18	\$795.23	\$106,959.15	\$30,545.86
70	\$106,959.15	\$356.53	\$797.89	\$106,161.26	\$30,902.39
71	\$106,161.26	\$353.87	\$800.55	\$105,360.72	\$31,256.26
72	\$105,360.72	\$351.20	\$803.21	\$104,557.50	\$31,607.47
73	\$104,557.50	\$348.53	\$805.89	\$103,751.61	\$31,955.99
74	\$103,751.61	\$345.84	\$808.58	\$102,943.04	\$32,301.83
75	\$102,943.04	\$343.14	\$811.27	\$102,131.76	\$32,644.97
76	\$102,131.76	\$340.44	\$813.98	\$101,317.79	\$32,985.41
77	\$101,317.79	\$337.73	\$816.69	\$100,501.10	\$33,323.14
78	\$100,501.10	\$335.00	\$819.41	\$99,681.68	\$33,658.14
79	\$99,681.68	\$332.27	\$822.14	\$98,859.54	\$33,990.42
80	\$98,859.54	\$329.53	\$824.88	\$98,034.65	\$34,319.95
81	\$98,034.65	\$326.78	\$827.63	\$97,207.02	\$34,646.73
82	\$97,207.02	\$324.02	\$830.39	\$96,376.63	\$34,970.75
83	\$96,376.63	\$321.26	\$833.16	\$95,543.47	\$35,292.01
84	\$95,543.47	\$318.48	\$835.94	\$94,707.53	\$35,610.49
85	\$94,707.53	\$315.69	\$838.72	\$93,868.81	\$35,926.18
86	\$93,868.81	\$312.90	\$841.52	\$93,027.29	\$36,239.07
87	\$93,027.29	\$310.09	\$844.33	\$92,182.96	\$36,549.17
88	\$92,182.96	\$307.28	\$847.14	\$91,335.82	\$36,856.44
89	\$91,335.82	\$304.45	\$849.96	\$90,485.86	\$37,160.89
90	\$90,485.86	\$301.62	\$852.80	\$89,633.06	\$37,462.51
91	\$89,633.06	\$298.78	\$855.64	\$88,777.42	\$37,761.29
92	\$88,777.42	\$295.92	\$858.49	\$87,918.93	\$38,057.22
93	\$87,918.93	\$293.06	\$861.35	\$87,057.58	\$38,350.28
94	\$87,057.58	\$290.19	\$864.22	\$86,193.35	\$38,640.47
95	\$86,193.35	\$287.31	\$867.10	\$85,326.25	\$38,927.78
96	\$85,326.25	\$284.42	\$870.00	\$84,456.25	\$39,212.20
97	\$84,456.25	\$281.52	\$872.90	\$83,583.36	\$39,493.72
98	\$83,583.36	\$278.61	\$875.80	\$82,707.55	\$39,772.33
99	\$82,707.55	\$275.69	\$878.72	\$81,828.83	\$40,048.03
100	\$81,828.83	\$272.76	\$881.65	\$80,947.17	\$40,320.79
101	\$80,947.17	\$269.82	\$884.59	\$80,062.58	\$40,590.61
102	\$80,062.58	\$266.88	\$887.54	\$79,175.04	\$40,857.49
103	\$79,175.04	\$263.92	\$890.50	\$78,284.54	\$41,121.41
104	\$78,284.54	\$260.95	\$893.47	\$77,391.07	\$41,382.35
105	\$77,391.07	\$257.97	\$896.45	\$76,494.63	\$41,640.32
106	\$76,494.63	\$254.98	\$899.43	\$75,595.19	\$41,895.31
107	\$75,595.19	\$251.98	\$902.43	\$74,692.76	\$42,147.29
108	\$74,692.76	\$248.98	\$905.44	\$73,787.32	\$42,396.27
109	\$73,787.32	\$245.96	\$908.46	\$72,878.86	\$42,642.22
110	\$72,878.86	\$242.93	\$911.49	\$71,967.38	\$42,885.15
111	\$71,967.38	\$239.89	\$914.52	\$71,052.85	\$43,125.04
112	\$71,052.85	\$236.84	\$917.57	\$70,135.28	\$43,361.89
113	\$70,135.28	\$233.78	\$920.63	\$69,214.65	\$43,595.67
114	\$69,214.65	\$230.72	\$923.70	\$68,290.95	\$43,826.39
115	\$68,290.95	\$227.64	\$926.78	\$67,364.17	\$44,054.02
116	\$67,364.17	\$224.55	\$929.87	\$66,434.30	\$44,278.57
117	\$66,434.30	\$221.45	\$932.97	\$65,501.33	\$44,500.02
118	\$65,501.33	\$218.34	\$936.08	\$64,565.25	\$44,718.36
119	\$64,565.25	\$215.22	\$939.20	\$63,626.05	\$44,933.57
120	\$63,626.05	\$212.09	\$942.33	\$62,683.72	\$45,145.66
121	\$62,683.72	\$208.95	\$945.47	\$61,738.25	\$45,354.61
122	\$61,738.25	\$205.79	\$948.62	\$60,789.63	\$45,560.40

TOWNSHIP OF PUSLINCH
Water Servicing - Option W2

Estimated Capital Cost: \$19,976,700
Number of Benefitting Properties: 128
Cost per Connection: \$156,067.97

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$1,154.42

Loan Amount	Interest Rate	Term in Years	Monthly Payment
\$156,068.00	4.00%	15	\$1,154.42

Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
123	\$60,789.63	\$202.63	\$951.78	\$59,837.85	\$45,763.03
124	\$59,837.85	\$199.46	\$954.96	\$58,882.89	\$45,962.49
125	\$58,882.89	\$196.28	\$958.14	\$57,924.75	\$46,158.77
126	\$57,924.75	\$193.08	\$961.33	\$56,963.42	\$46,351.85
127	\$56,963.42	\$189.88	\$964.54	\$55,998.88	\$46,541.73
128	\$55,998.88	\$186.66	\$967.75	\$55,031.12	\$46,728.39
129	\$55,031.12	\$183.44	\$970.98	\$54,060.15	\$46,911.83
130	\$54,060.15	\$180.20	\$974.22	\$53,085.93	\$47,092.03
131	\$53,085.93	\$176.95	\$977.46	\$52,108.47	\$47,268.98
132	\$52,108.47	\$173.69	\$980.72	\$51,127.75	\$47,442.68
133	\$51,127.75	\$170.43	\$983.99	\$50,143.75	\$47,613.10
134	\$50,143.75	\$167.15	\$987.27	\$49,156.48	\$47,780.25
135	\$49,156.48	\$163.85	\$990.56	\$48,165.92	\$47,944.10
136	\$48,165.92	\$160.55	\$993.86	\$47,172.06	\$48,104.66
137	\$47,172.06	\$157.24	\$997.18	\$46,174.88	\$48,261.90
138	\$46,174.88	\$153.92	\$1,000.50	\$45,174.38	\$48,415.81
139	\$45,174.38	\$150.58	\$1,003.83	\$44,170.55	\$48,566.39
140	\$44,170.55	\$147.24	\$1,007.18	\$43,163.37	\$48,713.63
141	\$43,163.37	\$143.88	\$1,010.54	\$42,152.83	\$48,857.51
142	\$42,152.83	\$140.51	\$1,013.91	\$41,138.92	\$48,998.02
143	\$41,138.92	\$137.13	\$1,017.29	\$40,121.64	\$49,135.15
144	\$40,121.64	\$133.74	\$1,020.68	\$39,100.96	\$49,268.89
145	\$39,100.96	\$130.34	\$1,024.08	\$38,076.88	\$49,399.22
146	\$38,076.88	\$126.92	\$1,027.49	\$37,049.39	\$49,526.15
147	\$37,049.39	\$123.50	\$1,030.92	\$36,018.47	\$49,649.64
148	\$36,018.47	\$120.06	\$1,034.35	\$34,984.11	\$49,769.70
149	\$34,984.11	\$116.61	\$1,037.80	\$33,946.31	\$49,886.32
150	\$33,946.31	\$113.15	\$1,041.26	\$32,905.05	\$49,999.47
151	\$32,905.05	\$109.68	\$1,044.73	\$31,860.32	\$50,109.16
152	\$31,860.32	\$106.20	\$1,048.22	\$30,812.10	\$50,215.36
153	\$30,812.10	\$102.71	\$1,051.71	\$29,760.39	\$50,318.06
154	\$29,760.39	\$99.20	\$1,055.21	\$28,705.18	\$50,417.27
155	\$28,705.18	\$95.68	\$1,058.73	\$27,646.45	\$50,512.95
156	\$27,646.45	\$92.15	\$1,062.26	\$26,584.18	\$50,605.10
157	\$26,584.18	\$88.61	\$1,065.80	\$25,518.38	\$50,693.72
158	\$25,518.38	\$85.06	\$1,069.35	\$24,449.03	\$50,778.78
159	\$24,449.03	\$81.50	\$1,072.92	\$23,376.11	\$50,860.28
160	\$23,376.11	\$77.92	\$1,076.50	\$22,299.61	\$50,938.20
161	\$22,299.61	\$74.33	\$1,080.08	\$21,219.53	\$51,012.53
162	\$21,219.53	\$70.73	\$1,083.68	\$20,135.84	\$51,083.26
163	\$20,135.84	\$67.12	\$1,087.30	\$19,048.55	\$51,150.38
164	\$19,048.55	\$63.50	\$1,090.92	\$17,957.63	\$51,213.88
165	\$17,957.63	\$59.86	\$1,094.56	\$16,863.07	\$51,273.73
166	\$16,863.07	\$56.21	\$1,098.21	\$15,764.86	\$51,329.94
167	\$15,764.86	\$52.55	\$1,101.87	\$14,663.00	\$51,382.49
168	\$14,663.00	\$48.88	\$1,105.54	\$13,557.46	\$51,431.37
169	\$13,557.46	\$45.19	\$1,109.22	\$12,448.23	\$51,476.56
170	\$12,448.23	\$41.49	\$1,112.92	\$11,335.31	\$51,518.06
171	\$11,335.31	\$37.78	\$1,116.63	\$10,218.68	\$51,555.84
172	\$10,218.68	\$34.06	\$1,120.35	\$9,098.32	\$51,589.90
173	\$9,098.32	\$30.33	\$1,124.09	\$7,974.24	\$51,620.23
174	\$7,974.24	\$26.58	\$1,127.84	\$6,846.40	\$51,646.81
175	\$6,846.40	\$22.82	\$1,131.59	\$5,714.81	\$51,669.63
176	\$5,714.81	\$19.05	\$1,135.37	\$4,579.44	\$51,688.68
177	\$4,579.44	\$15.26	\$1,139.15	\$3,440.29	\$51,703.95
178	\$3,440.29	\$11.47	\$1,142.95	\$2,297.34	\$51,715.41
179	\$2,297.34	\$7.66	\$1,146.76	\$1,150.58	\$51,723.07
180	\$1,150.58	\$3.84	\$1,150.58	\$0.00	\$51,726.91

TOWNSHIP OF PUSLINCH
Water Servicing - Option W2

Estimated Capital Cost: \$19,976,700
Number of Benefitting Properties: 128
Cost per Connection: \$156,067.97

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$945.74

Loan Amount	Interest Rate	Term in Years	Monthly Payment
\$156,068.00	4.00%	20	\$945.74

Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
1	\$156,068.00	\$520.23	\$425.51	\$155,642.49	\$520.23
2	\$155,642.49	\$518.81	\$426.93	\$155,215.55	\$1,039.03
3	\$155,215.55	\$517.39	\$428.36	\$154,787.20	\$1,556.42
4	\$154,787.20	\$515.96	\$429.78	\$154,357.41	\$2,072.38
5	\$154,357.41	\$514.52	\$431.22	\$153,926.20	\$2,586.90
6	\$153,926.20	\$513.09	\$432.65	\$153,493.54	\$3,099.99
7	\$153,493.54	\$511.65	\$434.10	\$153,059.44	\$3,611.63
8	\$153,059.44	\$510.20	\$435.54	\$152,623.90	\$4,121.83
9	\$152,623.90	\$508.75	\$437.00	\$152,186.91	\$4,630.58
10	\$152,186.91	\$507.29	\$438.45	\$151,748.45	\$5,137.87
11	\$151,748.45	\$505.83	\$439.91	\$151,308.54	\$5,643.70
12	\$151,308.54	\$504.36	\$441.38	\$150,867.16	\$6,148.06
13	\$150,867.16	\$502.89	\$442.85	\$150,424.31	\$6,650.95
14	\$150,424.31	\$501.41	\$444.33	\$149,979.98	\$7,152.36
15	\$149,979.98	\$499.93	\$445.81	\$149,534.18	\$7,652.30
16	\$149,534.18	\$498.45	\$447.29	\$149,086.88	\$8,150.74
17	\$149,086.88	\$496.96	\$448.79	\$148,638.10	\$8,647.70
18	\$148,638.10	\$495.46	\$450.28	\$148,187.82	\$9,143.16
19	\$148,187.82	\$493.96	\$451.78	\$147,736.03	\$9,637.12
20	\$147,736.03	\$492.45	\$453.29	\$147,282.75	\$10,129.57
21	\$147,282.75	\$490.94	\$454.80	\$146,827.95	\$10,620.52
22	\$146,827.95	\$489.43	\$456.31	\$146,371.63	\$11,109.94
23	\$146,371.63	\$487.91	\$457.84	\$145,913.80	\$11,597.85
24	\$145,913.80	\$486.38	\$459.36	\$145,454.43	\$12,084.23
25	\$145,454.43	\$484.85	\$460.89	\$144,993.54	\$12,569.08
26	\$144,993.54	\$483.31	\$462.43	\$144,531.11	\$13,052.39
27	\$144,531.11	\$481.77	\$463.97	\$144,067.14	\$13,534.16
28	\$144,067.14	\$480.22	\$465.52	\$143,601.62	\$14,014.38
29	\$143,601.62	\$478.67	\$467.07	\$143,134.55	\$14,493.05
30	\$143,134.55	\$477.12	\$468.63	\$142,665.93	\$14,970.17
31	\$142,665.93	\$475.55	\$470.19	\$142,195.74	\$15,445.72
32	\$142,195.74	\$473.99	\$471.76	\$141,723.98	\$15,919.71
33	\$141,723.98	\$472.41	\$473.33	\$141,250.66	\$16,392.12
34	\$141,250.66	\$470.84	\$474.91	\$140,775.75	\$16,862.96
35	\$140,775.75	\$469.25	\$476.49	\$140,299.26	\$17,332.21
36	\$140,299.26	\$467.66	\$478.08	\$139,821.18	\$17,799.87
37	\$139,821.18	\$466.07	\$479.67	\$139,341.51	\$18,265.94
38	\$139,341.51	\$464.47	\$481.27	\$138,860.24	\$18,730.42
39	\$138,860.24	\$462.87	\$482.87	\$138,377.37	\$19,193.28
40	\$138,377.37	\$461.26	\$484.48	\$137,892.89	\$19,654.54
41	\$137,892.89	\$459.64	\$486.10	\$137,406.79	\$20,114.18
42	\$137,406.79	\$458.02	\$487.72	\$136,919.07	\$20,572.21
43	\$136,919.07	\$456.40	\$489.34	\$136,429.72	\$21,028.60
44	\$136,429.72	\$454.77	\$490.98	\$135,938.75	\$21,483.37
45	\$135,938.75	\$453.13	\$492.61	\$135,446.14	\$21,936.50
46	\$135,446.14	\$451.49	\$494.25	\$134,951.88	\$22,387.99
47	\$134,951.88	\$449.84	\$495.90	\$134,455.98	\$22,837.82
48	\$134,455.98	\$448.19	\$497.55	\$133,958.43	\$23,286.01
49	\$133,958.43	\$446.53	\$499.21	\$133,459.21	\$23,732.54
50	\$133,459.21	\$444.86	\$500.88	\$132,958.33	\$24,177.40
51	\$132,958.33	\$443.19	\$502.55	\$132,455.79	\$24,620.60
52	\$132,455.79	\$441.52	\$504.22	\$131,951.57	\$25,062.12
53	\$131,951.57	\$439.84	\$505.90	\$131,445.66	\$25,501.96
54	\$131,445.66	\$438.15	\$507.59	\$130,938.07	\$25,940.11
55	\$130,938.07	\$436.46	\$509.28	\$130,428.79	\$26,376.57
56	\$130,428.79	\$434.76	\$510.98	\$129,917.81	\$26,811.33
57	\$129,917.81	\$433.06	\$512.68	\$129,405.13	\$27,244.39
58	\$129,405.13	\$431.35	\$514.39	\$128,890.74	\$27,675.74
59	\$128,890.74	\$429.64	\$516.11	\$128,374.64	\$28,105.38
60	\$128,374.64	\$427.92	\$517.83	\$127,856.81	\$28,533.29
61	\$127,856.81	\$426.19	\$519.55	\$127,337.26	\$28,959.48

TOWNSHIP OF PUSLINCH
Water Servicing - Option W2

Estimated Capital Cost: \$19,976,700
Number of Benefitting Properties: 128
Cost per Connection: \$156,067.97

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$945.74

Loan Amount	Interest Rate	Term in Years	Monthly Payment
\$156,068.00	4.00%	20	\$945.74

Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
62	\$127,337.26	\$424.46	\$521.28	\$126,815.97	\$29,383.94
63	\$126,815.97	\$422.72	\$523.02	\$126,292.95	\$29,806.66
64	\$126,292.95	\$420.98	\$524.76	\$125,768.19	\$30,227.64
65	\$125,768.19	\$419.23	\$526.51	\$125,241.67	\$30,646.86
66	\$125,241.67	\$417.47	\$528.27	\$124,713.40	\$31,064.33
67	\$124,713.40	\$415.71	\$530.03	\$124,183.37	\$31,480.05
68	\$124,183.37	\$413.94	\$531.80	\$123,651.58	\$31,893.99
69	\$123,651.58	\$412.17	\$533.57	\$123,118.01	\$32,306.16
70	\$123,118.01	\$410.39	\$535.35	\$122,582.66	\$32,716.56
71	\$122,582.66	\$408.61	\$537.13	\$122,045.53	\$33,125.17
72	\$122,045.53	\$406.82	\$538.92	\$121,506.60	\$33,531.98
73	\$121,506.60	\$405.02	\$540.72	\$120,965.88	\$33,937.01
74	\$120,965.88	\$403.22	\$542.52	\$120,423.36	\$34,340.23
75	\$120,423.36	\$401.41	\$544.33	\$119,879.03	\$34,741.64
76	\$119,879.03	\$399.60	\$546.14	\$119,332.89	\$35,141.23
77	\$119,332.89	\$397.78	\$547.97	\$118,784.92	\$35,539.01
78	\$118,784.92	\$395.95	\$549.79	\$118,235.13	\$35,934.96
79	\$118,235.13	\$394.12	\$551.62	\$117,683.51	\$36,329.08
80	\$117,683.51	\$392.28	\$553.46	\$117,130.04	\$36,721.35
81	\$117,130.04	\$390.43	\$555.31	\$116,574.74	\$37,111.79
82	\$116,574.74	\$388.58	\$557.16	\$116,017.58	\$37,500.37
83	\$116,017.58	\$386.73	\$559.02	\$115,458.56	\$37,887.10
84	\$115,458.56	\$384.86	\$560.88	\$114,897.68	\$38,271.96
85	\$114,897.68	\$382.99	\$562.75	\$114,334.93	\$38,654.95
86	\$114,334.93	\$381.12	\$564.62	\$113,770.31	\$39,036.07
87	\$113,770.31	\$379.23	\$566.51	\$113,203.80	\$39,415.30
88	\$113,203.80	\$377.35	\$568.40	\$112,635.41	\$39,792.65
89	\$112,635.41	\$375.45	\$570.29	\$112,065.12	\$40,168.10
90	\$112,065.12	\$373.55	\$572.19	\$111,492.92	\$40,541.65
91	\$111,492.92	\$371.64	\$574.10	\$110,918.83	\$40,913.29
92	\$110,918.83	\$369.73	\$576.01	\$110,342.81	\$41,283.02
93	\$110,342.81	\$367.81	\$577.93	\$109,764.88	\$41,650.83
94	\$109,764.88	\$365.88	\$579.86	\$109,185.02	\$42,016.71
95	\$109,185.02	\$363.95	\$581.79	\$108,603.23	\$42,380.66
96	\$108,603.23	\$362.01	\$583.73	\$108,019.50	\$42,742.67
97	\$108,019.50	\$360.07	\$585.68	\$107,433.83	\$43,102.74
98	\$107,433.83	\$358.11	\$587.63	\$106,846.20	\$43,460.85
99	\$106,846.20	\$356.15	\$589.59	\$106,256.61	\$43,817.01
100	\$106,256.61	\$354.19	\$591.55	\$105,665.06	\$44,171.19
101	\$105,665.06	\$352.22	\$593.52	\$105,071.53	\$44,523.41
102	\$105,071.53	\$350.24	\$595.50	\$104,476.03	\$44,873.65
103	\$104,476.03	\$348.25	\$597.49	\$103,878.54	\$45,221.90
104	\$103,878.54	\$346.26	\$599.48	\$103,279.06	\$45,568.17
105	\$103,279.06	\$344.26	\$601.48	\$102,677.58	\$45,912.43
106	\$102,677.58	\$342.26	\$603.48	\$102,074.10	\$46,254.69
107	\$102,074.10	\$340.25	\$605.49	\$101,468.61	\$46,594.93
108	\$101,468.61	\$338.23	\$607.51	\$100,861.09	\$46,933.16
109	\$100,861.09	\$336.20	\$609.54	\$100,251.56	\$47,269.37
110	\$100,251.56	\$334.17	\$611.57	\$99,639.99	\$47,603.54
111	\$99,639.99	\$332.13	\$613.61	\$99,026.38	\$47,935.67
112	\$99,026.38	\$330.09	\$615.65	\$98,410.73	\$48,265.76
113	\$98,410.73	\$328.04	\$617.71	\$97,793.02	\$48,593.80
114	\$97,793.02	\$325.98	\$619.76	\$97,173.25	\$48,919.77
115	\$97,173.25	\$323.91	\$621.83	\$96,551.42	\$49,243.68
116	\$96,551.42	\$321.84	\$623.90	\$95,927.52	\$49,565.52
117	\$95,927.52	\$319.76	\$625.98	\$95,301.54	\$49,885.28
118	\$95,301.54	\$317.67	\$628.07	\$94,673.47	\$50,202.95
119	\$94,673.47	\$315.58	\$630.16	\$94,043.31	\$50,518.53
120	\$94,043.31	\$313.48	\$632.26	\$93,411.04	\$50,832.01
121	\$93,411.04	\$311.37	\$634.37	\$92,776.67	\$51,143.38
122	\$92,776.67	\$309.26	\$636.49	\$92,140.18	\$51,452.63

TOWNSHIP OF PUSLINCH
Water Servicing - Option W2

Estimated Capital Cost: \$19,976,700
Number of Benefitting Properties: 128
Cost per Connection: \$156,067.97

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$945.74

Loan Amount	Interest Rate	Term in Years	Monthly Payment
\$156,068.00	4.00%	20	\$945.74

Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
123	\$92,140.18	\$307.13	\$638.61	\$91,501.58	\$51,759.77
124	\$91,501.58	\$305.01	\$640.74	\$90,860.84	\$52,064.77
125	\$90,860.84	\$302.87	\$642.87	\$90,217.97	\$52,367.64
126	\$90,217.97	\$300.73	\$645.01	\$89,572.95	\$52,668.37
127	\$89,572.95	\$298.58	\$647.16	\$88,925.79	\$52,966.94
128	\$88,925.79	\$296.42	\$649.32	\$88,276.47	\$53,263.36
129	\$88,276.47	\$294.25	\$651.49	\$87,624.98	\$53,557.62
130	\$87,624.98	\$292.08	\$653.66	\$86,971.32	\$53,849.70
131	\$86,971.32	\$289.90	\$655.84	\$86,315.49	\$54,139.61
132	\$86,315.49	\$287.72	\$658.02	\$85,657.46	\$54,427.32
133	\$85,657.46	\$285.52	\$660.22	\$84,997.25	\$54,712.85
134	\$84,997.25	\$283.32	\$662.42	\$84,334.83	\$54,996.17
135	\$84,334.83	\$281.12	\$664.63	\$83,670.20	\$55,277.29
136	\$83,670.20	\$278.90	\$666.84	\$83,003.36	\$55,556.19
137	\$83,003.36	\$276.68	\$669.06	\$82,334.30	\$55,832.87
138	\$82,334.30	\$274.45	\$671.29	\$81,663.01	\$56,107.32
139	\$81,663.01	\$272.21	\$673.53	\$80,989.47	\$56,379.53
140	\$80,989.47	\$269.96	\$675.78	\$80,313.70	\$56,649.49
141	\$80,313.70	\$267.71	\$678.03	\$79,635.67	\$56,917.20
142	\$79,635.67	\$265.45	\$680.29	\$78,955.38	\$57,182.66
143	\$78,955.38	\$263.18	\$682.56	\$78,272.82	\$57,445.84
144	\$78,272.82	\$260.91	\$684.83	\$77,587.99	\$57,706.75
145	\$77,587.99	\$258.63	\$687.11	\$76,900.88	\$57,965.38
146	\$76,900.88	\$256.34	\$689.41	\$76,211.47	\$58,221.71
147	\$76,211.47	\$254.04	\$691.70	\$75,519.77	\$58,475.75
148	\$75,519.77	\$251.73	\$694.01	\$74,825.76	\$58,727.48
149	\$74,825.76	\$249.42	\$696.32	\$74,129.44	\$58,976.90
150	\$74,129.44	\$247.10	\$698.64	\$73,430.79	\$59,224.00
151	\$73,430.79	\$244.77	\$700.97	\$72,729.82	\$59,468.77
152	\$72,729.82	\$242.43	\$703.31	\$72,026.51	\$59,711.20
153	\$72,026.51	\$240.09	\$705.65	\$71,320.86	\$59,951.29
154	\$71,320.86	\$237.74	\$708.01	\$70,612.85	\$60,189.03
155	\$70,612.85	\$235.38	\$710.37	\$69,902.49	\$60,424.40
156	\$69,902.49	\$233.01	\$712.73	\$69,189.76	\$60,657.41
157	\$69,189.76	\$230.63	\$715.11	\$68,474.65	\$60,888.04
158	\$68,474.65	\$228.25	\$717.49	\$67,757.15	\$61,116.29
159	\$67,757.15	\$225.86	\$719.88	\$67,037.27	\$61,342.15
160	\$67,037.27	\$223.46	\$722.28	\$66,314.99	\$61,565.61
161	\$66,314.99	\$221.05	\$724.69	\$65,590.30	\$61,786.66
162	\$65,590.30	\$218.63	\$727.11	\$64,863.19	\$62,005.29
163	\$64,863.19	\$216.21	\$729.53	\$64,133.66	\$62,221.50
164	\$64,133.66	\$213.78	\$731.96	\$63,401.70	\$62,435.28
165	\$63,401.70	\$211.34	\$734.40	\$62,667.29	\$62,646.62
166	\$62,667.29	\$208.89	\$736.85	\$61,930.44	\$62,855.51
167	\$61,930.44	\$206.43	\$739.31	\$61,191.14	\$63,061.95
168	\$61,191.14	\$203.97	\$741.77	\$60,449.36	\$63,265.92
169	\$60,449.36	\$201.50	\$744.24	\$59,705.12	\$63,467.41
170	\$59,705.12	\$199.02	\$746.72	\$58,958.40	\$63,666.43
171	\$58,958.40	\$196.53	\$749.21	\$58,209.18	\$63,862.96
172	\$58,209.18	\$194.03	\$751.71	\$57,457.47	\$64,056.99
173	\$57,457.47	\$191.52	\$754.22	\$56,703.26	\$64,248.52
174	\$56,703.26	\$189.01	\$756.73	\$55,946.53	\$64,437.53
175	\$55,946.53	\$186.49	\$759.25	\$55,187.27	\$64,624.01
176	\$55,187.27	\$183.96	\$761.78	\$54,425.49	\$64,807.97
177	\$54,425.49	\$181.42	\$764.32	\$53,661.17	\$64,989.39
178	\$53,661.17	\$178.87	\$766.87	\$52,894.30	\$65,168.26
179	\$52,894.30	\$176.31	\$769.43	\$52,124.87	\$65,344.58
180	\$52,124.87	\$173.75	\$771.99	\$51,352.88	\$65,518.32
181	\$51,352.88	\$171.18	\$774.57	\$50,578.31	\$65,689.50
182	\$50,578.31	\$168.59	\$777.15	\$49,801.16	\$65,858.10
183	\$49,801.16	\$166.00	\$779.74	\$49,021.43	\$66,024.10

TOWNSHIP OF PUSLINCH
Water Servicing - Option W2

Estimated Capital Cost: \$19,976,700
Number of Benefitting Properties: 128
Cost per Connection: \$156,067.97

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$945.74

Loan Amount	Interest Rate	Term in Years	Monthly Payment
\$156,068.00	4.00%	20	\$945.74

Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
184	\$49,021.43	\$163.40	\$782.34	\$48,239.09	\$66,187.50
185	\$48,239.09	\$160.80	\$784.94	\$47,454.15	\$66,348.30
186	\$47,454.15	\$158.18	\$787.56	\$46,666.58	\$66,506.48
187	\$46,666.58	\$155.56	\$790.19	\$45,876.40	\$66,662.04
188	\$45,876.40	\$152.92	\$792.82	\$45,083.58	\$66,814.96
189	\$45,083.58	\$150.28	\$795.46	\$44,288.12	\$66,965.24
190	\$44,288.12	\$147.63	\$798.11	\$43,490.00	\$67,112.86
191	\$43,490.00	\$144.97	\$800.77	\$42,689.23	\$67,257.83
192	\$42,689.23	\$142.30	\$803.44	\$41,885.78	\$67,400.13
193	\$41,885.78	\$139.62	\$806.12	\$41,079.66	\$67,539.75
194	\$41,079.66	\$136.93	\$808.81	\$40,270.85	\$67,676.68
195	\$40,270.85	\$134.24	\$811.51	\$39,459.35	\$67,810.92
196	\$39,459.35	\$131.53	\$814.21	\$38,645.14	\$67,942.45
197	\$38,645.14	\$128.82	\$816.92	\$37,828.21	\$68,071.26
198	\$37,828.21	\$126.09	\$819.65	\$37,008.56	\$68,197.36
199	\$37,008.56	\$123.36	\$822.38	\$36,186.19	\$68,320.72
200	\$36,186.19	\$120.62	\$825.12	\$35,361.06	\$68,441.34
201	\$35,361.06	\$117.87	\$827.87	\$34,533.19	\$68,559.21
202	\$34,533.19	\$115.11	\$830.63	\$33,702.56	\$68,674.32
203	\$33,702.56	\$112.34	\$833.40	\$32,869.16	\$68,786.66
204	\$32,869.16	\$109.56	\$836.18	\$32,032.99	\$68,896.23
205	\$32,032.99	\$106.78	\$838.96	\$31,194.02	\$69,003.00
206	\$31,194.02	\$103.98	\$841.76	\$30,352.26	\$69,106.98
207	\$30,352.26	\$101.17	\$844.57	\$29,507.69	\$69,208.16
208	\$29,507.69	\$98.36	\$847.38	\$28,660.31	\$69,306.52
209	\$28,660.31	\$95.53	\$850.21	\$27,810.10	\$69,402.05
210	\$27,810.10	\$92.70	\$853.04	\$26,957.06	\$69,494.75
211	\$26,957.06	\$89.86	\$855.88	\$26,101.18	\$69,584.61
212	\$26,101.18	\$87.00	\$858.74	\$25,242.44	\$69,671.61
213	\$25,242.44	\$84.14	\$861.60	\$24,380.84	\$69,755.75
214	\$24,380.84	\$81.27	\$864.47	\$23,516.37	\$69,837.02
215	\$23,516.37	\$78.39	\$867.35	\$22,649.01	\$69,915.41
216	\$22,649.01	\$75.50	\$870.24	\$21,778.77	\$69,990.91
217	\$21,778.77	\$72.60	\$873.15	\$20,905.62	\$70,063.50
218	\$20,905.62	\$69.69	\$876.06	\$20,029.57	\$70,133.19
219	\$20,029.57	\$66.77	\$878.98	\$19,150.59	\$70,199.95
220	\$19,150.59	\$63.84	\$881.91	\$18,268.69	\$70,263.79
221	\$18,268.69	\$60.90	\$884.85	\$17,383.84	\$70,324.69
222	\$17,383.84	\$57.95	\$887.80	\$16,496.05	\$70,382.63
223	\$16,496.05	\$54.99	\$890.75	\$15,605.29	\$70,437.62
224	\$15,605.29	\$52.02	\$893.72	\$14,711.57	\$70,489.64
225	\$14,711.57	\$49.04	\$896.70	\$13,814.86	\$70,538.67
226	\$13,814.86	\$46.05	\$899.69	\$12,915.17	\$70,584.72
227	\$12,915.17	\$43.05	\$902.69	\$12,012.48	\$70,627.77
228	\$12,012.48	\$40.04	\$905.70	\$11,106.78	\$70,667.82
229	\$11,106.78	\$37.02	\$908.72	\$10,198.06	\$70,704.84
230	\$10,198.06	\$33.99	\$911.75	\$9,286.31	\$70,738.83
231	\$9,286.31	\$30.95	\$914.79	\$8,371.53	\$70,769.79
232	\$8,371.53	\$27.91	\$917.84	\$7,453.69	\$70,797.69
233	\$7,453.69	\$24.85	\$920.90	\$6,532.80	\$70,822.54
234	\$6,532.80	\$21.78	\$923.97	\$5,608.83	\$70,844.31
235	\$5,608.83	\$18.70	\$927.05	\$4,681.79	\$70,863.01
236	\$4,681.79	\$15.61	\$930.14	\$3,751.65	\$70,878.62
237	\$3,751.65	\$12.51	\$933.24	\$2,818.41	\$70,891.12
238	\$2,818.41	\$9.39	\$936.35	\$1,882.07	\$70,900.52
239	\$1,882.07	\$6.27	\$939.47	\$942.60	\$70,906.79
240	\$942.60	\$3.14	\$942.60	\$0.00	\$70,909.93

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW1

Estimated Capital Cost: \$29,036,580
Number of Benefitting Properties: 128
Cost per Connection: \$226,848.28

Capital Cost Recovery Factor - A = 0.010124514
Monthly Cost -P = \$2,296.73

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$226,848.00	4.00%	10	\$2,296.73		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
1	\$226,848.00	\$756.16	\$1,540.57	\$225,307.43	\$756.16
2	\$225,307.43	\$751.02	\$1,545.70	\$223,761.73	\$1,507.18
3	\$223,761.73	\$745.87	\$1,550.85	\$222,210.88	\$2,253.06
4	\$222,210.88	\$740.70	\$1,556.02	\$220,654.86	\$2,993.76
5	\$220,654.86	\$735.52	\$1,561.21	\$219,093.65	\$3,729.28
6	\$219,093.65	\$730.31	\$1,566.41	\$217,527.23	\$4,459.59
7	\$217,527.23	\$725.09	\$1,571.63	\$215,955.60	\$5,184.68
8	\$215,955.60	\$719.85	\$1,576.87	\$214,378.73	\$5,904.53
9	\$214,378.73	\$714.60	\$1,582.13	\$212,796.60	\$6,619.13
10	\$212,796.60	\$709.32	\$1,587.40	\$211,209.19	\$7,328.45
11	\$211,209.19	\$704.03	\$1,592.70	\$209,616.50	\$8,032.48
12	\$209,616.50	\$698.72	\$1,598.00	\$208,018.49	\$8,731.20
13	\$208,018.49	\$693.39	\$1,603.33	\$206,415.16	\$9,424.60
14	\$206,415.16	\$688.05	\$1,608.68	\$204,806.49	\$10,112.65
15	\$204,806.49	\$682.69	\$1,614.04	\$203,192.45	\$10,795.34
16	\$203,192.45	\$677.31	\$1,619.42	\$201,573.03	\$11,472.64
17	\$201,573.03	\$671.91	\$1,624.82	\$199,948.22	\$12,144.55
18	\$199,948.22	\$666.49	\$1,630.23	\$198,317.98	\$12,811.05
19	\$198,317.98	\$661.06	\$1,635.67	\$196,682.32	\$13,472.11
20	\$196,682.32	\$655.61	\$1,641.12	\$195,041.20	\$14,127.72
21	\$195,041.20	\$650.14	\$1,646.59	\$193,394.61	\$14,777.85
22	\$193,394.61	\$644.65	\$1,652.08	\$191,742.54	\$15,422.50
23	\$191,742.54	\$639.14	\$1,657.58	\$190,084.95	\$16,061.64
24	\$190,084.95	\$633.62	\$1,663.11	\$188,421.84	\$16,695.26
25	\$188,421.84	\$628.07	\$1,668.65	\$186,753.19	\$17,323.33
26	\$186,753.19	\$622.51	\$1,674.22	\$185,078.97	\$17,945.84
27	\$185,078.97	\$616.93	\$1,679.80	\$183,399.18	\$18,562.77
28	\$183,399.18	\$611.33	\$1,685.40	\$181,713.78	\$19,174.10
29	\$181,713.78	\$605.71	\$1,691.01	\$180,022.77	\$19,779.82
30	\$180,022.77	\$600.08	\$1,696.65	\$178,326.12	\$20,379.89
31	\$178,326.12	\$594.42	\$1,702.31	\$176,623.82	\$20,974.31
32	\$176,623.82	\$588.75	\$1,707.98	\$174,915.84	\$21,563.06
33	\$174,915.84	\$583.05	\$1,713.67	\$173,202.16	\$22,146.11
34	\$173,202.16	\$577.34	\$1,719.39	\$171,482.78	\$22,723.45
35	\$171,482.78	\$571.61	\$1,725.12	\$169,757.66	\$23,295.06
36	\$169,757.66	\$565.86	\$1,730.87	\$168,026.79	\$23,860.92
37	\$168,026.79	\$560.09	\$1,736.64	\$166,290.16	\$24,421.01
38	\$166,290.16	\$554.30	\$1,742.43	\$164,547.73	\$24,975.31
39	\$164,547.73	\$548.49	\$1,748.23	\$162,799.50	\$25,523.80
40	\$162,799.50	\$542.66	\$1,754.06	\$161,045.44	\$26,066.47
41	\$161,045.44	\$536.82	\$1,759.91	\$159,285.53	\$26,603.29
42	\$159,285.53	\$530.95	\$1,765.77	\$157,519.76	\$27,134.24
43	\$157,519.76	\$525.07	\$1,771.66	\$155,748.10	\$27,659.30
44	\$155,748.10	\$519.16	\$1,777.57	\$153,970.53	\$28,178.46
45	\$153,970.53	\$513.24	\$1,783.49	\$152,187.04	\$28,691.70
46	\$152,187.04	\$507.29	\$1,789.44	\$150,397.61	\$29,198.99
47	\$150,397.61	\$501.33	\$1,795.40	\$148,602.21	\$29,700.31
48	\$148,602.21	\$495.34	\$1,801.39	\$146,800.82	\$30,195.65
49	\$146,800.82	\$489.34	\$1,807.39	\$144,993.43	\$30,684.99
50	\$144,993.43	\$483.31	\$1,813.41	\$143,180.02	\$31,168.30
51	\$143,180.02	\$477.27	\$1,819.46	\$141,360.56	\$31,645.57
52	\$141,360.56	\$471.20	\$1,825.52	\$139,535.03	\$32,116.77
53	\$139,535.03	\$465.12	\$1,831.61	\$137,703.42	\$32,581.89
54	\$137,703.42	\$459.01	\$1,837.71	\$135,865.71	\$33,040.90
55	\$135,865.71	\$452.89	\$1,843.84	\$134,021.87	\$33,493.78
56	\$134,021.87	\$446.74	\$1,849.99	\$132,171.88	\$33,940.52
57	\$132,171.88	\$440.57	\$1,856.15	\$130,315.73	\$34,381.10
58	\$130,315.73	\$434.39	\$1,862.34	\$128,453.39	\$34,815.48
59	\$128,453.39	\$428.18	\$1,868.55	\$126,584.84	\$35,243.66
60	\$126,584.84	\$421.95	\$1,874.78	\$124,710.07	\$35,665.61
61	\$124,710.07	\$415.70	\$1,881.03	\$122,829.04	\$36,081.31

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW1

Estimated Capital Cost: \$29,036,580
Number of Benefitting Properties: 128
Cost per Connection: \$226,848.28

Capital Cost Recovery Factor - A = 0.010124514
Monthly Cost -P = \$2,296.73

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$226,848.00	4.00%	10	\$2,296.73		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
62	\$122,829.04	\$409.43	\$1,887.30	\$120,941.75	\$36,490.74
63	\$120,941.75	\$403.14	\$1,893.59	\$119,048.16	\$36,893.88
64	\$119,048.16	\$396.83	\$1,899.90	\$117,148.26	\$37,290.71
65	\$117,148.26	\$390.49	\$1,906.23	\$115,242.03	\$37,681.20
66	\$115,242.03	\$384.14	\$1,912.59	\$113,329.44	\$38,065.34
67	\$113,329.44	\$377.76	\$1,918.96	\$111,410.48	\$38,443.11
68	\$111,410.48	\$371.37	\$1,925.36	\$109,485.13	\$38,814.47
69	\$109,485.13	\$364.95	\$1,931.78	\$107,553.35	\$39,179.42
70	\$107,553.35	\$358.51	\$1,938.21	\$105,615.14	\$39,537.94
71	\$105,615.14	\$352.05	\$1,944.68	\$103,670.46	\$39,889.99
72	\$103,670.46	\$345.57	\$1,951.16	\$101,719.30	\$40,235.55
73	\$101,719.30	\$339.06	\$1,957.66	\$99,761.64	\$40,574.62
74	\$99,761.64	\$332.54	\$1,964.19	\$97,797.46	\$40,907.16
75	\$97,797.46	\$325.99	\$1,970.73	\$95,826.72	\$41,233.15
76	\$95,826.72	\$319.42	\$1,977.30	\$93,849.42	\$41,552.57
77	\$93,849.42	\$312.83	\$1,983.89	\$91,865.52	\$41,865.40
78	\$91,865.52	\$306.22	\$1,990.51	\$89,875.02	\$42,171.62
79	\$89,875.02	\$299.58	\$1,997.14	\$87,877.87	\$42,471.20
80	\$87,877.87	\$292.93	\$2,003.80	\$85,874.07	\$42,764.13
81	\$85,874.07	\$286.25	\$2,010.48	\$83,863.60	\$43,050.38
82	\$83,863.60	\$279.55	\$2,017.18	\$81,846.42	\$43,329.92
83	\$81,846.42	\$272.82	\$2,023.90	\$79,822.51	\$43,602.74
84	\$79,822.51	\$266.08	\$2,030.65	\$77,791.86	\$43,868.82
85	\$77,791.86	\$259.31	\$2,037.42	\$75,754.44	\$44,128.13
86	\$75,754.44	\$252.51	\$2,044.21	\$73,710.23	\$44,380.64
87	\$73,710.23	\$245.70	\$2,051.02	\$71,659.20	\$44,626.34
88	\$71,659.20	\$238.86	\$2,057.86	\$69,601.34	\$44,865.21
89	\$69,601.34	\$232.00	\$2,064.72	\$67,536.62	\$45,097.21
90	\$67,536.62	\$225.12	\$2,071.60	\$65,465.02	\$45,322.33
91	\$65,465.02	\$218.22	\$2,078.51	\$63,386.51	\$45,540.55
92	\$63,386.51	\$211.29	\$2,085.44	\$61,301.07	\$45,751.84
93	\$61,301.07	\$204.34	\$2,092.39	\$59,208.68	\$45,956.17
94	\$59,208.68	\$197.36	\$2,099.36	\$57,109.32	\$46,153.54
95	\$57,109.32	\$190.36	\$2,106.36	\$55,002.96	\$46,343.90
96	\$55,002.96	\$183.34	\$2,113.38	\$52,889.58	\$46,527.24
97	\$52,889.58	\$176.30	\$2,120.43	\$50,769.15	\$46,703.54
98	\$50,769.15	\$169.23	\$2,127.50	\$48,641.65	\$46,872.77
99	\$48,641.65	\$162.14	\$2,134.59	\$46,507.07	\$47,034.91
100	\$46,507.07	\$155.02	\$2,141.70	\$44,365.36	\$47,189.94
101	\$44,365.36	\$147.88	\$2,148.84	\$42,216.52	\$47,337.82
102	\$42,216.52	\$140.72	\$2,156.00	\$40,060.52	\$47,478.54
103	\$40,060.52	\$133.54	\$2,163.19	\$37,897.33	\$47,612.08
104	\$37,897.33	\$126.32	\$2,170.40	\$35,726.93	\$47,738.40
105	\$35,726.93	\$119.09	\$2,177.64	\$33,549.29	\$47,857.49
106	\$33,549.29	\$111.83	\$2,184.89	\$31,364.40	\$47,969.32
107	\$31,364.40	\$104.55	\$2,192.18	\$29,172.22	\$48,073.87
108	\$29,172.22	\$97.24	\$2,199.48	\$26,972.73	\$48,171.11
109	\$26,972.73	\$89.91	\$2,206.82	\$24,765.92	\$48,261.02
110	\$24,765.92	\$82.55	\$2,214.17	\$22,551.74	\$48,343.57
111	\$22,551.74	\$75.17	\$2,221.55	\$20,330.19	\$48,418.75
112	\$20,330.19	\$67.77	\$2,228.96	\$18,101.23	\$48,486.51
113	\$18,101.23	\$60.34	\$2,236.39	\$15,864.84	\$48,546.85
114	\$15,864.84	\$52.88	\$2,243.84	\$13,621.00	\$48,599.73
115	\$13,621.00	\$45.40	\$2,251.32	\$11,369.68	\$48,645.14
116	\$11,369.68	\$37.90	\$2,258.83	\$9,110.85	\$48,683.04
117	\$9,110.85	\$30.37	\$2,266.36	\$6,844.50	\$48,713.40
118	\$6,844.50	\$22.81	\$2,273.91	\$4,570.59	\$48,736.22
119	\$4,570.59	\$15.24	\$2,281.49	\$2,289.10	\$48,751.45
120	\$2,289.10	\$7.63	\$2,289.10	\$0.00	\$48,759.09

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW1

Estimated Capital Cost: \$29,036,580
Number of Benefitting Properties: 128
Cost per Connection: \$226,848.28

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$1,677.97

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$226,848.00	4.00%	15	\$1,677.97		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
1	\$226,848.00	\$756.16	\$921.81	\$225,926.19	\$756.16
2	\$225,926.19	\$753.09	\$924.88	\$225,001.31	\$1,509.25
3	\$225,001.31	\$750.00	\$927.96	\$224,073.35	\$2,259.25
4	\$224,073.35	\$746.91	\$931.06	\$223,142.29	\$3,006.16
5	\$223,142.29	\$743.81	\$934.16	\$222,208.13	\$3,749.97
6	\$222,208.13	\$740.69	\$937.27	\$221,270.86	\$4,490.66
7	\$221,270.86	\$737.57	\$940.40	\$220,330.46	\$5,228.23
8	\$220,330.46	\$734.43	\$943.53	\$219,386.93	\$5,962.67
9	\$219,386.93	\$731.29	\$946.68	\$218,440.25	\$6,693.96
10	\$218,440.25	\$728.13	\$949.83	\$217,490.42	\$7,422.09
11	\$217,490.42	\$724.97	\$953.00	\$216,537.42	\$8,147.06
12	\$216,537.42	\$721.79	\$956.18	\$215,581.24	\$8,868.85
13	\$215,581.24	\$718.60	\$959.36	\$214,621.88	\$9,587.46
14	\$214,621.88	\$715.41	\$962.56	\$213,659.32	\$10,302.86
15	\$213,659.32	\$712.20	\$965.77	\$212,693.55	\$11,015.06
16	\$212,693.55	\$708.98	\$968.99	\$211,724.56	\$11,724.04
17	\$211,724.56	\$705.75	\$972.22	\$210,752.34	\$12,429.79
18	\$210,752.34	\$702.51	\$975.46	\$209,776.88	\$13,132.30
19	\$209,776.88	\$699.26	\$978.71	\$208,798.17	\$13,831.55
20	\$208,798.17	\$695.99	\$981.97	\$207,816.20	\$14,527.55
21	\$207,816.20	\$692.72	\$985.25	\$206,830.95	\$15,220.27
22	\$206,830.95	\$689.44	\$988.53	\$205,842.42	\$15,909.70
23	\$205,842.42	\$686.14	\$991.83	\$204,850.60	\$16,595.84
24	\$204,850.60	\$682.84	\$995.13	\$203,855.46	\$17,278.68
25	\$203,855.46	\$679.52	\$998.45	\$202,857.02	\$17,958.20
26	\$202,857.02	\$676.19	\$1,001.78	\$201,855.24	\$18,634.39
27	\$201,855.24	\$672.85	\$1,005.12	\$200,850.12	\$19,307.24
28	\$200,850.12	\$669.50	\$1,008.47	\$199,841.66	\$19,976.74
29	\$199,841.66	\$666.14	\$1,011.83	\$198,829.83	\$20,642.88
30	\$198,829.83	\$662.77	\$1,015.20	\$197,814.63	\$21,305.64
31	\$197,814.63	\$659.38	\$1,018.59	\$196,796.04	\$21,965.03
32	\$196,796.04	\$655.99	\$1,021.98	\$195,774.06	\$22,621.01
33	\$195,774.06	\$652.58	\$1,025.39	\$194,748.67	\$23,273.59
34	\$194,748.67	\$649.16	\$1,028.81	\$193,719.87	\$23,922.75
35	\$193,719.87	\$645.73	\$1,032.23	\$192,687.63	\$24,568.49
36	\$192,687.63	\$642.29	\$1,035.68	\$191,651.96	\$25,210.78
37	\$191,651.96	\$638.84	\$1,039.13	\$190,612.83	\$25,849.62
38	\$190,612.83	\$635.38	\$1,042.59	\$189,570.24	\$26,485.00
39	\$189,570.24	\$631.90	\$1,046.07	\$188,524.17	\$27,116.90
40	\$188,524.17	\$628.41	\$1,049.55	\$187,474.62	\$27,745.31
41	\$187,474.62	\$624.92	\$1,053.05	\$186,421.57	\$28,370.23
42	\$186,421.57	\$621.41	\$1,056.56	\$185,365.01	\$28,991.63
43	\$185,365.01	\$617.88	\$1,060.08	\$184,304.92	\$29,609.51
44	\$184,304.92	\$614.35	\$1,063.62	\$183,241.30	\$30,223.86
45	\$183,241.30	\$610.80	\$1,067.16	\$182,174.14	\$30,834.67
46	\$182,174.14	\$607.25	\$1,070.72	\$181,103.42	\$31,441.92
47	\$181,103.42	\$603.68	\$1,074.29	\$180,029.13	\$32,045.59
48	\$180,029.13	\$600.10	\$1,077.87	\$178,951.26	\$32,645.69
49	\$178,951.26	\$596.50	\$1,081.46	\$177,869.80	\$33,242.20
50	\$177,869.80	\$592.90	\$1,085.07	\$176,784.73	\$33,835.09
51	\$176,784.73	\$589.28	\$1,088.68	\$175,696.05	\$34,424.38
52	\$175,696.05	\$585.65	\$1,092.31	\$174,603.73	\$35,010.03
53	\$174,603.73	\$582.01	\$1,095.95	\$173,507.78	\$35,592.04
54	\$173,507.78	\$578.36	\$1,099.61	\$172,408.17	\$36,170.40
55	\$172,408.17	\$574.69	\$1,103.27	\$171,304.90	\$36,745.10
56	\$171,304.90	\$571.02	\$1,106.95	\$170,197.95	\$37,316.11
57	\$170,197.95	\$567.33	\$1,110.64	\$169,087.30	\$37,883.44
58	\$169,087.30	\$563.62	\$1,114.34	\$167,972.96	\$38,447.06
59	\$167,972.96	\$559.91	\$1,118.06	\$166,854.90	\$39,006.97
60	\$166,854.90	\$556.18	\$1,121.78	\$165,733.12	\$39,563.16
61	\$165,733.12	\$552.44	\$1,125.52	\$164,607.60	\$40,115.60

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW1

Estimated Capital Cost: \$29,036,580
Number of Benefitting Properties: 128
Cost per Connection: \$226,848.28

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$1,677.97

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$226,848.00	4.00%	15	\$1,677.97		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
62	\$164,607.60	\$548.69	\$1,129.28	\$163,478.32	\$40,664.29
63	\$163,478.32	\$544.93	\$1,133.04	\$162,345.28	\$41,209.22
64	\$162,345.28	\$541.15	\$1,136.82	\$161,208.47	\$41,750.37
65	\$161,208.47	\$537.36	\$1,140.61	\$160,067.86	\$42,287.73
66	\$160,067.86	\$533.56	\$1,144.41	\$158,923.45	\$42,821.29
67	\$158,923.45	\$529.74	\$1,148.22	\$157,775.23	\$43,351.04
68	\$157,775.23	\$525.92	\$1,152.05	\$156,623.18	\$43,876.95
69	\$156,623.18	\$522.08	\$1,155.89	\$155,467.29	\$44,399.03
70	\$155,467.29	\$518.22	\$1,159.74	\$154,307.55	\$44,917.26
71	\$154,307.55	\$514.36	\$1,163.61	\$153,143.94	\$45,431.61
72	\$153,143.94	\$510.48	\$1,167.49	\$151,976.45	\$45,942.09
73	\$151,976.45	\$506.59	\$1,171.38	\$150,805.07	\$46,448.68
74	\$150,805.07	\$502.68	\$1,175.28	\$149,629.79	\$46,951.37
75	\$149,629.79	\$498.77	\$1,179.20	\$148,450.59	\$47,450.13
76	\$148,450.59	\$494.84	\$1,183.13	\$147,267.45	\$47,944.97
77	\$147,267.45	\$490.89	\$1,187.08	\$146,080.38	\$48,435.86
78	\$146,080.38	\$486.93	\$1,191.03	\$144,889.35	\$48,922.79
79	\$144,889.35	\$482.96	\$1,195.00	\$143,694.34	\$49,405.76
80	\$143,694.34	\$478.98	\$1,198.99	\$142,495.36	\$49,884.74
81	\$142,495.36	\$474.98	\$1,202.98	\$141,292.37	\$50,359.72
82	\$141,292.37	\$470.97	\$1,206.99	\$140,085.38	\$50,830.70
83	\$140,085.38	\$466.95	\$1,211.02	\$138,874.37	\$51,297.65
84	\$138,874.37	\$462.91	\$1,215.05	\$137,659.31	\$51,760.56
85	\$137,659.31	\$458.86	\$1,219.10	\$136,440.21	\$52,219.43
86	\$136,440.21	\$454.80	\$1,223.17	\$135,217.04	\$52,674.23
87	\$135,217.04	\$450.72	\$1,227.24	\$133,989.80	\$53,124.95
88	\$133,989.80	\$446.63	\$1,231.33	\$132,758.47	\$53,571.58
89	\$132,758.47	\$442.53	\$1,235.44	\$131,523.03	\$54,014.11
90	\$131,523.03	\$438.41	\$1,239.56	\$130,283.47	\$54,452.52
91	\$130,283.47	\$434.28	\$1,243.69	\$129,039.78	\$54,886.80
92	\$129,039.78	\$430.13	\$1,247.83	\$127,791.95	\$55,316.93
93	\$127,791.95	\$425.97	\$1,251.99	\$126,539.95	\$55,742.91
94	\$126,539.95	\$421.80	\$1,256.17	\$125,283.78	\$56,164.71
95	\$125,283.78	\$417.61	\$1,260.35	\$124,023.43	\$56,582.32
96	\$124,023.43	\$413.41	\$1,264.56	\$122,758.87	\$56,995.73
97	\$122,758.87	\$409.20	\$1,268.77	\$121,490.10	\$57,404.93
98	\$121,490.10	\$404.97	\$1,273.00	\$120,217.10	\$57,809.89
99	\$120,217.10	\$400.72	\$1,277.24	\$118,939.86	\$58,210.62
100	\$118,939.86	\$396.47	\$1,281.50	\$117,658.36	\$58,607.08
101	\$117,658.36	\$392.19	\$1,285.77	\$116,372.58	\$58,999.28
102	\$116,372.58	\$387.91	\$1,290.06	\$115,082.53	\$59,387.19
103	\$115,082.53	\$383.61	\$1,294.36	\$113,788.17	\$59,770.80
104	\$113,788.17	\$379.29	\$1,298.67	\$112,489.49	\$60,150.09
105	\$112,489.49	\$374.96	\$1,303.00	\$111,186.49	\$60,525.05
106	\$111,186.49	\$370.62	\$1,307.35	\$109,879.15	\$60,895.68
107	\$109,879.15	\$366.26	\$1,311.70	\$108,567.44	\$61,261.94
108	\$108,567.44	\$361.89	\$1,316.08	\$107,251.37	\$61,623.83
109	\$107,251.37	\$357.50	\$1,320.46	\$105,930.90	\$61,981.34
110	\$105,930.90	\$353.10	\$1,324.86	\$104,606.04	\$62,334.44
111	\$104,606.04	\$348.69	\$1,329.28	\$103,276.76	\$62,683.13
112	\$103,276.76	\$344.26	\$1,333.71	\$101,943.05	\$63,027.38
113	\$101,943.05	\$339.81	\$1,338.16	\$100,604.89	\$63,367.19
114	\$100,604.89	\$335.35	\$1,342.62	\$99,262.27	\$63,702.54
115	\$99,262.27	\$330.87	\$1,347.09	\$97,915.18	\$64,033.42
116	\$97,915.18	\$326.38	\$1,351.58	\$96,563.60	\$64,359.80
117	\$96,563.60	\$321.88	\$1,356.09	\$95,207.51	\$64,681.68
118	\$95,207.51	\$317.36	\$1,360.61	\$93,846.90	\$64,999.04
119	\$93,846.90	\$312.82	\$1,365.14	\$92,481.75	\$65,311.86
120	\$92,481.75	\$308.27	\$1,369.69	\$91,112.06	\$65,620.13
121	\$91,112.06	\$303.71	\$1,374.26	\$89,737.80	\$65,923.84
122	\$89,737.80	\$299.13	\$1,378.84	\$88,358.96	\$66,222.96

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW1

Estimated Capital Cost: \$29,036,580
Number of Benefitting Properties: 128
Cost per Connection: \$226,848.28

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$1,677.97

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$226,848.00	4.00%	15	\$1,677.97		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
123	\$88,358.96	\$294.53	\$1,383.44	\$86,975.52	\$66,517.49
124	\$86,975.52	\$289.92	\$1,388.05	\$85,587.47	\$66,807.41
125	\$85,587.47	\$285.29	\$1,392.68	\$84,194.80	\$67,092.70
126	\$84,194.80	\$280.65	\$1,397.32	\$82,797.48	\$67,373.35
127	\$82,797.48	\$275.99	\$1,401.98	\$81,395.50	\$67,649.35
128	\$81,395.50	\$271.32	\$1,406.65	\$79,988.85	\$67,920.66
129	\$79,988.85	\$266.63	\$1,411.34	\$78,577.52	\$68,187.29
130	\$78,577.52	\$261.93	\$1,416.04	\$77,161.47	\$68,449.22
131	\$77,161.47	\$257.20	\$1,420.76	\$75,740.71	\$68,706.42
132	\$75,740.71	\$252.47	\$1,425.50	\$74,315.21	\$68,958.89
133	\$74,315.21	\$247.72	\$1,430.25	\$72,884.96	\$69,206.61
134	\$72,884.96	\$242.95	\$1,435.02	\$71,449.95	\$69,449.56
135	\$71,449.95	\$238.17	\$1,439.80	\$70,010.15	\$69,687.73
136	\$70,010.15	\$233.37	\$1,444.60	\$68,565.55	\$69,921.09
137	\$68,565.55	\$228.55	\$1,449.42	\$67,116.13	\$70,149.65
138	\$67,116.13	\$223.72	\$1,454.25	\$65,661.88	\$70,373.37
139	\$65,661.88	\$218.87	\$1,459.09	\$64,202.79	\$70,592.24
140	\$64,202.79	\$214.01	\$1,463.96	\$62,738.83	\$70,806.25
141	\$62,738.83	\$209.13	\$1,468.84	\$61,269.99	\$71,015.38
142	\$61,269.99	\$204.23	\$1,473.73	\$59,796.26	\$71,219.61
143	\$59,796.26	\$199.32	\$1,478.65	\$58,317.61	\$71,418.93
144	\$58,317.61	\$194.39	\$1,483.58	\$56,834.04	\$71,613.32
145	\$56,834.04	\$189.45	\$1,488.52	\$55,345.52	\$71,802.77
146	\$55,345.52	\$184.49	\$1,493.48	\$53,852.03	\$71,987.26
147	\$53,852.03	\$179.51	\$1,498.46	\$52,353.57	\$72,166.76
148	\$52,353.57	\$174.51	\$1,503.46	\$50,850.12	\$72,341.27
149	\$50,850.12	\$169.50	\$1,508.47	\$49,341.65	\$72,510.77
150	\$49,341.65	\$164.47	\$1,513.50	\$47,828.16	\$72,675.25
151	\$47,828.16	\$159.43	\$1,518.54	\$46,309.62	\$72,834.67
152	\$46,309.62	\$154.37	\$1,523.60	\$44,786.01	\$72,989.04
153	\$44,786.01	\$149.29	\$1,528.68	\$43,257.33	\$73,138.33
154	\$43,257.33	\$144.19	\$1,533.78	\$41,723.56	\$73,282.52
155	\$41,723.56	\$139.08	\$1,538.89	\$40,184.67	\$73,421.60
156	\$40,184.67	\$133.95	\$1,544.02	\$38,640.65	\$73,555.54
157	\$38,640.65	\$128.80	\$1,549.17	\$37,091.49	\$73,684.35
158	\$37,091.49	\$123.64	\$1,554.33	\$35,537.16	\$73,807.98
159	\$35,537.16	\$118.46	\$1,559.51	\$33,977.65	\$73,926.44
160	\$33,977.65	\$113.26	\$1,564.71	\$32,412.94	\$74,039.70
161	\$32,412.94	\$108.04	\$1,569.92	\$30,843.01	\$74,147.74
162	\$30,843.01	\$102.81	\$1,575.16	\$29,267.86	\$74,250.55
163	\$29,267.86	\$97.56	\$1,580.41	\$27,687.45	\$74,348.11
164	\$27,687.45	\$92.29	\$1,585.68	\$26,101.77	\$74,440.41
165	\$26,101.77	\$87.01	\$1,590.96	\$24,510.81	\$74,527.41
166	\$24,510.81	\$81.70	\$1,596.26	\$22,914.55	\$74,609.11
167	\$22,914.55	\$76.38	\$1,601.59	\$21,312.96	\$74,685.50
168	\$21,312.96	\$71.04	\$1,606.92	\$19,706.04	\$74,756.54
169	\$19,706.04	\$65.69	\$1,612.28	\$18,093.76	\$74,822.23
170	\$18,093.76	\$60.31	\$1,617.65	\$16,476.10	\$74,882.54
171	\$16,476.10	\$54.92	\$1,623.05	\$14,853.06	\$74,937.46
172	\$14,853.06	\$49.51	\$1,628.46	\$13,224.60	\$74,986.97
173	\$13,224.60	\$44.08	\$1,633.89	\$11,590.71	\$75,031.05
174	\$11,590.71	\$38.64	\$1,639.33	\$9,951.38	\$75,069.69
175	\$9,951.38	\$33.17	\$1,644.80	\$8,306.59	\$75,102.86
176	\$8,306.59	\$27.69	\$1,650.28	\$6,656.31	\$75,130.55
177	\$6,656.31	\$22.19	\$1,655.78	\$5,000.53	\$75,152.73
178	\$5,000.53	\$16.67	\$1,661.30	\$3,339.23	\$75,169.40
179	\$3,339.23	\$11.13	\$1,666.84	\$1,672.39	\$75,180.53
180	\$1,672.39	\$5.57	\$1,672.39	\$0.00	\$75,186.11

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW1

Estimated Capital Cost: \$29,036,580
Number of Benefitting Properties: 128
Cost per Connection: \$226,848.28

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$1,374.65

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$226,848.00	4.00%	20	\$1,374.65		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
1	\$226,848.00	\$756.16	\$618.49	\$226,229.51	\$756.16
2	\$226,229.51	\$754.10	\$620.56	\$225,608.95	\$1,510.26
3	\$225,608.95	\$752.03	\$622.62	\$224,986.33	\$2,262.29
4	\$224,986.33	\$749.95	\$624.70	\$224,361.63	\$3,012.24
5	\$224,361.63	\$747.87	\$626.78	\$223,734.84	\$3,760.11
6	\$223,734.84	\$745.78	\$628.87	\$223,105.97	\$4,505.90
7	\$223,105.97	\$743.69	\$630.97	\$222,475.00	\$5,249.58
8	\$222,475.00	\$741.58	\$633.07	\$221,841.93	\$5,991.17
9	\$221,841.93	\$739.47	\$635.18	\$221,206.75	\$6,730.64
10	\$221,206.75	\$737.36	\$637.30	\$220,569.45	\$7,468.00
11	\$220,569.45	\$735.23	\$639.42	\$219,930.03	\$8,203.23
12	\$219,930.03	\$733.10	\$641.55	\$219,288.48	\$8,936.33
13	\$219,288.48	\$730.96	\$643.69	\$218,644.78	\$9,667.29
14	\$218,644.78	\$728.82	\$645.84	\$217,998.95	\$10,396.11
15	\$217,998.95	\$726.66	\$647.99	\$217,350.95	\$11,122.77
16	\$217,350.95	\$724.50	\$650.15	\$216,700.80	\$11,847.27
17	\$216,700.80	\$722.34	\$652.32	\$216,048.49	\$12,569.61
18	\$216,048.49	\$720.16	\$654.49	\$215,393.99	\$13,289.77
19	\$215,393.99	\$717.98	\$656.67	\$214,737.32	\$14,007.75
20	\$214,737.32	\$715.79	\$658.86	\$214,078.46	\$14,723.54
21	\$214,078.46	\$713.59	\$661.06	\$213,417.40	\$15,437.14
22	\$213,417.40	\$711.39	\$663.26	\$212,754.13	\$16,148.53
23	\$212,754.13	\$709.18	\$665.47	\$212,088.66	\$16,857.71
24	\$212,088.66	\$706.96	\$667.69	\$211,420.97	\$17,564.67
25	\$211,420.97	\$704.74	\$669.92	\$210,751.05	\$18,269.41
26	\$210,751.05	\$702.50	\$672.15	\$210,078.90	\$18,971.91
27	\$210,078.90	\$700.26	\$674.39	\$209,404.51	\$19,672.17
28	\$209,404.51	\$698.02	\$676.64	\$208,727.87	\$20,370.19
29	\$208,727.87	\$695.76	\$678.89	\$208,048.97	\$21,065.95
30	\$208,048.97	\$693.50	\$681.16	\$207,367.82	\$21,759.44
31	\$207,367.82	\$691.23	\$683.43	\$206,684.39	\$22,450.67
32	\$206,684.39	\$688.95	\$685.71	\$205,998.68	\$23,139.62
33	\$205,998.68	\$686.66	\$687.99	\$205,310.69	\$23,826.28
34	\$205,310.69	\$684.37	\$690.29	\$204,620.40	\$24,510.65
35	\$204,620.40	\$682.07	\$692.59	\$203,927.82	\$25,192.72
36	\$203,927.82	\$679.76	\$694.89	\$203,232.92	\$25,872.48
37	\$203,232.92	\$677.44	\$697.21	\$202,535.71	\$26,549.92
38	\$202,535.71	\$675.12	\$699.54	\$201,836.18	\$27,225.04
39	\$201,836.18	\$672.79	\$701.87	\$201,134.31	\$27,897.83
40	\$201,134.31	\$670.45	\$704.21	\$200,430.10	\$28,568.27
41	\$200,430.10	\$668.10	\$706.55	\$199,723.55	\$29,236.37
42	\$199,723.55	\$665.75	\$708.91	\$199,014.64	\$29,902.12
43	\$199,014.64	\$663.38	\$711.27	\$198,303.37	\$30,565.50
44	\$198,303.37	\$661.01	\$713.64	\$197,589.72	\$31,226.51
45	\$197,589.72	\$658.63	\$716.02	\$196,873.70	\$31,885.14
46	\$196,873.70	\$656.25	\$718.41	\$196,155.29	\$32,541.39
47	\$196,155.29	\$653.85	\$720.80	\$195,434.49	\$33,195.24
48	\$195,434.49	\$651.45	\$723.21	\$194,711.29	\$33,846.69
49	\$194,711.29	\$649.04	\$725.62	\$193,985.67	\$34,495.73
50	\$193,985.67	\$646.62	\$728.04	\$193,257.63	\$35,142.35
51	\$193,257.63	\$644.19	\$730.46	\$192,527.17	\$35,786.54
52	\$192,527.17	\$641.76	\$732.90	\$191,794.27	\$36,428.30
53	\$191,794.27	\$639.31	\$735.34	\$191,058.93	\$37,067.61
54	\$191,058.93	\$636.86	\$737.79	\$190,321.14	\$37,704.47
55	\$190,321.14	\$634.40	\$740.25	\$189,580.89	\$38,338.88
56	\$189,580.89	\$631.94	\$742.72	\$188,838.17	\$38,970.81
57	\$188,838.17	\$629.46	\$745.19	\$188,092.98	\$39,600.27
58	\$188,092.98	\$626.98	\$747.68	\$187,345.30	\$40,227.25
59	\$187,345.30	\$624.48	\$750.17	\$186,595.13	\$40,851.73
60	\$186,595.13	\$621.98	\$752.67	\$185,842.46	\$41,473.72
61	\$185,842.46	\$619.47	\$755.18	\$185,087.28	\$42,093.19

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW1

Estimated Capital Cost: \$29,036,580
Number of Benefitting Properties: 128
Cost per Connection: \$226,848.28

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$1,374.65

Loan Amount	Interest Rate	Term in Years	Monthly Payment
\$226,848.00	4.00%	20	\$1,374.65

Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
62	\$185,087.28	\$616.96	\$757.70	\$184,329.59	\$42,710.15
63	\$184,329.59	\$614.43	\$760.22	\$183,569.36	\$43,324.58
64	\$183,569.36	\$611.90	\$762.76	\$182,806.61	\$43,936.48
65	\$182,806.61	\$609.36	\$765.30	\$182,041.31	\$44,545.84
66	\$182,041.31	\$606.80	\$767.85	\$181,273.46	\$45,152.64
67	\$181,273.46	\$604.24	\$770.41	\$180,503.05	\$45,756.89
68	\$180,503.05	\$601.68	\$772.98	\$179,730.07	\$46,358.56
69	\$179,730.07	\$599.10	\$775.55	\$178,954.52	\$46,957.66
70	\$178,954.52	\$596.52	\$778.14	\$178,176.38	\$47,554.18
71	\$178,176.38	\$593.92	\$780.73	\$177,395.65	\$48,148.10
72	\$177,395.65	\$591.32	\$783.34	\$176,612.31	\$48,739.42
73	\$176,612.31	\$588.71	\$785.95	\$175,826.36	\$49,328.13
74	\$175,826.36	\$586.09	\$788.57	\$175,037.80	\$49,914.21
75	\$175,037.80	\$583.46	\$791.19	\$174,246.60	\$50,497.67
76	\$174,246.60	\$580.82	\$793.83	\$173,452.77	\$51,078.49
77	\$173,452.77	\$578.18	\$796.48	\$172,656.29	\$51,656.67
78	\$172,656.29	\$575.52	\$799.13	\$171,857.16	\$52,232.19
79	\$171,857.16	\$572.86	\$801.80	\$171,055.36	\$52,805.05
80	\$171,055.36	\$570.18	\$804.47	\$170,250.89	\$53,375.23
81	\$170,250.89	\$567.50	\$807.15	\$169,443.74	\$53,942.74
82	\$169,443.74	\$564.81	\$809.84	\$168,633.90	\$54,507.55
83	\$168,633.90	\$562.11	\$812.54	\$167,821.36	\$55,069.66
84	\$167,821.36	\$559.40	\$815.25	\$167,006.11	\$55,629.07
85	\$167,006.11	\$556.69	\$817.97	\$166,188.14	\$56,185.75
86	\$166,188.14	\$553.96	\$820.69	\$165,367.45	\$56,739.71
87	\$165,367.45	\$551.22	\$823.43	\$164,544.02	\$57,290.94
88	\$164,544.02	\$548.48	\$826.17	\$163,717.84	\$57,839.42
89	\$163,717.84	\$545.73	\$828.93	\$162,888.92	\$58,385.14
90	\$162,888.92	\$542.96	\$831.69	\$162,057.22	\$58,928.11
91	\$162,057.22	\$540.19	\$834.46	\$161,222.76	\$59,468.30
92	\$161,222.76	\$537.41	\$837.25	\$160,385.52	\$60,005.71
93	\$160,385.52	\$534.62	\$840.04	\$159,545.48	\$60,540.33
94	\$159,545.48	\$531.82	\$842.84	\$158,702.64	\$61,072.14
95	\$158,702.64	\$529.01	\$845.65	\$157,857.00	\$61,601.15
96	\$157,857.00	\$526.19	\$848.46	\$157,008.53	\$62,127.34
97	\$157,008.53	\$523.36	\$851.29	\$156,157.24	\$62,650.70
98	\$156,157.24	\$520.52	\$854.13	\$155,303.11	\$63,171.23
99	\$155,303.11	\$517.68	\$856.98	\$154,446.13	\$63,688.91
100	\$154,446.13	\$514.82	\$859.83	\$153,586.30	\$64,203.73
101	\$153,586.30	\$511.95	\$862.70	\$152,723.60	\$64,715.68
102	\$152,723.60	\$509.08	\$865.58	\$151,858.02	\$65,224.76
103	\$151,858.02	\$506.19	\$868.46	\$150,989.56	\$65,730.95
104	\$150,989.56	\$503.30	\$871.36	\$150,118.21	\$66,234.25
105	\$150,118.21	\$500.39	\$874.26	\$149,243.95	\$66,734.65
106	\$149,243.95	\$497.48	\$877.17	\$148,366.77	\$67,232.13
107	\$148,366.77	\$494.56	\$880.10	\$147,486.68	\$67,726.68
108	\$147,486.68	\$491.62	\$883.03	\$146,603.64	\$68,218.30
109	\$146,603.64	\$488.68	\$885.98	\$145,717.67	\$68,706.98
110	\$145,717.67	\$485.73	\$888.93	\$144,828.74	\$69,192.71
111	\$144,828.74	\$482.76	\$891.89	\$143,936.85	\$69,675.47
112	\$143,936.85	\$479.79	\$894.86	\$143,041.98	\$70,155.26
113	\$143,041.98	\$476.81	\$897.85	\$142,144.14	\$70,632.07
114	\$142,144.14	\$473.81	\$900.84	\$141,243.29	\$71,105.88
115	\$141,243.29	\$470.81	\$903.84	\$140,339.45	\$71,576.69
116	\$140,339.45	\$467.80	\$906.86	\$139,432.60	\$72,044.49
117	\$139,432.60	\$464.78	\$909.88	\$138,522.72	\$72,509.26
118	\$138,522.72	\$461.74	\$912.91	\$137,609.80	\$72,971.01
119	\$137,609.80	\$458.70	\$915.95	\$136,693.85	\$73,429.71
120	\$136,693.85	\$455.65	\$919.01	\$135,774.84	\$73,885.35
121	\$135,774.84	\$452.58	\$922.07	\$134,852.77	\$74,337.94
122	\$134,852.77	\$449.51	\$925.15	\$133,927.62	\$74,787.44

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW1

Estimated Capital Cost: \$29,036,580
Number of Benefitting Properties: 128
Cost per Connection: \$226,848.28

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$1,374.65

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$226,848.00	4.00%	20	\$1,374.65		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
123	\$133,927.62	\$446.43	\$928.23	\$132,999.40	\$75,233.87
124	\$132,999.40	\$443.33	\$931.32	\$132,068.07	\$75,677.20
125	\$132,068.07	\$440.23	\$934.43	\$131,133.65	\$76,117.43
126	\$131,133.65	\$437.11	\$937.54	\$130,196.10	\$76,554.54
127	\$130,196.10	\$433.99	\$940.67	\$129,255.44	\$76,988.53
128	\$129,255.44	\$430.85	\$943.80	\$128,311.63	\$77,419.38
129	\$128,311.63	\$427.71	\$946.95	\$127,364.68	\$77,847.08
130	\$127,364.68	\$424.55	\$950.11	\$126,414.58	\$78,271.63
131	\$126,414.58	\$421.38	\$953.27	\$125,461.31	\$78,693.01
132	\$125,461.31	\$418.20	\$956.45	\$124,504.86	\$79,111.22
133	\$124,504.86	\$415.02	\$959.64	\$123,545.22	\$79,526.24
134	\$123,545.22	\$411.82	\$962.84	\$122,582.38	\$79,938.05
135	\$122,582.38	\$408.61	\$966.05	\$121,616.34	\$80,346.66
136	\$121,616.34	\$405.39	\$969.27	\$120,647.07	\$80,752.05
137	\$120,647.07	\$402.16	\$972.50	\$119,674.57	\$81,154.21
138	\$119,674.57	\$398.92	\$975.74	\$118,698.83	\$81,553.12
139	\$118,698.83	\$395.66	\$978.99	\$117,719.84	\$81,948.78
140	\$117,719.84	\$392.40	\$982.25	\$116,737.59	\$82,341.18
141	\$116,737.59	\$389.13	\$985.53	\$115,752.06	\$82,730.31
142	\$115,752.06	\$385.84	\$988.81	\$114,763.24	\$83,116.15
143	\$114,763.24	\$382.54	\$992.11	\$113,771.13	\$83,498.69
144	\$113,771.13	\$379.24	\$995.42	\$112,775.72	\$83,877.93
145	\$112,775.72	\$375.92	\$998.74	\$111,776.98	\$84,253.85
146	\$111,776.98	\$372.59	\$1,002.06	\$110,774.92	\$84,626.44
147	\$110,774.92	\$369.25	\$1,005.40	\$109,769.51	\$84,995.69
148	\$109,769.51	\$365.90	\$1,008.76	\$108,760.76	\$85,361.59
149	\$108,760.76	\$362.54	\$1,012.12	\$107,748.64	\$85,724.12
150	\$107,748.64	\$359.16	\$1,015.49	\$106,733.15	\$86,083.28
151	\$106,733.15	\$355.78	\$1,018.88	\$105,714.27	\$86,439.06
152	\$105,714.27	\$352.38	\$1,022.27	\$104,692.00	\$86,791.44
153	\$104,692.00	\$348.97	\$1,025.68	\$103,666.31	\$87,140.42
154	\$103,666.31	\$345.55	\$1,029.10	\$102,637.21	\$87,485.97
155	\$102,637.21	\$342.12	\$1,032.53	\$101,604.68	\$87,828.09
156	\$101,604.68	\$338.68	\$1,035.97	\$100,568.71	\$88,166.78
157	\$100,568.71	\$335.23	\$1,039.43	\$99,529.29	\$88,502.01
158	\$99,529.29	\$331.76	\$1,042.89	\$98,486.40	\$88,833.77
159	\$98,486.40	\$328.29	\$1,046.37	\$97,440.03	\$89,162.06
160	\$97,440.03	\$324.80	\$1,049.85	\$96,390.18	\$89,486.86
161	\$96,390.18	\$321.30	\$1,053.35	\$95,336.82	\$89,808.16
162	\$95,336.82	\$317.79	\$1,056.86	\$94,279.96	\$90,125.95
163	\$94,279.96	\$314.27	\$1,060.39	\$93,219.57	\$90,440.21
164	\$93,219.57	\$310.73	\$1,063.92	\$92,155.65	\$90,750.95
165	\$92,155.65	\$307.19	\$1,067.47	\$91,088.18	\$91,058.13
166	\$91,088.18	\$303.63	\$1,071.03	\$90,017.15	\$91,361.76
167	\$90,017.15	\$300.06	\$1,074.60	\$88,942.56	\$91,661.82
168	\$88,942.56	\$296.48	\$1,078.18	\$87,864.38	\$91,958.29
169	\$87,864.38	\$292.88	\$1,081.77	\$86,782.60	\$92,251.17
170	\$86,782.60	\$289.28	\$1,085.38	\$85,697.22	\$92,540.45
171	\$85,697.22	\$285.66	\$1,089.00	\$84,608.23	\$92,826.11
172	\$84,608.23	\$282.03	\$1,092.63	\$83,515.60	\$93,108.13
173	\$83,515.60	\$278.39	\$1,096.27	\$82,419.33	\$93,386.52
174	\$82,419.33	\$274.73	\$1,099.92	\$81,319.41	\$93,661.25
175	\$81,319.41	\$271.06	\$1,103.59	\$80,215.82	\$93,932.31
176	\$80,215.82	\$267.39	\$1,107.27	\$79,108.55	\$94,199.70
177	\$79,108.55	\$263.70	\$1,110.96	\$77,997.59	\$94,463.40
178	\$77,997.59	\$259.99	\$1,114.66	\$76,882.93	\$94,723.39
179	\$76,882.93	\$256.28	\$1,118.38	\$75,764.55	\$94,979.66
180	\$75,764.55	\$252.55	\$1,122.11	\$74,642.45	\$95,232.21
181	\$74,642.45	\$248.81	\$1,125.85	\$73,516.60	\$95,481.02
182	\$73,516.60	\$245.06	\$1,129.60	\$72,387.00	\$95,726.08
183	\$72,387.00	\$241.29	\$1,133.36	\$71,253.64	\$95,967.37

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW1

Estimated Capital Cost: \$29,036,580
Number of Benefitting Properties: 128
Cost per Connection: \$226,848.28

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$1,374.65

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$226,848.00	4.00%	20	\$1,374.65		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
184	\$71,253.64	\$237.51	\$1,137.14	\$70,116.49	\$96,204.88
185	\$70,116.49	\$233.72	\$1,140.93	\$68,975.56	\$96,438.60
186	\$68,975.56	\$229.92	\$1,144.74	\$67,830.83	\$96,668.52
187	\$67,830.83	\$226.10	\$1,148.55	\$66,682.27	\$96,894.62
188	\$66,682.27	\$222.27	\$1,152.38	\$65,529.89	\$97,116.90
189	\$65,529.89	\$218.43	\$1,156.22	\$64,373.67	\$97,335.33
190	\$64,373.67	\$214.58	\$1,160.08	\$63,213.60	\$97,549.91
191	\$63,213.60	\$210.71	\$1,163.94	\$62,049.66	\$97,760.62
192	\$62,049.66	\$206.83	\$1,167.82	\$60,881.83	\$97,967.45
193	\$60,881.83	\$202.94	\$1,171.71	\$59,710.12	\$98,170.39
194	\$59,710.12	\$199.03	\$1,175.62	\$58,534.50	\$98,369.42
195	\$58,534.50	\$195.11	\$1,179.54	\$57,354.96	\$98,564.54
196	\$57,354.96	\$191.18	\$1,183.47	\$56,171.49	\$98,755.72
197	\$56,171.49	\$187.24	\$1,187.42	\$54,984.07	\$98,942.96
198	\$54,984.07	\$183.28	\$1,191.37	\$53,792.70	\$99,126.24
199	\$53,792.70	\$179.31	\$1,195.35	\$52,597.35	\$99,305.55
200	\$52,597.35	\$175.32	\$1,199.33	\$51,398.02	\$99,480.87
201	\$51,398.02	\$171.33	\$1,203.33	\$50,194.70	\$99,652.20
202	\$50,194.70	\$167.32	\$1,207.34	\$48,987.36	\$99,819.52
203	\$48,987.36	\$163.29	\$1,211.36	\$47,775.99	\$99,982.81
204	\$47,775.99	\$159.25	\$1,215.40	\$46,560.59	\$100,142.06
205	\$46,560.59	\$155.20	\$1,219.45	\$45,341.14	\$100,297.26
206	\$45,341.14	\$151.14	\$1,223.52	\$44,117.62	\$100,448.40
207	\$44,117.62	\$147.06	\$1,227.60	\$42,890.03	\$100,595.46
208	\$42,890.03	\$142.97	\$1,231.69	\$41,658.34	\$100,738.43
209	\$41,658.34	\$138.86	\$1,235.79	\$40,422.55	\$100,877.29
210	\$40,422.55	\$134.74	\$1,239.91	\$39,182.64	\$101,012.03
211	\$39,182.64	\$130.61	\$1,244.05	\$37,938.59	\$101,142.64
212	\$37,938.59	\$126.46	\$1,248.19	\$36,690.40	\$101,269.10
213	\$36,690.40	\$122.30	\$1,252.35	\$35,438.04	\$101,391.40
214	\$35,438.04	\$118.13	\$1,256.53	\$34,181.52	\$101,509.53
215	\$34,181.52	\$113.94	\$1,260.72	\$32,920.80	\$101,623.47
216	\$32,920.80	\$109.74	\$1,264.92	\$31,655.88	\$101,733.20
217	\$31,655.88	\$105.52	\$1,269.13	\$30,386.75	\$101,838.72
218	\$30,386.75	\$101.29	\$1,273.37	\$29,113.38	\$101,940.01
219	\$29,113.38	\$97.04	\$1,277.61	\$27,835.77	\$102,037.06
220	\$27,835.77	\$92.79	\$1,281.87	\$26,553.91	\$102,129.84
221	\$26,553.91	\$88.51	\$1,286.14	\$25,267.76	\$102,218.35
222	\$25,267.76	\$84.23	\$1,290.43	\$23,977.34	\$102,302.58
223	\$23,977.34	\$79.92	\$1,294.73	\$22,682.61	\$102,382.51
224	\$22,682.61	\$75.61	\$1,299.05	\$21,383.56	\$102,458.11
225	\$21,383.56	\$71.28	\$1,303.38	\$20,080.18	\$102,529.39
226	\$20,080.18	\$66.93	\$1,307.72	\$18,772.46	\$102,596.33
227	\$18,772.46	\$62.57	\$1,312.08	\$17,460.38	\$102,658.90
228	\$17,460.38	\$58.20	\$1,316.45	\$16,143.93	\$102,717.10
229	\$16,143.93	\$53.81	\$1,320.84	\$14,823.09	\$102,770.92
230	\$14,823.09	\$49.41	\$1,325.24	\$13,497.85	\$102,820.33
231	\$13,497.85	\$44.99	\$1,329.66	\$12,168.19	\$102,865.32
232	\$12,168.19	\$40.56	\$1,334.09	\$10,834.09	\$102,905.88
233	\$10,834.09	\$36.11	\$1,338.54	\$9,495.55	\$102,941.99
234	\$9,495.55	\$31.65	\$1,343.00	\$8,152.55	\$102,973.64
235	\$8,152.55	\$27.18	\$1,347.48	\$6,805.07	\$103,000.82
236	\$6,805.07	\$22.68	\$1,351.97	\$5,453.10	\$103,023.50
237	\$5,453.10	\$18.18	\$1,356.48	\$4,096.62	\$103,041.68
238	\$4,096.62	\$13.66	\$1,361.00	\$2,735.62	\$103,055.34
239	\$2,735.62	\$9.12	\$1,365.54	\$1,370.09	\$103,064.45
240	\$1,370.09	\$4.57	\$1,370.09	\$0.00	\$103,069.02

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW2

Estimated Capital Cost: \$11,683,080
Number of Benefitting Properties: 128
Cost per Connection: \$91,274.06

Capital Cost Recovery Factor - A = 0.010124514
Monthly Cost -P = \$924.10

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$91,274.00	4.00%	10	\$924.10		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
1	\$91,274.00	\$304.25	\$619.86	\$90,654.14	\$304.25
2	\$90,654.14	\$302.18	\$621.92	\$90,032.22	\$606.43
3	\$90,032.22	\$300.11	\$624.00	\$89,408.22	\$906.53
4	\$89,408.22	\$298.03	\$626.08	\$88,782.14	\$1,204.56
5	\$88,782.14	\$295.94	\$628.16	\$88,153.98	\$1,500.50
6	\$88,153.98	\$293.85	\$630.26	\$87,523.72	\$1,794.35
7	\$87,523.72	\$291.75	\$632.36	\$86,891.36	\$2,086.09
8	\$86,891.36	\$289.64	\$634.47	\$86,256.89	\$2,375.73
9	\$86,256.89	\$287.52	\$636.58	\$85,620.31	\$2,663.26
10	\$85,620.31	\$285.40	\$638.70	\$84,981.61	\$2,948.66
11	\$84,981.61	\$283.27	\$640.83	\$84,340.78	\$3,231.93
12	\$84,340.78	\$281.14	\$642.97	\$83,697.81	\$3,513.06
13	\$83,697.81	\$278.99	\$645.11	\$83,052.69	\$3,792.06
14	\$83,052.69	\$276.84	\$647.26	\$82,405.43	\$4,068.90
15	\$82,405.43	\$274.68	\$649.42	\$81,756.01	\$4,343.58
16	\$81,756.01	\$272.52	\$651.58	\$81,104.43	\$4,616.10
17	\$81,104.43	\$270.35	\$653.76	\$80,450.67	\$4,886.45
18	\$80,450.67	\$268.17	\$655.94	\$79,794.73	\$5,154.62
19	\$79,794.73	\$265.98	\$658.12	\$79,136.61	\$5,420.60
20	\$79,136.61	\$263.79	\$660.32	\$78,476.30	\$5,684.39
21	\$78,476.30	\$261.59	\$662.52	\$77,813.78	\$5,945.98
22	\$77,813.78	\$259.38	\$664.73	\$77,149.05	\$6,205.36
23	\$77,149.05	\$257.16	\$666.94	\$76,482.11	\$6,462.52
24	\$76,482.11	\$254.94	\$669.16	\$75,812.95	\$6,717.46
25	\$75,812.95	\$252.71	\$671.40	\$75,141.55	\$6,970.17
26	\$75,141.55	\$250.47	\$673.63	\$74,467.92	\$7,220.64
27	\$74,467.92	\$248.23	\$675.88	\$73,792.04	\$7,468.87
28	\$73,792.04	\$245.97	\$678.13	\$73,113.91	\$7,714.84
29	\$73,113.91	\$243.71	\$680.39	\$72,433.52	\$7,958.56
30	\$72,433.52	\$241.45	\$682.66	\$71,750.86	\$8,200.00
31	\$71,750.86	\$239.17	\$684.94	\$71,065.92	\$8,439.17
32	\$71,065.92	\$236.89	\$687.22	\$70,378.70	\$8,676.06
33	\$70,378.70	\$234.60	\$689.51	\$69,689.19	\$8,910.65
34	\$69,689.19	\$232.30	\$691.81	\$68,997.39	\$9,142.95
35	\$68,997.39	\$229.99	\$694.11	\$68,303.27	\$9,372.94
36	\$68,303.27	\$227.68	\$696.43	\$67,606.85	\$9,600.62
37	\$67,606.85	\$225.36	\$698.75	\$66,908.10	\$9,825.98
38	\$66,908.10	\$223.03	\$701.08	\$66,207.02	\$10,049.00
39	\$66,207.02	\$220.69	\$703.41	\$65,503.60	\$10,269.69
40	\$65,503.60	\$218.35	\$705.76	\$64,797.84	\$10,488.04
41	\$64,797.84	\$215.99	\$708.11	\$64,089.73	\$10,704.03
42	\$64,089.73	\$213.63	\$710.47	\$63,379.26	\$10,917.66
43	\$63,379.26	\$211.26	\$712.84	\$62,666.42	\$11,128.93
44	\$62,666.42	\$208.89	\$715.22	\$61,951.20	\$11,337.82
45	\$61,951.20	\$206.50	\$717.60	\$61,233.60	\$11,544.32
46	\$61,233.60	\$204.11	\$719.99	\$60,513.61	\$11,748.43
47	\$60,513.61	\$201.71	\$722.39	\$59,791.22	\$11,950.14
48	\$59,791.22	\$199.30	\$724.80	\$59,066.41	\$12,149.45
49	\$59,066.41	\$196.89	\$727.22	\$58,339.20	\$12,346.34
50	\$58,339.20	\$194.46	\$729.64	\$57,609.56	\$12,540.80
51	\$57,609.56	\$192.03	\$732.07	\$56,877.48	\$12,732.83
52	\$56,877.48	\$189.59	\$734.51	\$56,142.97	\$12,922.42
53	\$56,142.97	\$187.14	\$736.96	\$55,406.01	\$13,109.57
54	\$55,406.01	\$184.69	\$739.42	\$54,666.59	\$13,294.25
55	\$54,666.59	\$182.22	\$741.88	\$53,924.71	\$13,476.48
56	\$53,924.71	\$179.75	\$744.36	\$53,180.35	\$13,656.23
57	\$53,180.35	\$177.27	\$746.84	\$52,433.52	\$13,833.49
58	\$52,433.52	\$174.78	\$749.33	\$51,684.19	\$14,008.27
59	\$51,684.19	\$172.28	\$751.82	\$50,932.36	\$14,180.55
60	\$50,932.36	\$169.77	\$754.33	\$50,178.03	\$14,350.33
61	\$50,178.03	\$167.26	\$756.84	\$49,421.19	\$14,517.59

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW2

Estimated Capital Cost: \$11,683,080
Number of Benefitting Properties: 128
Cost per Connection: \$91,274.06

Capital Cost Recovery Factor - A = 0.010124514
Monthly Cost -P = \$924.10

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$91,274.00	4.00%	10	\$924.10		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
62	\$49,421.19	\$164.74	\$759.37	\$48,661.82	\$14,682.32
63	\$48,661.82	\$162.21	\$761.90	\$47,899.92	\$14,844.53
64	\$47,899.92	\$159.67	\$764.44	\$47,135.48	\$15,004.20
65	\$47,135.48	\$157.12	\$766.99	\$46,368.50	\$15,161.31
66	\$46,368.50	\$154.56	\$769.54	\$45,598.95	\$15,315.88
67	\$45,598.95	\$152.00	\$772.11	\$44,826.85	\$15,467.87
68	\$44,826.85	\$149.42	\$774.68	\$44,052.16	\$15,617.30
69	\$44,052.16	\$146.84	\$777.26	\$43,274.90	\$15,764.14
70	\$43,274.90	\$144.25	\$779.86	\$42,495.04	\$15,908.39
71	\$42,495.04	\$141.65	\$782.45	\$41,712.59	\$16,050.04
72	\$41,712.59	\$139.04	\$785.06	\$40,927.53	\$16,189.08
73	\$40,927.53	\$136.43	\$787.68	\$40,139.85	\$16,325.50
74	\$40,139.85	\$133.80	\$790.31	\$39,349.54	\$16,459.30
75	\$39,349.54	\$131.17	\$792.94	\$38,556.60	\$16,590.47
76	\$38,556.60	\$128.52	\$795.58	\$37,761.02	\$16,718.99
77	\$37,761.02	\$125.87	\$798.23	\$36,962.78	\$16,844.86
78	\$36,962.78	\$123.21	\$800.90	\$36,161.89	\$16,968.07
79	\$36,161.89	\$120.54	\$803.57	\$35,358.32	\$17,088.61
80	\$35,358.32	\$117.86	\$806.24	\$34,552.08	\$17,206.47
81	\$34,552.08	\$115.17	\$808.93	\$33,743.15	\$17,321.64
82	\$33,743.15	\$112.48	\$811.63	\$32,931.52	\$17,434.12
83	\$32,931.52	\$109.77	\$814.33	\$32,117.19	\$17,543.89
84	\$32,117.19	\$107.06	\$817.05	\$31,300.14	\$17,650.95
85	\$31,300.14	\$104.33	\$819.77	\$30,480.37	\$17,755.28
86	\$30,480.37	\$101.60	\$822.50	\$29,657.87	\$17,856.88
87	\$29,657.87	\$98.86	\$825.25	\$28,832.62	\$17,955.74
88	\$28,832.62	\$96.11	\$828.00	\$28,004.62	\$18,051.85
89	\$28,004.62	\$93.35	\$830.76	\$27,173.87	\$18,145.20
90	\$27,173.87	\$90.58	\$833.53	\$26,340.34	\$18,235.78
91	\$26,340.34	\$87.80	\$836.30	\$25,504.04	\$18,323.58
92	\$25,504.04	\$85.01	\$839.09	\$24,664.95	\$18,408.60
93	\$24,664.95	\$82.22	\$841.89	\$23,823.06	\$18,490.81
94	\$23,823.06	\$79.41	\$844.69	\$22,978.36	\$18,570.22
95	\$22,978.36	\$76.59	\$847.51	\$22,130.85	\$18,646.82
96	\$22,130.85	\$73.77	\$850.34	\$21,280.52	\$18,720.59
97	\$21,280.52	\$70.94	\$853.17	\$20,427.35	\$18,791.52
98	\$20,427.35	\$68.09	\$856.01	\$19,571.34	\$18,859.61
99	\$19,571.34	\$65.24	\$858.87	\$18,712.47	\$18,924.85
100	\$18,712.47	\$62.37	\$861.73	\$17,850.74	\$18,987.23
101	\$17,850.74	\$59.50	\$864.60	\$16,986.14	\$19,046.73
102	\$16,986.14	\$56.62	\$867.48	\$16,118.65	\$19,103.35
103	\$16,118.65	\$53.73	\$870.38	\$15,248.28	\$19,157.08
104	\$15,248.28	\$50.83	\$873.28	\$14,375.00	\$19,207.90
105	\$14,375.00	\$47.92	\$876.19	\$13,498.81	\$19,255.82
106	\$13,498.81	\$45.00	\$879.11	\$12,619.70	\$19,300.82
107	\$12,619.70	\$42.07	\$882.04	\$11,737.66	\$19,342.88
108	\$11,737.66	\$39.13	\$884.98	\$10,852.68	\$19,382.01
109	\$10,852.68	\$36.18	\$887.93	\$9,964.75	\$19,418.18
110	\$9,964.75	\$33.22	\$890.89	\$9,073.86	\$19,451.40
111	\$9,073.86	\$30.25	\$893.86	\$8,180.01	\$19,481.65
112	\$8,180.01	\$27.27	\$896.84	\$7,283.17	\$19,508.91
113	\$7,283.17	\$24.28	\$899.83	\$6,383.34	\$19,533.19
114	\$6,383.34	\$21.28	\$902.83	\$5,480.51	\$19,554.47
115	\$5,480.51	\$18.27	\$905.84	\$4,574.68	\$19,572.74
116	\$4,574.68	\$15.25	\$908.86	\$3,665.82	\$19,587.99
117	\$3,665.82	\$12.22	\$911.89	\$2,753.93	\$19,600.20
118	\$2,753.93	\$9.18	\$914.93	\$1,839.01	\$19,609.38
119	\$1,839.01	\$6.13	\$917.97	\$921.03	\$19,615.51
120	\$921.03	\$3.07	\$921.03	\$0.00	\$19,618.58

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW2

Estimated Capital Cost: \$11,683,080
Number of Benefitting Properties: 128
Cost per Connection: \$91,274.06

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$675.14

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$91,274.00	4.00%	15	\$675.14		
Month	StartingBalance	Interest	Principal	EndingBalance	Total Interest
1	\$91,274.00	\$304.25	\$370.90	\$90,903.10	\$304.25
2	\$90,903.10	\$303.01	\$372.13	\$90,530.97	\$607.26
3	\$90,530.97	\$301.77	\$373.37	\$90,157.60	\$909.03
4	\$90,157.60	\$300.53	\$374.62	\$89,782.98	\$1,209.55
5	\$89,782.98	\$299.28	\$375.87	\$89,407.12	\$1,508.83
6	\$89,407.12	\$298.02	\$377.12	\$89,030.00	\$1,806.85
7	\$89,030.00	\$296.77	\$378.38	\$88,651.62	\$2,103.62
8	\$88,651.62	\$295.51	\$379.64	\$88,271.98	\$2,399.12
9	\$88,271.98	\$294.24	\$380.90	\$87,891.08	\$2,693.36
10	\$87,891.08	\$292.97	\$382.17	\$87,508.91	\$2,986.33
11	\$87,508.91	\$291.70	\$383.45	\$87,125.46	\$3,278.03
12	\$87,125.46	\$290.42	\$384.72	\$86,740.74	\$3,568.45
13	\$86,740.74	\$289.14	\$386.01	\$86,354.73	\$3,857.59
14	\$86,354.73	\$287.85	\$387.29	\$85,967.44	\$4,145.43
15	\$85,967.44	\$286.56	\$388.58	\$85,578.85	\$4,431.99
16	\$85,578.85	\$285.26	\$389.88	\$85,188.97	\$4,717.26
17	\$85,188.97	\$283.96	\$391.18	\$84,797.79	\$5,001.22
18	\$84,797.79	\$282.66	\$392.48	\$84,405.31	\$5,283.88
19	\$84,405.31	\$281.35	\$393.79	\$84,011.52	\$5,565.23
20	\$84,011.52	\$280.04	\$395.10	\$83,616.41	\$5,845.27
21	\$83,616.41	\$278.72	\$396.42	\$83,219.99	\$6,123.99
22	\$83,219.99	\$277.40	\$397.74	\$82,822.25	\$6,401.39
23	\$82,822.25	\$276.07	\$399.07	\$82,423.18	\$6,677.46
24	\$82,423.18	\$274.74	\$400.40	\$82,022.78	\$6,952.21
25	\$82,022.78	\$273.41	\$401.73	\$81,621.05	\$7,225.62
26	\$81,621.05	\$272.07	\$403.07	\$81,217.97	\$7,497.69
27	\$81,217.97	\$270.73	\$404.42	\$80,813.56	\$7,768.41
28	\$80,813.56	\$269.38	\$405.76	\$80,407.79	\$8,037.79
29	\$80,407.79	\$268.03	\$407.12	\$80,000.68	\$8,305.82
30	\$80,000.68	\$266.67	\$408.47	\$79,592.20	\$8,572.49
31	\$79,592.20	\$265.31	\$409.84	\$79,182.37	\$8,837.79
32	\$79,182.37	\$263.94	\$411.20	\$78,771.17	\$9,101.73
33	\$78,771.17	\$262.57	\$412.57	\$78,358.59	\$9,364.31
34	\$78,358.59	\$261.20	\$413.95	\$77,944.65	\$9,625.50
35	\$77,944.65	\$259.82	\$415.33	\$77,529.32	\$9,885.32
36	\$77,529.32	\$258.43	\$416.71	\$77,112.61	\$10,143.75
37	\$77,112.61	\$257.04	\$418.10	\$76,694.51	\$10,400.79
38	\$76,694.51	\$255.65	\$419.49	\$76,275.01	\$10,656.44
39	\$76,275.01	\$254.25	\$420.89	\$75,854.12	\$10,910.69
40	\$75,854.12	\$252.85	\$422.30	\$75,431.82	\$11,163.53
41	\$75,431.82	\$251.44	\$423.70	\$75,008.12	\$11,414.97
42	\$75,008.12	\$250.03	\$425.12	\$74,583.01	\$11,665.00
43	\$74,583.01	\$248.61	\$426.53	\$74,156.47	\$11,913.61
44	\$74,156.47	\$247.19	\$427.95	\$73,728.52	\$12,160.80
45	\$73,728.52	\$245.76	\$429.38	\$73,299.14	\$12,406.56
46	\$73,299.14	\$244.33	\$430.81	\$72,868.32	\$12,650.89
47	\$72,868.32	\$242.89	\$432.25	\$72,436.08	\$12,893.79
48	\$72,436.08	\$241.45	\$433.69	\$72,002.39	\$13,135.24
49	\$72,002.39	\$240.01	\$435.13	\$71,567.25	\$13,375.25
50	\$71,567.25	\$238.56	\$436.59	\$71,130.67	\$13,613.80
51	\$71,130.67	\$237.10	\$438.04	\$70,692.63	\$13,850.91
52	\$70,692.63	\$235.64	\$439.50	\$70,253.13	\$14,086.55
53	\$70,253.13	\$234.18	\$440.97	\$69,812.16	\$14,320.73
54	\$69,812.16	\$232.71	\$442.44	\$69,369.72	\$14,553.43
55	\$69,369.72	\$231.23	\$443.91	\$68,925.81	\$14,784.67
56	\$68,925.81	\$229.75	\$445.39	\$68,480.42	\$15,014.42
57	\$68,480.42	\$228.27	\$446.87	\$68,033.55	\$15,242.69
58	\$68,033.55	\$226.78	\$448.36	\$67,585.19	\$15,469.47
59	\$67,585.19	\$225.28	\$449.86	\$67,135.33	\$15,694.75
60	\$67,135.33	\$223.78	\$451.36	\$66,683.97	\$15,918.53
61	\$66,683.97	\$222.28	\$452.86	\$66,231.11	\$16,140.81

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW2

Estimated Capital Cost: \$11,683,080
Number of Benefitting Properties: 128
Cost per Connection: \$91,274.06

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$675.14

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$91,274.00	4.00%	15	\$675.14		
Month	StartingBalance	Interest	Principal	EndingBalance	Total Interest
62	\$66,231.11	\$220.77	\$454.37	\$65,776.73	\$16,361.58
63	\$65,776.73	\$219.26	\$455.89	\$65,320.85	\$16,580.84
64	\$65,320.85	\$217.74	\$457.41	\$64,863.44	\$16,798.58
65	\$64,863.44	\$216.21	\$458.93	\$64,404.51	\$17,014.79
66	\$64,404.51	\$214.68	\$460.46	\$63,944.05	\$17,229.47
67	\$63,944.05	\$213.15	\$462.00	\$63,482.05	\$17,442.62
68	\$63,482.05	\$211.61	\$463.54	\$63,018.52	\$17,654.22
69	\$63,018.52	\$210.06	\$465.08	\$62,553.43	\$17,864.28
70	\$62,553.43	\$208.51	\$466.63	\$62,086.80	\$18,072.80
71	\$62,086.80	\$206.96	\$468.19	\$61,618.62	\$18,279.75
72	\$61,618.62	\$205.40	\$469.75	\$61,148.87	\$18,485.15
73	\$61,148.87	\$203.83	\$471.31	\$60,677.56	\$18,688.98
74	\$60,677.56	\$202.26	\$472.88	\$60,204.67	\$18,891.24
75	\$60,204.67	\$200.68	\$474.46	\$59,730.21	\$19,091.92
76	\$59,730.21	\$199.10	\$476.04	\$59,254.17	\$19,291.02
77	\$59,254.17	\$197.51	\$477.63	\$58,776.54	\$19,488.53
78	\$58,776.54	\$195.92	\$479.22	\$58,297.32	\$19,684.45
79	\$58,297.32	\$194.32	\$480.82	\$57,816.50	\$19,878.78
80	\$57,816.50	\$192.72	\$482.42	\$57,334.08	\$20,071.50
81	\$57,334.08	\$191.11	\$484.03	\$56,850.05	\$20,262.61
82	\$56,850.05	\$189.50	\$485.64	\$56,364.41	\$20,452.11
83	\$56,364.41	\$187.88	\$487.26	\$55,877.15	\$20,640.00
84	\$55,877.15	\$186.26	\$488.89	\$55,388.26	\$20,826.25
85	\$55,388.26	\$184.63	\$490.52	\$54,897.75	\$21,010.88
86	\$54,897.75	\$182.99	\$492.15	\$54,405.60	\$21,193.87
87	\$54,405.60	\$181.35	\$493.79	\$53,911.80	\$21,375.22
88	\$53,911.80	\$179.71	\$495.44	\$53,416.37	\$21,554.93
89	\$53,416.37	\$178.05	\$497.09	\$52,919.28	\$21,732.98
90	\$52,919.28	\$176.40	\$498.75	\$52,420.53	\$21,909.38
91	\$52,420.53	\$174.74	\$500.41	\$51,920.13	\$22,084.12
92	\$51,920.13	\$173.07	\$502.08	\$51,418.05	\$22,257.18
93	\$51,418.05	\$171.39	\$503.75	\$50,914.30	\$22,428.58
94	\$50,914.30	\$169.71	\$505.43	\$50,408.87	\$22,598.29
95	\$50,408.87	\$168.03	\$507.11	\$49,901.76	\$22,766.32
96	\$49,901.76	\$166.34	\$508.80	\$49,392.96	\$22,932.66
97	\$49,392.96	\$164.64	\$510.50	\$48,882.46	\$23,097.30
98	\$48,882.46	\$162.94	\$512.20	\$48,370.26	\$23,260.25
99	\$48,370.26	\$161.23	\$513.91	\$47,856.35	\$23,421.48
100	\$47,856.35	\$159.52	\$515.62	\$47,340.73	\$23,581.00
101	\$47,340.73	\$157.80	\$517.34	\$46,823.39	\$23,738.80
102	\$46,823.39	\$156.08	\$519.06	\$46,304.32	\$23,894.88
103	\$46,304.32	\$154.35	\$520.80	\$45,783.53	\$24,049.23
104	\$45,783.53	\$152.61	\$522.53	\$45,260.99	\$24,201.84
105	\$45,260.99	\$150.87	\$524.27	\$44,736.72	\$24,352.71
106	\$44,736.72	\$149.12	\$526.02	\$44,210.70	\$24,501.83
107	\$44,210.70	\$147.37	\$527.77	\$43,682.93	\$24,649.20
108	\$43,682.93	\$145.61	\$529.53	\$43,153.39	\$24,794.81
109	\$43,153.39	\$143.84	\$531.30	\$42,622.10	\$24,938.66
110	\$42,622.10	\$142.07	\$533.07	\$42,089.03	\$25,080.73
111	\$42,089.03	\$140.30	\$534.85	\$41,554.18	\$25,221.03
112	\$41,554.18	\$138.51	\$536.63	\$41,017.55	\$25,359.54
113	\$41,017.55	\$136.73	\$538.42	\$40,479.13	\$25,496.27
114	\$40,479.13	\$134.93	\$540.21	\$39,938.92	\$25,631.20
115	\$39,938.92	\$133.13	\$542.01	\$39,396.91	\$25,764.33
116	\$39,396.91	\$131.32	\$543.82	\$38,853.09	\$25,895.65
117	\$38,853.09	\$129.51	\$545.63	\$38,307.46	\$26,025.16
118	\$38,307.46	\$127.69	\$547.45	\$37,760.01	\$26,152.85
119	\$37,760.01	\$125.87	\$549.28	\$37,210.73	\$26,278.72
120	\$37,210.73	\$124.04	\$551.11	\$36,659.62	\$26,402.75
121	\$36,659.62	\$122.20	\$552.94	\$36,106.68	\$26,524.95
122	\$36,106.68	\$120.36	\$554.79	\$35,551.89	\$26,645.31

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW2

Estimated Capital Cost: \$11,683,080
Number of Benefitting Properties: 128
Cost per Connection: \$91,274.06

Capital Cost Recovery Factor - A = 0.007396879
Monthly Cost -P = \$675.14

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$91,274.00	4.00%	15	\$675.14		
Month	StartingBalance	Interest	Principal	EndingBalance	Total Interest
123	\$35,551.89	\$118.51	\$556.64	\$34,995.26	\$26,763.81
124	\$34,995.26	\$116.65	\$558.49	\$34,436.76	\$26,880.47
125	\$34,436.76	\$114.79	\$560.35	\$33,876.41	\$26,995.25
126	\$33,876.41	\$112.92	\$562.22	\$33,314.19	\$27,108.18
127	\$33,314.19	\$111.05	\$564.10	\$32,750.09	\$27,219.22
128	\$32,750.09	\$109.17	\$565.98	\$32,184.12	\$27,328.39
129	\$32,184.12	\$107.28	\$567.86	\$31,616.26	\$27,435.67
130	\$31,616.26	\$105.39	\$569.76	\$31,046.50	\$27,541.06
131	\$31,046.50	\$103.49	\$571.65	\$30,474.85	\$27,644.55
132	\$30,474.85	\$101.58	\$573.56	\$29,901.29	\$27,746.13
133	\$29,901.29	\$99.67	\$575.47	\$29,325.81	\$27,845.80
134	\$29,325.81	\$97.75	\$577.39	\$28,748.42	\$27,943.55
135	\$28,748.42	\$95.83	\$579.31	\$28,169.11	\$28,039.38
136	\$28,169.11	\$93.90	\$581.25	\$27,587.86	\$28,133.28
137	\$27,587.86	\$91.96	\$583.18	\$27,004.68	\$28,225.24
138	\$27,004.68	\$90.02	\$585.13	\$26,419.55	\$28,315.25
139	\$26,419.55	\$88.07	\$587.08	\$25,832.48	\$28,403.32
140	\$25,832.48	\$86.11	\$589.03	\$25,243.44	\$28,489.43
141	\$25,243.44	\$84.14	\$591.00	\$24,652.44	\$28,573.57
142	\$24,652.44	\$82.17	\$592.97	\$24,059.47	\$28,655.75
143	\$24,059.47	\$80.20	\$594.94	\$23,464.53	\$28,735.94
144	\$23,464.53	\$78.22	\$596.93	\$22,867.60	\$28,814.16
145	\$22,867.60	\$76.23	\$598.92	\$22,268.69	\$28,890.39
146	\$22,268.69	\$74.23	\$600.91	\$21,667.77	\$28,964.61
147	\$21,667.77	\$72.23	\$602.92	\$21,064.85	\$29,036.84
148	\$21,064.85	\$70.22	\$604.93	\$20,459.93	\$29,107.06
149	\$20,459.93	\$68.20	\$606.94	\$19,852.98	\$29,175.26
150	\$19,852.98	\$66.18	\$608.97	\$19,244.02	\$29,241.43
151	\$19,244.02	\$64.15	\$611.00	\$18,633.02	\$29,305.58
152	\$18,633.02	\$62.11	\$613.03	\$18,019.99	\$29,367.69
153	\$18,019.99	\$60.07	\$615.08	\$17,404.91	\$29,427.76
154	\$17,404.91	\$58.02	\$617.13	\$16,787.79	\$29,485.77
155	\$16,787.79	\$55.96	\$619.18	\$16,168.60	\$29,541.73
156	\$16,168.60	\$53.90	\$621.25	\$15,547.36	\$29,595.63
157	\$15,547.36	\$51.82	\$623.32	\$14,924.04	\$29,647.45
158	\$14,924.04	\$49.75	\$625.40	\$14,298.64	\$29,697.20
159	\$14,298.64	\$47.66	\$627.48	\$13,671.16	\$29,744.86
160	\$13,671.16	\$45.57	\$629.57	\$13,041.59	\$29,790.43
161	\$13,041.59	\$43.47	\$631.67	\$12,409.92	\$29,833.90
162	\$12,409.92	\$41.37	\$633.78	\$11,776.14	\$29,875.27
163	\$11,776.14	\$39.25	\$635.89	\$11,140.25	\$29,914.52
164	\$11,140.25	\$37.13	\$638.01	\$10,502.25	\$29,951.66
165	\$10,502.25	\$35.01	\$640.14	\$9,862.11	\$29,986.66
166	\$9,862.11	\$32.87	\$642.27	\$9,219.84	\$30,019.54
167	\$9,219.84	\$30.73	\$644.41	\$8,575.43	\$30,050.27
168	\$8,575.43	\$28.58	\$646.56	\$7,928.87	\$30,078.86
169	\$7,928.87	\$26.43	\$648.71	\$7,280.16	\$30,105.29
170	\$7,280.16	\$24.27	\$650.88	\$6,629.28	\$30,129.55
171	\$6,629.28	\$22.10	\$653.05	\$5,976.24	\$30,151.65
172	\$5,976.24	\$19.92	\$655.22	\$5,321.02	\$30,171.57
173	\$5,321.02	\$17.74	\$657.41	\$4,663.61	\$30,189.31
174	\$4,663.61	\$15.55	\$659.60	\$4,004.01	\$30,204.85
175	\$4,004.01	\$13.35	\$661.80	\$3,342.22	\$30,218.20
176	\$3,342.22	\$11.14	\$664.00	\$2,678.22	\$30,229.34
177	\$2,678.22	\$8.93	\$666.22	\$2,012.00	\$30,238.27
178	\$2,012.00	\$6.71	\$668.44	\$1,343.56	\$30,244.97
179	\$1,343.56	\$4.48	\$670.66	\$672.90	\$30,249.45
180	\$672.90	\$2.24	\$672.90	\$0.00	\$30,251.70

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW2

Estimated Capital Cost: \$11,683,080
Number of Benefitting Properties: 128
Cost per Connection: \$91,274.06

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$553.10

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$91,274.00	4.00%	20	\$553.10		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
1	\$91,274.00	\$304.25	\$248.86	\$91,025.14	\$304.25
2	\$91,025.14	\$303.42	\$249.69	\$90,775.46	\$607.66
3	\$90,775.46	\$302.58	\$250.52	\$90,524.94	\$910.25
4	\$90,524.94	\$301.75	\$251.35	\$90,273.59	\$1,212.00
5	\$90,273.59	\$300.91	\$252.19	\$90,021.40	\$1,512.91
6	\$90,021.40	\$300.07	\$253.03	\$89,768.37	\$1,812.98
7	\$89,768.37	\$299.23	\$253.87	\$89,514.49	\$2,112.21
8	\$89,514.49	\$298.38	\$254.72	\$89,259.77	\$2,410.59
9	\$89,259.77	\$297.53	\$255.57	\$89,004.20	\$2,708.12
10	\$89,004.20	\$296.68	\$256.42	\$88,747.78	\$3,004.80
11	\$88,747.78	\$295.83	\$257.28	\$88,490.50	\$3,300.63
12	\$88,490.50	\$294.97	\$258.13	\$88,232.37	\$3,595.60
13	\$88,232.37	\$294.11	\$258.99	\$87,973.37	\$3,889.71
14	\$87,973.37	\$293.24	\$259.86	\$87,713.52	\$4,182.95
15	\$87,713.52	\$292.38	\$260.72	\$87,452.79	\$4,475.33
16	\$87,452.79	\$291.51	\$261.59	\$87,191.20	\$4,766.84
17	\$87,191.20	\$290.64	\$262.47	\$86,928.73	\$5,057.48
18	\$86,928.73	\$289.76	\$263.34	\$86,665.39	\$5,347.24
19	\$86,665.39	\$288.88	\$264.22	\$86,401.18	\$5,636.12
20	\$86,401.18	\$288.00	\$265.10	\$86,136.08	\$5,924.13
21	\$86,136.08	\$287.12	\$265.98	\$85,870.10	\$6,211.25
22	\$85,870.10	\$286.23	\$266.87	\$85,603.23	\$6,497.48
23	\$85,603.23	\$285.34	\$267.76	\$85,335.47	\$6,782.83
24	\$85,335.47	\$284.45	\$268.65	\$85,066.82	\$7,067.28
25	\$85,066.82	\$283.56	\$269.55	\$84,797.27	\$7,350.83
26	\$84,797.27	\$282.66	\$270.44	\$84,526.83	\$7,633.49
27	\$84,526.83	\$281.76	\$271.35	\$84,255.48	\$7,915.25
28	\$84,255.48	\$280.85	\$272.25	\$83,983.23	\$8,196.10
29	\$83,983.23	\$279.94	\$273.16	\$83,710.07	\$8,476.04
30	\$83,710.07	\$279.03	\$274.07	\$83,436.00	\$8,755.08
31	\$83,436.00	\$278.12	\$274.98	\$83,161.02	\$9,033.20
32	\$83,161.02	\$277.20	\$275.90	\$82,885.12	\$9,310.40
33	\$82,885.12	\$276.28	\$276.82	\$82,608.30	\$9,586.68
34	\$82,608.30	\$275.36	\$277.74	\$82,330.56	\$9,862.04
35	\$82,330.56	\$274.44	\$278.67	\$82,051.89	\$10,136.48
36	\$82,051.89	\$273.51	\$279.60	\$81,772.30	\$10,409.99
37	\$81,772.30	\$272.57	\$280.53	\$81,491.77	\$10,682.56
38	\$81,491.77	\$271.64	\$281.46	\$81,210.30	\$10,954.20
39	\$81,210.30	\$270.70	\$282.40	\$80,927.90	\$11,224.90
40	\$80,927.90	\$269.76	\$283.34	\$80,644.56	\$11,494.66
41	\$80,644.56	\$268.82	\$284.29	\$80,360.27	\$11,763.47
42	\$80,360.27	\$267.87	\$285.23	\$80,075.04	\$12,031.34
43	\$80,075.04	\$266.92	\$286.19	\$79,788.85	\$12,298.26
44	\$79,788.85	\$265.96	\$287.14	\$79,501.71	\$12,564.22
45	\$79,501.71	\$265.01	\$288.10	\$79,213.62	\$12,829.23
46	\$79,213.62	\$264.05	\$289.06	\$78,924.56	\$13,093.27
47	\$78,924.56	\$263.08	\$290.02	\$78,634.54	\$13,356.36
48	\$78,634.54	\$262.12	\$290.99	\$78,343.55	\$13,618.47
49	\$78,343.55	\$261.15	\$291.96	\$78,051.59	\$13,879.62
50	\$78,051.59	\$260.17	\$292.93	\$77,758.66	\$14,139.79
51	\$77,758.66	\$259.20	\$293.91	\$77,464.76	\$14,398.98
52	\$77,464.76	\$258.22	\$294.89	\$77,169.87	\$14,657.20
53	\$77,169.87	\$257.23	\$295.87	\$76,874.00	\$14,914.43
54	\$76,874.00	\$256.25	\$296.86	\$76,577.14	\$15,170.68
55	\$76,577.14	\$255.26	\$297.85	\$76,279.30	\$15,425.94
56	\$76,279.30	\$254.26	\$298.84	\$75,980.46	\$15,680.20
57	\$75,980.46	\$253.27	\$299.83	\$75,680.63	\$15,933.47
58	\$75,680.63	\$252.27	\$300.83	\$75,379.79	\$16,185.74
59	\$75,379.79	\$251.27	\$301.84	\$75,077.96	\$16,437.00
60	\$75,077.96	\$250.26	\$302.84	\$74,775.11	\$16,687.26
61	\$74,775.11	\$249.25	\$303.85	\$74,471.26	\$16,936.51

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW2

Estimated Capital Cost: \$11,683,080
Number of Benefitting Properties: 128
Cost per Connection: \$91,274.06

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$553.10

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$91,274.00	4.00%	20	\$553.10		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
62	\$74,471.26	\$248.24	\$304.86	\$74,166.40	\$17,184.75
63	\$74,166.40	\$247.22	\$305.88	\$73,860.52	\$17,431.97
64	\$73,860.52	\$246.20	\$306.90	\$73,553.61	\$17,678.17
65	\$73,553.61	\$245.18	\$307.92	\$73,245.69	\$17,923.35
66	\$73,245.69	\$244.15	\$308.95	\$72,936.74	\$18,167.50
67	\$72,936.74	\$243.12	\$309.98	\$72,626.76	\$18,410.63
68	\$72,626.76	\$242.09	\$311.01	\$72,315.75	\$18,652.72
69	\$72,315.75	\$241.05	\$312.05	\$72,003.70	\$18,893.77
70	\$72,003.70	\$240.01	\$313.09	\$71,690.61	\$19,133.78
71	\$71,690.61	\$238.97	\$314.13	\$71,376.47	\$19,372.75
72	\$71,376.47	\$237.92	\$315.18	\$71,061.29	\$19,610.67
73	\$71,061.29	\$236.87	\$316.23	\$70,745.06	\$19,847.54
74	\$70,745.06	\$235.82	\$317.29	\$70,427.78	\$20,083.36
75	\$70,427.78	\$234.76	\$318.34	\$70,109.43	\$20,318.12
76	\$70,109.43	\$233.70	\$319.40	\$69,790.03	\$20,551.82
77	\$69,790.03	\$232.63	\$320.47	\$69,469.56	\$20,784.45
78	\$69,469.56	\$231.57	\$321.54	\$69,148.02	\$21,016.02
79	\$69,148.02	\$230.49	\$322.61	\$68,825.41	\$21,246.51
80	\$68,825.41	\$229.42	\$323.68	\$68,501.73	\$21,475.93
81	\$68,501.73	\$228.34	\$324.76	\$68,176.96	\$21,704.27
82	\$68,176.96	\$227.26	\$325.85	\$67,851.12	\$21,931.52
83	\$67,851.12	\$226.17	\$326.93	\$67,524.19	\$22,157.69
84	\$67,524.19	\$225.08	\$328.02	\$67,196.16	\$22,382.77
85	\$67,196.16	\$223.99	\$329.12	\$66,867.05	\$22,606.76
86	\$66,867.05	\$222.89	\$330.21	\$66,536.84	\$22,829.65
87	\$66,536.84	\$221.79	\$331.31	\$66,205.52	\$23,051.44
88	\$66,205.52	\$220.69	\$332.42	\$65,873.11	\$23,272.13
89	\$65,873.11	\$219.58	\$333.53	\$65,539.58	\$23,491.70
90	\$65,539.58	\$218.47	\$334.64	\$65,204.94	\$23,710.17
91	\$65,204.94	\$217.35	\$335.75	\$64,869.19	\$23,927.52
92	\$64,869.19	\$216.23	\$336.87	\$64,532.32	\$24,143.75
93	\$64,532.32	\$215.11	\$337.99	\$64,194.32	\$24,358.86
94	\$64,194.32	\$213.98	\$339.12	\$63,855.20	\$24,572.84
95	\$63,855.20	\$212.85	\$340.25	\$63,514.95	\$24,785.69
96	\$63,514.95	\$211.72	\$341.39	\$63,173.57	\$24,997.40
97	\$63,173.57	\$210.58	\$342.52	\$62,831.04	\$25,207.98
98	\$62,831.04	\$209.44	\$343.67	\$62,487.38	\$25,417.42
99	\$62,487.38	\$208.29	\$344.81	\$62,142.56	\$25,625.71
100	\$62,142.56	\$207.14	\$345.96	\$61,796.60	\$25,832.85
101	\$61,796.60	\$205.99	\$347.11	\$61,449.49	\$26,038.84
102	\$61,449.49	\$204.83	\$348.27	\$61,101.22	\$26,243.67
103	\$61,101.22	\$203.67	\$349.43	\$60,751.79	\$26,447.34
104	\$60,751.79	\$202.51	\$350.60	\$60,401.19	\$26,649.85
105	\$60,401.19	\$201.34	\$351.77	\$60,049.43	\$26,851.19
106	\$60,049.43	\$200.16	\$352.94	\$59,696.49	\$27,051.35
107	\$59,696.49	\$198.99	\$354.11	\$59,342.37	\$27,250.34
108	\$59,342.37	\$197.81	\$355.29	\$58,987.08	\$27,448.15
109	\$58,987.08	\$196.62	\$356.48	\$58,630.60	\$27,644.77
110	\$58,630.60	\$195.44	\$357.67	\$58,272.93	\$27,840.21
111	\$58,272.93	\$194.24	\$358.86	\$57,914.07	\$28,034.45
112	\$57,914.07	\$193.05	\$360.06	\$57,554.02	\$28,227.50
113	\$57,554.02	\$191.85	\$361.26	\$57,192.76	\$28,419.34
114	\$57,192.76	\$190.64	\$362.46	\$56,830.30	\$28,609.99
115	\$56,830.30	\$189.43	\$363.67	\$56,466.63	\$28,799.42
116	\$56,466.63	\$188.22	\$364.88	\$56,101.75	\$28,987.64
117	\$56,101.75	\$187.01	\$366.10	\$55,735.66	\$29,174.65
118	\$55,735.66	\$185.79	\$367.32	\$55,368.34	\$29,360.43
119	\$55,368.34	\$184.56	\$368.54	\$54,999.80	\$29,544.99
120	\$54,999.80	\$183.33	\$369.77	\$54,630.03	\$29,728.33
121	\$54,630.03	\$182.10	\$371.00	\$54,259.03	\$29,910.43
122	\$54,259.03	\$180.86	\$372.24	\$53,886.79	\$30,091.29

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW2

Estimated Capital Cost: \$11,683,080
Number of Benefitting Properties: 128
Cost per Connection: \$91,274.06

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$553.10

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$91,274.00	4.00%	20	\$553.10		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
123	\$53,886.79	\$179.62	\$373.48	\$53,513.31	\$30,270.91
124	\$53,513.31	\$178.38	\$374.72	\$53,138.58	\$30,449.29
125	\$53,138.58	\$177.13	\$375.97	\$52,762.61	\$30,626.42
126	\$52,762.61	\$175.88	\$377.23	\$52,385.38	\$30,802.30
127	\$52,385.38	\$174.62	\$378.48	\$52,006.90	\$30,976.91
128	\$52,006.90	\$173.36	\$379.75	\$51,627.15	\$31,150.27
129	\$51,627.15	\$172.09	\$381.01	\$51,246.14	\$31,322.36
130	\$51,246.14	\$170.82	\$382.28	\$50,863.86	\$31,493.18
131	\$50,863.86	\$169.55	\$383.56	\$50,480.30	\$31,662.73
132	\$50,480.30	\$168.27	\$384.83	\$50,095.47	\$31,830.99
133	\$50,095.47	\$166.98	\$386.12	\$49,709.35	\$31,997.98
134	\$49,709.35	\$165.70	\$387.40	\$49,321.94	\$32,163.68
135	\$49,321.94	\$164.41	\$388.70	\$48,933.25	\$32,328.08
136	\$48,933.25	\$163.11	\$389.99	\$48,543.26	\$32,491.19
137	\$48,543.26	\$161.81	\$391.29	\$48,151.96	\$32,653.01
138	\$48,151.96	\$160.51	\$392.60	\$47,759.37	\$32,813.51
139	\$47,759.37	\$159.20	\$393.90	\$47,365.46	\$32,972.71
140	\$47,365.46	\$157.88	\$395.22	\$46,970.25	\$33,130.59
141	\$46,970.25	\$156.57	\$396.53	\$46,573.71	\$33,287.16
142	\$46,573.71	\$155.25	\$397.86	\$46,175.85	\$33,442.41
143	\$46,175.85	\$153.92	\$399.18	\$45,776.67	\$33,596.33
144	\$45,776.67	\$152.59	\$400.51	\$45,376.16	\$33,748.92
145	\$45,376.16	\$151.25	\$401.85	\$44,974.31	\$33,900.17
146	\$44,974.31	\$149.91	\$403.19	\$44,571.12	\$34,050.08
147	\$44,571.12	\$148.57	\$404.53	\$44,166.59	\$34,198.65
148	\$44,166.59	\$147.22	\$405.88	\$43,760.71	\$34,345.88
149	\$43,760.71	\$145.87	\$407.23	\$43,353.48	\$34,491.75
150	\$43,353.48	\$144.51	\$408.59	\$42,944.88	\$34,636.26
151	\$42,944.88	\$143.15	\$409.95	\$42,534.93	\$34,779.41
152	\$42,534.93	\$141.78	\$411.32	\$42,123.61	\$34,921.19
153	\$42,123.61	\$140.41	\$412.69	\$41,710.92	\$35,061.60
154	\$41,710.92	\$139.04	\$414.07	\$41,296.86	\$35,200.64
155	\$41,296.86	\$137.66	\$415.45	\$40,881.41	\$35,338.29
156	\$40,881.41	\$136.27	\$416.83	\$40,464.58	\$35,474.57
157	\$40,464.58	\$134.88	\$418.22	\$40,046.36	\$35,609.45
158	\$40,046.36	\$133.49	\$419.61	\$39,626.74	\$35,742.94
159	\$39,626.74	\$132.09	\$421.01	\$39,205.73	\$35,875.03
160	\$39,205.73	\$130.69	\$422.42	\$38,783.31	\$36,005.71
161	\$38,783.31	\$129.28	\$423.82	\$38,359.49	\$36,134.99
162	\$38,359.49	\$127.86	\$425.24	\$37,934.25	\$36,262.85
163	\$37,934.25	\$126.45	\$426.65	\$37,507.60	\$36,389.30
164	\$37,507.60	\$125.03	\$428.08	\$37,079.52	\$36,514.33
165	\$37,079.52	\$123.60	\$429.50	\$36,650.01	\$36,637.92
166	\$36,650.01	\$122.17	\$430.94	\$36,219.08	\$36,760.09
167	\$36,219.08	\$120.73	\$432.37	\$35,786.71	\$36,880.82
168	\$35,786.71	\$119.29	\$433.81	\$35,352.89	\$37,000.11
169	\$35,352.89	\$117.84	\$435.26	\$34,917.63	\$37,117.95
170	\$34,917.63	\$116.39	\$436.71	\$34,480.92	\$37,234.35
171	\$34,480.92	\$114.94	\$438.17	\$34,042.76	\$37,349.28
172	\$34,042.76	\$113.48	\$439.63	\$33,603.13	\$37,462.76
173	\$33,603.13	\$112.01	\$441.09	\$33,162.04	\$37,574.77
174	\$33,162.04	\$110.54	\$442.56	\$32,719.48	\$37,685.31
175	\$32,719.48	\$109.06	\$444.04	\$32,275.44	\$37,794.37
176	\$32,275.44	\$107.58	\$445.52	\$31,829.92	\$37,901.96
177	\$31,829.92	\$106.10	\$447.00	\$31,382.92	\$38,008.06
178	\$31,382.92	\$104.61	\$448.49	\$30,934.43	\$38,112.67
179	\$30,934.43	\$103.11	\$449.99	\$30,484.44	\$38,215.78
180	\$30,484.44	\$101.61	\$451.49	\$30,032.95	\$38,317.40
181	\$30,032.95	\$100.11	\$452.99	\$29,579.96	\$38,417.51
182	\$29,579.96	\$98.60	\$454.50	\$29,125.45	\$38,516.11
183	\$29,125.45	\$97.08	\$456.02	\$28,669.44	\$38,613.19

TOWNSHIP OF PUSLINCH
Wastewater Servicing - Option WW2

Estimated Capital Cost: \$11,683,080
Number of Benefitting Properties: 128
Cost per Connection: \$91,274.06

Capital Cost Recovery Factor - A = 0.006059803
Monthly Cost -P = \$553.10

Loan Amount	Interest Rate	Term in Years	Monthly Payment		
\$91,274.00	4.00%	20	\$553.10		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
184	\$28,669.44	\$95.56	\$457.54	\$28,211.90	\$38,708.76
185	\$28,211.90	\$94.04	\$459.06	\$27,752.84	\$38,802.80
186	\$27,752.84	\$92.51	\$460.59	\$27,292.24	\$38,895.31
187	\$27,292.24	\$90.97	\$462.13	\$26,830.12	\$38,986.28
188	\$26,830.12	\$89.43	\$463.67	\$26,366.45	\$39,075.71
189	\$26,366.45	\$87.89	\$465.21	\$25,901.23	\$39,163.60
190	\$25,901.23	\$86.34	\$466.77	\$25,434.47	\$39,249.94
191	\$25,434.47	\$84.78	\$468.32	\$24,966.15	\$39,334.72
192	\$24,966.15	\$83.22	\$469.88	\$24,496.26	\$39,417.94
193	\$24,496.26	\$81.65	\$471.45	\$24,024.82	\$39,499.60
194	\$24,024.82	\$80.08	\$473.02	\$23,551.80	\$39,579.68
195	\$23,551.80	\$78.51	\$474.60	\$23,077.20	\$39,658.18
196	\$23,077.20	\$76.92	\$476.18	\$22,601.02	\$39,735.11
197	\$22,601.02	\$75.34	\$477.77	\$22,123.26	\$39,810.45
198	\$22,123.26	\$73.74	\$479.36	\$21,643.90	\$39,884.19
199	\$21,643.90	\$72.15	\$480.96	\$21,162.94	\$39,956.34
200	\$21,162.94	\$70.54	\$482.56	\$20,680.38	\$40,026.88
201	\$20,680.38	\$68.93	\$484.17	\$20,196.21	\$40,095.81
202	\$20,196.21	\$67.32	\$485.78	\$19,710.43	\$40,163.13
203	\$19,710.43	\$65.70	\$487.40	\$19,223.03	\$40,228.84
204	\$19,223.03	\$64.08	\$489.03	\$18,734.01	\$40,292.91
205	\$18,734.01	\$62.45	\$490.66	\$18,243.35	\$40,355.36
206	\$18,243.35	\$60.81	\$492.29	\$17,751.06	\$40,416.17
207	\$17,751.06	\$59.17	\$493.93	\$17,257.13	\$40,475.34
208	\$17,257.13	\$57.52	\$495.58	\$16,761.55	\$40,532.86
209	\$16,761.55	\$55.87	\$497.23	\$16,264.32	\$40,588.74
210	\$16,264.32	\$54.21	\$498.89	\$15,765.43	\$40,642.95
211	\$15,765.43	\$52.55	\$500.55	\$15,264.88	\$40,695.50
212	\$15,264.88	\$50.88	\$502.22	\$14,762.66	\$40,746.38
213	\$14,762.66	\$49.21	\$503.89	\$14,258.76	\$40,795.59
214	\$14,258.76	\$47.53	\$505.57	\$13,753.19	\$40,843.12
215	\$13,753.19	\$45.84	\$507.26	\$13,245.93	\$40,888.97
216	\$13,245.93	\$44.15	\$508.95	\$12,736.98	\$40,933.12
217	\$12,736.98	\$42.46	\$510.65	\$12,226.34	\$40,975.58
218	\$12,226.34	\$40.75	\$512.35	\$11,713.99	\$41,016.33
219	\$11,713.99	\$39.05	\$514.06	\$11,199.93	\$41,055.38
220	\$11,199.93	\$37.33	\$515.77	\$10,684.16	\$41,092.71
221	\$10,684.16	\$35.61	\$517.49	\$10,166.68	\$41,128.32
222	\$10,166.68	\$33.89	\$519.21	\$9,647.46	\$41,162.21
223	\$9,647.46	\$32.16	\$520.94	\$9,126.52	\$41,194.37
224	\$9,126.52	\$30.42	\$522.68	\$8,603.84	\$41,224.79
225	\$8,603.84	\$28.68	\$524.42	\$8,079.41	\$41,253.47
226	\$8,079.41	\$26.93	\$526.17	\$7,553.24	\$41,280.40
227	\$7,553.24	\$25.18	\$527.93	\$7,025.32	\$41,305.58
228	\$7,025.32	\$23.42	\$529.68	\$6,495.63	\$41,329.00
229	\$6,495.63	\$21.65	\$531.45	\$5,964.18	\$41,350.65
230	\$5,964.18	\$19.88	\$533.22	\$5,430.96	\$41,370.53
231	\$5,430.96	\$18.10	\$535.00	\$4,895.96	\$41,388.64
232	\$4,895.96	\$16.32	\$536.78	\$4,359.18	\$41,404.96
233	\$4,359.18	\$14.53	\$538.57	\$3,820.61	\$41,419.49
234	\$3,820.61	\$12.74	\$540.37	\$3,280.24	\$41,432.22
235	\$3,280.24	\$10.93	\$542.17	\$2,738.07	\$41,443.16
236	\$2,738.07	\$9.13	\$543.98	\$2,194.10	\$41,452.28
237	\$2,194.10	\$7.31	\$545.79	\$1,648.31	\$41,459.60
238	\$1,648.31	\$5.49	\$547.61	\$1,100.70	\$41,465.09
239	\$1,100.70	\$3.67	\$549.43	\$551.26	\$41,468.76
240	\$551.26	\$1.84	\$551.26	\$0.00	\$41,470.60

				D (Discount Factor) = 98.77017486	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$604.72	
\$59,728.00	4.00%	10	\$604.72		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
1	\$59,728.00	\$199.09	\$405.62	\$59,322.38	\$199.09
2	\$59,322.38	\$197.74	\$406.98	\$58,915.40	\$396.83
3	\$58,915.40	\$196.38	\$408.33	\$58,507.07	\$593.22
4	\$58,507.07	\$195.02	\$409.69	\$58,097.37	\$788.24
5	\$58,097.37	\$193.66	\$411.06	\$57,686.32	\$981.90
6	\$57,686.32	\$192.29	\$412.43	\$57,273.89	\$1,174.19
7	\$57,273.89	\$190.91	\$413.80	\$56,860.08	\$1,365.10
8	\$56,860.08	\$189.53	\$415.18	\$56,444.90	\$1,554.64
9	\$56,444.90	\$188.15	\$416.57	\$56,028.33	\$1,742.78
10	\$56,028.33	\$186.76	\$417.96	\$55,610.38	\$1,929.55
11	\$55,610.38	\$185.37	\$419.35	\$55,191.03	\$2,114.91
12	\$55,191.03	\$183.97	\$420.75	\$54,770.28	\$2,298.88
13	\$54,770.28	\$182.57	\$422.15	\$54,348.13	\$2,481.45
14	\$54,348.13	\$181.16	\$423.56	\$53,924.57	\$2,662.61
15	\$53,924.57	\$179.75	\$424.97	\$53,499.61	\$2,842.36
16	\$53,499.61	\$178.33	\$426.38	\$53,073.22	\$3,020.69
17	\$53,073.22	\$176.91	\$427.81	\$52,645.41	\$3,197.60
18	\$52,645.41	\$175.48	\$429.23	\$52,216.18	\$3,373.09
19	\$52,216.18	\$174.05	\$430.66	\$51,785.52	\$3,547.14
20	\$51,785.52	\$172.62	\$432.10	\$51,353.42	\$3,719.76
21	\$51,353.42	\$171.18	\$433.54	\$50,919.88	\$3,890.94
22	\$50,919.88	\$169.73	\$434.98	\$50,484.90	\$4,060.67
23	\$50,484.90	\$168.28	\$436.43	\$50,048.46	\$4,228.95
24	\$50,048.46	\$166.83	\$437.89	\$49,610.58	\$4,395.78
25	\$49,610.58	\$165.37	\$439.35	\$49,171.23	\$4,561.15
26	\$49,171.23	\$163.90	\$440.81	\$48,730.41	\$4,725.06
27	\$48,730.41	\$162.43	\$442.28	\$48,288.13	\$4,887.49
28	\$48,288.13	\$160.96	\$443.76	\$47,844.38	\$5,048.45
29	\$47,844.38	\$159.48	\$445.24	\$47,399.14	\$5,207.93
30	\$47,399.14	\$158.00	\$446.72	\$46,952.42	\$5,365.93
31	\$46,952.42	\$156.51	\$448.21	\$46,504.21	\$5,522.44
32	\$46,504.21	\$155.01	\$449.70	\$46,054.51	\$5,677.45
33	\$46,054.51	\$153.52	\$451.20	\$45,603.31	\$5,830.97
34	\$45,603.31	\$152.01	\$452.71	\$45,150.60	\$5,982.98
35	\$45,150.60	\$150.50	\$454.21	\$44,696.39	\$6,133.48
36	\$44,696.39	\$148.99	\$455.73	\$44,240.66	\$6,282.47
37	\$44,240.66	\$147.47	\$457.25	\$43,783.41	\$6,429.94
38	\$43,783.41	\$145.94	\$458.77	\$43,324.64	\$6,575.88
39	\$43,324.64	\$144.42	\$460.30	\$42,864.33	\$6,720.30
40	\$42,864.33	\$142.88	\$461.84	\$42,402.50	\$6,863.18
41	\$42,402.50	\$141.34	\$463.38	\$41,939.12	\$7,004.52
42	\$41,939.12	\$139.80	\$464.92	\$41,474.20	\$7,144.32
43	\$41,474.20	\$138.25	\$466.47	\$41,007.73	\$7,282.56
44	\$41,007.73	\$136.69	\$468.02	\$40,539.71	\$7,419.26
45	\$40,539.71	\$135.13	\$469.58	\$40,070.12	\$7,554.39
46	\$40,070.12	\$133.57	\$471.15	\$39,598.97	\$7,687.95
47	\$39,598.97	\$132.00	\$472.72	\$39,126.25	\$7,819.95
48	\$39,126.25	\$130.42	\$474.30	\$38,651.96	\$7,950.37
49	\$38,651.96	\$128.84	\$475.88	\$38,176.08	\$8,079.21
50	\$38,176.08	\$127.25	\$477.46	\$37,698.62	\$8,206.47
51	\$37,698.62	\$125.66	\$479.05	\$37,219.56	\$8,332.13
52	\$37,219.56	\$124.07	\$480.65	\$36,738.91	\$8,456.19
53	\$36,738.91	\$122.46	\$482.25	\$36,256.66	\$8,578.66
54	\$36,256.66	\$120.86	\$483.86	\$35,772.80	\$8,699.51
55	\$35,772.80	\$119.24	\$485.47	\$35,287.32	\$8,818.75
56	\$35,287.32	\$117.62	\$487.09	\$34,800.23	\$8,936.38
57	\$34,800.23	\$116.00	\$488.72	\$34,311.51	\$9,052.38
58	\$34,311.51	\$114.37	\$490.35	\$33,821.17	\$9,166.75
59	\$33,821.17	\$112.74	\$491.98	\$33,329.19	\$9,279.49
60	\$33,329.19	\$111.10	\$493.62	\$32,835.57	\$9,390.59
61	\$32,835.57	\$109.45	\$495.27	\$32,340.30	\$9,500.04
62	\$32,340.30	\$107.80	\$496.92	\$31,843.39	\$9,607.84
63	\$31,843.39	\$106.14	\$498.57	\$31,344.81	\$9,713.98
64	\$31,344.81	\$104.48	\$500.23	\$30,844.58	\$9,818.47
65	\$30,844.58	\$102.82	\$501.90	\$30,342.68	\$9,921.28
66	\$30,342.68	\$101.14	\$503.57	\$29,839.10	\$10,022.42
67	\$29,839.10	\$99.46	\$505.25	\$29,333.85	\$10,121.89
68	\$29,333.85	\$97.78	\$506.94	\$28,826.91	\$10,219.67
69	\$28,826.91	\$96.09	\$508.63	\$28,318.29	\$10,315.76

Loan Amount	Interest Rate	Term in Years	Monthly Payment	D (Discount Factor) =	98.77017486
\$59,728.00	4.00%	10	\$604.72	P = A/D	\$604.72

Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
70	\$28,318.29	\$94.39	\$510.32	\$27,807.96	\$10,410.15
71	\$27,807.96	\$92.69	\$512.02	\$27,295.94	\$10,502.84
72	\$27,295.94	\$90.99	\$513.73	\$26,782.21	\$10,593.83
73	\$26,782.21	\$89.27	\$515.44	\$26,266.77	\$10,683.10
74	\$26,266.77	\$87.56	\$517.16	\$25,749.61	\$10,770.66
75	\$25,749.61	\$85.83	\$518.88	\$25,230.72	\$10,856.49
76	\$25,230.72	\$84.10	\$520.61	\$24,710.11	\$10,940.59
77	\$24,710.11	\$82.37	\$522.35	\$24,187.76	\$11,022.96
78	\$24,187.76	\$80.63	\$524.09	\$23,663.66	\$11,103.59
79	\$23,663.66	\$78.88	\$525.84	\$23,137.83	\$11,182.47
80	\$23,137.83	\$77.13	\$527.59	\$22,610.24	\$11,259.59
81	\$22,610.24	\$75.37	\$529.35	\$22,080.89	\$11,334.96
82	\$22,080.89	\$73.60	\$531.11	\$21,549.77	\$11,408.56
83	\$21,549.77	\$71.83	\$532.88	\$21,016.89	\$11,480.40
84	\$21,016.89	\$70.06	\$534.66	\$20,482.23	\$11,550.45
85	\$20,482.23	\$68.27	\$536.44	\$19,945.78	\$11,618.73
86	\$19,945.78	\$66.49	\$538.23	\$19,407.55	\$11,685.21
87	\$19,407.55	\$64.69	\$540.03	\$18,867.53	\$11,749.90
88	\$18,867.53	\$62.89	\$541.83	\$18,325.70	\$11,812.80
89	\$18,325.70	\$61.09	\$543.63	\$17,782.07	\$11,873.88
90	\$17,782.07	\$59.27	\$545.44	\$17,236.63	\$11,933.15
91	\$17,236.63	\$57.46	\$547.26	\$16,689.37	\$11,990.61
92	\$16,689.37	\$55.63	\$549.09	\$16,140.28	\$12,046.24
93	\$16,140.28	\$53.80	\$550.92	\$15,589.36	\$12,100.04
94	\$15,589.36	\$51.96	\$552.75	\$15,036.61	\$12,152.01
95	\$15,036.61	\$50.12	\$554.59	\$14,482.02	\$12,202.13
96	\$14,482.02	\$48.27	\$556.44	\$13,925.57	\$12,250.40
97	\$13,925.57	\$46.42	\$558.30	\$13,367.28	\$12,296.82
98	\$13,367.28	\$44.56	\$560.16	\$12,807.12	\$12,341.38
99	\$12,807.12	\$42.69	\$562.03	\$12,245.09	\$12,384.07
100	\$12,245.09	\$40.82	\$563.90	\$11,681.19	\$12,424.89
101	\$11,681.19	\$38.94	\$565.78	\$11,115.41	\$12,463.82
102	\$11,115.41	\$37.05	\$567.67	\$10,547.74	\$12,500.87
103	\$10,547.74	\$35.16	\$569.56	\$9,978.19	\$12,536.03
104	\$9,978.19	\$33.26	\$571.46	\$9,406.73	\$12,569.29
105	\$9,406.73	\$31.36	\$573.36	\$8,833.37	\$12,600.65
106	\$8,833.37	\$29.44	\$575.27	\$8,258.10	\$12,630.09
107	\$8,258.10	\$27.53	\$577.19	\$7,680.91	\$12,657.62
108	\$7,680.91	\$25.60	\$579.11	\$7,101.79	\$12,683.22
109	\$7,101.79	\$23.67	\$581.04	\$6,520.75	\$12,706.90
110	\$6,520.75	\$21.74	\$582.98	\$5,937.77	\$12,728.63
111	\$5,937.77	\$19.79	\$584.92	\$5,352.84	\$12,748.43
112	\$5,352.84	\$17.84	\$586.87	\$4,765.97	\$12,766.27
113	\$4,765.97	\$15.89	\$588.83	\$4,177.14	\$12,782.15
114	\$4,177.14	\$13.92	\$590.79	\$3,586.35	\$12,796.08
115	\$3,586.35	\$11.95	\$592.76	\$2,993.58	\$12,808.03
116	\$2,993.58	\$9.98	\$594.74	\$2,398.84	\$12,818.01
117	\$2,398.84	\$8.00	\$596.72	\$1,802.12	\$12,826.01
118	\$1,802.12	\$6.01	\$598.71	\$1,203.41	\$12,832.01
119	\$1,203.41	\$4.01	\$600.71	\$602.71	\$12,836.03
120	\$602.71	\$2.01	\$602.71	\$0.00	\$12,838.04

				D (Discount Factor) = 135.1921487	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D	
\$59,728.00	4.00%	15	\$441.80	\$441.80	
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
1	\$59,728.00	\$199.09	\$242.71	\$59,485.29	\$199.09
2	\$59,485.29	\$198.28	\$243.52	\$59,241.78	\$397.38
3	\$59,241.78	\$197.47	\$244.33	\$58,997.45	\$594.85
4	\$58,997.45	\$196.66	\$245.14	\$58,752.31	\$791.51
5	\$58,752.31	\$195.84	\$245.96	\$58,506.35	\$987.35
6	\$58,506.35	\$195.02	\$246.78	\$58,259.57	\$1,182.37
7	\$58,259.57	\$194.20	\$247.60	\$58,011.96	\$1,376.57
8	\$58,011.96	\$193.37	\$248.43	\$57,763.54	\$1,569.94
9	\$57,763.54	\$192.55	\$249.26	\$57,514.28	\$1,762.49
10	\$57,514.28	\$191.71	\$250.09	\$57,264.19	\$1,954.20
11	\$57,264.19	\$190.88	\$250.92	\$57,013.27	\$2,145.08
12	\$57,013.27	\$190.04	\$251.76	\$56,761.52	\$2,335.13
13	\$56,761.52	\$189.21	\$252.60	\$56,508.92	\$2,524.33
14	\$56,508.92	\$188.36	\$253.44	\$56,255.48	\$2,712.69
15	\$56,255.48	\$187.52	\$254.28	\$56,001.20	\$2,900.21
16	\$56,001.20	\$186.67	\$255.13	\$55,746.07	\$3,086.88
17	\$55,746.07	\$185.82	\$255.98	\$55,490.09	\$3,272.70
18	\$55,490.09	\$184.97	\$256.83	\$55,233.26	\$3,457.67
19	\$55,233.26	\$184.11	\$257.69	\$54,975.57	\$3,641.78
20	\$54,975.57	\$183.25	\$258.55	\$54,717.02	\$3,825.03
21	\$54,717.02	\$182.39	\$259.41	\$54,457.61	\$4,007.42
22	\$54,457.61	\$181.53	\$260.28	\$54,197.33	\$4,188.95
23	\$54,197.33	\$180.66	\$261.14	\$53,936.19	\$4,369.61
24	\$53,936.19	\$179.79	\$262.01	\$53,674.17	\$4,549.39
25	\$53,674.17	\$178.91	\$262.89	\$53,411.29	\$4,728.31
26	\$53,411.29	\$178.04	\$263.76	\$53,147.52	\$4,906.35
27	\$53,147.52	\$177.16	\$264.64	\$52,882.88	\$5,083.50
28	\$52,882.88	\$176.28	\$265.52	\$52,617.36	\$5,259.78
29	\$52,617.36	\$175.39	\$266.41	\$52,350.95	\$5,435.17
30	\$52,350.95	\$174.50	\$267.30	\$52,083.65	\$5,609.67
31	\$52,083.65	\$173.61	\$268.19	\$51,815.46	\$5,783.29
32	\$51,815.46	\$172.72	\$269.08	\$51,546.38	\$5,956.01
33	\$51,546.38	\$171.82	\$269.98	\$51,276.40	\$6,127.83
34	\$51,276.40	\$170.92	\$270.88	\$51,005.52	\$6,298.75
35	\$51,005.52	\$170.02	\$271.78	\$50,733.74	\$6,468.77
36	\$50,733.74	\$169.11	\$272.69	\$50,461.05	\$6,637.88
37	\$50,461.05	\$168.20	\$273.60	\$50,187.45	\$6,806.08
38	\$50,187.45	\$167.29	\$274.51	\$49,912.94	\$6,973.37
39	\$49,912.94	\$166.38	\$275.42	\$49,637.52	\$7,139.75
40	\$49,637.52	\$165.46	\$276.34	\$49,361.18	\$7,305.21
41	\$49,361.18	\$164.54	\$277.26	\$49,083.91	\$7,469.75
42	\$49,083.91	\$163.61	\$278.19	\$48,805.72	\$7,633.36
43	\$48,805.72	\$162.69	\$279.12	\$48,526.61	\$7,796.04
44	\$48,526.61	\$161.76	\$280.05	\$48,246.56	\$7,957.80
45	\$48,246.56	\$160.82	\$280.98	\$47,965.59	\$8,118.62
46	\$47,965.59	\$159.89	\$281.92	\$47,683.67	\$8,278.51
47	\$47,683.67	\$158.95	\$282.86	\$47,400.81	\$8,437.45
48	\$47,400.81	\$158.00	\$283.80	\$47,117.02	\$8,595.46
49	\$47,117.02	\$157.06	\$284.74	\$46,832.27	\$8,752.51
50	\$46,832.27	\$156.11	\$285.69	\$46,546.58	\$8,908.62
51	\$46,546.58	\$155.16	\$286.65	\$46,259.93	\$9,063.77
52	\$46,259.93	\$154.20	\$287.60	\$45,972.33	\$9,217.97
53	\$45,972.33	\$153.24	\$288.56	\$45,683.77	\$9,371.22
54	\$45,683.77	\$152.28	\$289.52	\$45,394.25	\$9,523.49
55	\$45,394.25	\$151.31	\$290.49	\$45,103.76	\$9,674.81
56	\$45,103.76	\$150.35	\$291.45	\$44,812.31	\$9,825.16
57	\$44,812.31	\$149.37	\$292.43	\$44,519.88	\$9,974.53
58	\$44,519.88	\$148.40	\$293.40	\$44,226.48	\$10,122.93
59	\$44,226.48	\$147.42	\$294.38	\$43,932.10	\$10,270.35
60	\$43,932.10	\$146.44	\$295.36	\$43,636.74	\$10,416.79
61	\$43,636.74	\$145.46	\$296.34	\$43,340.40	\$10,562.25
62	\$43,340.40	\$144.47	\$297.33	\$43,043.06	\$10,706.71
63	\$43,043.06	\$143.48	\$298.32	\$42,744.74	\$10,850.19
64	\$42,744.74	\$142.48	\$299.32	\$42,445.42	\$10,992.67
65	\$42,445.42	\$141.48	\$300.32	\$42,145.11	\$11,134.16
66	\$42,145.11	\$140.48	\$301.32	\$41,843.79	\$11,274.64
67	\$41,843.79	\$139.48	\$302.32	\$41,541.47	\$11,414.12
68	\$41,541.47	\$138.47	\$303.33	\$41,238.14	\$11,552.59
69	\$41,238.14	\$137.46	\$304.34	\$40,933.80	\$11,690.05

				D (Discount Factor) =	135.1921487
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D	\$441.80
\$59,728.00	4.00%	15	\$441.80		

Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
70	\$40,933.80	\$136.45	\$305.35	\$40,628.44	\$11,826.50
71	\$40,628.44	\$135.43	\$306.37	\$40,322.07	\$11,961.93
72	\$40,322.07	\$134.41	\$307.39	\$40,014.68	\$12,096.33
73	\$40,014.68	\$133.38	\$308.42	\$39,706.26	\$12,229.72
74	\$39,706.26	\$132.35	\$309.45	\$39,396.81	\$12,362.07
75	\$39,396.81	\$131.32	\$310.48	\$39,086.33	\$12,493.39
76	\$39,086.33	\$130.29	\$311.51	\$38,774.82	\$12,623.68
77	\$38,774.82	\$129.25	\$312.55	\$38,462.27	\$12,752.93
78	\$38,462.27	\$128.21	\$313.59	\$38,148.68	\$12,881.14
79	\$38,148.68	\$127.16	\$314.64	\$37,834.04	\$13,008.30
80	\$37,834.04	\$126.11	\$315.69	\$37,518.35	\$13,134.41
81	\$37,518.35	\$125.06	\$316.74	\$37,201.61	\$13,259.48
82	\$37,201.61	\$124.01	\$317.80	\$36,883.82	\$13,383.48
83	\$36,883.82	\$122.95	\$318.85	\$36,564.96	\$13,506.43
84	\$36,564.96	\$121.88	\$319.92	\$36,245.04	\$13,628.31
85	\$36,245.04	\$120.82	\$320.98	\$35,924.06	\$13,749.13
86	\$35,924.06	\$119.75	\$322.05	\$35,602.00	\$13,868.87
87	\$35,602.00	\$118.67	\$323.13	\$35,278.88	\$13,987.55
88	\$35,278.88	\$117.60	\$324.20	\$34,954.67	\$14,105.14
89	\$34,954.67	\$116.52	\$325.29	\$34,629.39	\$14,221.66
90	\$34,629.39	\$115.43	\$326.37	\$34,303.02	\$14,337.09
91	\$34,303.02	\$114.34	\$327.46	\$33,975.56	\$14,451.43
92	\$33,975.56	\$113.25	\$328.55	\$33,647.01	\$14,564.69
93	\$33,647.01	\$112.16	\$329.64	\$33,317.37	\$14,676.84
94	\$33,317.37	\$111.06	\$330.74	\$32,986.62	\$14,787.90
95	\$32,986.62	\$109.96	\$331.85	\$32,654.78	\$14,897.86
96	\$32,654.78	\$108.85	\$332.95	\$32,321.83	\$15,006.70
97	\$32,321.83	\$107.74	\$334.06	\$31,987.77	\$15,114.44
98	\$31,987.77	\$106.63	\$335.17	\$31,652.59	\$15,221.07
99	\$31,652.59	\$105.51	\$336.29	\$31,316.30	\$15,326.58
100	\$31,316.30	\$104.39	\$337.41	\$30,978.89	\$15,430.97
101	\$30,978.89	\$103.26	\$338.54	\$30,640.35	\$15,534.23
102	\$30,640.35	\$102.13	\$339.67	\$30,300.68	\$15,636.36
103	\$30,300.68	\$101.00	\$340.80	\$29,959.88	\$15,737.37
104	\$29,959.88	\$99.87	\$341.93	\$29,617.95	\$15,837.23
105	\$29,617.95	\$98.73	\$343.07	\$29,274.87	\$15,935.96
106	\$29,274.87	\$97.58	\$344.22	\$28,930.66	\$16,033.54
107	\$28,930.66	\$96.44	\$345.37	\$28,585.29	\$16,129.98
108	\$28,585.29	\$95.28	\$346.52	\$28,238.77	\$16,225.26
109	\$28,238.77	\$94.13	\$347.67	\$27,891.10	\$16,319.39
110	\$27,891.10	\$92.97	\$348.83	\$27,542.27	\$16,412.36
111	\$27,542.27	\$91.81	\$349.99	\$27,192.28	\$16,504.17
112	\$27,192.28	\$90.64	\$351.16	\$26,841.12	\$16,594.81
113	\$26,841.12	\$89.47	\$352.33	\$26,488.79	\$16,684.28
114	\$26,488.79	\$88.30	\$353.50	\$26,135.28	\$16,772.58
115	\$26,135.28	\$87.12	\$354.68	\$25,780.60	\$16,859.69
116	\$25,780.60	\$85.94	\$355.87	\$25,424.74	\$16,945.63
117	\$25,424.74	\$84.75	\$357.05	\$25,067.68	\$17,030.38
118	\$25,067.68	\$83.56	\$358.24	\$24,709.44	\$17,113.94
119	\$24,709.44	\$82.36	\$359.44	\$24,350.01	\$17,196.30
120	\$24,350.01	\$81.17	\$360.63	\$23,989.37	\$17,277.47
121	\$23,989.37	\$79.96	\$361.84	\$23,627.54	\$17,357.43
122	\$23,627.54	\$78.76	\$363.04	\$23,264.49	\$17,436.19
123	\$23,264.49	\$77.55	\$364.25	\$22,900.24	\$17,513.74
124	\$22,900.24	\$76.33	\$365.47	\$22,534.77	\$17,590.07
125	\$22,534.77	\$75.12	\$366.68	\$22,168.09	\$17,665.19
126	\$22,168.09	\$73.89	\$367.91	\$21,800.18	\$17,739.08
127	\$21,800.18	\$72.67	\$369.13	\$21,431.05	\$17,811.75
128	\$21,431.05	\$71.44	\$370.36	\$21,060.69	\$17,883.19
129	\$21,060.69	\$70.20	\$371.60	\$20,689.09	\$17,953.39
130	\$20,689.09	\$68.96	\$372.84	\$20,316.25	\$18,022.35
131	\$20,316.25	\$67.72	\$374.08	\$19,942.17	\$18,090.07
132	\$19,942.17	\$66.47	\$375.33	\$19,566.84	\$18,156.55
133	\$19,566.84	\$65.22	\$376.58	\$19,190.26	\$18,221.77
134	\$19,190.26	\$63.97	\$377.83	\$18,812.43	\$18,285.74
135	\$18,812.43	\$62.71	\$379.09	\$18,433.34	\$18,348.45
136	\$18,433.34	\$61.44	\$380.36	\$18,052.98	\$18,409.89
137	\$18,052.98	\$60.18	\$381.62	\$17,671.36	\$18,470.07
138	\$17,671.36	\$58.90	\$382.90	\$17,288.46	\$18,528.97
139	\$17,288.46	\$57.63	\$384.17	\$16,904.29	\$18,586.60
140	\$16,904.29	\$56.35	\$385.45	\$16,518.84	\$18,642.95
141	\$16,518.84	\$55.06	\$386.74	\$16,132.10	\$18,698.01
142	\$16,132.10	\$53.77	\$388.03	\$15,744.07	\$18,751.78
143	\$15,744.07	\$52.48	\$389.32	\$15,354.75	\$18,804.27

				D (Discount Factor) = 135.1921487	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$441.80	
\$59,728.00	4.00%	15	\$441.80		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
144	\$15,354.75	\$51.18	\$390.62	\$14,964.13	\$18,855.45
145	\$14,964.13	\$49.88	\$391.92	\$14,572.21	\$18,905.33
146	\$14,572.21	\$48.57	\$393.23	\$14,178.98	\$18,953.90
147	\$14,178.98	\$47.26	\$394.54	\$13,784.45	\$19,001.17
148	\$13,784.45	\$45.95	\$395.85	\$13,388.59	\$19,047.11
149	\$13,388.59	\$44.63	\$397.17	\$12,991.42	\$19,091.74
150	\$12,991.42	\$43.30	\$398.50	\$12,592.93	\$19,135.05
151	\$12,592.93	\$41.98	\$399.82	\$12,193.10	\$19,177.02
152	\$12,193.10	\$40.64	\$401.16	\$11,791.94	\$19,217.67
153	\$11,791.94	\$39.31	\$402.49	\$11,389.45	\$19,256.97
154	\$11,389.45	\$37.96	\$403.84	\$10,985.61	\$19,294.94
155	\$10,985.61	\$36.62	\$405.18	\$10,580.43	\$19,331.56
156	\$10,580.43	\$35.27	\$406.53	\$10,173.90	\$19,366.83
157	\$10,173.90	\$33.91	\$407.89	\$9,766.01	\$19,400.74
158	\$9,766.01	\$32.55	\$409.25	\$9,356.76	\$19,433.29
159	\$9,356.76	\$31.19	\$410.61	\$8,946.15	\$19,464.48
160	\$8,946.15	\$29.82	\$411.98	\$8,534.17	\$19,494.30
161	\$8,534.17	\$28.45	\$413.35	\$8,120.82	\$19,522.75
162	\$8,120.82	\$27.07	\$414.73	\$7,706.09	\$19,549.82
163	\$7,706.09	\$25.69	\$416.11	\$7,289.97	\$19,575.50
164	\$7,289.97	\$24.30	\$417.50	\$6,872.47	\$19,599.80
165	\$6,872.47	\$22.91	\$418.89	\$6,453.58	\$19,622.71
166	\$6,453.58	\$21.51	\$420.29	\$6,033.29	\$19,644.22
167	\$6,033.29	\$20.11	\$421.69	\$5,611.60	\$19,664.34
168	\$5,611.60	\$18.71	\$423.10	\$5,188.51	\$19,683.04
169	\$5,188.51	\$17.30	\$424.51	\$4,764.00	\$19,700.34
170	\$4,764.00	\$15.88	\$425.92	\$4,338.08	\$19,716.22
171	\$4,338.08	\$14.46	\$427.34	\$3,910.74	\$19,730.68
172	\$3,910.74	\$13.04	\$428.77	\$3,481.97	\$19,743.71
173	\$3,481.97	\$11.61	\$430.19	\$3,051.78	\$19,755.32
174	\$3,051.78	\$10.17	\$431.63	\$2,620.15	\$19,765.49
175	\$2,620.15	\$8.73	\$433.07	\$2,187.08	\$19,774.23
176	\$2,187.08	\$7.29	\$434.51	\$1,752.57	\$19,781.52
177	\$1,752.57	\$5.84	\$435.96	\$1,316.62	\$19,787.36
178	\$1,316.62	\$4.39	\$437.41	\$879.20	\$19,791.75
179	\$879.20	\$2.93	\$438.87	\$440.33	\$19,794.68
180	\$440.33	\$1.47	\$440.33	\$0.00	\$19,796.14

				D (Discount Factor) =		165.0218582
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D		\$361.94
\$59,728.00	4.00%	20	\$361.94			
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest	
1	\$59,728.00	\$199.09	\$162.85	\$59,565.15	\$199.09	
2	\$59,565.15	\$198.55	\$163.39	\$59,401.76	\$397.64	
3	\$59,401.76	\$198.01	\$163.93	\$59,237.83	\$595.65	
4	\$59,237.83	\$197.46	\$164.48	\$59,073.35	\$793.11	
5	\$59,073.35	\$196.91	\$165.03	\$58,908.32	\$990.02	
6	\$58,908.32	\$196.36	\$165.58	\$58,742.74	\$1,186.38	
7	\$58,742.74	\$195.81	\$166.13	\$58,576.61	\$1,382.19	
8	\$58,576.61	\$195.26	\$166.68	\$58,409.93	\$1,577.45	
9	\$58,409.93	\$194.70	\$167.24	\$58,242.69	\$1,772.15	
10	\$58,242.69	\$194.14	\$167.80	\$58,074.89	\$1,966.29	
11	\$58,074.89	\$193.58	\$168.36	\$57,906.53	\$2,159.87	
12	\$57,906.53	\$193.02	\$168.92	\$57,737.61	\$2,352.89	
13	\$57,737.61	\$192.46	\$169.48	\$57,568.13	\$2,545.35	
14	\$57,568.13	\$191.89	\$170.05	\$57,398.09	\$2,737.25	
15	\$57,398.09	\$191.33	\$170.61	\$57,227.47	\$2,928.57	
16	\$57,227.47	\$190.76	\$171.18	\$57,056.29	\$3,119.33	
17	\$57,056.29	\$190.19	\$171.75	\$56,884.54	\$3,309.52	
18	\$56,884.54	\$189.62	\$172.32	\$56,712.21	\$3,499.13	
19	\$56,712.21	\$189.04	\$172.90	\$56,539.32	\$3,688.17	
20	\$56,539.32	\$188.46	\$173.48	\$56,365.84	\$3,876.64	
21	\$56,365.84	\$187.89	\$174.05	\$56,191.79	\$4,064.52	
22	\$56,191.79	\$187.31	\$174.63	\$56,017.15	\$4,251.83	
23	\$56,017.15	\$186.72	\$175.22	\$55,841.94	\$4,438.55	
24	\$55,841.94	\$186.14	\$175.80	\$55,666.14	\$4,624.69	
25	\$55,666.14	\$185.55	\$176.39	\$55,489.75	\$4,810.25	
26	\$55,489.75	\$184.97	\$176.97	\$55,312.78	\$4,995.21	
27	\$55,312.78	\$184.38	\$177.56	\$55,135.21	\$5,179.59	
28	\$55,135.21	\$183.78	\$178.16	\$54,957.06	\$5,363.37	
29	\$54,957.06	\$183.19	\$178.75	\$54,778.31	\$5,546.56	
30	\$54,778.31	\$182.59	\$179.35	\$54,598.96	\$5,729.16	
31	\$54,598.96	\$182.00	\$179.94	\$54,419.02	\$5,911.15	
32	\$54,419.02	\$181.40	\$180.54	\$54,238.47	\$6,092.55	
33	\$54,238.47	\$180.79	\$181.15	\$54,057.33	\$6,273.35	
34	\$54,057.33	\$180.19	\$181.75	\$53,875.58	\$6,453.54	
35	\$53,875.58	\$179.59	\$182.35	\$53,693.22	\$6,633.12	
36	\$53,693.22	\$178.98	\$182.96	\$53,510.26	\$6,812.10	
37	\$53,510.26	\$178.37	\$183.57	\$53,326.69	\$6,990.47	
38	\$53,326.69	\$177.76	\$184.18	\$53,142.51	\$7,168.22	
39	\$53,142.51	\$177.14	\$184.80	\$52,957.71	\$7,345.36	
40	\$52,957.71	\$176.53	\$185.41	\$52,772.29	\$7,521.89	
41	\$52,772.29	\$175.91	\$186.03	\$52,586.26	\$7,697.80	
42	\$52,586.26	\$175.29	\$186.65	\$52,399.61	\$7,873.09	
43	\$52,399.61	\$174.67	\$187.27	\$52,212.33	\$8,047.75	
44	\$52,212.33	\$174.04	\$187.90	\$52,024.44	\$8,221.79	
45	\$52,024.44	\$173.41	\$188.53	\$51,835.91	\$8,395.21	
46	\$51,835.91	\$172.79	\$189.15	\$51,646.76	\$8,567.99	
47	\$51,646.76	\$172.16	\$189.78	\$51,456.97	\$8,740.15	
48	\$51,456.97	\$171.52	\$190.42	\$51,266.56	\$8,911.67	
49	\$51,266.56	\$170.89	\$191.05	\$51,075.50	\$9,082.56	
50	\$51,075.50	\$170.25	\$191.69	\$50,883.82	\$9,252.81	
51	\$50,883.82	\$169.61	\$192.33	\$50,691.49	\$9,422.43	
52	\$50,691.49	\$168.97	\$192.97	\$50,498.52	\$9,591.40	
53	\$50,498.52	\$168.33	\$193.61	\$50,304.91	\$9,759.73	
54	\$50,304.91	\$167.68	\$194.26	\$50,110.65	\$9,927.41	
55	\$50,110.65	\$167.04	\$194.90	\$49,915.75	\$10,094.44	
56	\$49,915.75	\$166.39	\$195.55	\$49,720.19	\$10,260.83	
57	\$49,720.19	\$165.73	\$196.21	\$49,523.99	\$10,426.56	
58	\$49,523.99	\$165.08	\$196.86	\$49,327.13	\$10,591.64	
59	\$49,327.13	\$164.42	\$197.52	\$49,129.61	\$10,756.07	
60	\$49,129.61	\$163.77	\$198.17	\$48,931.44	\$10,919.83	
61	\$48,931.44	\$163.10	\$198.84	\$48,732.60	\$11,082.94	
62	\$48,732.60	\$162.44	\$199.50	\$48,533.10	\$11,245.38	
63	\$48,533.10	\$161.78	\$200.16	\$48,332.94	\$11,407.16	
64	\$48,332.94	\$161.11	\$200.83	\$48,132.11	\$11,568.27	
65	\$48,132.11	\$160.44	\$201.50	\$47,930.61	\$11,728.71	
66	\$47,930.61	\$159.77	\$202.17	\$47,728.44	\$11,888.48	
67	\$47,728.44	\$159.09	\$202.85	\$47,525.59	\$12,047.57	
68	\$47,525.59	\$158.42	\$203.52	\$47,322.07	\$12,205.99	
69	\$47,322.07	\$157.74	\$204.20	\$47,117.87	\$12,363.73	

				D (Discount Factor) = 165.0218582	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$361.94	
\$59,728.00	4.00%	20	\$361.94		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
70	\$47,117.87	\$157.06	\$204.88	\$46,912.99	\$12,520.79
71	\$46,912.99	\$156.38	\$205.56	\$46,707.43	\$12,677.17
72	\$46,707.43	\$155.69	\$206.25	\$46,501.18	\$12,832.86
73	\$46,501.18	\$155.00	\$206.94	\$46,294.25	\$12,987.86
74	\$46,294.25	\$154.31	\$207.63	\$46,086.62	\$13,142.17
75	\$46,086.62	\$153.62	\$208.32	\$45,878.30	\$13,295.80
76	\$45,878.30	\$152.93	\$209.01	\$45,669.29	\$13,448.72
77	\$45,669.29	\$152.23	\$209.71	\$45,459.58	\$13,600.96
78	\$45,459.58	\$151.53	\$210.41	\$45,249.17	\$13,752.49
79	\$45,249.17	\$150.83	\$211.11	\$45,038.06	\$13,903.32
80	\$45,038.06	\$150.13	\$211.81	\$44,826.25	\$14,053.45
81	\$44,826.25	\$149.42	\$212.52	\$44,613.73	\$14,202.87
82	\$44,613.73	\$148.71	\$213.23	\$44,400.50	\$14,351.58
83	\$44,400.50	\$148.00	\$213.94	\$44,186.57	\$14,499.58
84	\$44,186.57	\$147.29	\$214.65	\$43,971.91	\$14,646.87
85	\$43,971.91	\$146.57	\$215.37	\$43,756.55	\$14,793.44
86	\$43,756.55	\$145.86	\$216.08	\$43,540.46	\$14,939.30
87	\$43,540.46	\$145.13	\$216.81	\$43,323.66	\$15,084.43
88	\$43,323.66	\$144.41	\$217.53	\$43,106.13	\$15,228.84
89	\$43,106.13	\$143.69	\$218.25	\$42,887.88	\$15,372.53
90	\$42,887.88	\$142.96	\$218.98	\$42,668.90	\$15,515.49
91	\$42,668.90	\$142.23	\$219.71	\$42,449.19	\$15,657.72
92	\$42,449.19	\$141.50	\$220.44	\$42,228.74	\$15,799.22
93	\$42,228.74	\$140.76	\$221.18	\$42,007.57	\$15,939.98
94	\$42,007.57	\$140.03	\$221.91	\$41,785.65	\$16,080.01
95	\$41,785.65	\$139.29	\$222.65	\$41,563.00	\$16,219.29
96	\$41,563.00	\$138.54	\$223.40	\$41,339.60	\$16,357.83
97	\$41,339.60	\$137.80	\$224.14	\$41,115.46	\$16,495.63
98	\$41,115.46	\$137.05	\$224.89	\$40,890.57	\$16,632.68
99	\$40,890.57	\$136.30	\$225.64	\$40,664.93	\$16,768.99
100	\$40,664.93	\$135.55	\$226.39	\$40,438.54	\$16,904.54
101	\$40,438.54	\$134.80	\$227.14	\$40,211.40	\$17,039.33
102	\$40,211.40	\$134.04	\$227.90	\$39,983.50	\$17,173.37
103	\$39,983.50	\$133.28	\$228.66	\$39,754.83	\$17,306.65
104	\$39,754.83	\$132.52	\$229.42	\$39,525.41	\$17,439.16
105	\$39,525.41	\$131.75	\$230.19	\$39,295.22	\$17,570.91
106	\$39,295.22	\$130.98	\$230.96	\$39,064.27	\$17,701.90
107	\$39,064.27	\$130.21	\$231.73	\$38,832.54	\$17,832.11
108	\$38,832.54	\$129.44	\$232.50	\$38,600.04	\$17,961.55
109	\$38,600.04	\$128.67	\$233.27	\$38,366.77	\$18,090.22
110	\$38,366.77	\$127.89	\$234.05	\$38,132.72	\$18,218.11
111	\$38,132.72	\$127.11	\$234.83	\$37,897.89	\$18,345.22
112	\$37,897.89	\$126.33	\$235.61	\$37,662.27	\$18,471.55
113	\$37,662.27	\$125.54	\$236.40	\$37,425.88	\$18,597.09
114	\$37,425.88	\$124.75	\$237.19	\$37,188.69	\$18,721.84
115	\$37,188.69	\$123.96	\$237.98	\$36,950.71	\$18,845.80
116	\$36,950.71	\$123.17	\$238.77	\$36,711.94	\$18,968.97
117	\$36,711.94	\$122.37	\$239.57	\$36,472.37	\$19,091.34
118	\$36,472.37	\$121.57	\$240.37	\$36,232.01	\$19,212.92
119	\$36,232.01	\$120.77	\$241.17	\$35,990.84	\$19,333.69
120	\$35,990.84	\$119.97	\$241.97	\$35,748.87	\$19,453.66
121	\$35,748.87	\$119.16	\$242.78	\$35,506.09	\$19,572.82
122	\$35,506.09	\$118.35	\$243.59	\$35,262.51	\$19,691.18
123	\$35,262.51	\$117.54	\$244.40	\$35,018.11	\$19,808.72
124	\$35,018.11	\$116.73	\$245.21	\$34,772.90	\$19,925.45
125	\$34,772.90	\$115.91	\$246.03	\$34,526.87	\$20,041.36
126	\$34,526.87	\$115.09	\$246.85	\$34,280.02	\$20,156.45
127	\$34,280.02	\$114.27	\$247.67	\$34,032.34	\$20,270.71
128	\$34,032.34	\$113.44	\$248.50	\$33,783.84	\$20,384.15
129	\$33,783.84	\$112.61	\$249.33	\$33,534.52	\$20,496.77
130	\$33,534.52	\$111.78	\$250.16	\$33,284.36	\$20,608.55
131	\$33,284.36	\$110.95	\$250.99	\$33,033.37	\$20,719.50
132	\$33,033.37	\$110.11	\$251.83	\$32,781.54	\$20,829.61
133	\$32,781.54	\$109.27	\$252.67	\$32,528.87	\$20,938.88
134	\$32,528.87	\$108.43	\$253.51	\$32,275.36	\$21,047.31
135	\$32,275.36	\$107.58	\$254.36	\$32,021.00	\$21,154.89
136	\$32,021.00	\$106.74	\$255.20	\$31,765.80	\$21,261.63
137	\$31,765.80	\$105.89	\$256.05	\$31,509.75	\$21,367.52
138	\$31,509.75	\$105.03	\$256.91	\$31,252.84	\$21,472.55
139	\$31,252.84	\$104.18	\$257.76	\$30,995.07	\$21,576.73
140	\$30,995.07	\$103.32	\$258.62	\$30,736.45	\$21,680.04
141	\$30,736.45	\$102.45	\$259.49	\$30,476.97	\$21,782.50
142	\$30,476.97	\$101.59	\$260.35	\$30,216.62	\$21,884.09
143	\$30,216.62	\$100.72	\$261.22	\$29,955.40	\$21,984.81

				D (Discount Factor) = P = A/D		165.0218582 \$361.94
Loan Amount	Interest Rate	Term in Years	Monthly Payment			
\$59,728.00	4.00%	20	\$361.94			
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest	
144	\$29,955.40	\$99.85	\$262.09	\$29,693.31	\$22,084.66	
145	\$29,693.31	\$98.98	\$262.96	\$29,430.35	\$22,183.64	
146	\$29,430.35	\$98.10	\$263.84	\$29,166.51	\$22,281.74	
147	\$29,166.51	\$97.22	\$264.72	\$28,901.79	\$22,378.96	
148	\$28,901.79	\$96.34	\$265.60	\$28,636.19	\$22,475.30	
149	\$28,636.19	\$95.45	\$266.49	\$28,369.70	\$22,570.75	
150	\$28,369.70	\$94.57	\$267.37	\$28,102.33	\$22,665.32	
151	\$28,102.33	\$93.67	\$268.27	\$27,834.06	\$22,758.99	
152	\$27,834.06	\$92.78	\$269.16	\$27,564.90	\$22,851.77	
153	\$27,564.90	\$91.88	\$270.06	\$27,294.85	\$22,943.66	
154	\$27,294.85	\$90.98	\$270.96	\$27,023.89	\$23,034.64	
155	\$27,023.89	\$90.08	\$271.86	\$26,752.03	\$23,124.72	
156	\$26,752.03	\$89.17	\$272.77	\$26,479.26	\$23,213.89	
157	\$26,479.26	\$88.26	\$273.68	\$26,205.59	\$23,302.16	
158	\$26,205.59	\$87.35	\$274.59	\$25,931.00	\$23,389.51	
159	\$25,931.00	\$86.44	\$275.50	\$25,655.50	\$23,475.95	
160	\$25,655.50	\$85.52	\$276.42	\$25,379.08	\$23,561.46	
161	\$25,379.08	\$84.60	\$277.34	\$25,101.73	\$23,646.06	
162	\$25,101.73	\$83.67	\$278.27	\$24,823.46	\$23,729.73	
163	\$24,823.46	\$82.74	\$279.20	\$24,544.27	\$23,812.48	
164	\$24,544.27	\$81.81	\$280.13	\$24,264.14	\$23,894.29	
165	\$24,264.14	\$80.88	\$281.06	\$23,983.08	\$23,975.17	
166	\$23,983.08	\$79.94	\$282.00	\$23,701.09	\$24,055.12	
167	\$23,701.09	\$79.00	\$282.94	\$23,418.15	\$24,134.12	
168	\$23,418.15	\$78.06	\$283.88	\$23,134.27	\$24,212.18	
169	\$23,134.27	\$77.11	\$284.83	\$22,849.45	\$24,289.30	
170	\$22,849.45	\$76.16	\$285.78	\$22,563.67	\$24,365.46	
171	\$22,563.67	\$75.21	\$286.73	\$22,276.94	\$24,440.67	
172	\$22,276.94	\$74.26	\$287.68	\$21,989.26	\$24,514.93	
173	\$21,989.26	\$73.30	\$288.64	\$21,700.62	\$24,588.23	
174	\$21,700.62	\$72.34	\$289.60	\$21,411.01	\$24,660.56	
175	\$21,411.01	\$71.37	\$290.57	\$21,120.44	\$24,731.93	
176	\$21,120.44	\$70.40	\$291.54	\$20,828.91	\$24,802.33	
177	\$20,828.91	\$69.43	\$292.51	\$20,536.40	\$24,871.76	
178	\$20,536.40	\$68.45	\$293.49	\$20,242.91	\$24,940.22	
179	\$20,242.91	\$67.48	\$294.46	\$19,948.45	\$25,007.69	
180	\$19,948.45	\$66.49	\$295.45	\$19,653.00	\$25,074.19	
181	\$19,653.00	\$65.51	\$296.43	\$19,356.57	\$25,139.70	
182	\$19,356.57	\$64.52	\$297.42	\$19,059.15	\$25,204.22	
183	\$19,059.15	\$63.53	\$298.41	\$18,760.74	\$25,267.75	
184	\$18,760.74	\$62.54	\$299.40	\$18,461.34	\$25,330.29	
185	\$18,461.34	\$61.54	\$300.40	\$18,160.94	\$25,391.82	
186	\$18,160.94	\$60.54	\$301.40	\$17,859.53	\$25,452.36	
187	\$17,859.53	\$59.53	\$302.41	\$17,557.13	\$25,511.89	
188	\$17,557.13	\$58.52	\$303.42	\$17,253.71	\$25,570.42	
189	\$17,253.71	\$57.51	\$304.43	\$16,949.28	\$25,627.93	
190	\$16,949.28	\$56.50	\$305.44	\$16,643.84	\$25,684.43	
191	\$16,643.84	\$55.48	\$306.46	\$16,337.38	\$25,739.91	
192	\$16,337.38	\$54.46	\$307.48	\$16,029.90	\$25,794.36	
193	\$16,029.90	\$53.43	\$308.51	\$15,721.39	\$25,847.80	
194	\$15,721.39	\$52.40	\$309.54	\$15,411.86	\$25,900.20	
195	\$15,411.86	\$51.37	\$310.57	\$15,101.29	\$25,951.57	
196	\$15,101.29	\$50.34	\$311.60	\$14,789.69	\$26,001.91	
197	\$14,789.69	\$49.30	\$312.64	\$14,477.04	\$26,051.21	
198	\$14,477.04	\$48.26	\$313.68	\$14,163.36	\$26,099.47	
199	\$14,163.36	\$47.21	\$314.73	\$13,848.63	\$26,146.68	
200	\$13,848.63	\$46.16	\$315.78	\$13,532.86	\$26,192.84	
201	\$13,532.86	\$45.11	\$316.83	\$13,216.02	\$26,237.95	
202	\$13,216.02	\$44.05	\$317.89	\$12,898.14	\$26,282.00	
203	\$12,898.14	\$42.99	\$318.95	\$12,579.19	\$26,325.00	
204	\$12,579.19	\$41.93	\$320.01	\$12,259.18	\$26,366.93	
205	\$12,259.18	\$40.86	\$321.08	\$11,938.11	\$26,407.79	
206	\$11,938.11	\$39.79	\$322.15	\$11,615.96	\$26,447.59	
207	\$11,615.96	\$38.72	\$323.22	\$11,292.74	\$26,486.31	
208	\$11,292.74	\$37.64	\$324.30	\$10,968.44	\$26,523.95	
209	\$10,968.44	\$36.56	\$325.38	\$10,643.06	\$26,560.51	
210	\$10,643.06	\$35.48	\$326.46	\$10,316.60	\$26,595.99	
211	\$10,316.60	\$34.39	\$327.55	\$9,989.05	\$26,630.38	
212	\$9,989.05	\$33.30	\$328.64	\$9,660.41	\$26,663.67	
213	\$9,660.41	\$32.20	\$329.74	\$9,330.67	\$26,695.87	
214	\$9,330.67	\$31.10	\$330.84	\$8,999.83	\$26,726.98	
215	\$8,999.83	\$30.00	\$331.94	\$8,667.89	\$26,756.98	
216	\$8,667.89	\$28.89	\$333.05	\$8,334.84	\$26,785.87	
217	\$8,334.84	\$27.78	\$334.16	\$8,000.69	\$26,813.65	

				D (Discount Factor) = 165.0218582	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D	
\$59,728.00	4.00%	20	\$361.94	\$361.94	
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
218	\$8,000.69	\$26.67	\$335.27	\$7,665.42	\$26,840.32
219	\$7,665.42	\$25.55	\$336.39	\$7,329.03	\$26,865.87
220	\$7,329.03	\$24.43	\$337.51	\$6,991.52	\$26,890.30
221	\$6,991.52	\$23.31	\$338.63	\$6,652.88	\$26,913.61
222	\$6,652.88	\$22.18	\$339.76	\$6,313.12	\$26,935.78
223	\$6,313.12	\$21.04	\$340.90	\$5,972.22	\$26,956.83
224	\$5,972.22	\$19.91	\$342.03	\$5,630.19	\$26,976.73
225	\$5,630.19	\$18.77	\$343.17	\$5,287.02	\$26,995.50
226	\$5,287.02	\$17.62	\$344.32	\$4,942.70	\$27,013.13
227	\$4,942.70	\$16.48	\$345.46	\$4,597.24	\$27,029.60
228	\$4,597.24	\$15.32	\$346.62	\$4,250.62	\$27,044.92
229	\$4,250.62	\$14.17	\$347.77	\$3,902.85	\$27,059.09
230	\$3,902.85	\$13.01	\$348.93	\$3,553.92	\$27,072.10
231	\$3,553.92	\$11.85	\$350.09	\$3,203.83	\$27,083.95
232	\$3,203.83	\$10.68	\$351.26	\$2,852.56	\$27,094.63
233	\$2,852.56	\$9.51	\$352.43	\$2,500.13	\$27,104.14
234	\$2,500.13	\$8.33	\$353.61	\$2,146.53	\$27,112.47
235	\$2,146.53	\$7.16	\$354.78	\$1,791.74	\$27,119.63
236	\$1,791.74	\$5.97	\$355.97	\$1,435.78	\$27,125.60
237	\$1,435.78	\$4.79	\$357.15	\$1,078.62	\$27,130.38
238	\$1,078.62	\$3.60	\$358.34	\$720.28	\$27,133.98
239	\$720.28	\$2.40	\$359.54	\$360.74	\$27,136.38
240	\$360.74	\$1.20	\$360.74	\$0.00	\$27,137.58

Loan Amount	Interest Rate	Term in Years	Monthly Payment	D (Discount Factor) =	98.77017486
\$52,023.00	4.00%	10	\$526.71	P = A/D	\$526.71

Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
1	\$52,023.00	\$173.41	\$353.30	\$51,669.70	\$173.41
2	\$51,669.70	\$172.23	\$354.48	\$51,315.23	\$345.64
3	\$51,315.23	\$171.05	\$355.66	\$50,959.57	\$516.69
4	\$50,959.57	\$169.87	\$356.84	\$50,602.73	\$686.56
5	\$50,602.73	\$168.68	\$358.03	\$50,244.70	\$855.23
6	\$50,244.70	\$167.48	\$359.23	\$49,885.47	\$1,022.72
7	\$49,885.47	\$166.28	\$360.42	\$49,525.05	\$1,189.00
8	\$49,525.05	\$165.08	\$361.62	\$49,163.42	\$1,354.08
9	\$49,163.42	\$163.88	\$362.83	\$48,800.59	\$1,517.96
10	\$48,800.59	\$162.67	\$364.04	\$48,436.56	\$1,680.63
11	\$48,436.56	\$161.46	\$365.25	\$48,071.30	\$1,842.09
12	\$48,071.30	\$160.24	\$366.47	\$47,704.83	\$2,002.32
13	\$47,704.83	\$159.02	\$367.69	\$47,337.14	\$2,161.34
14	\$47,337.14	\$157.79	\$368.92	\$46,968.22	\$2,319.13
15	\$46,968.22	\$156.56	\$370.15	\$46,598.08	\$2,475.69
16	\$46,598.08	\$155.33	\$371.38	\$46,226.70	\$2,631.02
17	\$46,226.70	\$154.09	\$372.62	\$45,854.08	\$2,785.11
18	\$45,854.08	\$152.85	\$373.86	\$45,480.22	\$2,937.95
19	\$45,480.22	\$151.60	\$375.11	\$45,105.11	\$3,089.56
20	\$45,105.11	\$150.35	\$376.36	\$44,728.75	\$3,239.91
21	\$44,728.75	\$149.10	\$377.61	\$44,351.14	\$3,389.00
22	\$44,351.14	\$147.84	\$378.87	\$43,972.27	\$3,536.84
23	\$43,972.27	\$146.57	\$380.13	\$43,592.14	\$3,683.41
24	\$43,592.14	\$145.31	\$381.40	\$43,210.74	\$3,828.72
25	\$43,210.74	\$144.04	\$382.67	\$42,828.07	\$3,972.76
26	\$42,828.07	\$142.76	\$383.95	\$42,444.12	\$4,115.52
27	\$42,444.12	\$141.48	\$385.23	\$42,058.89	\$4,257.00
28	\$42,058.89	\$140.20	\$386.51	\$41,672.38	\$4,397.19
29	\$41,672.38	\$138.91	\$387.80	\$41,284.58	\$4,536.10
30	\$41,284.58	\$137.62	\$389.09	\$40,895.49	\$4,673.72
31	\$40,895.49	\$136.32	\$390.39	\$40,505.10	\$4,810.03
32	\$40,505.10	\$135.02	\$391.69	\$40,113.41	\$4,945.05
33	\$40,113.41	\$133.71	\$393.00	\$39,720.41	\$5,078.76
34	\$39,720.41	\$132.40	\$394.31	\$39,326.11	\$5,211.16
35	\$39,326.11	\$131.09	\$395.62	\$38,930.49	\$5,342.25
36	\$38,930.49	\$129.77	\$396.94	\$38,533.55	\$5,472.02
37	\$38,533.55	\$128.45	\$398.26	\$38,135.28	\$5,600.46
38	\$38,135.28	\$127.12	\$399.59	\$37,735.69	\$5,727.58
39	\$37,735.69	\$125.79	\$400.92	\$37,334.77	\$5,853.37
40	\$37,334.77	\$124.45	\$402.26	\$36,932.51	\$5,977.82
41	\$36,932.51	\$123.11	\$403.60	\$36,528.91	\$6,100.93
42	\$36,528.91	\$121.76	\$404.94	\$36,123.97	\$6,222.69
43	\$36,123.97	\$120.41	\$406.29	\$35,717.68	\$6,343.10
44	\$35,717.68	\$119.06	\$407.65	\$35,310.03	\$6,462.16
45	\$35,310.03	\$117.70	\$409.01	\$34,901.02	\$6,579.86
46	\$34,901.02	\$116.34	\$410.37	\$34,490.65	\$6,696.20
47	\$34,490.65	\$114.97	\$411.74	\$34,078.91	\$6,811.17
48	\$34,078.91	\$113.60	\$413.11	\$33,665.80	\$6,924.76
49	\$33,665.80	\$112.22	\$414.49	\$33,251.31	\$7,036.98
50	\$33,251.31	\$110.84	\$415.87	\$32,835.44	\$7,147.82
51	\$32,835.44	\$109.45	\$417.26	\$32,418.18	\$7,257.27
52	\$32,418.18	\$108.06	\$418.65	\$31,999.54	\$7,365.33
53	\$31,999.54	\$106.67	\$420.04	\$31,579.49	\$7,472.00
54	\$31,579.49	\$105.26	\$421.44	\$31,158.05	\$7,577.26
55	\$31,158.05	\$103.86	\$422.85	\$30,735.20	\$7,681.12
56	\$30,735.20	\$102.45	\$424.26	\$30,310.95	\$7,783.57
57	\$30,310.95	\$101.04	\$425.67	\$29,885.28	\$7,884.61
58	\$29,885.28	\$99.62	\$427.09	\$29,458.19	\$7,984.23
59	\$29,458.19	\$98.19	\$428.51	\$29,029.67	\$8,082.42
60	\$29,029.67	\$96.77	\$429.94	\$28,599.73	\$8,179.19
61	\$28,599.73	\$95.33	\$431.38	\$28,168.36	\$8,274.52
62	\$28,168.36	\$93.89	\$432.81	\$27,735.54	\$8,368.41
63	\$27,735.54	\$92.45	\$434.26	\$27,301.29	\$8,460.87
64	\$27,301.29	\$91.00	\$435.70	\$26,865.58	\$8,551.87
65	\$26,865.58	\$89.55	\$437.16	\$26,428.43	\$8,641.42
66	\$26,428.43	\$88.09	\$438.61	\$25,989.82	\$8,729.52
67	\$25,989.82	\$86.63	\$440.07	\$25,549.74	\$8,816.15
68	\$25,549.74	\$85.17	\$441.54	\$25,108.20	\$8,901.31
69	\$25,108.20	\$83.69	\$443.01	\$24,665.19	\$8,985.01

				D (Discount Factor) = 98.77017486	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$526.71	
\$52,023.00	4.00%	10	\$526.71		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
70	\$24,665.19	\$82.22	\$444.49	\$24,220.70	\$9,067.23
71	\$24,220.70	\$80.74	\$445.97	\$23,774.72	\$9,147.96
72	\$23,774.72	\$79.25	\$447.46	\$23,327.26	\$9,227.21
73	\$23,327.26	\$77.76	\$448.95	\$22,878.31	\$9,304.97
74	\$22,878.31	\$76.26	\$450.45	\$22,427.87	\$9,381.23
75	\$22,427.87	\$74.76	\$451.95	\$21,975.92	\$9,455.99
76	\$21,975.92	\$73.25	\$453.45	\$21,522.47	\$9,529.24
77	\$21,522.47	\$71.74	\$454.97	\$21,067.50	\$9,600.98
78	\$21,067.50	\$70.22	\$456.48	\$20,611.02	\$9,671.21
79	\$20,611.02	\$68.70	\$458.00	\$20,153.01	\$9,739.91
80	\$20,153.01	\$67.18	\$459.53	\$19,693.48	\$9,807.09
81	\$19,693.48	\$65.64	\$461.06	\$19,232.42	\$9,872.73
82	\$19,232.42	\$64.11	\$462.60	\$18,769.82	\$9,936.84
83	\$18,769.82	\$62.57	\$464.14	\$18,305.68	\$9,999.41
84	\$18,305.68	\$61.02	\$465.69	\$17,839.99	\$10,060.43
85	\$17,839.99	\$59.47	\$467.24	\$17,372.75	\$10,119.89
86	\$17,372.75	\$57.91	\$468.80	\$16,903.95	\$10,177.80
87	\$16,903.95	\$56.35	\$470.36	\$16,433.59	\$10,234.15
88	\$16,433.59	\$54.78	\$471.93	\$15,961.66	\$10,288.93
89	\$15,961.66	\$53.21	\$473.50	\$15,488.16	\$10,342.13
90	\$15,488.16	\$51.63	\$475.08	\$15,013.08	\$10,393.76
91	\$15,013.08	\$50.04	\$476.66	\$14,536.41	\$10,443.80
92	\$14,536.41	\$48.45	\$478.25	\$14,058.16	\$10,492.26
93	\$14,058.16	\$46.86	\$479.85	\$13,578.31	\$10,539.12
94	\$13,578.31	\$45.26	\$481.45	\$13,096.87	\$10,584.38
95	\$13,096.87	\$43.66	\$483.05	\$12,613.82	\$10,628.04
96	\$12,613.82	\$42.05	\$484.66	\$12,129.15	\$10,670.08
97	\$12,129.15	\$40.43	\$486.28	\$11,642.88	\$10,710.51
98	\$11,642.88	\$38.81	\$487.90	\$11,154.98	\$10,749.32
99	\$11,154.98	\$37.18	\$489.52	\$10,665.45	\$10,786.51
100	\$10,665.45	\$35.55	\$491.16	\$10,174.30	\$10,822.06
101	\$10,174.30	\$33.91	\$492.79	\$9,681.51	\$10,855.97
102	\$9,681.51	\$32.27	\$494.44	\$9,187.07	\$10,888.24
103	\$9,187.07	\$30.62	\$496.08	\$8,690.99	\$10,918.87
104	\$8,690.99	\$28.97	\$497.74	\$8,193.25	\$10,947.84
105	\$8,193.25	\$27.31	\$499.40	\$7,693.85	\$10,975.15
106	\$7,693.85	\$25.65	\$501.06	\$7,192.79	\$11,000.79
107	\$7,192.79	\$23.98	\$502.73	\$6,690.06	\$11,024.77
108	\$6,690.06	\$22.30	\$504.41	\$6,185.65	\$11,047.07
109	\$6,185.65	\$20.62	\$506.09	\$5,679.56	\$11,067.69
110	\$5,679.56	\$18.93	\$507.78	\$5,171.79	\$11,086.62
111	\$5,171.79	\$17.24	\$509.47	\$4,662.32	\$11,103.86
112	\$4,662.32	\$15.54	\$511.17	\$4,151.15	\$11,119.40
113	\$4,151.15	\$13.84	\$512.87	\$3,638.28	\$11,133.24
114	\$3,638.28	\$12.13	\$514.58	\$3,123.70	\$11,145.37
115	\$3,123.70	\$10.41	\$516.30	\$2,607.41	\$11,155.78
116	\$2,607.41	\$8.69	\$518.02	\$2,089.39	\$11,164.47
117	\$2,089.39	\$6.96	\$519.74	\$1,569.65	\$11,171.43
118	\$1,569.65	\$5.23	\$521.48	\$1,048.17	\$11,176.67
119	\$1,048.17	\$3.49	\$523.21	\$524.96	\$11,180.16
120	\$524.96	\$1.75	\$524.96	\$0.00	\$11,181.91

Loan Amount	Interest Rate	Term in Years	Monthly Payment	D (Discount Factor) =	135.1921487
\$52,023.00	4.00%	15	\$384.81	P = A/D	\$384.81

Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
1	\$52,023.00	\$173.41	\$211.40	\$51,811.60	\$173.41
2	\$51,811.60	\$172.71	\$212.10	\$51,599.50	\$346.12
3	\$51,599.50	\$172.00	\$212.81	\$51,386.69	\$518.11
4	\$51,386.69	\$171.29	\$213.52	\$51,173.17	\$689.40
5	\$51,173.17	\$170.58	\$214.23	\$50,958.94	\$859.98
6	\$50,958.94	\$169.86	\$214.94	\$50,744.00	\$1,029.84
7	\$50,744.00	\$169.15	\$215.66	\$50,528.33	\$1,198.99
8	\$50,528.33	\$168.43	\$216.38	\$50,311.95	\$1,367.42
9	\$50,311.95	\$167.71	\$217.10	\$50,094.85	\$1,535.12
10	\$50,094.85	\$166.98	\$217.83	\$49,877.03	\$1,702.11
11	\$49,877.03	\$166.26	\$218.55	\$49,658.48	\$1,868.36
12	\$49,658.48	\$165.53	\$219.28	\$49,439.20	\$2,033.89
13	\$49,439.20	\$164.80	\$220.01	\$49,219.19	\$2,198.69
14	\$49,219.19	\$164.06	\$220.74	\$48,998.44	\$2,362.75
15	\$48,998.44	\$163.33	\$221.48	\$48,776.96	\$2,526.08
16	\$48,776.96	\$162.59	\$222.22	\$48,554.75	\$2,688.67
17	\$48,554.75	\$161.85	\$222.96	\$48,331.79	\$2,850.52
18	\$48,331.79	\$161.11	\$223.70	\$48,108.08	\$3,011.63
19	\$48,108.08	\$160.36	\$224.45	\$47,883.64	\$3,171.99
20	\$47,883.64	\$159.61	\$225.20	\$47,658.44	\$3,331.60
21	\$47,658.44	\$158.86	\$225.95	\$47,432.50	\$3,490.46
22	\$47,432.50	\$158.11	\$226.70	\$47,205.80	\$3,648.57
23	\$47,205.80	\$157.35	\$227.46	\$46,978.34	\$3,805.92
24	\$46,978.34	\$156.59	\$228.21	\$46,750.13	\$3,962.52
25	\$46,750.13	\$155.83	\$228.97	\$46,521.15	\$4,118.35
26	\$46,521.15	\$155.07	\$229.74	\$46,291.42	\$4,273.42
27	\$46,291.42	\$154.30	\$230.50	\$46,060.91	\$4,427.72
28	\$46,060.91	\$153.54	\$231.27	\$45,829.64	\$4,581.26
29	\$45,829.64	\$152.77	\$232.04	\$45,597.60	\$4,734.03
30	\$45,597.60	\$151.99	\$232.82	\$45,364.78	\$4,886.02
31	\$45,364.78	\$151.22	\$233.59	\$45,131.19	\$5,037.23
32	\$45,131.19	\$150.44	\$234.37	\$44,896.82	\$5,187.67
33	\$44,896.82	\$149.66	\$235.15	\$44,661.67	\$5,337.33
34	\$44,661.67	\$148.87	\$235.94	\$44,425.73	\$5,486.20
35	\$44,425.73	\$148.09	\$236.72	\$44,189.01	\$5,634.29
36	\$44,189.01	\$147.30	\$237.51	\$43,951.50	\$5,781.58
37	\$43,951.50	\$146.50	\$238.30	\$43,713.20	\$5,928.09
38	\$43,713.20	\$145.71	\$239.10	\$43,474.10	\$6,073.80
39	\$43,474.10	\$144.91	\$239.89	\$43,234.21	\$6,218.71
40	\$43,234.21	\$144.11	\$240.69	\$42,993.51	\$6,362.83
41	\$42,993.51	\$143.31	\$241.50	\$42,752.02	\$6,506.14
42	\$42,752.02	\$142.51	\$242.30	\$42,509.71	\$6,648.64
43	\$42,509.71	\$141.70	\$243.11	\$42,266.61	\$6,790.34
44	\$42,266.61	\$140.89	\$243.92	\$42,022.69	\$6,931.23
45	\$42,022.69	\$140.08	\$244.73	\$41,777.95	\$7,071.31
46	\$41,777.95	\$139.26	\$245.55	\$41,532.41	\$7,210.57
47	\$41,532.41	\$138.44	\$246.37	\$41,286.04	\$7,349.01
48	\$41,286.04	\$137.62	\$247.19	\$41,038.85	\$7,486.63
49	\$41,038.85	\$136.80	\$248.01	\$40,790.84	\$7,623.43
50	\$40,790.84	\$135.97	\$248.84	\$40,542.00	\$7,759.39
51	\$40,542.00	\$135.14	\$249.67	\$40,292.33	\$7,894.53
52	\$40,292.33	\$134.31	\$250.50	\$40,041.83	\$8,028.84
53	\$40,041.83	\$133.47	\$251.34	\$39,790.50	\$8,162.32
54	\$39,790.50	\$132.63	\$252.17	\$39,538.33	\$8,294.95
55	\$39,538.33	\$131.79	\$253.01	\$39,285.31	\$8,426.74
56	\$39,285.31	\$130.95	\$253.86	\$39,031.46	\$8,557.70
57	\$39,031.46	\$130.10	\$254.70	\$38,776.75	\$8,687.80
58	\$38,776.75	\$129.26	\$255.55	\$38,521.20	\$8,817.06
59	\$38,521.20	\$128.40	\$256.40	\$38,264.80	\$8,945.46
60	\$38,264.80	\$127.55	\$257.26	\$38,007.54	\$9,073.01
61	\$38,007.54	\$126.69	\$258.12	\$37,749.42	\$9,199.70
62	\$37,749.42	\$125.83	\$258.98	\$37,490.45	\$9,325.53
63	\$37,490.45	\$124.97	\$259.84	\$37,230.61	\$9,450.50
64	\$37,230.61	\$124.10	\$260.71	\$36,969.90	\$9,574.60
65	\$36,969.90	\$123.23	\$261.57	\$36,708.33	\$9,697.84
66	\$36,708.33	\$122.36	\$262.45	\$36,445.88	\$9,820.20
67	\$36,445.88	\$121.49	\$263.32	\$36,182.56	\$9,941.68
68	\$36,182.56	\$120.61	\$264.20	\$35,918.36	\$10,062.29
69	\$35,918.36	\$119.73	\$265.08	\$35,653.28	\$10,182.02

				D (Discount Factor) = 135.1921487	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$384.81	
\$52,023.00	4.00%	15	\$384.81		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
70	\$35,653.28	\$118.84	\$265.96	\$35,387.31	\$10,300.86
71	\$35,387.31	\$117.96	\$266.85	\$35,120.46	\$10,418.82
72	\$35,120.46	\$117.07	\$267.74	\$34,852.72	\$10,535.89
73	\$34,852.72	\$116.18	\$268.63	\$34,584.09	\$10,652.07
74	\$34,584.09	\$115.28	\$269.53	\$34,314.57	\$10,767.35
75	\$34,314.57	\$114.38	\$270.43	\$34,044.14	\$10,881.73
76	\$34,044.14	\$113.48	\$271.33	\$33,772.81	\$10,995.21
77	\$33,772.81	\$112.58	\$272.23	\$33,500.58	\$11,107.78
78	\$33,500.58	\$111.67	\$273.14	\$33,227.44	\$11,219.45
79	\$33,227.44	\$110.76	\$274.05	\$32,953.39	\$11,330.21
80	\$32,953.39	\$109.84	\$274.96	\$32,678.43	\$11,440.06
81	\$32,678.43	\$108.93	\$275.88	\$32,402.55	\$11,548.98
82	\$32,402.55	\$108.01	\$276.80	\$32,125.75	\$11,656.99
83	\$32,125.75	\$107.09	\$277.72	\$31,848.03	\$11,764.08
84	\$31,848.03	\$106.16	\$278.65	\$31,569.38	\$11,870.24
85	\$31,569.38	\$105.23	\$279.58	\$31,289.80	\$11,975.47
86	\$31,289.80	\$104.30	\$280.51	\$31,009.29	\$12,079.77
87	\$31,009.29	\$103.36	\$281.44	\$30,727.85	\$12,183.13
88	\$30,727.85	\$102.43	\$282.38	\$30,445.47	\$12,285.56
89	\$30,445.47	\$101.48	\$283.32	\$30,162.15	\$12,387.04
90	\$30,162.15	\$100.54	\$284.27	\$29,877.88	\$12,487.58
91	\$29,877.88	\$99.59	\$285.21	\$29,592.66	\$12,587.18
92	\$29,592.66	\$98.64	\$286.17	\$29,306.50	\$12,685.82
93	\$29,306.50	\$97.69	\$287.12	\$29,019.38	\$12,783.51
94	\$29,019.38	\$96.73	\$288.08	\$28,731.30	\$12,880.24
95	\$28,731.30	\$95.77	\$289.04	\$28,442.26	\$12,976.01
96	\$28,442.26	\$94.81	\$290.00	\$28,152.26	\$13,070.82
97	\$28,152.26	\$93.84	\$290.97	\$27,861.30	\$13,164.66
98	\$27,861.30	\$92.87	\$291.94	\$27,569.36	\$13,257.53
99	\$27,569.36	\$91.90	\$292.91	\$27,276.45	\$13,349.43
100	\$27,276.45	\$90.92	\$293.89	\$26,982.56	\$13,440.35
101	\$26,982.56	\$89.94	\$294.87	\$26,687.70	\$13,530.29
102	\$26,687.70	\$88.96	\$295.85	\$26,391.85	\$13,619.25
103	\$26,391.85	\$87.97	\$296.84	\$26,095.01	\$13,707.22
104	\$26,095.01	\$86.98	\$297.82	\$25,797.19	\$13,794.21
105	\$25,797.19	\$85.99	\$298.82	\$25,498.37	\$13,880.20
106	\$25,498.37	\$84.99	\$299.81	\$25,198.56	\$13,965.19
107	\$25,198.56	\$84.00	\$300.81	\$24,897.75	\$14,049.19
108	\$24,897.75	\$82.99	\$301.82	\$24,595.93	\$14,132.18
109	\$24,595.93	\$81.99	\$302.82	\$24,293.11	\$14,214.17
110	\$24,293.11	\$80.98	\$303.83	\$23,989.28	\$14,295.14
111	\$23,989.28	\$79.96	\$304.84	\$23,684.44	\$14,375.11
112	\$23,684.44	\$78.95	\$305.86	\$23,378.58	\$14,454.06
113	\$23,378.58	\$77.93	\$306.88	\$23,071.70	\$14,531.98
114	\$23,071.70	\$76.91	\$307.90	\$22,763.79	\$14,608.89
115	\$22,763.79	\$75.88	\$308.93	\$22,454.87	\$14,684.77
116	\$22,454.87	\$74.85	\$309.96	\$22,144.91	\$14,759.62
117	\$22,144.91	\$73.82	\$310.99	\$21,833.92	\$14,833.43
118	\$21,833.92	\$72.78	\$312.03	\$21,521.89	\$14,906.21
119	\$21,521.89	\$71.74	\$313.07	\$21,208.82	\$14,977.95
120	\$21,208.82	\$70.70	\$314.11	\$20,894.71	\$15,048.65
121	\$20,894.71	\$69.65	\$315.16	\$20,579.55	\$15,118.30
122	\$20,579.55	\$68.60	\$316.21	\$20,263.34	\$15,186.90
123	\$20,263.34	\$67.54	\$317.26	\$19,946.08	\$15,254.44
124	\$19,946.08	\$66.49	\$318.32	\$19,627.76	\$15,320.93
125	\$19,627.76	\$65.43	\$319.38	\$19,308.37	\$15,386.35
126	\$19,308.37	\$64.36	\$320.45	\$18,987.93	\$15,450.72
127	\$18,987.93	\$63.29	\$321.51	\$18,666.41	\$15,514.01
128	\$18,666.41	\$62.22	\$322.59	\$18,343.83	\$15,576.23
129	\$18,343.83	\$61.15	\$323.66	\$18,020.16	\$15,637.38
130	\$18,020.16	\$60.07	\$324.74	\$17,695.42	\$15,697.44
131	\$17,695.42	\$58.98	\$325.82	\$17,369.60	\$15,756.43
132	\$17,369.60	\$57.90	\$326.91	\$17,042.69	\$15,814.33
133	\$17,042.69	\$56.81	\$328.00	\$16,714.69	\$15,871.14
134	\$16,714.69	\$55.72	\$329.09	\$16,385.60	\$15,926.85
135	\$16,385.60	\$54.62	\$330.19	\$16,055.41	\$15,981.47
136	\$16,055.41	\$53.52	\$331.29	\$15,724.12	\$16,034.99
137	\$15,724.12	\$52.41	\$332.39	\$15,391.73	\$16,087.40
138	\$15,391.73	\$51.31	\$333.50	\$15,058.22	\$16,138.71
139	\$15,058.22	\$50.19	\$334.61	\$14,723.61	\$16,188.90
140	\$14,723.61	\$49.08	\$335.73	\$14,387.88	\$16,237.98
141	\$14,387.88	\$47.96	\$336.85	\$14,051.03	\$16,285.94
142	\$14,051.03	\$46.84	\$337.97	\$13,713.06	\$16,332.78
143	\$13,713.06	\$45.71	\$339.10	\$13,373.96	\$16,378.49

				D (Discount Factor) = 135.1921487	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$384.81	
\$52,023.00	4.00%	15	\$384.81		
Month	Starting Balance	Interest	Principal	Ending Balance	Total Interest
144	\$13,373.96	\$44.58	\$340.23	\$13,033.74	\$16,423.07
145	\$13,033.74	\$43.45	\$341.36	\$12,692.37	\$16,466.51
146	\$12,692.37	\$42.31	\$342.50	\$12,349.87	\$16,508.82
147	\$12,349.87	\$41.17	\$343.64	\$12,006.23	\$16,549.99
148	\$12,006.23	\$40.02	\$344.79	\$11,661.45	\$16,590.01
149	\$11,661.45	\$38.87	\$345.94	\$11,315.51	\$16,628.88
150	\$11,315.51	\$37.72	\$347.09	\$10,968.42	\$16,666.60
151	\$10,968.42	\$36.56	\$348.25	\$10,620.17	\$16,703.16
152	\$10,620.17	\$35.40	\$349.41	\$10,270.77	\$16,738.56
153	\$10,270.77	\$34.24	\$350.57	\$9,920.19	\$16,772.80
154	\$9,920.19	\$33.07	\$351.74	\$9,568.45	\$16,805.86
155	\$9,568.45	\$31.89	\$352.91	\$9,215.54	\$16,837.76
156	\$9,215.54	\$30.72	\$354.09	\$8,861.45	\$16,868.48
157	\$8,861.45	\$29.54	\$355.27	\$8,506.18	\$16,898.01
158	\$8,506.18	\$28.35	\$356.45	\$8,149.73	\$16,926.37
159	\$8,149.73	\$27.17	\$357.64	\$7,792.09	\$16,953.53
160	\$7,792.09	\$25.97	\$358.83	\$7,433.25	\$16,979.51
161	\$7,433.25	\$24.78	\$360.03	\$7,073.22	\$17,004.29
162	\$7,073.22	\$23.58	\$361.23	\$6,711.99	\$17,027.86
163	\$6,711.99	\$22.37	\$362.43	\$6,349.56	\$17,050.24
164	\$6,349.56	\$21.17	\$363.64	\$5,985.91	\$17,071.40
165	\$5,985.91	\$19.95	\$364.85	\$5,621.06	\$17,091.35
166	\$5,621.06	\$18.74	\$366.07	\$5,254.99	\$17,110.09
167	\$5,254.99	\$17.52	\$367.29	\$4,887.70	\$17,127.61
168	\$4,887.70	\$16.29	\$368.52	\$4,519.18	\$17,143.90
169	\$4,519.18	\$15.06	\$369.74	\$4,149.44	\$17,158.96
170	\$4,149.44	\$13.83	\$370.98	\$3,778.46	\$17,172.80
171	\$3,778.46	\$12.59	\$372.21	\$3,406.25	\$17,185.39
172	\$3,406.25	\$11.35	\$373.45	\$3,032.79	\$17,196.74
173	\$3,032.79	\$10.11	\$374.70	\$2,658.10	\$17,206.85
174	\$2,658.10	\$8.86	\$375.95	\$2,282.15	\$17,215.71
175	\$2,282.15	\$7.61	\$377.20	\$1,904.95	\$17,223.32
176	\$1,904.95	\$6.35	\$378.46	\$1,526.49	\$17,229.67
177	\$1,526.49	\$5.09	\$379.72	\$1,146.77	\$17,234.76
178	\$1,146.77	\$3.82	\$380.99	\$765.78	\$17,238.58
179	\$765.78	\$2.55	\$382.26	\$383.53	\$17,241.13
180	\$383.53	\$1.28	\$383.53	\$0.00	\$17,242.41

				D (Discount Factor) = P = A/D		165.0218582 \$315.25
Loan Amount	Interest Rate	Term in Years	Monthly Payment			
\$52,023.00	4.00%	20	\$315.25			
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest	
1	\$52,023.00	\$173.41	\$141.84	\$51,881.16	\$173.41	
2	\$51,881.16	\$172.94	\$142.31	\$51,738.85	\$346.35	
3	\$51,738.85	\$172.46	\$142.79	\$51,596.06	\$518.81	
4	\$51,596.06	\$171.99	\$143.26	\$51,452.80	\$690.80	
5	\$51,452.80	\$171.51	\$143.74	\$51,309.06	\$862.31	
6	\$51,309.06	\$171.03	\$144.22	\$51,164.84	\$1,033.34	
7	\$51,164.84	\$170.55	\$144.70	\$51,020.14	\$1,203.89	
8	\$51,020.14	\$170.07	\$145.18	\$50,874.96	\$1,373.95	
9	\$50,874.96	\$169.58	\$145.67	\$50,729.29	\$1,543.54	
10	\$50,729.29	\$169.10	\$146.15	\$50,583.14	\$1,712.63	
11	\$50,583.14	\$168.61	\$146.64	\$50,436.50	\$1,881.24	
12	\$50,436.50	\$168.12	\$147.13	\$50,289.38	\$2,049.37	
13	\$50,289.38	\$167.63	\$147.62	\$50,141.76	\$2,217.00	
14	\$50,141.76	\$167.14	\$148.11	\$49,993.65	\$2,384.14	
15	\$49,993.65	\$166.65	\$148.60	\$49,845.04	\$2,550.78	
16	\$49,845.04	\$166.15	\$149.10	\$49,695.95	\$2,716.93	
17	\$49,695.95	\$165.65	\$149.60	\$49,546.35	\$2,882.59	
18	\$49,546.35	\$165.15	\$150.09	\$49,396.26	\$3,047.74	
19	\$49,396.26	\$164.65	\$150.59	\$49,245.66	\$3,212.39	
20	\$49,245.66	\$164.15	\$151.10	\$49,094.56	\$3,376.55	
21	\$49,094.56	\$163.65	\$151.60	\$48,942.96	\$3,540.19	
22	\$48,942.96	\$163.14	\$152.11	\$48,790.86	\$3,703.34	
23	\$48,790.86	\$162.64	\$152.61	\$48,638.24	\$3,865.97	
24	\$48,638.24	\$162.13	\$153.12	\$48,485.12	\$4,028.10	
25	\$48,485.12	\$161.62	\$153.63	\$48,331.49	\$4,189.72	
26	\$48,331.49	\$161.10	\$154.14	\$48,177.35	\$4,350.82	
27	\$48,177.35	\$160.59	\$154.66	\$48,022.69	\$4,511.41	
28	\$48,022.69	\$160.08	\$155.17	\$47,867.51	\$4,671.49	
29	\$47,867.51	\$159.56	\$155.69	\$47,711.82	\$4,831.05	
30	\$47,711.82	\$159.04	\$156.21	\$47,555.61	\$4,990.09	
31	\$47,555.61	\$158.52	\$156.73	\$47,398.88	\$5,148.61	
32	\$47,398.88	\$158.00	\$157.25	\$47,241.63	\$5,306.60	
33	\$47,241.63	\$157.47	\$157.78	\$47,083.85	\$5,464.08	
34	\$47,083.85	\$156.95	\$158.30	\$46,925.55	\$5,621.02	
35	\$46,925.55	\$156.42	\$158.83	\$46,766.72	\$5,777.44	
36	\$46,766.72	\$155.89	\$159.36	\$46,607.36	\$5,933.33	
37	\$46,607.36	\$155.36	\$159.89	\$46,447.47	\$6,088.69	
38	\$46,447.47	\$154.82	\$160.42	\$46,287.04	\$6,243.51	
39	\$46,287.04	\$154.29	\$160.96	\$46,126.09	\$6,397.80	
40	\$46,126.09	\$153.75	\$161.50	\$45,964.59	\$6,551.56	
41	\$45,964.59	\$153.22	\$162.03	\$45,802.56	\$6,704.77	
42	\$45,802.56	\$152.68	\$162.57	\$45,639.98	\$6,857.45	
43	\$45,639.98	\$152.13	\$163.12	\$45,476.87	\$7,009.58	
44	\$45,476.87	\$151.59	\$163.66	\$45,313.21	\$7,161.17	
45	\$45,313.21	\$151.04	\$164.21	\$45,149.00	\$7,312.21	
46	\$45,149.00	\$150.50	\$164.75	\$44,984.25	\$7,462.71	
47	\$44,984.25	\$149.95	\$165.30	\$44,818.95	\$7,612.66	
48	\$44,818.95	\$149.40	\$165.85	\$44,653.09	\$7,762.05	
49	\$44,653.09	\$148.84	\$166.41	\$44,486.69	\$7,910.90	
50	\$44,486.69	\$148.29	\$166.96	\$44,319.73	\$8,059.19	
51	\$44,319.73	\$147.73	\$167.52	\$44,152.21	\$8,206.92	
52	\$44,152.21	\$147.17	\$168.08	\$43,984.14	\$8,354.09	
53	\$43,984.14	\$146.61	\$168.64	\$43,815.50	\$8,500.71	
54	\$43,815.50	\$146.05	\$169.20	\$43,646.30	\$8,646.76	
55	\$43,646.30	\$145.49	\$169.76	\$43,476.54	\$8,792.25	
56	\$43,476.54	\$144.92	\$170.33	\$43,306.22	\$8,937.17	
57	\$43,306.22	\$144.35	\$170.90	\$43,135.32	\$9,081.52	
58	\$43,135.32	\$143.78	\$171.46	\$42,963.86	\$9,225.31	
59	\$42,963.86	\$143.21	\$172.04	\$42,791.82	\$9,368.52	
60	\$42,791.82	\$142.64	\$172.61	\$42,619.21	\$9,511.16	
61	\$42,619.21	\$142.06	\$173.19	\$42,446.02	\$9,653.22	
62	\$42,446.02	\$141.49	\$173.76	\$42,272.26	\$9,794.71	
63	\$42,272.26	\$140.91	\$174.34	\$42,097.92	\$9,935.62	
64	\$42,097.92	\$140.33	\$174.92	\$41,923.00	\$10,075.94	
65	\$41,923.00	\$139.74	\$175.51	\$41,747.49	\$10,215.69	
66	\$41,747.49	\$139.16	\$176.09	\$41,571.40	\$10,354.84	
67	\$41,571.40	\$138.57	\$176.68	\$41,394.72	\$10,493.42	
68	\$41,394.72	\$137.98	\$177.27	\$41,217.46	\$10,631.40	
69	\$41,217.46	\$137.39	\$177.86	\$41,039.60	\$10,768.79	

				D (Discount Factor) =		165.0218582
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D		\$315.25
\$52,023.00	4.00%	20	\$315.25			
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest	
70	\$41,039.60	\$136.80	\$178.45	\$40,861.15	\$10,905.59	
71	\$40,861.15	\$136.20	\$179.05	\$40,682.10	\$11,041.79	
72	\$40,682.10	\$135.61	\$179.64	\$40,502.46	\$11,177.40	
73	\$40,502.46	\$135.01	\$180.24	\$40,322.22	\$11,312.41	
74	\$40,322.22	\$134.41	\$180.84	\$40,141.38	\$11,446.82	
75	\$40,141.38	\$133.80	\$181.44	\$39,959.93	\$11,580.62	
76	\$39,959.93	\$133.20	\$182.05	\$39,777.88	\$11,713.82	
77	\$39,777.88	\$132.59	\$182.66	\$39,595.23	\$11,846.41	
78	\$39,595.23	\$131.98	\$183.27	\$39,411.96	\$11,978.40	
79	\$39,411.96	\$131.37	\$183.88	\$39,228.09	\$12,109.77	
80	\$39,228.09	\$130.76	\$184.49	\$39,043.60	\$12,240.53	
81	\$39,043.60	\$130.15	\$185.10	\$38,858.49	\$12,370.68	
82	\$38,858.49	\$129.53	\$185.72	\$38,672.77	\$12,500.20	
83	\$38,672.77	\$128.91	\$186.34	\$38,486.43	\$12,629.11	
84	\$38,486.43	\$128.29	\$186.96	\$38,299.47	\$12,757.40	
85	\$38,299.47	\$127.66	\$187.58	\$38,111.89	\$12,885.07	
86	\$38,111.89	\$127.04	\$188.21	\$37,923.68	\$13,012.11	
87	\$37,923.68	\$126.41	\$188.84	\$37,734.84	\$13,138.52	
88	\$37,734.84	\$125.78	\$189.47	\$37,545.38	\$13,264.30	
89	\$37,545.38	\$125.15	\$190.10	\$37,355.28	\$13,389.45	
90	\$37,355.28	\$124.52	\$190.73	\$37,164.55	\$13,513.97	
91	\$37,164.55	\$123.88	\$191.37	\$36,973.18	\$13,637.85	
92	\$36,973.18	\$123.24	\$192.01	\$36,781.17	\$13,761.10	
93	\$36,781.17	\$122.60	\$192.65	\$36,588.53	\$13,883.70	
94	\$36,588.53	\$121.96	\$193.29	\$36,395.24	\$14,005.66	
95	\$36,395.24	\$121.32	\$193.93	\$36,201.31	\$14,126.98	
96	\$36,201.31	\$120.67	\$194.58	\$36,006.73	\$14,247.65	
97	\$36,006.73	\$120.02	\$195.23	\$35,811.50	\$14,367.67	
98	\$35,811.50	\$119.37	\$195.88	\$35,615.63	\$14,487.04	
99	\$35,615.63	\$118.72	\$196.53	\$35,419.10	\$14,605.76	
100	\$35,419.10	\$118.06	\$197.19	\$35,221.91	\$14,723.83	
101	\$35,221.91	\$117.41	\$197.84	\$35,024.07	\$14,841.23	
102	\$35,024.07	\$116.75	\$198.50	\$34,825.57	\$14,957.98	
103	\$34,825.57	\$116.09	\$199.16	\$34,626.40	\$15,074.06	
104	\$34,626.40	\$115.42	\$199.83	\$34,426.57	\$15,189.49	
105	\$34,426.57	\$114.76	\$200.49	\$34,226.08	\$15,304.24	
106	\$34,226.08	\$114.09	\$201.16	\$34,024.92	\$15,418.33	
107	\$34,024.92	\$113.42	\$201.83	\$33,823.09	\$15,531.74	
108	\$33,823.09	\$112.74	\$202.51	\$33,620.58	\$15,644.49	
109	\$33,620.58	\$112.07	\$203.18	\$33,417.40	\$15,756.56	
110	\$33,417.40	\$111.39	\$203.86	\$33,213.54	\$15,867.95	
111	\$33,213.54	\$110.71	\$204.54	\$33,009.00	\$15,978.66	
112	\$33,009.00	\$110.03	\$205.22	\$32,803.79	\$16,088.69	
113	\$32,803.79	\$109.35	\$205.90	\$32,597.88	\$16,198.04	
114	\$32,597.88	\$108.66	\$206.59	\$32,391.29	\$16,306.70	
115	\$32,391.29	\$107.97	\$207.28	\$32,184.01	\$16,414.67	
116	\$32,184.01	\$107.28	\$207.97	\$31,976.05	\$16,521.95	
117	\$31,976.05	\$106.59	\$208.66	\$31,767.38	\$16,628.53	
118	\$31,767.38	\$105.89	\$209.36	\$31,558.02	\$16,734.42	
119	\$31,558.02	\$105.19	\$210.06	\$31,347.97	\$16,839.62	
120	\$31,347.97	\$104.49	\$210.76	\$31,137.21	\$16,944.11	
121	\$31,137.21	\$103.79	\$211.46	\$30,925.75	\$17,047.90	
122	\$30,925.75	\$103.09	\$212.16	\$30,713.59	\$17,150.99	
123	\$30,713.59	\$102.38	\$212.87	\$30,500.72	\$17,253.37	
124	\$30,500.72	\$101.67	\$213.58	\$30,287.14	\$17,355.04	
125	\$30,287.14	\$100.96	\$214.29	\$30,072.85	\$17,455.99	
126	\$30,072.85	\$100.24	\$215.01	\$29,857.84	\$17,556.24	
127	\$29,857.84	\$99.53	\$215.72	\$29,642.12	\$17,655.76	
128	\$29,642.12	\$98.81	\$216.44	\$29,425.68	\$17,754.57	
129	\$29,425.68	\$98.09	\$217.16	\$29,208.51	\$17,852.65	
130	\$29,208.51	\$97.36	\$217.89	\$28,990.63	\$17,950.02	
131	\$28,990.63	\$96.64	\$218.61	\$28,772.01	\$18,046.65	
132	\$28,772.01	\$95.91	\$219.34	\$28,552.67	\$18,142.56	
133	\$28,552.67	\$95.18	\$220.07	\$28,332.60	\$18,237.73	
134	\$28,332.60	\$94.44	\$220.81	\$28,111.79	\$18,332.18	
135	\$28,111.79	\$93.71	\$221.54	\$27,890.25	\$18,425.88	
136	\$27,890.25	\$92.97	\$222.28	\$27,667.96	\$18,518.85	
137	\$27,667.96	\$92.23	\$223.02	\$27,444.94	\$18,611.08	
138	\$27,444.94	\$91.48	\$223.77	\$27,221.18	\$18,702.56	
139	\$27,221.18	\$90.74	\$224.51	\$26,996.66	\$18,793.30	
140	\$26,996.66	\$89.99	\$225.26	\$26,771.40	\$18,883.28	
141	\$26,771.40	\$89.24	\$226.01	\$26,545.39	\$18,972.52	
142	\$26,545.39	\$88.48	\$226.76	\$26,318.63	\$19,061.01	
143	\$26,318.63	\$87.73	\$227.52	\$26,091.11	\$19,148.74	

				D (Discount Factor) = 165.0218582	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$315.25	
\$52,023.00	4.00%	20	\$315.25		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
144	\$26,091.11	\$86.97	\$228.28	\$25,862.83	\$19,235.71
145	\$25,862.83	\$86.21	\$229.04	\$25,633.79	\$19,321.92
146	\$25,633.79	\$85.45	\$229.80	\$25,403.99	\$19,407.36
147	\$25,403.99	\$84.68	\$230.57	\$25,173.42	\$19,492.04
148	\$25,173.42	\$83.91	\$231.34	\$24,942.08	\$19,575.95
149	\$24,942.08	\$83.14	\$232.11	\$24,709.97	\$19,659.09
150	\$24,709.97	\$82.37	\$232.88	\$24,477.09	\$19,741.46
151	\$24,477.09	\$81.59	\$233.66	\$24,243.43	\$19,823.05
152	\$24,243.43	\$80.81	\$234.44	\$24,008.99	\$19,903.86
153	\$24,008.99	\$80.03	\$235.22	\$23,773.77	\$19,983.89
154	\$23,773.77	\$79.25	\$236.00	\$23,537.77	\$20,063.14
155	\$23,537.77	\$78.46	\$236.79	\$23,300.98	\$20,141.60
156	\$23,300.98	\$77.67	\$237.58	\$23,063.40	\$20,219.27
157	\$23,063.40	\$76.88	\$238.37	\$22,825.03	\$20,296.14
158	\$22,825.03	\$76.08	\$239.17	\$22,585.86	\$20,372.23
159	\$22,585.86	\$75.29	\$239.96	\$22,345.90	\$20,447.51
160	\$22,345.90	\$74.49	\$240.76	\$22,105.14	\$20,522.00
161	\$22,105.14	\$73.68	\$241.57	\$21,863.57	\$20,595.68
162	\$21,863.57	\$72.88	\$242.37	\$21,621.20	\$20,668.56
163	\$21,621.20	\$72.07	\$243.18	\$21,378.02	\$20,740.63
164	\$21,378.02	\$71.26	\$243.99	\$21,134.03	\$20,811.89
165	\$21,134.03	\$70.45	\$244.80	\$20,889.23	\$20,882.34
166	\$20,889.23	\$69.63	\$245.62	\$20,643.61	\$20,951.97
167	\$20,643.61	\$68.81	\$246.44	\$20,397.18	\$21,020.78
168	\$20,397.18	\$67.99	\$247.26	\$20,149.92	\$21,088.77
169	\$20,149.92	\$67.17	\$248.08	\$19,901.83	\$21,155.94
170	\$19,901.83	\$66.34	\$248.91	\$19,652.92	\$21,222.28
171	\$19,652.92	\$65.51	\$249.74	\$19,403.19	\$21,287.79
172	\$19,403.19	\$64.68	\$250.57	\$19,152.61	\$21,352.47
173	\$19,152.61	\$63.84	\$251.41	\$18,901.21	\$21,416.31
174	\$18,901.21	\$63.00	\$252.25	\$18,648.96	\$21,479.31
175	\$18,648.96	\$62.16	\$253.09	\$18,395.88	\$21,541.48
176	\$18,395.88	\$61.32	\$253.93	\$18,141.95	\$21,602.80
177	\$18,141.95	\$60.47	\$254.78	\$17,887.17	\$21,663.27
178	\$17,887.17	\$59.62	\$255.63	\$17,631.54	\$21,722.89
179	\$17,631.54	\$58.77	\$256.48	\$17,375.07	\$21,781.66
180	\$17,375.07	\$57.92	\$257.33	\$17,117.74	\$21,839.58
181	\$17,117.74	\$57.06	\$258.19	\$16,859.55	\$21,896.64
182	\$16,859.55	\$56.20	\$259.05	\$16,600.49	\$21,952.84
183	\$16,600.49	\$55.33	\$259.91	\$16,340.58	\$22,008.17
184	\$16,340.58	\$54.47	\$260.78	\$16,079.80	\$22,062.64
185	\$16,079.80	\$53.60	\$261.65	\$15,818.15	\$22,116.24
186	\$15,818.15	\$52.73	\$262.52	\$15,555.63	\$22,168.97
187	\$15,555.63	\$51.85	\$263.40	\$15,292.23	\$22,220.82
188	\$15,292.23	\$50.97	\$264.28	\$15,027.96	\$22,271.80
189	\$15,027.96	\$50.09	\$265.16	\$14,762.80	\$22,321.89
190	\$14,762.80	\$49.21	\$266.04	\$14,496.76	\$22,371.10
191	\$14,496.76	\$48.32	\$266.93	\$14,229.83	\$22,419.42
192	\$14,229.83	\$47.43	\$267.82	\$13,962.02	\$22,466.85
193	\$13,962.02	\$46.54	\$268.71	\$13,693.31	\$22,513.39
194	\$13,693.31	\$45.64	\$269.60	\$13,423.70	\$22,559.04
195	\$13,423.70	\$44.75	\$270.50	\$13,153.20	\$22,603.78
196	\$13,153.20	\$43.84	\$271.41	\$12,881.79	\$22,647.63
197	\$12,881.79	\$42.94	\$272.31	\$12,609.48	\$22,690.57
198	\$12,609.48	\$42.03	\$273.22	\$12,336.27	\$22,732.60
199	\$12,336.27	\$41.12	\$274.13	\$12,062.14	\$22,773.72
200	\$12,062.14	\$40.21	\$275.04	\$11,787.10	\$22,813.93
201	\$11,787.10	\$39.29	\$275.96	\$11,511.14	\$22,853.22
202	\$11,511.14	\$38.37	\$276.88	\$11,234.26	\$22,891.59
203	\$11,234.26	\$37.45	\$277.80	\$10,956.46	\$22,929.03
204	\$10,956.46	\$36.52	\$278.73	\$10,677.73	\$22,965.56
205	\$10,677.73	\$35.59	\$279.66	\$10,398.07	\$23,001.15
206	\$10,398.07	\$34.66	\$280.59	\$10,117.48	\$23,035.81
207	\$10,117.48	\$33.72	\$281.52	\$9,835.96	\$23,069.53
208	\$9,835.96	\$32.79	\$282.46	\$9,553.50	\$23,102.32
209	\$9,553.50	\$31.84	\$283.40	\$9,270.09	\$23,134.17
210	\$9,270.09	\$30.90	\$284.35	\$8,985.74	\$23,165.07
211	\$8,985.74	\$29.95	\$285.30	\$8,700.45	\$23,195.02
212	\$8,700.45	\$29.00	\$286.25	\$8,414.20	\$23,224.02
213	\$8,414.20	\$28.05	\$287.20	\$8,127.00	\$23,252.07
214	\$8,127.00	\$27.09	\$288.16	\$7,838.84	\$23,279.16
215	\$7,838.84	\$26.13	\$289.12	\$7,549.72	\$23,305.29
216	\$7,549.72	\$25.17	\$290.08	\$7,259.64	\$23,330.45
217	\$7,259.64	\$24.20	\$291.05	\$6,968.59	\$23,354.65

				D (Discount Factor) = 165.0218582	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$315.25	
\$52,023.00	4.00%	20	\$315.25		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
218	\$6,968.59	\$23.23	\$292.02	\$6,676.57	\$23,377.88
219	\$6,676.57	\$22.26	\$292.99	\$6,383.57	\$23,400.13
220	\$6,383.57	\$21.28	\$293.97	\$6,089.60	\$23,421.41
221	\$6,089.60	\$20.30	\$294.95	\$5,794.65	\$23,441.71
222	\$5,794.65	\$19.32	\$295.93	\$5,498.72	\$23,461.03
223	\$5,498.72	\$18.33	\$296.92	\$5,201.80	\$23,479.36
224	\$5,201.80	\$17.34	\$297.91	\$4,903.89	\$23,496.70
225	\$4,903.89	\$16.35	\$298.90	\$4,604.98	\$23,513.04
226	\$4,604.98	\$15.35	\$299.90	\$4,305.08	\$23,528.39
227	\$4,305.08	\$14.35	\$300.90	\$4,004.19	\$23,542.74
228	\$4,004.19	\$13.35	\$301.90	\$3,702.28	\$23,556.09
229	\$3,702.28	\$12.34	\$302.91	\$3,399.38	\$23,568.43
230	\$3,399.38	\$11.33	\$303.92	\$3,095.46	\$23,579.76
231	\$3,095.46	\$10.32	\$304.93	\$2,790.53	\$23,590.08
232	\$2,790.53	\$9.30	\$305.95	\$2,484.58	\$23,599.38
233	\$2,484.58	\$8.28	\$306.97	\$2,177.61	\$23,607.66
234	\$2,177.61	\$7.26	\$307.99	\$1,869.62	\$23,614.92
235	\$1,869.62	\$6.23	\$309.02	\$1,560.61	\$23,621.15
236	\$1,560.61	\$5.20	\$310.05	\$1,250.56	\$23,626.36
237	\$1,250.56	\$4.17	\$311.08	\$939.48	\$23,630.53
238	\$939.48	\$3.13	\$312.12	\$627.36	\$23,633.66
239	\$627.36	\$2.09	\$313.16	\$314.20	\$23,635.75
240	\$314.20	\$1.05	\$314.20	\$0.00	\$23,636.80

				D (Discount Factor) =		98.77017486
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D		\$765.58
\$75,616.00	4.00%	10	\$765.58			
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest	
1	\$75,616.00	\$252.05	\$513.52	\$75,102.48	\$252.05	
2	\$75,102.48	\$250.34	\$515.23	\$74,587.24	\$502.39	
3	\$74,587.24	\$248.62	\$516.95	\$74,070.29	\$751.02	
4	\$74,070.29	\$246.90	\$518.67	\$73,551.62	\$997.92	
5	\$73,551.62	\$245.17	\$520.40	\$73,031.22	\$1,243.09	
6	\$73,031.22	\$243.44	\$522.14	\$72,509.08	\$1,486.53	
7	\$72,509.08	\$241.70	\$523.88	\$71,985.20	\$1,728.23	
8	\$71,985.20	\$239.95	\$525.62	\$71,459.58	\$1,968.18	
9	\$71,459.58	\$238.20	\$527.38	\$70,932.20	\$2,206.38	
10	\$70,932.20	\$236.44	\$529.13	\$70,403.06	\$2,442.82	
11	\$70,403.06	\$234.68	\$530.90	\$69,872.17	\$2,677.49	
12	\$69,872.17	\$232.91	\$532.67	\$69,339.50	\$2,910.40	
13	\$69,339.50	\$231.13	\$534.44	\$68,805.05	\$3,141.53	
14	\$68,805.05	\$229.35	\$536.23	\$68,268.83	\$3,370.88	
15	\$68,268.83	\$227.56	\$538.01	\$67,730.82	\$3,598.45	
16	\$67,730.82	\$225.77	\$539.81	\$67,191.01	\$3,824.21	
17	\$67,191.01	\$223.97	\$541.61	\$66,649.41	\$4,048.18	
18	\$66,649.41	\$222.16	\$543.41	\$66,105.99	\$4,270.35	
19	\$66,105.99	\$220.35	\$545.22	\$65,560.77	\$4,490.70	
20	\$65,560.77	\$218.54	\$547.04	\$65,013.73	\$4,709.24	
21	\$65,013.73	\$216.71	\$548.86	\$64,464.87	\$4,925.95	
22	\$64,464.87	\$214.88	\$550.69	\$63,914.18	\$5,140.83	
23	\$63,914.18	\$213.05	\$552.53	\$63,361.65	\$5,353.88	
24	\$63,361.65	\$211.21	\$554.37	\$62,807.28	\$5,565.09	
25	\$62,807.28	\$209.36	\$556.22	\$62,251.06	\$5,774.44	
26	\$62,251.06	\$207.50	\$558.07	\$61,692.99	\$5,981.95	
27	\$61,692.99	\$205.64	\$559.93	\$61,133.06	\$6,187.59	
28	\$61,133.06	\$203.78	\$561.80	\$60,571.26	\$6,391.37	
29	\$60,571.26	\$201.90	\$563.67	\$60,007.59	\$6,593.27	
30	\$60,007.59	\$200.03	\$565.55	\$59,442.04	\$6,793.30	
31	\$59,442.04	\$198.14	\$567.44	\$58,874.61	\$6,991.44	
32	\$58,874.61	\$196.25	\$569.33	\$58,305.28	\$7,187.69	
33	\$58,305.28	\$194.35	\$571.22	\$57,734.05	\$7,382.04	
34	\$57,734.05	\$192.45	\$573.13	\$57,160.93	\$7,574.48	
35	\$57,160.93	\$190.54	\$575.04	\$56,585.89	\$7,765.02	
36	\$56,585.89	\$188.62	\$576.96	\$56,008.93	\$7,953.64	
37	\$56,008.93	\$186.70	\$578.88	\$55,430.05	\$8,140.34	
38	\$55,430.05	\$184.77	\$580.81	\$54,849.24	\$8,325.10	
39	\$54,849.24	\$182.83	\$582.74	\$54,266.50	\$8,507.93	
40	\$54,266.50	\$180.89	\$584.69	\$53,681.81	\$8,688.82	
41	\$53,681.81	\$178.94	\$586.64	\$53,095.18	\$8,867.76	
42	\$53,095.18	\$176.98	\$588.59	\$52,506.59	\$9,044.75	
43	\$52,506.59	\$175.02	\$590.55	\$51,916.03	\$9,219.77	
44	\$51,916.03	\$173.05	\$592.52	\$51,323.51	\$9,392.82	
45	\$51,323.51	\$171.08	\$594.50	\$50,729.01	\$9,563.90	
46	\$50,729.01	\$169.10	\$596.48	\$50,132.54	\$9,733.00	
47	\$50,132.54	\$167.11	\$598.47	\$49,534.07	\$9,900.10	
48	\$49,534.07	\$165.11	\$600.46	\$48,933.61	\$10,065.22	
49	\$48,933.61	\$163.11	\$602.46	\$48,331.14	\$10,228.33	
50	\$48,331.14	\$161.10	\$604.47	\$47,726.67	\$10,389.43	
51	\$47,726.67	\$159.09	\$606.49	\$47,120.19	\$10,548.52	
52	\$47,120.19	\$157.07	\$608.51	\$46,511.68	\$10,705.59	
53	\$46,511.68	\$155.04	\$610.54	\$45,901.14	\$10,860.63	
54	\$45,901.14	\$153.00	\$612.57	\$45,288.57	\$11,013.63	
55	\$45,288.57	\$150.96	\$614.61	\$44,673.96	\$11,164.59	
56	\$44,673.96	\$148.91	\$616.66	\$44,057.29	\$11,313.51	
57	\$44,057.29	\$146.86	\$618.72	\$43,438.58	\$11,460.37	
58	\$43,438.58	\$144.80	\$620.78	\$42,817.80	\$11,605.16	
59	\$42,817.80	\$142.73	\$622.85	\$42,194.95	\$11,747.89	
60	\$42,194.95	\$140.65	\$624.93	\$41,570.02	\$11,888.54	
61	\$41,570.02	\$138.57	\$627.01	\$40,943.01	\$12,027.10	
62	\$40,943.01	\$136.48	\$629.10	\$40,313.92	\$12,163.58	
63	\$40,313.92	\$134.38	\$631.20	\$39,682.72	\$12,297.96	
64	\$39,682.72	\$132.28	\$633.30	\$39,049.42	\$12,430.24	
65	\$39,049.42	\$130.16	\$635.41	\$38,414.01	\$12,560.40	
66	\$38,414.01	\$128.05	\$637.53	\$37,776.48	\$12,688.45	
67	\$37,776.48	\$125.92	\$639.65	\$37,136.83	\$12,814.37	
68	\$37,136.83	\$123.79	\$641.79	\$36,495.04	\$12,938.16	
69	\$36,495.04	\$121.65	\$643.93	\$35,851.12	\$13,059.81	

Loan Amount	Interest Rate	Term in Years	Monthly Payment	D (Discount Factor) =	98.77017486
\$75,616.00	4.00%	10	\$765.58	P = A/D	\$765.58

Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
70	\$35,851.12	\$119.50	\$646.07	\$35,205.05	\$13,179.31
71	\$35,205.05	\$117.35	\$648.23	\$34,556.82	\$13,296.66
72	\$34,556.82	\$115.19	\$650.39	\$33,906.43	\$13,411.85
73	\$33,906.43	\$113.02	\$652.55	\$33,253.88	\$13,524.87
74	\$33,253.88	\$110.85	\$654.73	\$32,599.15	\$13,635.72
75	\$32,599.15	\$108.66	\$656.91	\$31,942.24	\$13,744.38
76	\$31,942.24	\$106.47	\$659.10	\$31,283.14	\$13,850.86
77	\$31,283.14	\$104.28	\$661.30	\$30,621.84	\$13,955.13
78	\$30,621.84	\$102.07	\$663.50	\$29,958.34	\$14,057.21
79	\$29,958.34	\$99.86	\$665.71	\$29,292.62	\$14,157.07
80	\$29,292.62	\$97.64	\$667.93	\$28,624.69	\$14,254.71
81	\$28,624.69	\$95.42	\$670.16	\$27,954.53	\$14,350.13
82	\$27,954.53	\$93.18	\$672.39	\$27,282.14	\$14,443.31
83	\$27,282.14	\$90.94	\$674.63	\$26,607.50	\$14,534.25
84	\$26,607.50	\$88.69	\$676.88	\$25,930.62	\$14,622.94
85	\$25,930.62	\$86.44	\$679.14	\$25,251.48	\$14,709.38
86	\$25,251.48	\$84.17	\$681.40	\$24,570.08	\$14,793.55
87	\$24,570.08	\$81.90	\$683.67	\$23,886.40	\$14,875.45
88	\$23,886.40	\$79.62	\$685.95	\$23,200.45	\$14,955.07
89	\$23,200.45	\$77.33	\$688.24	\$22,512.21	\$15,032.40
90	\$22,512.21	\$75.04	\$690.53	\$21,821.67	\$15,107.44
91	\$21,821.67	\$72.74	\$692.84	\$21,128.84	\$15,180.18
92	\$21,128.84	\$70.43	\$695.15	\$20,433.69	\$15,250.61
93	\$20,433.69	\$68.11	\$697.46	\$19,736.23	\$15,318.72
94	\$19,736.23	\$65.79	\$699.79	\$19,036.44	\$15,384.51
95	\$19,036.44	\$63.45	\$702.12	\$18,334.32	\$15,447.97
96	\$18,334.32	\$61.11	\$704.46	\$17,629.86	\$15,509.08
97	\$17,629.86	\$58.77	\$706.81	\$16,923.05	\$15,567.85
98	\$16,923.05	\$56.41	\$709.17	\$16,213.88	\$15,624.26
99	\$16,213.88	\$54.05	\$711.53	\$15,502.36	\$15,678.30
100	\$15,502.36	\$51.67	\$713.90	\$14,788.45	\$15,729.98
101	\$14,788.45	\$49.29	\$716.28	\$14,072.17	\$15,779.27
102	\$14,072.17	\$46.91	\$718.67	\$13,353.51	\$15,826.18
103	\$13,353.51	\$44.51	\$721.06	\$12,632.44	\$15,870.69
104	\$12,632.44	\$42.11	\$723.47	\$11,908.98	\$15,912.80
105	\$11,908.98	\$39.70	\$725.88	\$11,183.10	\$15,952.50
106	\$11,183.10	\$37.28	\$728.30	\$10,454.80	\$15,989.77
107	\$10,454.80	\$34.85	\$730.73	\$9,724.07	\$16,024.62
108	\$9,724.07	\$32.41	\$733.16	\$8,990.91	\$16,057.04
109	\$8,990.91	\$29.97	\$735.61	\$8,255.31	\$16,087.01
110	\$8,255.31	\$27.52	\$738.06	\$7,517.25	\$16,114.52
111	\$7,517.25	\$25.06	\$740.52	\$6,776.73	\$16,139.58
112	\$6,776.73	\$22.59	\$742.99	\$6,033.74	\$16,162.17
113	\$6,033.74	\$20.11	\$745.46	\$5,288.28	\$16,182.28
114	\$5,288.28	\$17.63	\$747.95	\$4,540.33	\$16,199.91
115	\$4,540.33	\$15.13	\$750.44	\$3,789.89	\$16,215.05
116	\$3,789.89	\$12.63	\$752.94	\$3,036.95	\$16,227.68
117	\$3,036.95	\$10.12	\$755.45	\$2,281.50	\$16,237.80
118	\$2,281.50	\$7.60	\$757.97	\$1,523.53	\$16,245.41
119	\$1,523.53	\$5.08	\$760.50	\$763.03	\$16,250.48
120	\$763.03	\$2.54	\$763.03	\$0.00	\$16,253.03

				D (Discount Factor) = 135.1921487	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$559.32	
\$75,616.00	4.00%	15	\$559.32		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
1	\$75,616.00	\$252.05	\$307.27	\$75,308.73	\$252.05
2	\$75,308.73	\$251.03	\$308.29	\$75,000.44	\$503.08
3	\$75,000.44	\$250.00	\$309.32	\$74,691.12	\$753.08
4	\$74,691.12	\$248.97	\$310.35	\$74,380.76	\$1,002.05
5	\$74,380.76	\$247.94	\$311.39	\$74,069.38	\$1,249.99
6	\$74,069.38	\$246.90	\$312.42	\$73,756.95	\$1,496.89
7	\$73,756.95	\$245.86	\$313.47	\$73,443.49	\$1,742.74
8	\$73,443.49	\$244.81	\$314.51	\$73,128.98	\$1,987.56
9	\$73,128.98	\$243.76	\$315.56	\$72,813.42	\$2,231.32
10	\$72,813.42	\$242.71	\$316.61	\$72,496.81	\$2,474.03
11	\$72,496.81	\$241.66	\$317.67	\$72,179.14	\$2,715.69
12	\$72,179.14	\$240.60	\$318.73	\$71,860.41	\$2,956.28
13	\$71,860.41	\$239.53	\$319.79	\$71,540.63	\$3,195.82
14	\$71,540.63	\$238.47	\$320.85	\$71,219.77	\$3,434.29
15	\$71,219.77	\$237.40	\$321.92	\$70,897.85	\$3,671.69
16	\$70,897.85	\$236.33	\$323.00	\$70,574.85	\$3,908.01
17	\$70,574.85	\$235.25	\$324.07	\$70,250.78	\$4,143.26
18	\$70,250.78	\$234.17	\$325.15	\$69,925.63	\$4,377.43
19	\$69,925.63	\$233.09	\$326.24	\$69,599.39	\$4,610.52
20	\$69,599.39	\$232.00	\$327.32	\$69,272.07	\$4,842.52
21	\$69,272.07	\$230.91	\$328.42	\$68,943.65	\$5,073.42
22	\$68,943.65	\$229.81	\$329.51	\$68,614.14	\$5,303.23
23	\$68,614.14	\$228.71	\$330.61	\$68,283.53	\$5,531.95
24	\$68,283.53	\$227.61	\$331.71	\$67,951.82	\$5,759.56
25	\$67,951.82	\$226.51	\$332.82	\$67,619.01	\$5,986.07
26	\$67,619.01	\$225.40	\$333.93	\$67,285.08	\$6,211.46
27	\$67,285.08	\$224.28	\$335.04	\$66,950.04	\$6,435.75
28	\$66,950.04	\$223.17	\$336.16	\$66,613.89	\$6,658.91
29	\$66,613.89	\$222.05	\$337.28	\$66,276.61	\$6,880.96
30	\$66,276.61	\$220.92	\$338.40	\$65,938.21	\$7,101.88
31	\$65,938.21	\$219.79	\$339.53	\$65,598.68	\$7,321.68
32	\$65,598.68	\$218.66	\$340.66	\$65,258.02	\$7,540.34
33	\$65,258.02	\$217.53	\$341.80	\$64,916.22	\$7,757.86
34	\$64,916.22	\$216.39	\$342.94	\$64,573.29	\$7,974.25
35	\$64,573.29	\$215.24	\$344.08	\$64,229.21	\$8,189.50
36	\$64,229.21	\$214.10	\$345.23	\$63,883.99	\$8,403.59
37	\$63,883.99	\$212.95	\$346.38	\$63,537.61	\$8,616.54
38	\$63,537.61	\$211.79	\$347.53	\$63,190.08	\$8,828.33
39	\$63,190.08	\$210.63	\$348.69	\$62,841.39	\$9,038.97
40	\$62,841.39	\$209.47	\$349.85	\$62,491.54	\$9,248.44
41	\$62,491.54	\$208.31	\$351.02	\$62,140.52	\$9,456.74
42	\$62,140.52	\$207.14	\$352.19	\$61,788.34	\$9,663.88
43	\$61,788.34	\$205.96	\$353.36	\$61,434.97	\$9,869.84
44	\$61,434.97	\$204.78	\$354.54	\$61,080.43	\$10,074.62
45	\$61,080.43	\$203.60	\$355.72	\$60,724.71	\$10,278.22
46	\$60,724.71	\$202.42	\$356.91	\$60,367.81	\$10,480.64
47	\$60,367.81	\$201.23	\$358.10	\$60,009.71	\$10,681.86
48	\$60,009.71	\$200.03	\$359.29	\$59,650.42	\$10,881.90
49	\$59,650.42	\$198.83	\$360.49	\$59,289.93	\$11,080.73
50	\$59,289.93	\$197.63	\$361.69	\$58,928.24	\$11,278.36
51	\$58,928.24	\$196.43	\$362.89	\$58,565.35	\$11,474.79
52	\$58,565.35	\$195.22	\$364.10	\$58,201.24	\$11,670.01
53	\$58,201.24	\$194.00	\$365.32	\$57,835.93	\$11,864.01
54	\$57,835.93	\$192.79	\$366.54	\$57,469.39	\$12,056.80
55	\$57,469.39	\$191.56	\$367.76	\$57,101.63	\$12,248.37
56	\$57,101.63	\$190.34	\$368.98	\$56,732.65	\$12,438.70
57	\$56,732.65	\$189.11	\$370.21	\$56,362.43	\$12,627.81
58	\$56,362.43	\$187.87	\$371.45	\$55,990.99	\$12,815.69
59	\$55,990.99	\$186.64	\$372.69	\$55,618.30	\$13,002.32
60	\$55,618.30	\$185.39	\$373.93	\$55,244.37	\$13,187.72
61	\$55,244.37	\$184.15	\$375.17	\$54,869.20	\$13,371.87
62	\$54,869.20	\$182.90	\$376.43	\$54,492.77	\$13,554.76
63	\$54,492.77	\$181.64	\$377.68	\$54,115.09	\$13,736.41
64	\$54,115.09	\$180.38	\$378.94	\$53,736.16	\$13,916.79
65	\$53,736.16	\$179.12	\$380.20	\$53,355.95	\$14,095.91
66	\$53,355.95	\$177.85	\$381.47	\$52,974.48	\$14,273.76
67	\$52,974.48	\$176.58	\$382.74	\$52,591.74	\$14,450.35
68	\$52,591.74	\$175.31	\$384.02	\$52,207.73	\$14,625.65
69	\$52,207.73	\$174.03	\$385.30	\$51,822.43	\$14,799.68

				D (Discount Factor) = 135.1921487	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$559.32	
\$75,616.00	4.00%	15	\$559.32		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
70	\$51,822.43	\$172.74	\$386.58	\$51,435.85	\$14,972.42
71	\$51,435.85	\$171.45	\$387.87	\$51,047.98	\$15,143.87
72	\$51,047.98	\$170.16	\$389.16	\$50,658.82	\$15,314.03
73	\$50,658.82	\$168.86	\$390.46	\$50,268.36	\$15,482.89
74	\$50,268.36	\$167.56	\$391.76	\$49,876.60	\$15,650.46
75	\$49,876.60	\$166.26	\$393.07	\$49,483.53	\$15,816.71
76	\$49,483.53	\$164.95	\$394.38	\$49,089.15	\$15,981.66
77	\$49,089.15	\$163.63	\$395.69	\$48,693.46	\$16,145.29
78	\$48,693.46	\$162.31	\$397.01	\$48,296.45	\$16,307.60
79	\$48,296.45	\$160.99	\$398.33	\$47,898.11	\$16,468.59
80	\$47,898.11	\$159.66	\$399.66	\$47,498.45	\$16,628.25
81	\$47,498.45	\$158.33	\$400.99	\$47,097.46	\$16,786.57
82	\$47,097.46	\$156.99	\$402.33	\$46,695.13	\$16,943.57
83	\$46,695.13	\$155.65	\$403.67	\$46,291.46	\$17,099.22
84	\$46,291.46	\$154.30	\$405.02	\$45,886.44	\$17,253.52
85	\$45,886.44	\$152.95	\$406.37	\$45,480.07	\$17,406.48
86	\$45,480.07	\$151.60	\$407.72	\$45,072.35	\$17,558.08
87	\$45,072.35	\$150.24	\$409.08	\$44,663.27	\$17,708.32
88	\$44,663.27	\$148.88	\$410.44	\$44,252.82	\$17,857.19
89	\$44,252.82	\$147.51	\$411.81	\$43,841.01	\$18,004.70
90	\$43,841.01	\$146.14	\$413.19	\$43,427.82	\$18,150.84
91	\$43,427.82	\$144.76	\$414.56	\$43,013.26	\$18,295.60
92	\$43,013.26	\$143.38	\$415.94	\$42,597.32	\$18,438.98
93	\$42,597.32	\$141.99	\$417.33	\$42,179.98	\$18,580.97
94	\$42,179.98	\$140.60	\$418.72	\$41,761.26	\$18,721.57
95	\$41,761.26	\$139.20	\$420.12	\$41,341.14	\$18,860.77
96	\$41,341.14	\$137.80	\$421.52	\$40,919.62	\$18,998.58
97	\$40,919.62	\$136.40	\$422.92	\$40,496.70	\$19,134.98
98	\$40,496.70	\$134.99	\$424.33	\$40,072.37	\$19,269.96
99	\$40,072.37	\$133.57	\$425.75	\$39,646.62	\$19,403.54
100	\$39,646.62	\$132.16	\$427.17	\$39,219.45	\$19,535.69
101	\$39,219.45	\$130.73	\$428.59	\$38,790.86	\$19,666.43
102	\$38,790.86	\$129.30	\$430.02	\$38,360.84	\$19,795.73
103	\$38,360.84	\$127.87	\$431.45	\$37,929.39	\$19,923.60
104	\$37,929.39	\$126.43	\$432.89	\$37,496.50	\$20,050.03
105	\$37,496.50	\$124.99	\$434.33	\$37,062.16	\$20,175.02
106	\$37,062.16	\$123.54	\$435.78	\$36,626.38	\$20,298.56
107	\$36,626.38	\$122.09	\$437.23	\$36,189.15	\$20,420.65
108	\$36,189.15	\$120.63	\$438.69	\$35,750.46	\$20,541.28
109	\$35,750.46	\$119.17	\$440.15	\$35,310.30	\$20,660.45
110	\$35,310.30	\$117.70	\$441.62	\$34,868.68	\$20,778.15
111	\$34,868.68	\$116.23	\$443.09	\$34,425.59	\$20,894.38
112	\$34,425.59	\$114.75	\$444.57	\$33,981.02	\$21,009.13
113	\$33,981.02	\$113.27	\$446.05	\$33,534.96	\$21,122.40
114	\$33,534.96	\$111.78	\$447.54	\$33,087.42	\$21,234.18
115	\$33,087.42	\$110.29	\$449.03	\$32,638.39	\$21,344.47
116	\$32,638.39	\$108.79	\$450.53	\$32,187.87	\$21,453.27
117	\$32,187.87	\$107.29	\$452.03	\$31,735.84	\$21,560.56
118	\$31,735.84	\$105.79	\$453.54	\$31,282.30	\$21,666.35
119	\$31,282.30	\$104.27	\$455.05	\$30,827.25	\$21,770.62
120	\$30,827.25	\$102.76	\$456.56	\$30,370.69	\$21,873.38
121	\$30,370.69	\$101.24	\$458.09	\$29,912.60	\$21,974.61
122	\$29,912.60	\$99.71	\$459.61	\$29,452.99	\$22,074.32
123	\$29,452.99	\$98.18	\$461.15	\$28,991.84	\$22,172.50
124	\$28,991.84	\$96.64	\$462.68	\$28,529.16	\$22,269.14
125	\$28,529.16	\$95.10	\$464.23	\$28,064.93	\$22,364.23
126	\$28,064.93	\$93.55	\$465.77	\$27,599.16	\$22,457.78
127	\$27,599.16	\$92.00	\$467.33	\$27,131.83	\$22,549.78
128	\$27,131.83	\$90.44	\$468.88	\$26,662.95	\$22,640.22
129	\$26,662.95	\$88.88	\$470.45	\$26,192.51	\$22,729.10
130	\$26,192.51	\$87.31	\$472.01	\$25,720.49	\$22,816.41
131	\$25,720.49	\$85.73	\$473.59	\$25,246.90	\$22,902.14
132	\$25,246.90	\$84.16	\$475.17	\$24,771.74	\$22,986.30
133	\$24,771.74	\$82.57	\$476.75	\$24,294.99	\$23,068.87
134	\$24,294.99	\$80.98	\$478.34	\$23,816.65	\$23,149.85
135	\$23,816.65	\$79.39	\$479.93	\$23,336.72	\$23,229.24
136	\$23,336.72	\$77.79	\$481.53	\$22,855.18	\$23,307.03
137	\$22,855.18	\$76.18	\$483.14	\$22,372.04	\$23,383.22
138	\$22,372.04	\$74.57	\$484.75	\$21,887.29	\$23,457.79
139	\$21,887.29	\$72.96	\$486.36	\$21,400.93	\$23,530.75
140	\$21,400.93	\$71.34	\$487.99	\$20,912.94	\$23,602.08
141	\$20,912.94	\$69.71	\$489.61	\$20,423.33	\$23,671.79
142	\$20,423.33	\$68.08	\$491.24	\$19,932.09	\$23,739.87
143	\$19,932.09	\$66.44	\$492.88	\$19,439.20	\$23,806.31

				D (Discount Factor) = 135.1921487	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D	
\$75,616.00	4.00%	15	\$559.32	\$559.32	

Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
144	\$19,439.20	\$64.80	\$494.53	\$18,944.68	\$23,871.11
145	\$18,944.68	\$63.15	\$496.17	\$18,448.51	\$23,934.26
146	\$18,448.51	\$61.50	\$497.83	\$17,950.68	\$23,995.75
147	\$17,950.68	\$59.84	\$499.49	\$17,451.19	\$24,055.59
148	\$17,451.19	\$58.17	\$501.15	\$16,950.04	\$24,113.76
149	\$16,950.04	\$56.50	\$502.82	\$16,447.22	\$24,170.26
150	\$16,447.22	\$54.82	\$504.50	\$15,942.72	\$24,225.08
151	\$15,942.72	\$53.14	\$506.18	\$15,436.54	\$24,278.22
152	\$15,436.54	\$51.46	\$507.87	\$14,928.67	\$24,329.68
153	\$14,928.67	\$49.76	\$509.56	\$14,419.11	\$24,379.44
154	\$14,419.11	\$48.06	\$511.26	\$13,907.85	\$24,427.51
155	\$13,907.85	\$46.36	\$512.96	\$13,394.89	\$24,473.87
156	\$13,394.89	\$44.65	\$514.67	\$12,880.22	\$24,518.51
157	\$12,880.22	\$42.93	\$516.39	\$12,363.83	\$24,561.45
158	\$12,363.83	\$41.21	\$518.11	\$11,845.72	\$24,602.66
159	\$11,845.72	\$39.49	\$519.84	\$11,325.88	\$24,642.15
160	\$11,325.88	\$37.75	\$521.57	\$10,804.31	\$24,679.90
161	\$10,804.31	\$36.01	\$523.31	\$10,281.00	\$24,715.91
162	\$10,281.00	\$34.27	\$525.05	\$9,755.95	\$24,750.18
163	\$9,755.95	\$32.52	\$526.80	\$9,229.15	\$24,782.70
164	\$9,229.15	\$30.76	\$528.56	\$8,700.59	\$24,813.47
165	\$8,700.59	\$29.00	\$530.32	\$8,170.27	\$24,842.47
166	\$8,170.27	\$27.23	\$532.09	\$7,638.18	\$24,869.70
167	\$7,638.18	\$25.46	\$533.86	\$7,104.32	\$24,895.17
168	\$7,104.32	\$23.68	\$535.64	\$6,568.68	\$24,918.85
169	\$6,568.68	\$21.90	\$537.43	\$6,031.25	\$24,940.74
170	\$6,031.25	\$20.10	\$539.22	\$5,492.03	\$24,960.85
171	\$5,492.03	\$18.31	\$541.02	\$4,951.02	\$24,979.15
172	\$4,951.02	\$16.50	\$542.82	\$4,408.20	\$24,995.66
173	\$4,408.20	\$14.69	\$544.63	\$3,863.57	\$25,010.35
174	\$3,863.57	\$12.88	\$546.44	\$3,317.13	\$25,023.23
175	\$3,317.13	\$11.06	\$548.27	\$2,768.86	\$25,034.29
176	\$2,768.86	\$9.23	\$550.09	\$2,218.77	\$25,043.52
177	\$2,218.77	\$7.40	\$551.93	\$1,666.84	\$25,050.91
178	\$1,666.84	\$5.56	\$553.77	\$1,113.08	\$25,056.47
179	\$1,113.08	\$3.71	\$555.61	\$557.46	\$25,060.18
180	\$557.46	\$1.86	\$557.46	\$0.00	\$25,062.04

				D (Discount Factor) =		165.0218582
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D		\$458.22
\$75,616.00	4.00%	20	\$458.22			
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest	
1	\$75,616.00	\$252.05	\$206.16	\$75,409.84	\$252.05	
2	\$75,409.84	\$251.37	\$206.85	\$75,202.98	\$503.42	
3	\$75,202.98	\$250.68	\$207.54	\$74,995.44	\$754.10	
4	\$74,995.44	\$249.98	\$208.23	\$74,787.21	\$1,004.08	
5	\$74,787.21	\$249.29	\$208.93	\$74,578.28	\$1,253.37	
6	\$74,578.28	\$248.59	\$209.62	\$74,368.66	\$1,501.97	
7	\$74,368.66	\$247.90	\$210.32	\$74,158.33	\$1,749.86	
8	\$74,158.33	\$247.19	\$211.02	\$73,947.31	\$1,997.06	
9	\$73,947.31	\$246.49	\$211.73	\$73,735.58	\$2,243.55	
10	\$73,735.58	\$245.79	\$212.43	\$73,523.15	\$2,489.33	
11	\$73,523.15	\$245.08	\$213.14	\$73,310.01	\$2,734.41	
12	\$73,310.01	\$244.37	\$213.85	\$73,096.16	\$2,978.78	
13	\$73,096.16	\$243.65	\$214.56	\$72,881.59	\$3,222.43	
14	\$72,881.59	\$242.94	\$215.28	\$72,666.32	\$3,465.37	
15	\$72,666.32	\$242.22	\$216.00	\$72,450.32	\$3,707.59	
16	\$72,450.32	\$241.50	\$216.72	\$72,233.60	\$3,949.09	
17	\$72,233.60	\$240.78	\$217.44	\$72,016.16	\$4,189.87	
18	\$72,016.16	\$240.05	\$218.16	\$71,798.00	\$4,429.92	
19	\$71,798.00	\$239.33	\$218.89	\$71,579.11	\$4,669.25	
20	\$71,579.11	\$238.60	\$219.62	\$71,359.49	\$4,907.85	
21	\$71,359.49	\$237.86	\$220.35	\$71,139.13	\$5,145.71	
22	\$71,139.13	\$237.13	\$221.09	\$70,918.04	\$5,382.84	
23	\$70,918.04	\$236.39	\$221.82	\$70,696.22	\$5,619.24	
24	\$70,696.22	\$235.65	\$222.56	\$70,473.66	\$5,854.89	
25	\$70,473.66	\$234.91	\$223.31	\$70,250.35	\$6,089.80	
26	\$70,250.35	\$234.17	\$224.05	\$70,026.30	\$6,323.97	
27	\$70,026.30	\$233.42	\$224.80	\$69,801.50	\$6,557.39	
28	\$69,801.50	\$232.67	\$225.55	\$69,575.96	\$6,790.06	
29	\$69,575.96	\$231.92	\$226.30	\$69,349.66	\$7,021.98	
30	\$69,349.66	\$231.17	\$227.05	\$69,122.61	\$7,253.15	
31	\$69,122.61	\$230.41	\$227.81	\$68,894.80	\$7,483.56	
32	\$68,894.80	\$229.65	\$228.57	\$68,666.23	\$7,713.21	
33	\$68,666.23	\$228.89	\$229.33	\$68,436.90	\$7,942.09	
34	\$68,436.90	\$228.12	\$230.10	\$68,206.80	\$8,170.22	
35	\$68,206.80	\$227.36	\$230.86	\$67,975.94	\$8,397.57	
36	\$67,975.94	\$226.59	\$231.63	\$67,744.31	\$8,624.16	
37	\$67,744.31	\$225.81	\$232.40	\$67,511.90	\$8,849.97	
38	\$67,511.90	\$225.04	\$233.18	\$67,278.73	\$9,075.01	
39	\$67,278.73	\$224.26	\$233.96	\$67,044.77	\$9,299.28	
40	\$67,044.77	\$223.48	\$234.74	\$66,810.03	\$9,522.76	
41	\$66,810.03	\$222.70	\$235.52	\$66,574.52	\$9,745.46	
42	\$66,574.52	\$221.92	\$236.30	\$66,338.21	\$9,967.37	
43	\$66,338.21	\$221.13	\$237.09	\$66,101.12	\$10,188.50	
44	\$66,101.12	\$220.34	\$237.88	\$65,863.24	\$10,408.84	
45	\$65,863.24	\$219.54	\$238.67	\$65,624.57	\$10,628.38	
46	\$65,624.57	\$218.75	\$239.47	\$65,385.10	\$10,847.13	
47	\$65,385.10	\$217.95	\$240.27	\$65,144.83	\$11,065.08	
48	\$65,144.83	\$217.15	\$241.07	\$64,903.76	\$11,282.23	
49	\$64,903.76	\$216.35	\$241.87	\$64,661.89	\$11,498.58	
50	\$64,661.89	\$215.54	\$242.68	\$64,419.21	\$11,714.12	
51	\$64,419.21	\$214.73	\$243.49	\$64,175.72	\$11,928.85	
52	\$64,175.72	\$213.92	\$244.30	\$63,931.42	\$12,142.77	
53	\$63,931.42	\$213.10	\$245.11	\$63,686.31	\$12,355.87	
54	\$63,686.31	\$212.29	\$245.93	\$63,440.38	\$12,568.16	
55	\$63,440.38	\$211.47	\$246.75	\$63,193.63	\$12,779.63	
56	\$63,193.63	\$210.65	\$247.57	\$62,946.06	\$12,990.27	
57	\$62,946.06	\$209.82	\$248.40	\$62,697.66	\$13,200.09	
58	\$62,697.66	\$208.99	\$249.23	\$62,448.43	\$13,409.08	
59	\$62,448.43	\$208.16	\$250.06	\$62,198.38	\$13,617.24	
60	\$62,198.38	\$207.33	\$250.89	\$61,947.49	\$13,824.57	
61	\$61,947.49	\$206.49	\$251.73	\$61,695.76	\$14,031.06	
62	\$61,695.76	\$205.65	\$252.57	\$61,443.20	\$14,236.72	
63	\$61,443.20	\$204.81	\$253.41	\$61,189.79	\$14,441.53	
64	\$61,189.79	\$203.97	\$254.25	\$60,935.54	\$14,645.49	
65	\$60,935.54	\$203.12	\$255.10	\$60,680.44	\$14,848.61	
66	\$60,680.44	\$202.27	\$255.95	\$60,424.49	\$15,050.88	
67	\$60,424.49	\$201.41	\$256.80	\$60,167.68	\$15,252.30	
68	\$60,167.68	\$200.56	\$257.66	\$59,910.02	\$15,452.85	
69	\$59,910.02	\$199.70	\$258.52	\$59,651.51	\$15,652.55	

				D (Discount Factor) = 165.0218582	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$458.22	
\$75,616.00	4.00%	20	\$458.22		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
70	\$59,651.51	\$198.84	\$259.38	\$59,392.13	\$15,851.39
71	\$59,392.13	\$197.97	\$260.24	\$59,131.88	\$16,049.37
72	\$59,131.88	\$197.11	\$261.11	\$58,870.77	\$16,246.47
73	\$58,870.77	\$196.24	\$261.98	\$58,608.79	\$16,442.71
74	\$58,608.79	\$195.36	\$262.86	\$58,345.93	\$16,638.07
75	\$58,345.93	\$194.49	\$263.73	\$58,082.20	\$16,832.56
76	\$58,082.20	\$193.61	\$264.61	\$57,817.59	\$17,026.16
77	\$57,817.59	\$192.73	\$265.49	\$57,552.10	\$17,218.89
78	\$57,552.10	\$191.84	\$266.38	\$57,285.72	\$17,410.73
79	\$57,285.72	\$190.95	\$267.27	\$57,018.45	\$17,601.68
80	\$57,018.45	\$190.06	\$268.16	\$56,750.30	\$17,791.74
81	\$56,750.30	\$189.17	\$269.05	\$56,481.25	\$17,980.91
82	\$56,481.25	\$188.27	\$269.95	\$56,211.30	\$18,169.18
83	\$56,211.30	\$187.37	\$270.85	\$55,940.45	\$18,356.55
84	\$55,940.45	\$186.47	\$271.75	\$55,668.70	\$18,543.02
85	\$55,668.70	\$185.56	\$272.66	\$55,396.05	\$18,728.58
86	\$55,396.05	\$184.65	\$273.56	\$55,122.48	\$18,913.24
87	\$55,122.48	\$183.74	\$274.48	\$54,848.01	\$19,096.98
88	\$54,848.01	\$182.83	\$275.39	\$54,572.61	\$19,279.81
89	\$54,572.61	\$181.91	\$276.31	\$54,296.31	\$19,461.71
90	\$54,296.31	\$180.99	\$277.23	\$54,019.07	\$19,642.70
91	\$54,019.07	\$180.06	\$278.15	\$53,740.92	\$19,822.77
92	\$53,740.92	\$179.14	\$279.08	\$53,461.84	\$20,001.90
93	\$53,461.84	\$178.21	\$280.01	\$53,181.83	\$20,180.11
94	\$53,181.83	\$177.27	\$280.95	\$52,900.88	\$20,357.38
95	\$52,900.88	\$176.34	\$281.88	\$52,619.00	\$20,533.72
96	\$52,619.00	\$175.40	\$282.82	\$52,336.18	\$20,709.11
97	\$52,336.18	\$174.45	\$283.76	\$52,052.41	\$20,883.57
98	\$52,052.41	\$173.51	\$284.71	\$51,767.70	\$21,057.08
99	\$51,767.70	\$172.56	\$285.66	\$51,482.04	\$21,229.64
100	\$51,482.04	\$171.61	\$286.61	\$51,195.43	\$21,401.24
101	\$51,195.43	\$170.65	\$287.57	\$50,907.87	\$21,571.89
102	\$50,907.87	\$169.69	\$288.53	\$50,619.34	\$21,741.59
103	\$50,619.34	\$168.73	\$289.49	\$50,329.85	\$21,910.32
104	\$50,329.85	\$167.77	\$290.45	\$50,039.40	\$22,078.08
105	\$50,039.40	\$166.80	\$291.42	\$49,747.98	\$22,244.88
106	\$49,747.98	\$165.83	\$292.39	\$49,455.59	\$22,410.71
107	\$49,455.59	\$164.85	\$293.37	\$49,162.23	\$22,575.56
108	\$49,162.23	\$163.87	\$294.34	\$48,867.88	\$22,739.43
109	\$48,867.88	\$162.89	\$295.33	\$48,572.56	\$22,902.33
110	\$48,572.56	\$161.91	\$296.31	\$48,276.25	\$23,064.24
111	\$48,276.25	\$160.92	\$297.30	\$47,978.95	\$23,225.16
112	\$47,978.95	\$159.93	\$298.29	\$47,680.66	\$23,385.09
113	\$47,680.66	\$158.94	\$299.28	\$47,381.38	\$23,544.02
114	\$47,381.38	\$157.94	\$300.28	\$47,081.10	\$23,701.96
115	\$47,081.10	\$156.94	\$301.28	\$46,779.82	\$23,858.90
116	\$46,779.82	\$155.93	\$302.29	\$46,477.53	\$24,014.83
117	\$46,477.53	\$154.93	\$303.29	\$46,174.24	\$24,169.75
118	\$46,174.24	\$153.91	\$304.30	\$45,869.93	\$24,323.67
119	\$45,869.93	\$152.90	\$305.32	\$45,564.62	\$24,476.57
120	\$45,564.62	\$151.88	\$306.34	\$45,258.28	\$24,628.45
121	\$45,258.28	\$150.86	\$307.36	\$44,950.92	\$24,779.31
122	\$44,950.92	\$149.84	\$308.38	\$44,642.54	\$24,929.15
123	\$44,642.54	\$148.81	\$309.41	\$44,333.13	\$25,077.96
124	\$44,333.13	\$147.78	\$310.44	\$44,022.69	\$25,225.73
125	\$44,022.69	\$146.74	\$311.48	\$43,711.22	\$25,372.48
126	\$43,711.22	\$145.70	\$312.51	\$43,398.70	\$25,518.18
127	\$43,398.70	\$144.66	\$313.56	\$43,085.15	\$25,662.84
128	\$43,085.15	\$143.62	\$314.60	\$42,770.54	\$25,806.46
129	\$42,770.54	\$142.57	\$315.65	\$42,454.89	\$25,949.03
130	\$42,454.89	\$141.52	\$316.70	\$42,138.19	\$26,090.54
131	\$42,138.19	\$140.46	\$317.76	\$41,820.44	\$26,231.00
132	\$41,820.44	\$139.40	\$318.82	\$41,501.62	\$26,370.41
133	\$41,501.62	\$138.34	\$319.88	\$41,181.74	\$26,508.75
134	\$41,181.74	\$137.27	\$320.95	\$40,860.79	\$26,646.02
135	\$40,860.79	\$136.20	\$322.02	\$40,538.78	\$26,782.22
136	\$40,538.78	\$135.13	\$323.09	\$40,215.69	\$26,917.35
137	\$40,215.69	\$134.05	\$324.17	\$39,891.52	\$27,051.40
138	\$39,891.52	\$132.97	\$325.25	\$39,566.28	\$27,184.37
139	\$39,566.28	\$131.89	\$326.33	\$39,239.95	\$27,316.26
140	\$39,239.95	\$130.80	\$327.42	\$38,912.53	\$27,447.06
141	\$38,912.53	\$129.71	\$328.51	\$38,584.02	\$27,576.77
142	\$38,584.02	\$128.61	\$329.60	\$38,254.41	\$27,705.38
143	\$38,254.41	\$127.51	\$330.70	\$37,923.71	\$27,832.90

				D (Discount Factor) = 165.0218582	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$458.22	
\$75,616.00	4.00%	20	\$458.22		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
144	\$37,923.71	\$126.41	\$331.81	\$37,591.91	\$27,959.31
145	\$37,591.91	\$125.31	\$332.91	\$37,258.99	\$28,084.62
146	\$37,258.99	\$124.20	\$334.02	\$36,924.97	\$28,208.81
147	\$36,924.97	\$123.08	\$335.13	\$36,589.84	\$28,331.90
148	\$36,589.84	\$121.97	\$336.25	\$36,253.59	\$28,453.86
149	\$36,253.59	\$120.85	\$337.37	\$35,916.21	\$28,574.71
150	\$35,916.21	\$119.72	\$338.50	\$35,577.72	\$28,694.43
151	\$35,577.72	\$118.59	\$339.63	\$35,238.09	\$28,813.02
152	\$35,238.09	\$117.46	\$340.76	\$34,897.33	\$28,930.48
153	\$34,897.33	\$116.32	\$341.89	\$34,555.44	\$29,046.81
154	\$34,555.44	\$115.18	\$343.03	\$34,212.40	\$29,161.99
155	\$34,212.40	\$114.04	\$344.18	\$33,868.23	\$29,276.03
156	\$33,868.23	\$112.89	\$345.32	\$33,522.90	\$29,388.93
157	\$33,522.90	\$111.74	\$346.48	\$33,176.43	\$29,500.67
158	\$33,176.43	\$110.59	\$347.63	\$32,828.80	\$29,611.26
159	\$32,828.80	\$109.43	\$348.79	\$32,480.01	\$29,720.69
160	\$32,480.01	\$108.27	\$349.95	\$32,130.06	\$29,828.95
161	\$32,130.06	\$107.10	\$351.12	\$31,778.94	\$29,936.05
162	\$31,778.94	\$105.93	\$352.29	\$31,426.65	\$30,041.98
163	\$31,426.65	\$104.76	\$353.46	\$31,073.19	\$30,146.74
164	\$31,073.19	\$103.58	\$354.64	\$30,718.55	\$30,250.32
165	\$30,718.55	\$102.40	\$355.82	\$30,362.73	\$30,352.71
166	\$30,362.73	\$101.21	\$357.01	\$30,005.72	\$30,453.92
167	\$30,005.72	\$100.02	\$358.20	\$29,647.52	\$30,553.94
168	\$29,647.52	\$98.83	\$359.39	\$29,288.13	\$30,652.76
169	\$29,288.13	\$97.63	\$360.59	\$28,927.53	\$30,750.39
170	\$28,927.53	\$96.43	\$361.79	\$28,565.74	\$30,846.82
171	\$28,565.74	\$95.22	\$363.00	\$28,202.74	\$30,942.04
172	\$28,202.74	\$94.01	\$364.21	\$27,838.53	\$31,036.04
173	\$27,838.53	\$92.80	\$365.42	\$27,473.11	\$31,128.84
174	\$27,473.11	\$91.58	\$366.64	\$27,106.47	\$31,220.42
175	\$27,106.47	\$90.35	\$367.86	\$26,738.61	\$31,310.77
176	\$26,738.61	\$89.13	\$369.09	\$26,369.52	\$31,399.90
177	\$26,369.52	\$87.90	\$370.32	\$25,999.20	\$31,487.80
178	\$25,999.20	\$86.66	\$371.55	\$25,627.64	\$31,574.46
179	\$25,627.64	\$85.43	\$372.79	\$25,254.85	\$31,659.89
180	\$25,254.85	\$84.18	\$374.04	\$24,880.82	\$31,744.07
181	\$24,880.82	\$82.94	\$375.28	\$24,505.53	\$31,827.01
182	\$24,505.53	\$81.69	\$376.53	\$24,129.00	\$31,908.69
183	\$24,129.00	\$80.43	\$377.79	\$23,751.21	\$31,989.12
184	\$23,751.21	\$79.17	\$379.05	\$23,372.16	\$32,068.29
185	\$23,372.16	\$77.91	\$380.31	\$22,991.85	\$32,146.20
186	\$22,991.85	\$76.64	\$381.58	\$22,610.28	\$32,222.84
187	\$22,610.28	\$75.37	\$382.85	\$22,227.42	\$32,298.21
188	\$22,227.42	\$74.09	\$384.13	\$21,843.30	\$32,372.30
189	\$21,843.30	\$72.81	\$385.41	\$21,457.89	\$32,445.11
190	\$21,457.89	\$71.53	\$386.69	\$21,071.20	\$32,516.64
191	\$21,071.20	\$70.24	\$387.98	\$20,683.22	\$32,586.87
192	\$20,683.22	\$68.94	\$389.27	\$20,293.94	\$32,655.82
193	\$20,293.94	\$67.65	\$390.57	\$19,903.37	\$32,723.46
194	\$19,903.37	\$66.34	\$391.87	\$19,511.50	\$32,789.81
195	\$19,511.50	\$65.04	\$393.18	\$19,118.32	\$32,854.85
196	\$19,118.32	\$63.73	\$394.49	\$18,723.83	\$32,918.57
197	\$18,723.83	\$62.41	\$395.81	\$18,328.02	\$32,980.99
198	\$18,328.02	\$61.09	\$397.12	\$17,930.90	\$33,042.08
199	\$17,930.90	\$59.77	\$398.45	\$17,532.45	\$33,101.85
200	\$17,532.45	\$58.44	\$399.78	\$17,132.67	\$33,160.29
201	\$17,132.67	\$57.11	\$401.11	\$16,731.57	\$33,217.40
202	\$16,731.57	\$55.77	\$402.45	\$16,329.12	\$33,273.17
203	\$16,329.12	\$54.43	\$403.79	\$15,925.33	\$33,327.60
204	\$15,925.33	\$53.08	\$405.13	\$15,520.20	\$33,380.69
205	\$15,520.20	\$51.73	\$406.48	\$15,113.71	\$33,432.42
206	\$15,113.71	\$50.38	\$407.84	\$14,705.87	\$33,482.80
207	\$14,705.87	\$49.02	\$409.20	\$14,296.68	\$33,531.82
208	\$14,296.68	\$47.66	\$410.56	\$13,886.11	\$33,579.48
209	\$13,886.11	\$46.29	\$411.93	\$13,474.18	\$33,625.76
210	\$13,474.18	\$44.91	\$413.30	\$13,060.88	\$33,670.68
211	\$13,060.88	\$43.54	\$414.68	\$12,646.20	\$33,714.21
212	\$12,646.20	\$42.15	\$416.06	\$12,230.13	\$33,756.37
213	\$12,230.13	\$40.77	\$417.45	\$11,812.68	\$33,797.13
214	\$11,812.68	\$39.38	\$418.84	\$11,393.84	\$33,836.51
215	\$11,393.84	\$37.98	\$420.24	\$10,973.60	\$33,874.49
216	\$10,973.60	\$36.58	\$421.64	\$10,551.96	\$33,911.07
217	\$10,551.96	\$35.17	\$423.04	\$10,128.92	\$33,946.24

				D (Discount Factor) = 165.0218582	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$458.22	
\$75,616.00	4.00%	20	\$458.22		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
218	\$10,128.92	\$33.76	\$424.46	\$9,704.46	\$33,980.00
219	\$9,704.46	\$32.35	\$425.87	\$9,278.59	\$34,012.35
220	\$9,278.59	\$30.93	\$427.29	\$8,851.30	\$34,043.28
221	\$8,851.30	\$29.50	\$428.71	\$8,422.59	\$34,072.78
222	\$8,422.59	\$28.08	\$430.14	\$7,992.45	\$34,100.86
223	\$7,992.45	\$26.64	\$431.58	\$7,560.87	\$34,127.50
224	\$7,560.87	\$25.20	\$433.02	\$7,127.85	\$34,152.70
225	\$7,127.85	\$23.76	\$434.46	\$6,693.39	\$34,176.46
226	\$6,693.39	\$22.31	\$435.91	\$6,257.49	\$34,198.78
227	\$6,257.49	\$20.86	\$437.36	\$5,820.13	\$34,219.63
228	\$5,820.13	\$19.40	\$438.82	\$5,381.31	\$34,239.03
229	\$5,381.31	\$17.94	\$440.28	\$4,941.03	\$34,256.97
230	\$4,941.03	\$16.47	\$441.75	\$4,499.28	\$34,273.44
231	\$4,499.28	\$15.00	\$443.22	\$4,056.06	\$34,288.44
232	\$4,056.06	\$13.52	\$444.70	\$3,611.36	\$34,301.96
233	\$3,611.36	\$12.04	\$446.18	\$3,165.18	\$34,314.00
234	\$3,165.18	\$10.55	\$447.67	\$2,717.52	\$34,324.55
235	\$2,717.52	\$9.06	\$449.16	\$2,268.36	\$34,333.61
236	\$2,268.36	\$7.56	\$450.66	\$1,817.70	\$34,341.17
237	\$1,817.70	\$6.06	\$452.16	\$1,365.54	\$34,347.23
238	\$1,365.54	\$4.55	\$453.67	\$911.87	\$34,351.78
239	\$911.87	\$3.04	\$455.18	\$456.70	\$34,354.82
240	\$456.70	\$1.52	\$456.70	\$0.00	\$34,356.34

				D (Discount Factor) = 98.77017486	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$308.04	
\$30,425.00	4.00%	10	\$308.04		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
1	\$30,425.00	\$101.42	\$206.62	\$30,218.38	\$101.42
2	\$30,218.38	\$100.73	\$207.31	\$30,011.07	\$202.14
3	\$30,011.07	\$100.04	\$208.00	\$29,803.07	\$302.18
4	\$29,803.07	\$99.34	\$208.69	\$29,594.37	\$401.53
5	\$29,594.37	\$98.65	\$209.39	\$29,384.98	\$500.17
6	\$29,384.98	\$97.95	\$210.09	\$29,174.89	\$598.12
7	\$29,174.89	\$97.25	\$210.79	\$28,964.10	\$695.37
8	\$28,964.10	\$96.55	\$211.49	\$28,752.61	\$791.92
9	\$28,752.61	\$95.84	\$212.20	\$28,540.42	\$887.76
10	\$28,540.42	\$95.13	\$212.90	\$28,327.51	\$982.90
11	\$28,327.51	\$94.43	\$213.61	\$28,113.90	\$1,077.32
12	\$28,113.90	\$93.71	\$214.33	\$27,899.57	\$1,171.03
13	\$27,899.57	\$93.00	\$215.04	\$27,684.53	\$1,264.03
14	\$27,684.53	\$92.28	\$215.76	\$27,468.78	\$1,356.31
15	\$27,468.78	\$91.56	\$216.48	\$27,252.30	\$1,447.88
16	\$27,252.30	\$90.84	\$217.20	\$27,035.10	\$1,538.72
17	\$27,035.10	\$90.12	\$217.92	\$26,817.18	\$1,628.84
18	\$26,817.18	\$89.39	\$218.65	\$26,598.54	\$1,718.23
19	\$26,598.54	\$88.66	\$219.38	\$26,379.16	\$1,806.89
20	\$26,379.16	\$87.93	\$220.11	\$26,159.05	\$1,894.82
21	\$26,159.05	\$87.20	\$220.84	\$25,938.21	\$1,982.02
22	\$25,938.21	\$86.46	\$221.58	\$25,716.63	\$2,068.48
23	\$25,716.63	\$85.72	\$222.32	\$25,494.32	\$2,154.20
24	\$25,494.32	\$84.98	\$223.06	\$25,271.26	\$2,239.18
25	\$25,271.26	\$84.24	\$223.80	\$25,047.46	\$2,323.42
26	\$25,047.46	\$83.49	\$224.55	\$24,822.91	\$2,406.91
27	\$24,822.91	\$82.74	\$225.30	\$24,597.62	\$2,489.65
28	\$24,597.62	\$81.99	\$226.05	\$24,371.57	\$2,571.64
29	\$24,371.57	\$81.24	\$226.80	\$24,144.77	\$2,652.88
30	\$24,144.77	\$80.48	\$227.56	\$23,917.21	\$2,733.36
31	\$23,917.21	\$79.72	\$228.31	\$23,688.90	\$2,813.09
32	\$23,688.90	\$78.96	\$229.08	\$23,459.82	\$2,892.05
33	\$23,459.82	\$78.20	\$229.84	\$23,229.99	\$2,970.25
34	\$23,229.99	\$77.43	\$230.61	\$22,999.38	\$3,047.68
35	\$22,999.38	\$76.66	\$231.37	\$22,768.01	\$3,124.35
36	\$22,768.01	\$75.89	\$232.14	\$22,535.86	\$3,200.24
37	\$22,535.86	\$75.12	\$232.92	\$22,302.94	\$3,275.36
38	\$22,302.94	\$74.34	\$233.70	\$22,069.25	\$3,349.70
39	\$22,069.25	\$73.56	\$234.47	\$21,834.77	\$3,423.27
40	\$21,834.77	\$72.78	\$235.26	\$21,599.52	\$3,496.05
41	\$21,599.52	\$72.00	\$236.04	\$21,363.48	\$3,568.05
42	\$21,363.48	\$71.21	\$236.83	\$21,126.65	\$3,639.26
43	\$21,126.65	\$70.42	\$237.62	\$20,889.04	\$3,709.68
44	\$20,889.04	\$69.63	\$238.41	\$20,650.63	\$3,779.31
45	\$20,650.63	\$68.84	\$239.20	\$20,411.42	\$3,848.15
46	\$20,411.42	\$68.04	\$240.00	\$20,171.42	\$3,916.19
47	\$20,171.42	\$67.24	\$240.80	\$19,930.62	\$3,983.43
48	\$19,930.62	\$66.44	\$241.60	\$19,689.02	\$4,049.86
49	\$19,689.02	\$65.63	\$242.41	\$19,446.61	\$4,115.49
50	\$19,446.61	\$64.82	\$243.22	\$19,203.40	\$4,180.31
51	\$19,203.40	\$64.01	\$244.03	\$18,959.37	\$4,244.32
52	\$18,959.37	\$63.20	\$244.84	\$18,714.53	\$4,307.52
53	\$18,714.53	\$62.38	\$245.66	\$18,468.87	\$4,369.90
54	\$18,468.87	\$61.56	\$246.48	\$18,222.40	\$4,431.47
55	\$18,222.40	\$60.74	\$247.30	\$17,975.10	\$4,492.21
56	\$17,975.10	\$59.92	\$248.12	\$17,726.98	\$4,552.12
57	\$17,726.98	\$59.09	\$248.95	\$17,478.03	\$4,611.21
58	\$17,478.03	\$58.26	\$249.78	\$17,228.25	\$4,669.47
59	\$17,228.25	\$57.43	\$250.61	\$16,977.64	\$4,726.90
60	\$16,977.64	\$56.59	\$251.45	\$16,726.19	\$4,783.49
61	\$16,726.19	\$55.75	\$252.28	\$16,473.91	\$4,839.25
62	\$16,473.91	\$54.91	\$253.13	\$16,220.79	\$4,894.16
63	\$16,220.79	\$54.07	\$253.97	\$15,966.82	\$4,948.23
64	\$15,966.82	\$53.22	\$254.82	\$15,712.00	\$5,001.45
65	\$15,712.00	\$52.37	\$255.66	\$15,456.34	\$5,053.83
66	\$15,456.34	\$51.52	\$256.52	\$15,199.82	\$5,105.35
67	\$15,199.82	\$50.67	\$257.37	\$14,942.45	\$5,156.01
68	\$14,942.45	\$49.81	\$258.23	\$14,684.22	\$5,205.82
69	\$14,684.22	\$48.95	\$259.09	\$14,425.12	\$5,254.77

				D (Discount Factor) = 98.77017486	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D	
\$30,425.00	4.00%	10	\$308.04	\$308.04	
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
70	\$14,425.12	\$48.08	\$259.95	\$14,165.17	\$5,302.85
71	\$14,165.17	\$47.22	\$260.82	\$13,904.35	\$5,350.07
72	\$13,904.35	\$46.35	\$261.69	\$13,642.66	\$5,396.42
73	\$13,642.66	\$45.48	\$262.56	\$13,380.10	\$5,441.89
74	\$13,380.10	\$44.60	\$263.44	\$13,116.66	\$5,486.49
75	\$13,116.66	\$43.72	\$264.32	\$12,852.34	\$5,530.22
76	\$12,852.34	\$42.84	\$265.20	\$12,587.14	\$5,573.06
77	\$12,587.14	\$41.96	\$266.08	\$12,321.06	\$5,615.01
78	\$12,321.06	\$41.07	\$266.97	\$12,054.10	\$5,656.09
79	\$12,054.10	\$40.18	\$267.86	\$11,786.24	\$5,696.27
80	\$11,786.24	\$39.29	\$268.75	\$11,517.49	\$5,735.55
81	\$11,517.49	\$38.39	\$269.65	\$11,247.84	\$5,773.94
82	\$11,247.84	\$37.49	\$270.55	\$10,977.29	\$5,811.44
83	\$10,977.29	\$36.59	\$271.45	\$10,705.85	\$5,848.03
84	\$10,705.85	\$35.69	\$272.35	\$10,433.49	\$5,883.71
85	\$10,433.49	\$34.78	\$273.26	\$10,160.23	\$5,918.49
86	\$10,160.23	\$33.87	\$274.17	\$9,886.06	\$5,952.36
87	\$9,886.06	\$32.95	\$275.08	\$9,610.98	\$5,985.31
88	\$9,610.98	\$32.04	\$276.00	\$9,334.98	\$6,017.35
89	\$9,334.98	\$31.12	\$276.92	\$9,058.06	\$6,048.47
90	\$9,058.06	\$30.19	\$277.84	\$8,780.21	\$6,078.66
91	\$8,780.21	\$29.27	\$278.77	\$8,501.44	\$6,107.93
92	\$8,501.44	\$28.34	\$279.70	\$8,221.74	\$6,136.27
93	\$8,221.74	\$27.41	\$280.63	\$7,941.11	\$6,163.67
94	\$7,941.11	\$26.47	\$281.57	\$7,659.54	\$6,190.14
95	\$7,659.54	\$25.53	\$282.51	\$7,377.03	\$6,215.67
96	\$7,377.03	\$24.59	\$283.45	\$7,093.58	\$6,240.26
97	\$7,093.58	\$23.65	\$284.39	\$6,809.19	\$6,263.91
98	\$6,809.19	\$22.70	\$285.34	\$6,523.85	\$6,286.61
99	\$6,523.85	\$21.75	\$286.29	\$6,237.56	\$6,308.35
100	\$6,237.56	\$20.79	\$287.25	\$5,950.31	\$6,329.14
101	\$5,950.31	\$19.83	\$288.20	\$5,662.11	\$6,348.98
102	\$5,662.11	\$18.87	\$289.16	\$5,372.94	\$6,367.85
103	\$5,372.94	\$17.91	\$290.13	\$5,082.81	\$6,385.76
104	\$5,082.81	\$16.94	\$291.10	\$4,791.72	\$6,402.71
105	\$4,791.72	\$15.97	\$292.07	\$4,499.65	\$6,418.68
106	\$4,499.65	\$15.00	\$293.04	\$4,206.61	\$6,433.68
107	\$4,206.61	\$14.02	\$294.02	\$3,912.60	\$6,447.70
108	\$3,912.60	\$13.04	\$295.00	\$3,617.60	\$6,460.74
109	\$3,617.60	\$12.06	\$295.98	\$3,321.62	\$6,472.80
110	\$3,321.62	\$11.07	\$296.97	\$3,024.65	\$6,483.87
111	\$3,024.65	\$10.08	\$297.96	\$2,726.70	\$6,493.95
112	\$2,726.70	\$9.09	\$298.95	\$2,427.75	\$6,503.04
113	\$2,427.75	\$8.09	\$299.95	\$2,127.80	\$6,511.13
114	\$2,127.80	\$7.09	\$300.95	\$1,826.86	\$6,518.23
115	\$1,826.86	\$6.09	\$301.95	\$1,524.91	\$6,524.32
116	\$1,524.91	\$5.08	\$302.96	\$1,221.95	\$6,529.40
117	\$1,221.95	\$4.07	\$303.97	\$917.99	\$6,533.47
118	\$917.99	\$3.06	\$304.98	\$613.01	\$6,536.53
119	\$613.01	\$2.04	\$305.99	\$307.01	\$6,538.58
120	\$307.01	\$1.02	\$307.01	\$0.00	\$6,539.60

				D (Discount Factor) = 135.1921487	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D	
\$30,425.00	4.00%	15	\$225.05	\$225.05	
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
1	\$30,425.00	\$101.42	\$123.63	\$30,301.37	\$101.42
2	\$30,301.37	\$101.00	\$124.05	\$30,177.32	\$202.42
3	\$30,177.32	\$100.59	\$124.46	\$30,052.86	\$303.01
4	\$30,052.86	\$100.18	\$124.87	\$29,927.99	\$403.19
5	\$29,927.99	\$99.76	\$125.29	\$29,802.70	\$502.95
6	\$29,802.70	\$99.34	\$125.71	\$29,676.99	\$602.29
7	\$29,676.99	\$98.92	\$126.13	\$29,550.86	\$701.21
8	\$29,550.86	\$98.50	\$126.55	\$29,424.32	\$799.72
9	\$29,424.32	\$98.08	\$126.97	\$29,297.35	\$897.80
10	\$29,297.35	\$97.66	\$127.39	\$29,169.96	\$995.46
11	\$29,169.96	\$97.23	\$127.82	\$29,042.14	\$1,092.69
12	\$29,042.14	\$96.81	\$128.24	\$28,913.90	\$1,189.50
13	\$28,913.90	\$96.38	\$128.67	\$28,785.23	\$1,285.88
14	\$28,785.23	\$95.95	\$129.10	\$28,656.13	\$1,381.83
15	\$28,656.13	\$95.52	\$129.53	\$28,526.60	\$1,477.35
16	\$28,526.60	\$95.09	\$129.96	\$28,396.63	\$1,572.44
17	\$28,396.63	\$94.66	\$130.39	\$28,266.24	\$1,667.09
18	\$28,266.24	\$94.22	\$130.83	\$28,135.41	\$1,761.31
19	\$28,135.41	\$93.78	\$131.27	\$28,004.15	\$1,855.10
20	\$28,004.15	\$93.35	\$131.70	\$27,872.44	\$1,948.44
21	\$27,872.44	\$92.91	\$132.14	\$27,740.30	\$2,041.35
22	\$27,740.30	\$92.47	\$132.58	\$27,607.72	\$2,133.82
23	\$27,607.72	\$92.03	\$133.02	\$27,474.69	\$2,225.85
24	\$27,474.69	\$91.58	\$133.47	\$27,341.23	\$2,317.43
25	\$27,341.23	\$91.14	\$133.91	\$27,207.31	\$2,408.57
26	\$27,207.31	\$90.69	\$134.36	\$27,072.95	\$2,499.26
27	\$27,072.95	\$90.24	\$134.81	\$26,938.15	\$2,589.50
28	\$26,938.15	\$89.79	\$135.26	\$26,802.89	\$2,679.29
29	\$26,802.89	\$89.34	\$135.71	\$26,667.18	\$2,768.64
30	\$26,667.18	\$88.89	\$136.16	\$26,531.03	\$2,857.53
31	\$26,531.03	\$88.44	\$136.61	\$26,394.41	\$2,945.96
32	\$26,394.41	\$87.98	\$137.07	\$26,257.34	\$3,033.94
33	\$26,257.34	\$87.52	\$137.53	\$26,119.82	\$3,121.47
34	\$26,119.82	\$87.07	\$137.98	\$25,981.83	\$3,208.54
35	\$25,981.83	\$86.61	\$138.44	\$25,843.39	\$3,295.14
36	\$25,843.39	\$86.14	\$138.91	\$25,704.48	\$3,381.29
37	\$25,704.48	\$85.68	\$139.37	\$25,565.12	\$3,466.97
38	\$25,565.12	\$85.22	\$139.83	\$25,425.28	\$3,552.18
39	\$25,425.28	\$84.75	\$140.30	\$25,284.98	\$3,636.94
40	\$25,284.98	\$84.28	\$140.77	\$25,144.22	\$3,721.22
41	\$25,144.22	\$83.81	\$141.24	\$25,002.98	\$3,805.03
42	\$25,002.98	\$83.34	\$141.71	\$24,861.27	\$3,888.38
43	\$24,861.27	\$82.87	\$142.18	\$24,719.09	\$3,971.25
44	\$24,719.09	\$82.40	\$142.65	\$24,576.44	\$4,053.64
45	\$24,576.44	\$81.92	\$143.13	\$24,433.31	\$4,135.57
46	\$24,433.31	\$81.44	\$143.61	\$24,289.71	\$4,217.01
47	\$24,289.71	\$80.97	\$144.08	\$24,145.62	\$4,297.98
48	\$24,145.62	\$80.49	\$144.56	\$24,001.06	\$4,378.46
49	\$24,001.06	\$80.00	\$145.05	\$23,856.01	\$4,458.46
50	\$23,856.01	\$79.52	\$145.53	\$23,710.48	\$4,537.98
51	\$23,710.48	\$79.03	\$146.02	\$23,564.47	\$4,617.02
52	\$23,564.47	\$78.55	\$146.50	\$23,417.97	\$4,695.57
53	\$23,417.97	\$78.06	\$146.99	\$23,270.98	\$4,773.63
54	\$23,270.98	\$77.57	\$147.48	\$23,123.49	\$4,851.20
55	\$23,123.49	\$77.08	\$147.97	\$22,975.52	\$4,928.28
56	\$22,975.52	\$76.59	\$148.46	\$22,827.06	\$5,004.86
57	\$22,827.06	\$76.09	\$148.96	\$22,678.10	\$5,080.95
58	\$22,678.10	\$75.59	\$149.46	\$22,528.64	\$5,156.54
59	\$22,528.64	\$75.10	\$149.95	\$22,378.69	\$5,231.64
60	\$22,378.69	\$74.60	\$150.45	\$22,228.23	\$5,306.24
61	\$22,228.23	\$74.09	\$150.96	\$22,077.28	\$5,380.33
62	\$22,077.28	\$73.59	\$151.46	\$21,925.82	\$5,453.92
63	\$21,925.82	\$73.09	\$151.96	\$21,773.85	\$5,527.01
64	\$21,773.85	\$72.58	\$152.47	\$21,621.38	\$5,599.59
65	\$21,621.38	\$72.07	\$152.98	\$21,468.40	\$5,671.66
66	\$21,468.40	\$71.56	\$153.49	\$21,314.92	\$5,743.22
67	\$21,314.92	\$71.05	\$154.00	\$21,160.92	\$5,814.27
68	\$21,160.92	\$70.54	\$154.51	\$21,006.40	\$5,884.81
69	\$21,006.40	\$70.02	\$155.03	\$20,851.37	\$5,954.83

				D (Discount Factor) = 135.1921487	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$225.05	
\$30,425.00	4.00%	15	\$225.05		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
70	\$20,851.37	\$69.50	\$155.55	\$20,695.83	\$6,024.33
71	\$20,695.83	\$68.99	\$156.06	\$20,539.76	\$6,093.32
72	\$20,539.76	\$68.47	\$156.58	\$20,383.18	\$6,161.78
73	\$20,383.18	\$67.94	\$157.11	\$20,226.07	\$6,229.73
74	\$20,226.07	\$67.42	\$157.63	\$20,068.44	\$6,297.15
75	\$20,068.44	\$66.89	\$158.16	\$19,910.29	\$6,364.04
76	\$19,910.29	\$66.37	\$158.68	\$19,751.61	\$6,430.41
77	\$19,751.61	\$65.84	\$159.21	\$19,592.39	\$6,496.25
78	\$19,592.39	\$65.31	\$159.74	\$19,432.65	\$6,561.56
79	\$19,432.65	\$64.78	\$160.27	\$19,272.38	\$6,626.33
80	\$19,272.38	\$64.24	\$160.81	\$19,111.57	\$6,690.57
81	\$19,111.57	\$63.71	\$161.34	\$18,950.22	\$6,754.28
82	\$18,950.22	\$63.17	\$161.88	\$18,788.34	\$6,817.45
83	\$18,788.34	\$62.63	\$162.42	\$18,625.92	\$6,880.07
84	\$18,625.92	\$62.09	\$162.96	\$18,462.96	\$6,942.16
85	\$18,462.96	\$61.54	\$163.51	\$18,299.45	\$7,003.70
86	\$18,299.45	\$61.00	\$164.05	\$18,135.40	\$7,064.70
87	\$18,135.40	\$60.45	\$164.60	\$17,970.80	\$7,125.15
88	\$17,970.80	\$59.90	\$165.15	\$17,805.65	\$7,185.06
89	\$17,805.65	\$59.35	\$165.70	\$17,639.95	\$7,244.41
90	\$17,639.95	\$58.80	\$166.25	\$17,473.70	\$7,303.21
91	\$17,473.70	\$58.25	\$166.80	\$17,306.90	\$7,361.45
92	\$17,306.90	\$57.69	\$167.36	\$17,139.54	\$7,419.14
93	\$17,139.54	\$57.13	\$167.92	\$16,971.62	\$7,476.27
94	\$16,971.62	\$56.57	\$168.48	\$16,803.14	\$7,532.85
95	\$16,803.14	\$56.01	\$169.04	\$16,634.10	\$7,588.86
96	\$16,634.10	\$55.45	\$169.60	\$16,464.50	\$7,644.30
97	\$16,464.50	\$54.88	\$170.17	\$16,294.33	\$7,699.19
98	\$16,294.33	\$54.31	\$170.74	\$16,123.60	\$7,753.50
99	\$16,123.60	\$53.75	\$171.30	\$15,952.29	\$7,807.25
100	\$15,952.29	\$53.17	\$171.88	\$15,780.41	\$7,860.42
101	\$15,780.41	\$52.60	\$172.45	\$15,607.97	\$7,913.02
102	\$15,607.97	\$52.03	\$173.02	\$15,434.94	\$7,965.05
103	\$15,434.94	\$51.45	\$173.60	\$15,261.34	\$8,016.50
104	\$15,261.34	\$50.87	\$174.18	\$15,087.16	\$8,067.37
105	\$15,087.16	\$50.29	\$174.76	\$14,912.40	\$8,117.66
106	\$14,912.40	\$49.71	\$175.34	\$14,737.06	\$8,167.37
107	\$14,737.06	\$49.12	\$175.93	\$14,561.14	\$8,216.49
108	\$14,561.14	\$48.54	\$176.51	\$14,384.62	\$8,265.03
109	\$14,384.62	\$47.95	\$177.10	\$14,207.52	\$8,312.98
110	\$14,207.52	\$47.36	\$177.69	\$14,029.83	\$8,360.34
111	\$14,029.83	\$46.77	\$178.28	\$13,851.55	\$8,407.10
112	\$13,851.55	\$46.17	\$178.88	\$13,672.67	\$8,453.27
113	\$13,672.67	\$45.58	\$179.47	\$13,493.19	\$8,498.85
114	\$13,493.19	\$44.98	\$180.07	\$13,313.12	\$8,543.83
115	\$13,313.12	\$44.38	\$180.67	\$13,132.45	\$8,588.20
116	\$13,132.45	\$43.77	\$181.28	\$12,951.17	\$8,631.98
117	\$12,951.17	\$43.17	\$181.88	\$12,769.29	\$8,675.15
118	\$12,769.29	\$42.56	\$182.49	\$12,586.81	\$8,717.71
119	\$12,586.81	\$41.96	\$183.09	\$12,403.71	\$8,759.67
120	\$12,403.71	\$41.35	\$183.70	\$12,220.01	\$8,801.01
121	\$12,220.01	\$40.73	\$184.32	\$12,035.69	\$8,841.75
122	\$12,035.69	\$40.12	\$184.93	\$11,850.76	\$8,881.87
123	\$11,850.76	\$39.50	\$185.55	\$11,665.21	\$8,921.37
124	\$11,665.21	\$38.88	\$186.17	\$11,479.05	\$8,960.25
125	\$11,479.05	\$38.26	\$186.79	\$11,292.26	\$8,998.52
126	\$11,292.26	\$37.64	\$187.41	\$11,104.85	\$9,036.16
127	\$11,104.85	\$37.02	\$188.03	\$10,916.82	\$9,073.17
128	\$10,916.82	\$36.39	\$188.66	\$10,728.16	\$9,109.56
129	\$10,728.16	\$35.76	\$189.29	\$10,538.87	\$9,145.32
130	\$10,538.87	\$35.13	\$189.92	\$10,348.95	\$9,180.45
131	\$10,348.95	\$34.50	\$190.55	\$10,158.39	\$9,214.95
132	\$10,158.39	\$33.86	\$191.19	\$9,967.20	\$9,248.81
133	\$9,967.20	\$33.22	\$191.83	\$9,775.38	\$9,282.04
134	\$9,775.38	\$32.58	\$192.47	\$9,582.91	\$9,314.62
135	\$9,582.91	\$31.94	\$193.11	\$9,389.81	\$9,346.56
136	\$9,389.81	\$31.30	\$193.75	\$9,196.06	\$9,377.86
137	\$9,196.06	\$30.65	\$194.40	\$9,001.66	\$9,408.52
138	\$9,001.66	\$30.01	\$195.04	\$8,806.61	\$9,438.52
139	\$8,806.61	\$29.36	\$195.69	\$8,610.92	\$9,467.88
140	\$8,610.92	\$28.70	\$196.35	\$8,414.57	\$9,496.58
141	\$8,414.57	\$28.05	\$197.00	\$8,217.57	\$9,524.63
142	\$8,217.57	\$27.39	\$197.66	\$8,019.91	\$9,552.02
143	\$8,019.91	\$26.73	\$198.32	\$7,821.60	\$9,578.75

				D (Discount Factor) = 135.1921487	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D	
\$30,425.00	4.00%	15	\$225.05	\$225.05	
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
144	\$7,821.60	\$26.07	\$198.98	\$7,622.62	\$9,604.83
145	\$7,622.62	\$25.41	\$199.64	\$7,422.98	\$9,630.23
146	\$7,422.98	\$24.74	\$200.31	\$7,222.67	\$9,654.98
147	\$7,222.67	\$24.08	\$200.97	\$7,021.70	\$9,679.05
148	\$7,021.70	\$23.41	\$201.64	\$6,820.05	\$9,702.46
149	\$6,820.05	\$22.73	\$202.32	\$6,617.73	\$9,725.19
150	\$6,617.73	\$22.06	\$202.99	\$6,414.74	\$9,747.25
151	\$6,414.74	\$21.38	\$203.67	\$6,211.08	\$9,768.63
152	\$6,211.08	\$20.70	\$204.35	\$6,006.73	\$9,789.34
153	\$6,006.73	\$20.02	\$205.03	\$5,801.70	\$9,809.36
154	\$5,801.70	\$19.34	\$205.71	\$5,595.99	\$9,828.70
155	\$5,595.99	\$18.65	\$206.40	\$5,389.59	\$9,847.35
156	\$5,389.59	\$17.97	\$207.08	\$5,182.51	\$9,865.32
157	\$5,182.51	\$17.28	\$207.78	\$4,974.73	\$9,882.59
158	\$4,974.73	\$16.58	\$208.47	\$4,766.27	\$9,899.17
159	\$4,766.27	\$15.89	\$209.16	\$4,557.10	\$9,915.06
160	\$4,557.10	\$15.19	\$209.86	\$4,347.24	\$9,930.25
161	\$4,347.24	\$14.49	\$210.56	\$4,136.68	\$9,944.74
162	\$4,136.68	\$13.79	\$211.26	\$3,925.42	\$9,958.53
163	\$3,925.42	\$13.08	\$211.97	\$3,713.46	\$9,971.62
164	\$3,713.46	\$12.38	\$212.67	\$3,500.79	\$9,984.00
165	\$3,500.79	\$11.67	\$213.38	\$3,287.41	\$9,995.66
166	\$3,287.41	\$10.96	\$214.09	\$3,073.31	\$10,006.62
167	\$3,073.31	\$10.24	\$214.81	\$2,858.51	\$10,016.87
168	\$2,858.51	\$9.53	\$215.52	\$2,642.99	\$10,026.40
169	\$2,642.99	\$8.81	\$216.24	\$2,426.75	\$10,035.21
170	\$2,426.75	\$8.09	\$216.96	\$2,209.79	\$10,043.29
171	\$2,209.79	\$7.37	\$217.68	\$1,992.10	\$10,050.66
172	\$1,992.10	\$6.64	\$218.41	\$1,773.69	\$10,057.30
173	\$1,773.69	\$5.91	\$219.14	\$1,554.55	\$10,063.21
174	\$1,554.55	\$5.18	\$219.87	\$1,334.69	\$10,068.39
175	\$1,334.69	\$4.45	\$220.60	\$1,114.08	\$10,072.84
176	\$1,114.08	\$3.71	\$221.34	\$892.75	\$10,076.56
177	\$892.75	\$2.98	\$222.07	\$670.67	\$10,079.53
178	\$670.67	\$2.24	\$222.81	\$447.86	\$10,081.77
179	\$447.86	\$1.49	\$223.56	\$224.30	\$10,083.26
180	\$224.30	\$0.75	\$224.30	\$0.00	\$10,084.01

				D (Discount Factor) = P = A/D		165.0218582 \$184.37
Loan Amount	Interest Rate	Term in Years	Monthly Payment			
\$30,425.00	4.00%	20	\$184.37			
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest	
1	\$30,425.00	\$101.42	\$82.95	\$30,342.05	\$101.42	
2	\$30,342.05	\$101.14	\$83.23	\$30,258.82	\$202.56	
3	\$30,258.82	\$100.86	\$83.51	\$30,175.31	\$303.42	
4	\$30,175.31	\$100.58	\$83.79	\$30,091.53	\$404.00	
5	\$30,091.53	\$100.31	\$84.06	\$30,007.46	\$504.31	
6	\$30,007.46	\$100.02	\$84.34	\$29,923.12	\$604.33	
7	\$29,923.12	\$99.74	\$84.63	\$29,838.49	\$704.08	
8	\$29,838.49	\$99.46	\$84.91	\$29,753.58	\$803.54	
9	\$29,753.58	\$99.18	\$85.19	\$29,668.39	\$902.72	
10	\$29,668.39	\$98.89	\$85.47	\$29,582.92	\$1,001.61	
11	\$29,582.92	\$98.61	\$85.76	\$29,497.16	\$1,100.22	
12	\$29,497.16	\$98.32	\$86.05	\$29,411.11	\$1,198.55	
13	\$29,411.11	\$98.04	\$86.33	\$29,324.78	\$1,296.58	
14	\$29,324.78	\$97.75	\$86.62	\$29,238.16	\$1,394.33	
15	\$29,238.16	\$97.46	\$86.91	\$29,151.25	\$1,491.79	
16	\$29,151.25	\$97.17	\$87.20	\$29,064.05	\$1,588.96	
17	\$29,064.05	\$96.88	\$87.49	\$28,976.56	\$1,685.84	
18	\$28,976.56	\$96.59	\$87.78	\$28,888.78	\$1,782.43	
19	\$28,888.78	\$96.30	\$88.07	\$28,800.71	\$1,878.73	
20	\$28,800.71	\$96.00	\$88.37	\$28,712.34	\$1,974.73	
21	\$28,712.34	\$95.71	\$88.66	\$28,623.68	\$2,070.44	
22	\$28,623.68	\$95.41	\$88.96	\$28,534.72	\$2,165.85	
23	\$28,534.72	\$95.12	\$89.25	\$28,445.47	\$2,260.97	
24	\$28,445.47	\$94.82	\$89.55	\$28,355.92	\$2,355.78	
25	\$28,355.92	\$94.52	\$89.85	\$28,266.07	\$2,450.30	
26	\$28,266.07	\$94.22	\$90.15	\$28,175.92	\$2,544.52	
27	\$28,175.92	\$93.92	\$90.45	\$28,085.47	\$2,638.44	
28	\$28,085.47	\$93.62	\$90.75	\$27,994.72	\$2,732.06	
29	\$27,994.72	\$93.32	\$91.05	\$27,903.66	\$2,825.38	
30	\$27,903.66	\$93.01	\$91.36	\$27,812.31	\$2,918.39	
31	\$27,812.31	\$92.71	\$91.66	\$27,720.64	\$3,011.10	
32	\$27,720.64	\$92.40	\$91.97	\$27,628.68	\$3,103.50	
33	\$27,628.68	\$92.10	\$92.27	\$27,536.40	\$3,195.60	
34	\$27,536.40	\$91.79	\$92.58	\$27,443.82	\$3,287.38	
35	\$27,443.82	\$91.48	\$92.89	\$27,350.93	\$3,378.86	
36	\$27,350.93	\$91.17	\$93.20	\$27,257.73	\$3,470.03	
37	\$27,257.73	\$90.86	\$93.51	\$27,164.22	\$3,560.89	
38	\$27,164.22	\$90.55	\$93.82	\$27,070.40	\$3,651.44	
39	\$27,070.40	\$90.23	\$94.13	\$26,976.26	\$3,741.67	
40	\$26,976.26	\$89.92	\$94.45	\$26,881.81	\$3,831.60	
41	\$26,881.81	\$89.61	\$94.76	\$26,787.05	\$3,921.20	
42	\$26,787.05	\$89.29	\$95.08	\$26,691.97	\$4,010.49	
43	\$26,691.97	\$88.97	\$95.40	\$26,596.58	\$4,099.46	
44	\$26,596.58	\$88.66	\$95.71	\$26,500.86	\$4,188.12	
45	\$26,500.86	\$88.34	\$96.03	\$26,404.83	\$4,276.46	
46	\$26,404.83	\$88.02	\$96.35	\$26,308.47	\$4,364.47	
47	\$26,308.47	\$87.69	\$96.67	\$26,211.80	\$4,452.17	
48	\$26,211.80	\$87.37	\$97.00	\$26,114.80	\$4,539.54	
49	\$26,114.80	\$87.05	\$97.32	\$26,017.48	\$4,626.59	
50	\$26,017.48	\$86.72	\$97.64	\$25,919.84	\$4,713.31	
51	\$25,919.84	\$86.40	\$97.97	\$25,821.87	\$4,799.71	
52	\$25,821.87	\$86.07	\$98.30	\$25,723.57	\$4,885.79	
53	\$25,723.57	\$85.75	\$98.62	\$25,624.95	\$4,971.53	
54	\$25,624.95	\$85.42	\$98.95	\$25,525.99	\$5,056.95	
55	\$25,525.99	\$85.09	\$99.28	\$25,426.71	\$5,142.03	
56	\$25,426.71	\$84.76	\$99.61	\$25,327.10	\$5,226.79	
57	\$25,327.10	\$84.42	\$99.95	\$25,227.15	\$5,311.21	
58	\$25,227.15	\$84.09	\$100.28	\$25,126.87	\$5,395.30	
59	\$25,126.87	\$83.76	\$100.61	\$25,026.26	\$5,479.06	
60	\$25,026.26	\$83.42	\$100.95	\$24,925.31	\$5,562.48	
61	\$24,925.31	\$83.08	\$101.29	\$24,824.03	\$5,645.57	
62	\$24,824.03	\$82.75	\$101.62	\$24,722.40	\$5,728.31	
63	\$24,722.40	\$82.41	\$101.96	\$24,620.44	\$5,810.72	
64	\$24,620.44	\$82.07	\$102.30	\$24,518.14	\$5,892.79	
65	\$24,518.14	\$81.73	\$102.64	\$24,415.50	\$5,974.52	
66	\$24,415.50	\$81.38	\$102.98	\$24,312.51	\$6,055.90	
67	\$24,312.51	\$81.04	\$103.33	\$24,209.19	\$6,136.94	
68	\$24,209.19	\$80.70	\$103.67	\$24,105.51	\$6,217.64	
69	\$24,105.51	\$80.35	\$104.02	\$24,001.50	\$6,297.99	

				D (Discount Factor) = 165.0218582	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D \$184.37	
\$30,425.00	4.00%	20	\$184.37		
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
70	\$24,001.50	\$80.00	\$104.36	\$23,897.13	\$6,378.00
71	\$23,897.13	\$79.66	\$104.71	\$23,792.42	\$6,457.65
72	\$23,792.42	\$79.31	\$105.06	\$23,687.36	\$6,536.96
73	\$23,687.36	\$78.96	\$105.41	\$23,581.95	\$6,615.92
74	\$23,581.95	\$78.61	\$105.76	\$23,476.18	\$6,694.53
75	\$23,476.18	\$78.25	\$106.12	\$23,370.07	\$6,772.78
76	\$23,370.07	\$77.90	\$106.47	\$23,263.60	\$6,850.68
77	\$23,263.60	\$77.55	\$106.82	\$23,156.77	\$6,928.23
78	\$23,156.77	\$77.19	\$107.18	\$23,049.59	\$7,005.42
79	\$23,049.59	\$76.83	\$107.54	\$22,942.06	\$7,082.25
80	\$22,942.06	\$76.47	\$107.90	\$22,834.16	\$7,158.72
81	\$22,834.16	\$76.11	\$108.26	\$22,725.90	\$7,234.83
82	\$22,725.90	\$75.75	\$108.62	\$22,617.29	\$7,310.59
83	\$22,617.29	\$75.39	\$108.98	\$22,508.31	\$7,385.98
84	\$22,508.31	\$75.03	\$109.34	\$22,398.97	\$7,461.01
85	\$22,398.97	\$74.66	\$109.71	\$22,289.26	\$7,535.67
86	\$22,289.26	\$74.30	\$110.07	\$22,179.19	\$7,609.97
87	\$22,179.19	\$73.93	\$110.44	\$22,068.75	\$7,683.90
88	\$22,068.75	\$73.56	\$110.81	\$21,957.94	\$7,757.46
89	\$21,957.94	\$73.19	\$111.18	\$21,846.77	\$7,830.65
90	\$21,846.77	\$72.82	\$111.55	\$21,735.22	\$7,903.48
91	\$21,735.22	\$72.45	\$111.92	\$21,623.30	\$7,975.93
92	\$21,623.30	\$72.08	\$112.29	\$21,511.01	\$8,048.00
93	\$21,511.01	\$71.70	\$112.67	\$21,398.34	\$8,119.71
94	\$21,398.34	\$71.33	\$113.04	\$21,285.30	\$8,191.04
95	\$21,285.30	\$70.95	\$113.42	\$21,171.88	\$8,261.99
96	\$21,171.88	\$70.57	\$113.80	\$21,058.09	\$8,332.56
97	\$21,058.09	\$70.19	\$114.18	\$20,943.91	\$8,402.75
98	\$20,943.91	\$69.81	\$114.56	\$20,829.35	\$8,472.57
99	\$20,829.35	\$69.43	\$114.94	\$20,714.42	\$8,542.00
100	\$20,714.42	\$69.05	\$115.32	\$20,599.09	\$8,611.05
101	\$20,599.09	\$68.66	\$115.71	\$20,483.39	\$8,679.71
102	\$20,483.39	\$68.28	\$116.09	\$20,367.30	\$8,747.99
103	\$20,367.30	\$67.89	\$116.48	\$20,250.82	\$8,815.88
104	\$20,250.82	\$67.50	\$116.87	\$20,133.95	\$8,883.38
105	\$20,133.95	\$67.11	\$117.26	\$20,016.69	\$8,950.49
106	\$20,016.69	\$66.72	\$117.65	\$19,899.05	\$9,017.22
107	\$19,899.05	\$66.33	\$118.04	\$19,781.01	\$9,083.55
108	\$19,781.01	\$65.94	\$118.43	\$19,662.58	\$9,149.48
109	\$19,662.58	\$65.54	\$118.83	\$19,543.75	\$9,215.02
110	\$19,543.75	\$65.15	\$119.22	\$19,424.52	\$9,280.17
111	\$19,424.52	\$64.75	\$119.62	\$19,304.90	\$9,344.92
112	\$19,304.90	\$64.35	\$120.02	\$19,184.88	\$9,409.27
113	\$19,184.88	\$63.95	\$120.42	\$19,064.46	\$9,473.22
114	\$19,064.46	\$63.55	\$120.82	\$18,943.64	\$9,536.77
115	\$18,943.64	\$63.15	\$121.22	\$18,822.42	\$9,599.91
116	\$18,822.42	\$62.74	\$121.63	\$18,700.79	\$9,662.65
117	\$18,700.79	\$62.34	\$122.03	\$18,578.76	\$9,724.99
118	\$18,578.76	\$61.93	\$122.44	\$18,456.32	\$9,786.92
119	\$18,456.32	\$61.52	\$122.85	\$18,333.47	\$9,848.44
120	\$18,333.47	\$61.11	\$123.26	\$18,210.21	\$9,909.55
121	\$18,210.21	\$60.70	\$123.67	\$18,086.54	\$9,970.25
122	\$18,086.54	\$60.29	\$124.08	\$17,962.46	\$10,030.54
123	\$17,962.46	\$59.87	\$124.49	\$17,837.96	\$10,090.42
124	\$17,837.96	\$59.46	\$124.91	\$17,713.06	\$10,149.87
125	\$17,713.06	\$59.04	\$125.33	\$17,587.73	\$10,208.92
126	\$17,587.73	\$58.63	\$125.74	\$17,461.99	\$10,267.54
127	\$17,461.99	\$58.21	\$126.16	\$17,335.82	\$10,325.75
128	\$17,335.82	\$57.79	\$126.58	\$17,209.24	\$10,383.54
129	\$17,209.24	\$57.36	\$127.01	\$17,082.23	\$10,440.90
130	\$17,082.23	\$56.94	\$127.43	\$16,954.80	\$10,497.84
131	\$16,954.80	\$56.52	\$127.85	\$16,826.95	\$10,554.36
132	\$16,826.95	\$56.09	\$128.28	\$16,698.67	\$10,610.45
133	\$16,698.67	\$55.66	\$128.71	\$16,569.96	\$10,666.11
134	\$16,569.96	\$55.23	\$129.14	\$16,440.83	\$10,721.34
135	\$16,440.83	\$54.80	\$129.57	\$16,311.26	\$10,776.15
136	\$16,311.26	\$54.37	\$130.00	\$16,181.26	\$10,830.52
137	\$16,181.26	\$53.94	\$130.43	\$16,050.83	\$10,884.45
138	\$16,050.83	\$53.50	\$130.87	\$15,919.96	\$10,937.96
139	\$15,919.96	\$53.07	\$131.30	\$15,788.66	\$10,991.02
140	\$15,788.66	\$52.63	\$131.74	\$15,656.92	\$11,043.65
141	\$15,656.92	\$52.19	\$132.18	\$15,524.74	\$11,095.84
142	\$15,524.74	\$51.75	\$132.62	\$15,392.12	\$11,147.59
143	\$15,392.12	\$51.31	\$133.06	\$15,259.06	\$11,198.90

				D (Discount Factor) = 165.0218582	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D	
\$30,425.00	4.00%	20	\$184.37	\$184.37	
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
144	\$15,259.06	\$50.86	\$133.51	\$15,125.55	\$11,249.76
145	\$15,125.55	\$50.42	\$133.95	\$14,991.60	\$11,300.18
146	\$14,991.60	\$49.97	\$134.40	\$14,857.20	\$11,350.15
147	\$14,857.20	\$49.52	\$134.85	\$14,722.36	\$11,399.68
148	\$14,722.36	\$49.07	\$135.29	\$14,587.06	\$11,448.75
149	\$14,587.06	\$48.62	\$135.75	\$14,451.32	\$11,497.37
150	\$14,451.32	\$48.17	\$136.20	\$14,315.12	\$11,545.55
151	\$14,315.12	\$47.72	\$136.65	\$14,178.47	\$11,593.26
152	\$14,178.47	\$47.26	\$137.11	\$14,041.36	\$11,640.52
153	\$14,041.36	\$46.80	\$137.56	\$13,903.79	\$11,687.33
154	\$13,903.79	\$46.35	\$138.02	\$13,765.77	\$11,733.67
155	\$13,765.77	\$45.89	\$138.48	\$13,627.29	\$11,779.56
156	\$13,627.29	\$45.42	\$138.95	\$13,488.34	\$11,824.98
157	\$13,488.34	\$44.96	\$139.41	\$13,348.93	\$11,869.95
158	\$13,348.93	\$44.50	\$139.87	\$13,209.06	\$11,914.44
159	\$13,209.06	\$44.03	\$140.34	\$13,068.72	\$11,958.47
160	\$13,068.72	\$43.56	\$140.81	\$12,927.91	\$12,002.04
161	\$12,927.91	\$43.09	\$141.28	\$12,786.64	\$12,045.13
162	\$12,786.64	\$42.62	\$141.75	\$12,644.89	\$12,087.75
163	\$12,644.89	\$42.15	\$142.22	\$12,502.67	\$12,129.90
164	\$12,502.67	\$41.68	\$142.69	\$12,359.97	\$12,171.58
165	\$12,359.97	\$41.20	\$143.17	\$12,216.81	\$12,212.78
166	\$12,216.81	\$40.72	\$143.65	\$12,073.16	\$12,253.50
167	\$12,073.16	\$40.24	\$144.13	\$11,929.03	\$12,293.74
168	\$11,929.03	\$39.76	\$144.61	\$11,784.43	\$12,333.51
169	\$11,784.43	\$39.28	\$145.09	\$11,639.34	\$12,372.79
170	\$11,639.34	\$38.80	\$145.57	\$11,493.77	\$12,411.58
171	\$11,493.77	\$38.31	\$146.06	\$11,347.71	\$12,449.90
172	\$11,347.71	\$37.83	\$146.54	\$11,201.17	\$12,487.72
173	\$11,201.17	\$37.34	\$147.03	\$11,054.13	\$12,525.06
174	\$11,054.13	\$36.85	\$147.52	\$10,906.61	\$12,561.91
175	\$10,906.61	\$36.36	\$148.01	\$10,758.60	\$12,598.26
176	\$10,758.60	\$35.86	\$148.51	\$10,610.09	\$12,634.12
177	\$10,610.09	\$35.37	\$149.00	\$10,461.09	\$12,669.49
178	\$10,461.09	\$34.87	\$149.50	\$10,311.59	\$12,704.36
179	\$10,311.59	\$34.37	\$150.00	\$10,161.59	\$12,738.73
180	\$10,161.59	\$33.87	\$150.50	\$10,011.09	\$12,772.61
181	\$10,011.09	\$33.37	\$151.00	\$9,860.09	\$12,805.98
182	\$9,860.09	\$32.87	\$151.50	\$9,708.59	\$12,838.84
183	\$9,708.59	\$32.36	\$152.01	\$9,556.58	\$12,871.21
184	\$9,556.58	\$31.86	\$152.51	\$9,404.07	\$12,903.06
185	\$9,404.07	\$31.35	\$153.02	\$9,251.05	\$12,934.41
186	\$9,251.05	\$30.84	\$153.53	\$9,097.51	\$12,965.24
187	\$9,097.51	\$30.33	\$154.04	\$8,943.47	\$12,995.57
188	\$8,943.47	\$29.81	\$154.56	\$8,788.91	\$13,025.38
189	\$8,788.91	\$29.30	\$155.07	\$8,633.84	\$13,054.68
190	\$8,633.84	\$28.78	\$155.59	\$8,478.25	\$13,083.46
191	\$8,478.25	\$28.26	\$156.11	\$8,322.14	\$13,111.72
192	\$8,322.14	\$27.74	\$156.63	\$8,165.51	\$13,139.46
193	\$8,165.51	\$27.22	\$157.15	\$8,008.36	\$13,166.68
194	\$8,008.36	\$26.69	\$157.67	\$7,850.68	\$13,193.37
195	\$7,850.68	\$26.17	\$158.20	\$7,692.48	\$13,219.54
196	\$7,692.48	\$25.64	\$158.73	\$7,533.76	\$13,245.18
197	\$7,533.76	\$25.11	\$159.26	\$7,374.50	\$13,270.29
198	\$7,374.50	\$24.58	\$159.79	\$7,214.71	\$13,294.88
199	\$7,214.71	\$24.05	\$160.32	\$7,054.39	\$13,318.92
200	\$7,054.39	\$23.51	\$160.85	\$6,893.54	\$13,342.44
201	\$6,893.54	\$22.98	\$161.39	\$6,732.14	\$13,365.42
202	\$6,732.14	\$22.44	\$161.93	\$6,570.22	\$13,387.86
203	\$6,570.22	\$21.90	\$162.47	\$6,407.75	\$13,409.76
204	\$6,407.75	\$21.36	\$163.01	\$6,244.74	\$13,431.12
205	\$6,244.74	\$20.82	\$163.55	\$6,081.18	\$13,451.93
206	\$6,081.18	\$20.27	\$164.10	\$5,917.08	\$13,472.20
207	\$5,917.08	\$19.72	\$164.65	\$5,752.44	\$13,491.93
208	\$5,752.44	\$19.17	\$165.19	\$5,587.24	\$13,511.10
209	\$5,587.24	\$18.62	\$165.75	\$5,421.50	\$13,529.73
210	\$5,421.50	\$18.07	\$166.30	\$5,255.20	\$13,547.80
211	\$5,255.20	\$17.52	\$166.85	\$5,088.35	\$13,565.32
212	\$5,088.35	\$16.96	\$167.41	\$4,920.94	\$13,582.28
213	\$4,920.94	\$16.40	\$167.97	\$4,752.97	\$13,598.68
214	\$4,752.97	\$15.84	\$168.53	\$4,584.45	\$13,614.52
215	\$4,584.45	\$15.28	\$169.09	\$4,415.36	\$13,629.80
216	\$4,415.36	\$14.72	\$169.65	\$4,245.71	\$13,644.52
217	\$4,245.71	\$14.15	\$170.22	\$4,075.49	\$13,658.68

				D (Discount Factor) = 165.0218582	
Loan Amount	Interest Rate	Term in Years	Monthly Payment	P = A/D	
\$30,425.00	4.00%	20	\$184.37	\$184.37	
Month	StartingBalance	Interest	Principal	EndingBalance	TotalInterest
218	\$4,075.49	\$13.58	\$170.78	\$3,904.71	\$13,672.26
219	\$3,904.71	\$13.02	\$171.35	\$3,733.35	\$13,685.28
220	\$3,733.35	\$12.44	\$171.93	\$3,561.43	\$13,697.72
221	\$3,561.43	\$11.87	\$172.50	\$3,388.93	\$13,709.59
222	\$3,388.93	\$11.30	\$173.07	\$3,215.86	\$13,720.89
223	\$3,215.86	\$10.72	\$173.65	\$3,042.21	\$13,731.61
224	\$3,042.21	\$10.14	\$174.23	\$2,867.98	\$13,741.75
225	\$2,867.98	\$9.56	\$174.81	\$2,693.17	\$13,751.31
226	\$2,693.17	\$8.98	\$175.39	\$2,517.78	\$13,760.29
227	\$2,517.78	\$8.39	\$175.98	\$2,341.80	\$13,768.68
228	\$2,341.80	\$7.81	\$176.56	\$2,165.23	\$13,776.48
229	\$2,165.23	\$7.22	\$177.15	\$1,988.08	\$13,783.70
230	\$1,988.08	\$6.63	\$177.74	\$1,810.34	\$13,790.33
231	\$1,810.34	\$6.03	\$178.34	\$1,632.00	\$13,796.36
232	\$1,632.00	\$5.44	\$178.93	\$1,453.08	\$13,801.80
233	\$1,453.08	\$4.84	\$179.53	\$1,273.55	\$13,806.65
234	\$1,273.55	\$4.25	\$180.12	\$1,093.43	\$13,810.89
235	\$1,093.43	\$3.64	\$180.72	\$912.70	\$13,814.54
236	\$912.70	\$3.04	\$181.33	\$731.37	\$13,817.58
237	\$731.37	\$2.44	\$181.93	\$549.44	\$13,820.02
238	\$549.44	\$1.83	\$182.54	\$366.90	\$13,821.85
239	\$366.90	\$1.22	\$183.15	\$183.76	\$13,823.07
240	\$183.76	\$0.61	\$183.76	\$0.00	\$13,823.68

D

Appendix D

Public Information Centre Information

Feasibility Study for Municipal Water and Sewage Servicing

Public Information Centre

Location: Puslinch Community Centre
23 Brock Road South, Puslinch
6:30 p.m. to 8:30 p.m.

June 24 2019



TOWNSHIP OF
PUSLINCH
EST. 1850

Public Information Centre Summary

Introduction and
Meeting Purpose

Background Info
and Projections

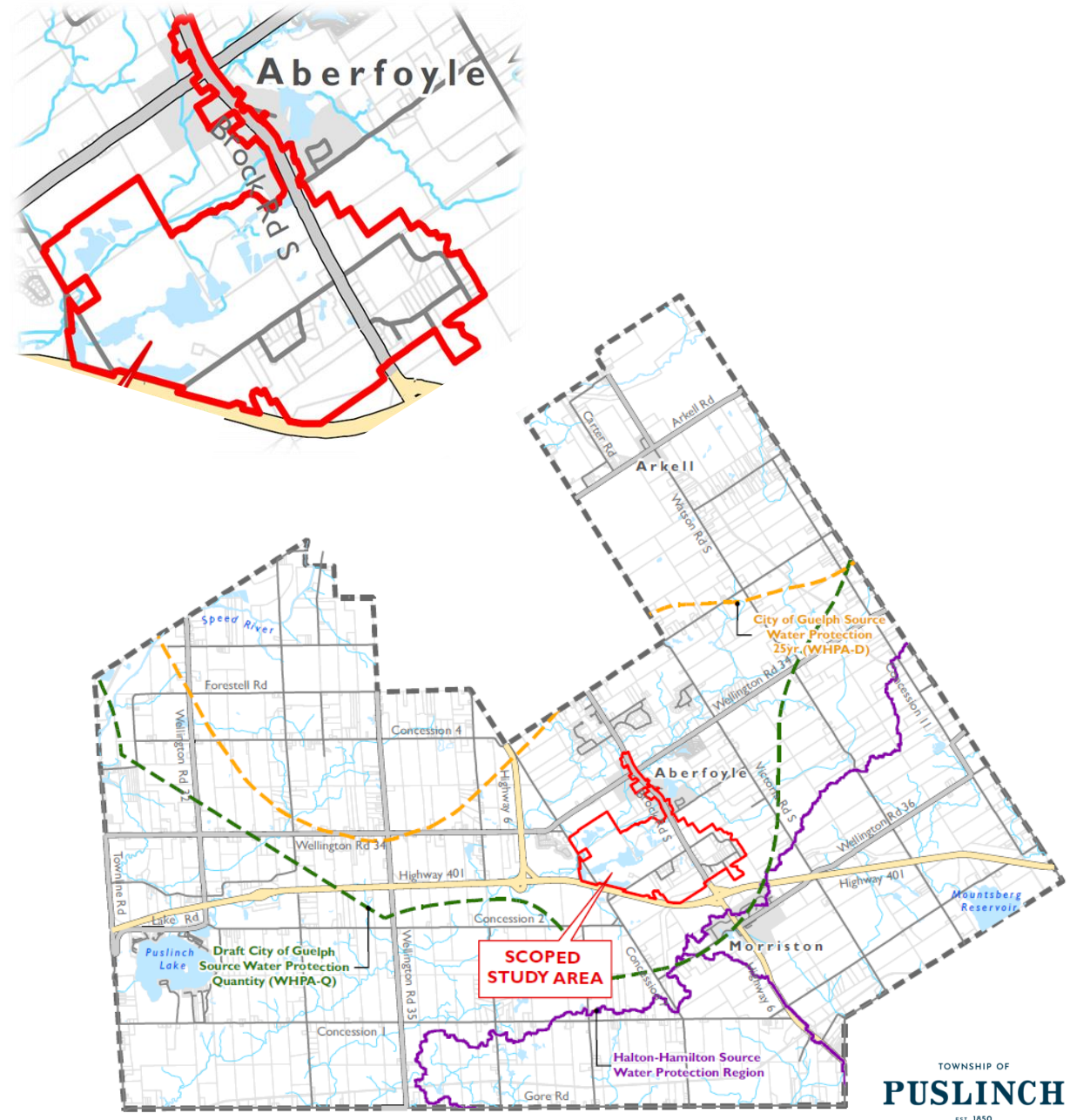
Water Servicing
Options

Sewage Servicing
Options

Next Steps

Feasibility Study Details

- In 2018, the Township began undertaking a Feasibility Study to assess the viability of implementing municipal water and sewage servicing.
 - A reduced scoped study area is now being looked at
 - Taking into account industrial and commercial areas (excluding residential)



Development Opportunities

- The Township is an attractive place for development
 - Go Transit access, close proximity to Guelph, natural setting, major markets
- Surrounded by growing urban centres on all four sides with increasing demands for resources and land
 - Lack of municipal servicing limits opportunities for growth
 - Current servicing consist of individual on-site wells, septic systems as well as few private communal water and sewage systems

Purpose of this Meeting

- This meeting will provide Scoped Study Area users with the opportunity to:
 - Understand why the Township is undertaking this additional study and the new scope
 - Review the high-level water and sewage servicing options being considered
 - Review the key advantages and disadvantages identified for each servicing option
 - Review and discuss the study with Township staff and their consultants, and any questions you may have related to the study
- The Feasibility Study will provide the basis for proceeding (or not proceeding) with a Municipal Class EA Study that will be necessary before implementing any drinking water or sewage servicing solution

Major Industrial and Commercial Users

- The Scoped Study Area contains the highest concentrations of employment lands in the Township
- Including; food processing, concrete pipe manufacturer, water bottling and aggregate extraction
 - Royal Canin
 - Nestle
 - Capital Paving
 - Maple Leaf Foods
 - Con-Cast Pipe
 - Dufferin Aggregates

Projected Employment Growth

Type	Projected Growth / Planning Period		
	2016	2036	2041
I&C – Total Employment ¹	4,020	5,160	5,630
Notes: 1. Projected Employment Growth as per Wellington County Official Plan May 6, 1999 (Last Revision September 1, 2016). Includes ‘no fixed place of work’ employment.			

Type	Average Day Demands (m ³ /d)	Max. Day Demands (m ³ /d)
I&C Large Users ¹	31,000	52,704
Notes: 1. Includes a portion of existing employment. Employment numbers for study area to be confirmed with County of Wellington. Includes current water demands for large users – significantly < than ex. permitted capacity		

Summary

Preliminary Projected Water Demands and Sewage Flows

Type	Average Day Demands (m ³ /d)	Max. Day Demands (m ³ /d)
Water Demands	1,393	2,905
Sewage Flows	2,027	6,479
The preliminary water and wastewater demands are based on the projected employment population and exclude allowances for process water currently consumed by the large users. It is assumed that the large users will continue to source their individual process water demands from their current sources.		

High-level servicing options developed for consideration:

Intra-Municipal Servicing

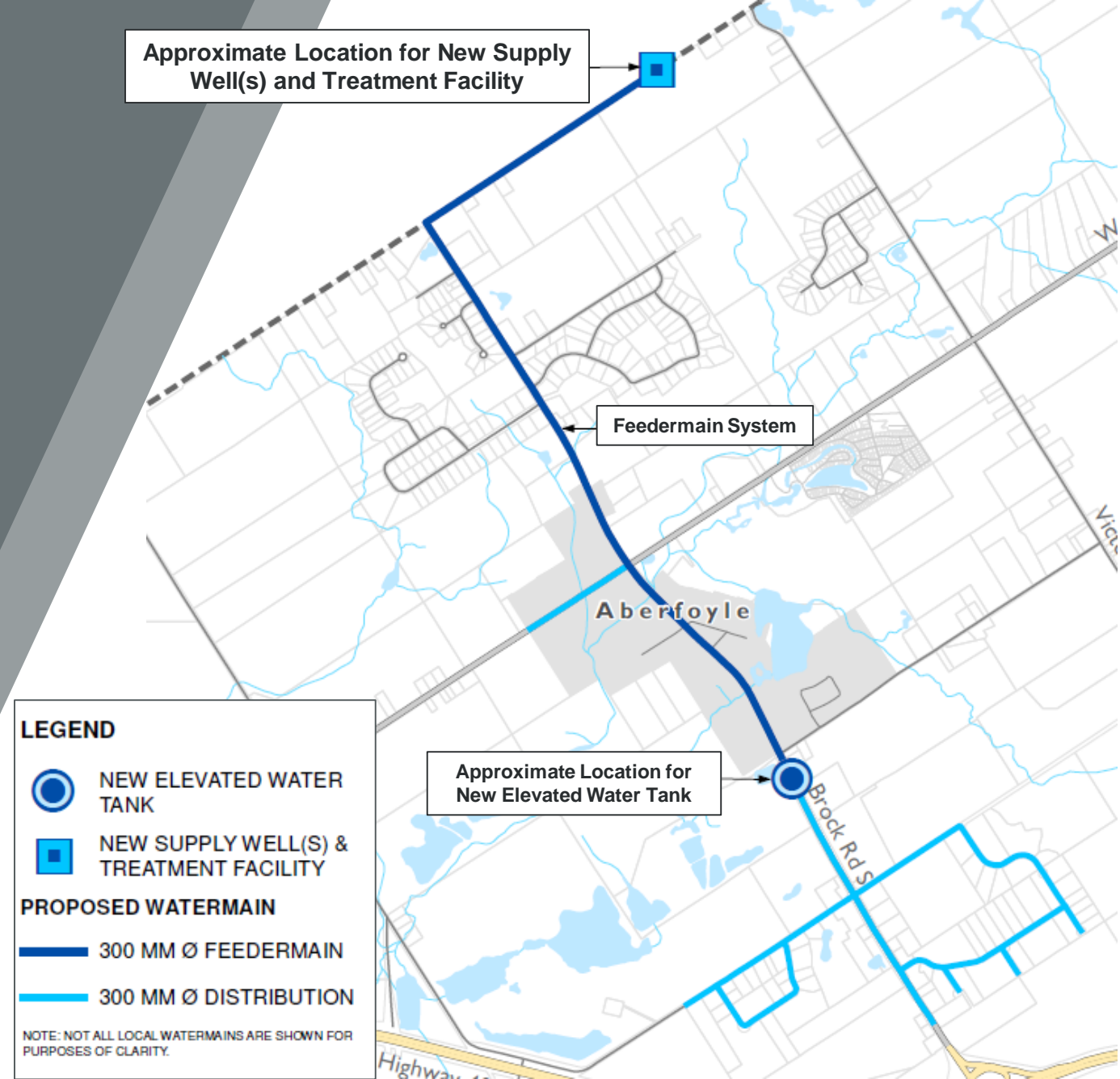
- *Provided by the Township*
- New municipal water system
 - New well(s), Treatment facility, Storage, Pumping, Distribution
- New municipal sewage system
 - New pumping station, Treatment system, Conveyance system

Inter-Municipal Servicing

- *Provided jointly by the Township and City of Guelph*
- Connection to City of Guelph Water supply and distribution system
- Connection to City of Guelph sewage collection and treatment system

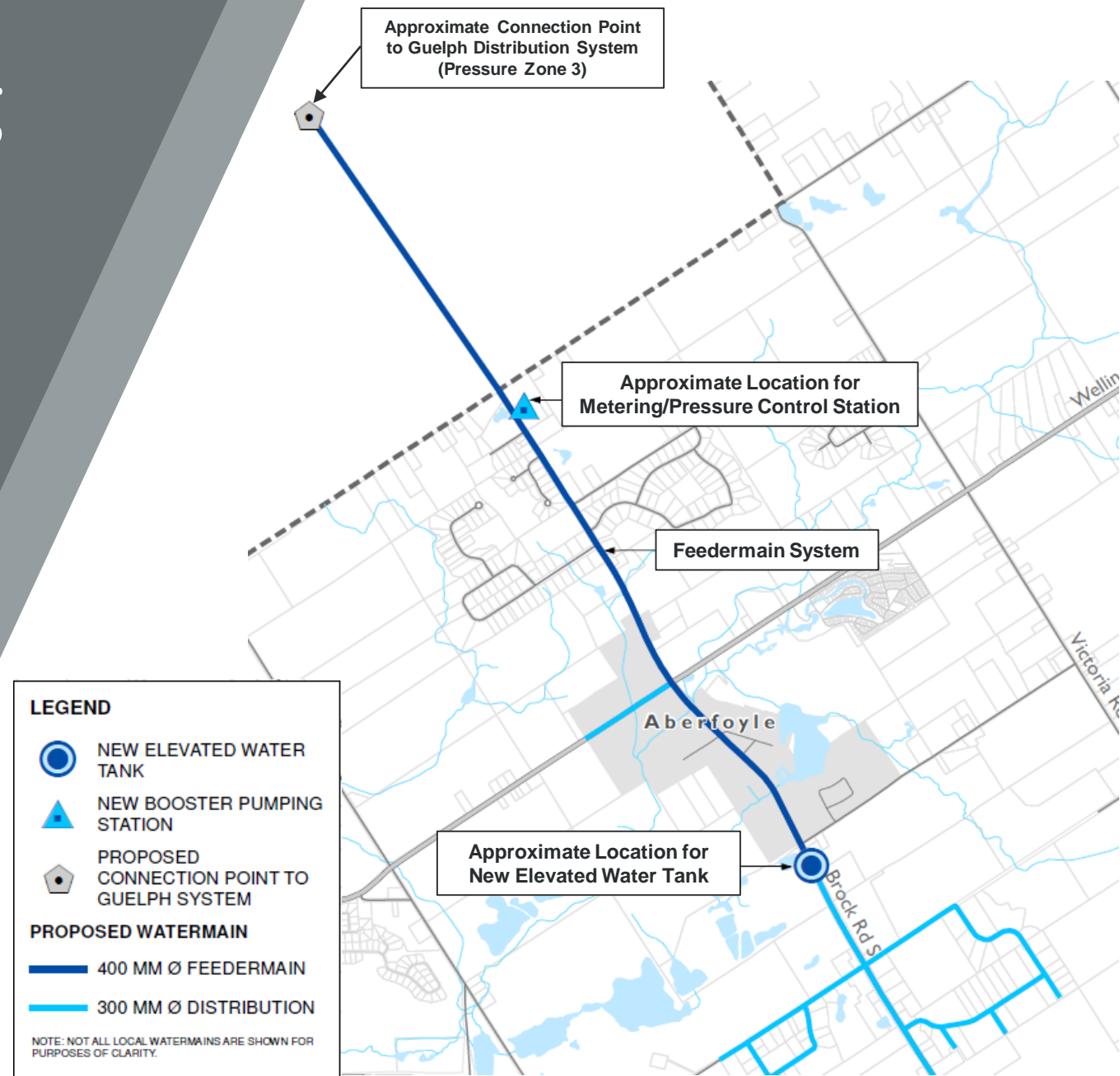
Option 1: Water Servicing Intra-Municipal

- Major components:
 - New groundwater supply source
 - New water treatment facility
 - New distribution system
 - New storage facility
 - Note: location of well subject to further review during subsequent EA Study
- High-level estimated construction cost:
 - \$23 million



Option 2: Water Servicing Inter-Municipal

- Major components:
 - Connect directly to CofG distribution system
 - New metering facility and potential pressure control station
 - New storage facility
 - New distribution system
- High-level estimated construction cost:
 - \$20 million
 - Note: estimate does not include any costs to upgrade Guelph infrastructure

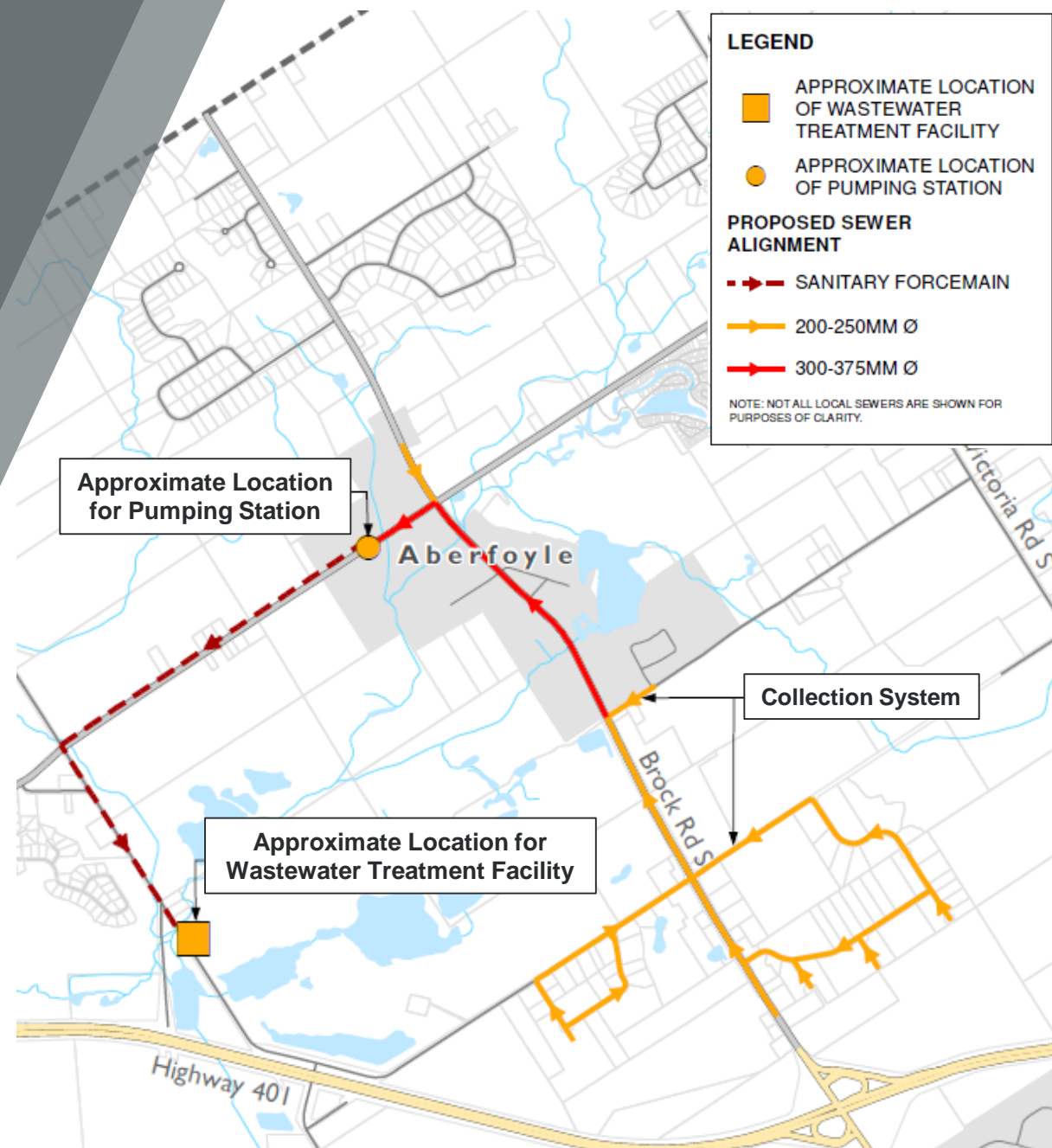


Preliminary Assessment of High-Level Water Servicing Options

Option	Key Advantages	Key Disadvantages
1A: Intra-Municipal	<ul style="list-style-type: none"> Independent system – greater local control 	<ul style="list-style-type: none"> Higher capital, O&M and Life Cycle Cost Requires larger amount of new infrastructure
1B: Inter-Municipal	<ul style="list-style-type: none"> Lower capital, O&M and Life Cycle Cost Optimizes use of existing infrastructure Guelph has a proven track record of providing high quality drinking water Economy of scale may be realized with Joint Supply system May improve opportunities for funding assistance with joint Projects Bulk water rates may be set, thereby establishing more predictable O&M costs 	<ul style="list-style-type: none"> Upgrades to infrastructure in the City may be required – cost unknown at this time and may be significant Bulk water supply rates are unknown at this time Need for an inter-municipal servicing agreement (Guelph & Puslinch)
Common to both Options	<ul style="list-style-type: none"> Easier to manage and monitor the single system for water quality and quantity Burden to obtain private updated PPTW and comply with changes in condition would be removed from individual users and placed on the township Bulk water rates may be set, thereby establishing more predictable O&M costs Municipal water and sewage servicing encourages developers to invest and promote growth in the Township 	<ul style="list-style-type: none"> Township will hold responsibility for the increased PPTW conditions in compliance to the WHPA-Q Increased costs for township with new source protection requirements Cost of extending private water service and connection to existing plumbing is in addition to the estimated costs Existing private and communal wells to be decommissioned Amendments to Official Plan and Secondary Plans may be required

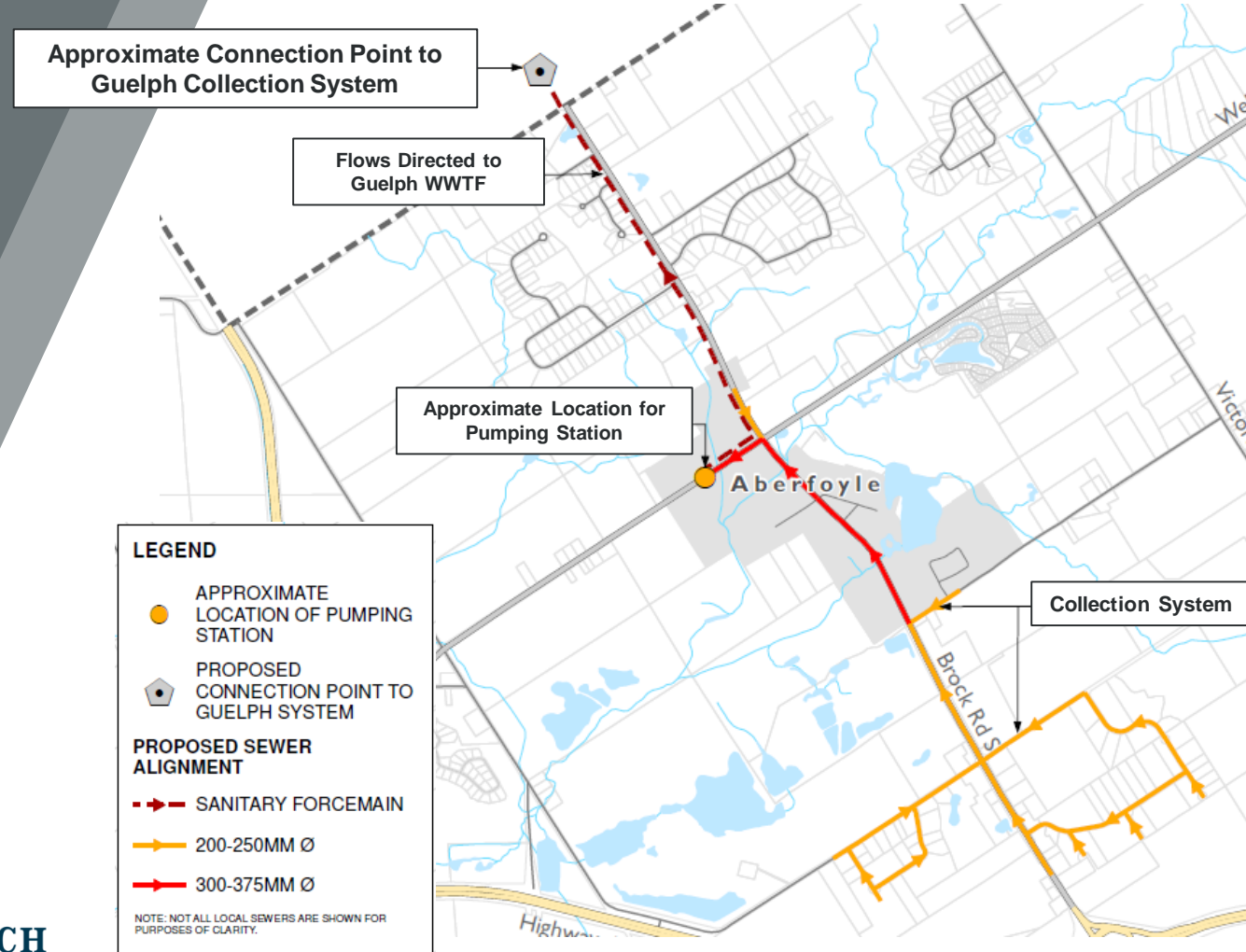
Option 1: Sewage Servicing Intra-Municipal

- Major components:
 - New gravity collection system
 - New pumping station
 - New wastewater treatment facility
 - Effluent discharge to Mill Creek (will be subject to an Assimilative Capacity Study)
- High-level estimated construction cost:
 - \$29 million



Option 2: Sewage Servicing Inter-Municipal

- Major components:
 - New gravity collection system
 - New pumping station
 - Discharge into the Guelph collection system for further treatment and disposal
- High-level estimated construction cost:
 - \$12 million
 - Note: does not include costs to upgrade Guelph Infrastructure



Preliminary Assessment of High-Level Sewage Servicing Options

Option	Key Advantages	Key Disadvantages
1A: Intra-Municipal	<ul style="list-style-type: none"> Independent system – greater local control 	<ul style="list-style-type: none"> Higher capital, O&M and Life Cycle Cost Requires larger amount of new infrastructure Assimilative capacity of receiving stream may be a limiting factor – alternate discharge location or higher quality effluent may be needed – cost implication
1B: Inter-Municipal	<ul style="list-style-type: none"> Lower capital, O&M and Life Cycle Costs Lower operational requirements for the collection system Economy of scale may be realized with Joint Wastewater Treatment system Provides an opportunity for Joint Funding applications Known wastewater rates will assist in establishing predictable O&M budgets 	<ul style="list-style-type: none"> Upgrades to infrastructure in the City may be required – cost unknown at this time and may be significant Need for an inter-municipal Servicing Agreement (Guelph & Puslinch)
Common to both Options	<ul style="list-style-type: none"> Municipal sewage servicing encourages developers to invest and promote growth in the Township Amendments to Official Plans, Secondary Plans, Approved Draft Plans may be required 	

Typical Usage Charges

For a user consuming 10 m³ of drinking water and generating 10 m³ of wastewater daily, the ***Estimated Preliminary User Charges*** would be.

	WATER SERVICING		WASTEWATER SERVICING	
	OPTION 1	OPTION 2	OPTION 1	OPTION 2
MONTHLY COST	\$297	\$56	\$289	\$66

- The Preliminary User Charge estimated above does not include Life Cycle Costs. Final user charges would be established following completion of a Rate Study to be undertaken following completion of construction.
- User Rates identified for Option 2 – Inter-Municipal Servicing do not include Bulk Water Rates or Wastewater Rates which would be imposed by the City of Guelph. The Bulk Water Rate and Wastewater disposal rate to be negotiated between the Township and the City as part of the Servicing Agreement(s).

Project Timeline

Target Completion Date	Task
May 31, 2019	Notice and Draft Addendum Report circulated to Township, Agencies and Businesses
June 24, 2019	Public Meeting / Workshop
July 12, 2019	Last Date for Comments by businesses
August 2, 2019	Final Addendum Feasibility Study Report provided to Township
September 4, 2019	Final Addendum Feasibility Study Report provided to Council for Information
September 18, 2019	Presentation to Council
TBD	Council Approval of Decision (ie., to proceed with Class EA Study or to not proceed further with study)
2019 - 2021	Class EA Study Completion (subject to Council approval and budget allocation)
Dates are preliminary and subject to change	

Questions?



Project Contacts

For more information about this project, or to view the Public Information Centre displays online, please visit our website:

<http://www.puslinch.ca/en/living-here/feasibility-study-for-municipal-water-and-sewage-servicing-.asp>

Should you have any questions or concerns about this study, please contact:

Patrick Moyle, Acting CAO/Clerk

Township of Puslinch

Klandry@puslinch.ca

T 519 763-1226, 214

7404 Wellington Rd 34 Puslinch, ON N0B 2J0



Stuart Winchester, P.Eng.

Partner / Director, Municipal Infrastructure

Stuart.Winchester@cima.ca

T 519 772-2299, 6202 C 519 998-1725

900–101 Frederick Street, Kitchener, ON N2H 6R2





Appendix E

Response to PIC Comments



August 28, 2019

Attention: Industrial and Commercial Survey Respondents

**RE: TOWNSHIP OF PUSLINCH
ADDENDUM TO THE WATER AND WASTEWATER SERVICING FEASIBILITY
STUDY**

Dear Respondent:

Thank you for submission of your comments related to the Addendum for Water and Wastewater Servicing Feasibility in the Township of Puslinch. Input from the public is a critical component of the Feasibility Study process and will greatly assist Council in making decisions related to the provision of municipal water and wastewater servicing in the Township.

Municipal Servicing Questionnaire – Survey Results

In total, the Township distributed approximately 128 copies of the questionnaire, which included industrial and commercial users within the scoped study area.

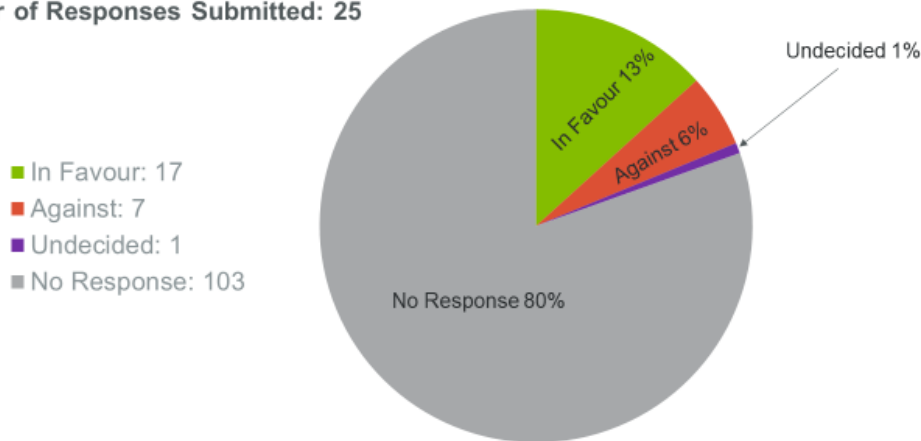
A total of 25 completed questionnaires were received from the industrial and commercial users, which represent a response rate of 20%. Pie charts, depicting graphically the responses obtained, are attached to this summary sheet for reference. The following summarizes the questionnaire results.

- Industrial Users
 - 10 Questionnaires were received from industrial users
 - 60% (6 of 10) in favour of municipal water and wastewater servicing
- Commercial Users
 - 15 Questionnaires were received from commercial users
 - 78% (11 of 15) in favour of municipal water and wastewater servicing
- Combined
 - 25 Questionnaires were received from industrial and commercial users
 - 68% (17 of 25) in favour of municipal water and wastewater servicing



PIC Survey Response Summary - Combined Interest (Commercial + Industrial)

Number of Surveys Distributed: 128
Number of Responses Submitted: 25



Municipal Servicing Questionnaire – Frequently Asked Questions

The responses included a range of questions related to the Study and to request additional information. A number of respondents asked similar questions, and we have taken the opportunity to summarize these questions and to provide a single response.

Q1 – What is the anticipated cost/charge to connect and to operate monthly on the municipal water/sewage network?

A1 – The current Study has been undertaken to establish the feasibility of providing municipal water and wastewater services, and high-level estimates have been developed as part of the Study in order to assist in assessing the feasibility of provision of these services. If Council decides to proceed with further consideration of providing municipal water and sewage servicing, then the Township will need to proceed with an Environmental Assessment as required under the Provincial Environmental Assessment Act. This Study will complete an extensive review of potential environmental impacts, potential servicing alternatives, and alternative servicing technologies to provide these services. This assessment will include an assessment of the impact to the economic environment, in order to establish a Preferred Servicing Plan.

The Environmental Assessment process will include the development of a Cost Recovery Plan, which will consider how the costs of constructing the water and sewage works will be funded and may include consideration of funding assistance from senior levels of government. At this time, a cost recovery plan has not been developed as part of the water and sewage servicing feasibility Study.



Preliminary usage charge estimates have been provided within the Feasibility Study; however, it should be noted that these estimates are high-level estimates only. If the Township decides to proceed with further Study, the Township will need to undertake a Rate Study in order to establish the necessary funding levels in order to ensure that the long-term operation and maintenance of the water and sewage facilities is sustainable.

Q2 – What is the projected timeline for the Project? When can we anticipate water/sewage services?

A2 – The Addendum to the Feasibility Study report is scheduled to be provided to the Township in early August 2019 and results will be presented to Council in September 2019. Council will consider the results of the public meeting and public input to this Study and will decide whether to proceed with further study or not.

Should Council decide to proceed with further study, an Environmental Assessment (EA) will need to be completed. Initial studies may be undertaken to help inform the EA Study, including but not limited to an Assimilative Capacity Study for any potential receiving stream; a detailed Hydrogeological Study to establish potential groundwater source locations or to consider sub-surface disposal locations may be undertaken. Depending on the findings of these studies, as well as the responses from the Ministry of Environment, Conservation and Parks (MECP), these studies typically take 1 to 2 years or more.

Following completion of the initial Studies, the Township could proceed with the EA Study. The duration of an EA Study for water and wastewater servicing will be highly dependent on the level of support or opposition to the Project, and typically will take 1+ years to complete in the absence of any significant opposition.

Following Approval of the EA Study, the Township could then proceed to implement the Works, which includes proceeding with the detailed design, technical approvals, and construction. For a Project of this type, completion of the works would typically take approximately 1 year for design and approvals, and 2 years for construction and commissioning.

Q3 – Why is the study originally being done and for a second time with the scoped-study area?

A3 – The Feasibility Study was originally initiated to address a recommendation from the Community Based Strategic Plan and the Business Retention and Expansion Study, completed for the Township by the County in 2016. This Study identified municipal servicing as one of the key drivers for businesses in the area to justify potential expansion of their businesses.

The initial Study considered providing municipal water and wastewater services to all properties within an area bounded to the west by the Hanlon Expressway, to the south by Highway 401 (plus the community of Morriston) to the east by Victoria Avenue, and to the north by the City of Guelph. This Study area included a significant number of estate residential properties that are currently adequately serviced with private systems, and who strenuously objected to municipal servicing. However, a number of businesses within this Study area expressed support for the provision of services. As a result, Council decided to extend the Study to consider the option of providing services to the industrial and commercial properties within the Aberfoyle service area only, as there was the potential for cost savings with a more compact service area.



Q4 – Why is money being spent on this study and why is the study requiring a long time period to complete?

A4 – During the Public Information Centre (PIC) meeting, the Mayor indicated that the cost of the feasibility study is about 90% covered by grants and funding from other levels of government. The feasibility study is to provide information for Council to consider as the basis for proceeding, (or not proceeding) with any further studies and Public Consultation that will be necessary before implementing any municipal water or sewage servicing solution in the Township.

A feasibility study is intended to identify new opportunities, provide valuable information and justification to undertake or cancel a project, before more significant costs are incurred. At this stage, the feasibility study provides Council with the ability to consider options within a scoped Study Area while providing for the opportunity to gain feedback from the public, before committing to the expense of further investigations.

Q5 – As an individual business that is not prepared to incur more costs, how will businesses afford this?

A5 – As noted above, if the Township decides to proceed and to complete an EA for Water and Wastewater Servicing, the Township will need to develop a cost recovery plan for the Works. The cost recovery plan could include consideration of funding assistance, connection charges, debt financing, or other sources of funding to ensure that the project is affordable. All businesses impacted by the Study would have further opportunity to provide input to the EA Study and Cost Recovery Plan prior to the Township adopting the recommendations of the Study.

Q6 – As a property owner, we have spent a considerable amount of money to construct a technologically advanced private disposal system and to secure a sufficient well. What would be the benefit of connecting my property to the municipal system?

A6 – The Township recognizes that private owners have invested in their individual water supply and private disposal systems, and sometimes these investments have been significant. However, the Township does not have the ability to monitor the water quality nor the effluent quality from these private systems. Each of these individual private supply and disposal systems are subject to failure, if they are not properly maintained.

If a public system is implemented, then the Township would have the ability to monitor the quality of the drinking water supplied to all businesses in the service area and will have the ability to monitor the effluent quality of the treated wastewater to ensure that all Provincial regulations and objectives are met. In addition, the municipal system would be subject to an independent third-party inspection to ensure that the systems are operated and maintained according to the requirements of the MECP.

Q7 – What about other viable options, particularly not discharging water to Mill Creek?

A7 – If the Township decides to proceed with further consideration of municipal water and sewage servicing, the Township will need to complete an EA Study. This Study will need to consider a full range of Alternative servicing schemes, including the “Do Nothing” alternative which would mean that all properties remain on private systems. However, if the provision of municipal servicing is



selected as the Preferred Alternative, then a full range of servicing design alternatives would then need to be considered, including the location and methods of disposing of the final effluent.

Q8 – What would be the additional costs if Inter-municipal option(s) was selected with the City of Guelph?

A8 – The costs to connect to the City of Guelph system would be established through the negotiation of a Water Servicing Agreement and/or a Sewage Servicing Agreement. These Agreement(s) would document the costs to connect to the system, any capital contributions required for the use of the available capacity in the Guelph System or any costs to upgrade the Guelph System, as well as the ongoing user costs.

These negotiations have not been undertaken to date and, as such, the Township cannot confirm what these costs would be.

Q9 – Can residential owners have a voluntary choice for municipal servicing?

A9 – At this time, the Township was proceeding with consideration of the feasibility of providing water and sewage servicing for industrial and commercial users within the Aberfoyle service area only. If the Township decides to proceed with implementation of the Works, consideration could be given to providing individual residential Owners the opportunity to connect to the system. However, the costs for individual properties would need to be established within the overall Cost Recovery Plan, and each individual property Owner who connects would be required to pay his/her fair share of the cost of the system.

Q10 - Will only major water user property owners' benefit?

A10 – The Addendum to the Feasibility Study has considered the provision of water and sewage services to all industrial and commercial users within the Study area; however, consideration has only been given to the provision of sufficient water supplies for domestic consumption at the businesses. Large users in the service area would need to maintain their own supplies for process water.

Private disposal systems require ongoing maintenance and operation and may be subject to failure if maintenance is neglected. Currently, there are no procedures in place that require ongoing monitoring of private disposal systems to ensure that they are functioning as designed. Provision of a municipal sewage system will ensure that all wastewater generated within the area is treated to a high-quality effluent, and that the effluent quality is monitored as required by the MECP.



We trust the above is in order; however, should you have any questions or require any additional information, please do not hesitate to contact the undersigned.

Sincerely,

CIMA Canada Inc.

Stuart Winchester, P.Eng.
Partner, Director, Municipal Infrastructure
Stuart.winchester@cima.ca

SW:vd

Encl.

cc: James Su, OCWA
Patrick Moyle, Township of Puslinch

T000866A-051-190715-L-Survey Summary and FAQ e01.docx

CIMA CANADA INC.

900-101 Frederick Street
Kitchener, ON N2H 6R2

T 519 772 2299 F 519 772 2298

cima.ca

CONTACT

Stuart Winchester, P.Eng.
stuart.winchester@cima.ca

T 519 772-2299, 6202





REPORT BLDG-2019-009

TO: Mayor and Members of Council

FROM: Gerald Moore, Chief Building Official

MEETING DATE: September 18, 2019

SUBJECT: Building Department Monthly Update - August 2019

RECOMMENDATION

That Report BLDG-2019-009 with respect to the Building Department Monthly Update – August 2019 be received for information.

DISCUSSION

Purpose

The purpose of this report is to provide Council with an update of the activities in the Building Department for August 2019.

Background

The purpose of this report is to provide Council with a summary of the Building Department's activities for the month of August 2019.

Financial Implications

The Building Code Act requires that the total amount of building permit fees meets the total costs for the municipality to administer and enforce the Building Code Act and Regulations. Building permit fees were established to fully recover the Township's cost of providing building permit services, including an allocation of administrative overhead/indirect costs. Any surplus revenue from building permit fees is transferred to a restricted reserve, to be drawn upon in years of declining building activity.

APPLICABLE LEGISLATION AND REQUIREMENTS

Building Code Act, 1992, S.O. 1992, c. 23

ATTACHMENTS

Schedule A – 2019 Monthly report

Permit Comparison Summary

Issued For Period AUG 1,2019 To AUG 31,2019

	Previous Year			Current Year		
	Permit Count	Fees	Value	Permit Count	Fees	Value
Agricultural Farm Building						
Agricultural Farm Building	1	1,152.00	40,123.00	0	0.00	0.00
Bylaw						
Pool Enclosure Permit	3	630.00	230,000.00	3	645.00	187,500.00
Commercial/Industrial						
Commercial - No Occupancy Required	1	475.00	47,240.48	0	0.00	0.00
Demolition						
Demolition Permit	1	156.00	27,035.02	0	0.00	0.00
New Residence						
Residential - Occupancy Required	4	31,938.44	2,826,500.00	4	27,797.84	4,600,000.00
Other						
Change of Use	0	0.00	0.00	1	200.00	0.01
Solar Permit	0	0.00	0.00	1	416.00	12,000.00
Tent Permit	2	520.00	4,500.00	1	260.00	3,000.00
Other Residential						
Accessory/Farm Buildings	1	156.00	50,000.00	6	3,800.94	242,000.00
Deck Permit	4	624.00	142,000.00	2	312.00	20,200.00
Detached Garage	1	624.00	40,000.00	1	538.20	70,000.00
Residential - No Occupancy Required	3	1,665.56	315,010.00	4	4,547.80	400,000.00
Septic						
Sewage Disposal System Permit	3	1,872.00	90,000.00	6	4,120.00	155,000.00
Signs						
Sign Permit	1	260.00	15,000.00	0	0.00	0.00

	Previous Year	Current Year
Total Permits Issued	25	29
Total Dwelling Units Created	3	6
Total Permit Value	3,827,408.50	5,689,700.01
Total Permit Fees	40,073.00	42,637.78
Total Compliance Letters Issued	4	11
Total Compliance Letter Fees	300.00	375.00

Inspection Summary

Ward	Permit Inspections	Other Roll Inspections
000	462	0
Total	462	0

Permit Charge**Amount**

Permit Comparison Summary

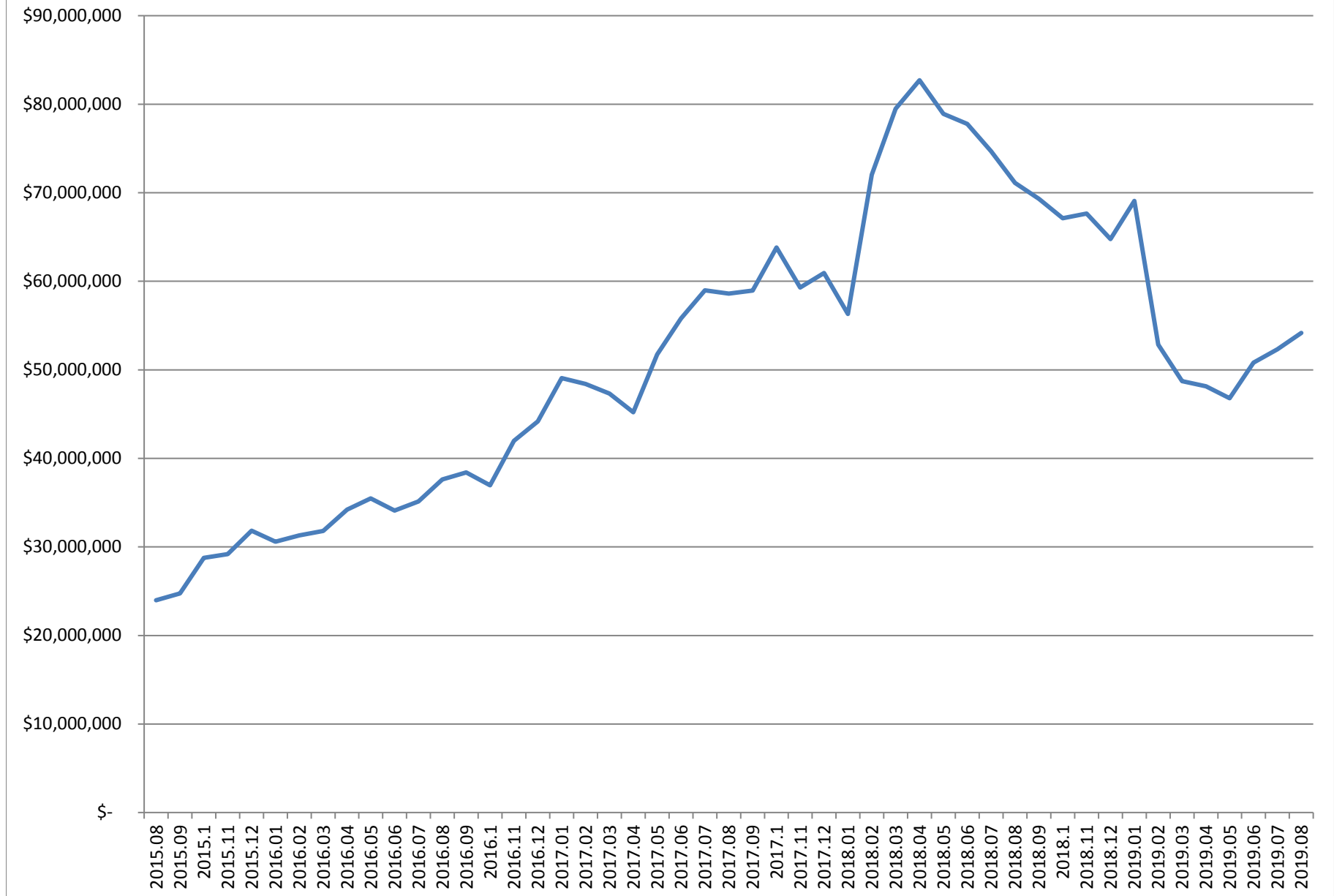
Issued For Period AUG 1,2019 To AUG 31,2019

Accessory/Farm Buildings	3,800.94
Change of Use	200.00
Deck Permit	312.00
Detached Garage	538.20
Pool Enclosure Permit	645.00
Residential - No Occupancy Req	4,547.80
Residential - Occupancy Requir	27,797.84
Sewage Disposal System Permit	4,120.00
Solar Permit	416.00
Tent Permit	260.00

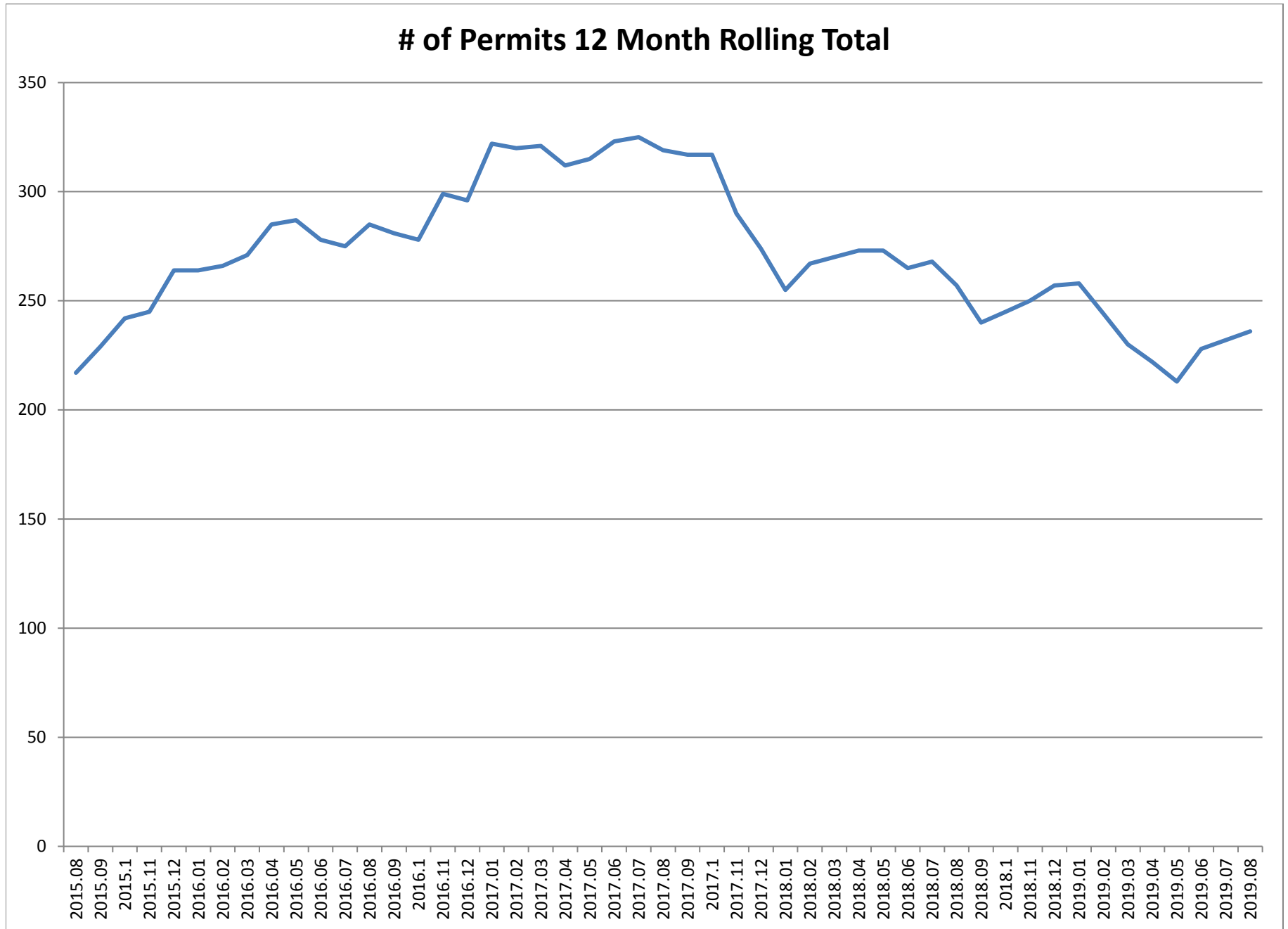
Total	42,637.78
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Note: The Graphs Below only Include Septic Permits in 2012 and beyond

Total Value of Permits 12 Month Rolling Total

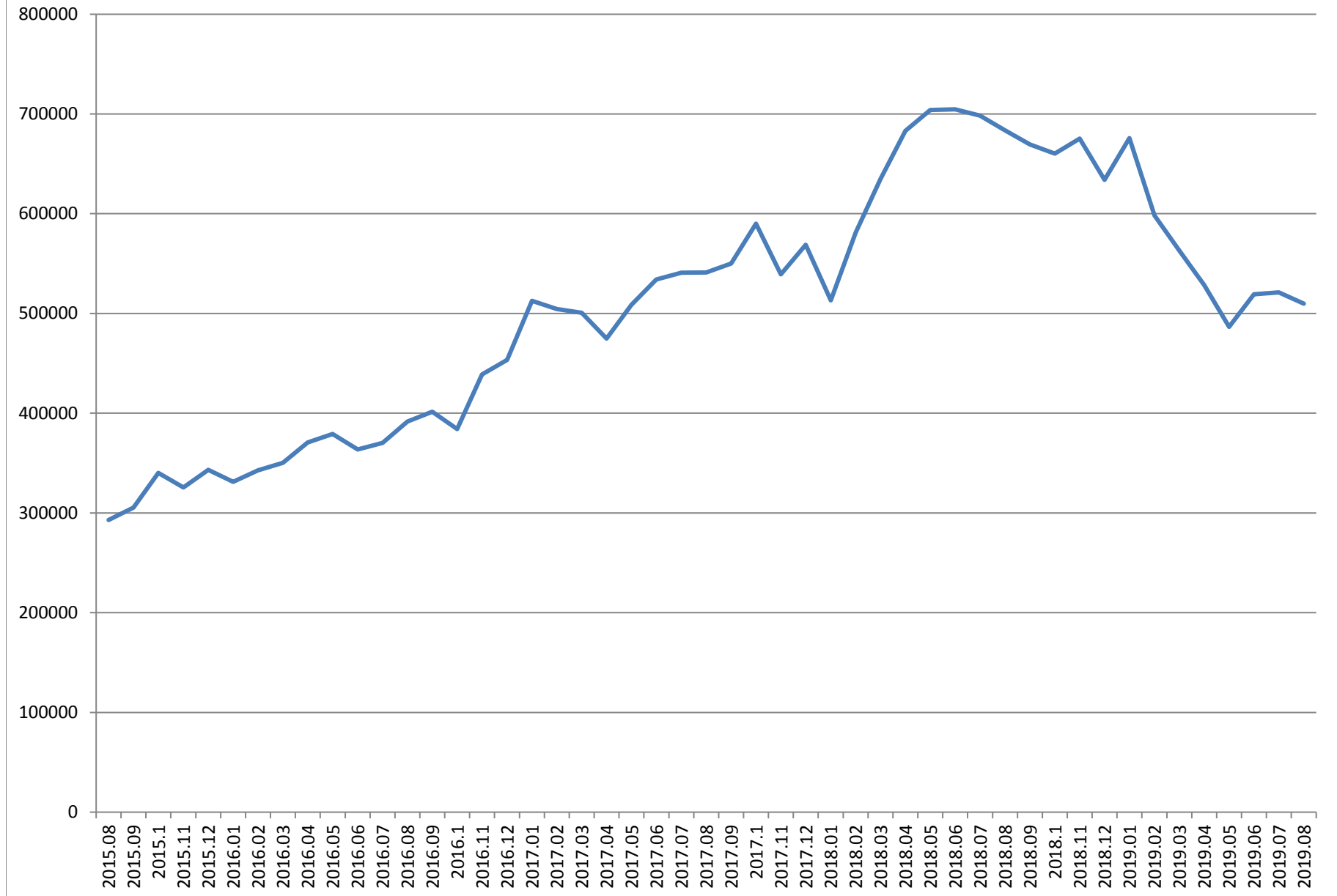


Note: The Graphs Below only Include Septic Permits in 2012 and beyond



Note: The Graphs Below only Include Septic Permits in 2012 and beyond

Permit Fees Collected 12 Month Rolling Total





REPORT PW-2019-002

TO: Mayor and Members of Council

FROM: Mike Fowler, Supervisor of Public Works and Parks
Mary Hasan, Director of Finance/Treasurer

MEETING DATE: September 18, 2019

SUBJECT: 2019 Capital Budget – Funding for Sideroad 10 North Culvert Replacement
File: F18ROA and T06CUL

RECOMMENDATIONS

That Report PW-2019-002 regarding the 2019 Capital Budget – Funding for Sideroad 10 North Culvert Replacement be received; and

That the surplus funds of \$54,000 be allocated to emergency works required for Sideroad 10 North Culvert Replacement, Asset No. 95A.

Background

The 2019 Capital Budget includes the following pulverize, repave and drainage projects for the 2019 Annual Road Rehabilitation contract:

Description	Asset No.	Budget Amount
Concession 4- Sideroad 12 North to Country Road 35	58	\$168,000
Concession 4- Sideroad 10 North to Sideroad 12 North and one small culvert replacement	57	\$112,000
Victoria Road South- County Road 36 (Badenoch Street) to entrance to Aberfoyle Pit #2	124 and 125A	\$510,000
Concession 1 -County Road 35 to Sideroad 20 South and two small culvert replacements	15	\$303,000
Concession 2 - Sideroad 10 South to County Road 32	32	\$233,400

Council at its meeting held on April 17, 2019 authorized through Council Resolution No. 2019-176 the following:

- That the tender for the 2019 Annual Road Rehabilitation be awarded to Capital Paving Inc. at their tendered amount of \$1,182,414 inclusive of the non-refundable portion of HST; and
- That the excess funds of \$51,029 be allocated to emergency works required for Culvert of Cook's Mill Race, Asset No. 2002; and
- That an additional amount of \$8,971 be funded from the Public Works Replacement and Restoration of Aging Infrastructure Discretionary Reserve for the emergency works required for Culvert of Cook's Mill Race, Asset No. 2002.

Purpose

The purpose of this report is to allocate surplus funds to the emergency works required for the Sideroad 10 North Culvert Replacement, Asset No. 95A.

Financial Implications

The 2019 Capital Budget includes \$1,326,400 for the 2019 Annual Road Rehabilitation. This amount is funded as follows:

Taxation Levy	\$629,419
OCIF Formula Based Grant	\$169,421
Restricted Reserves	\$299,560
Discretionary Reserve (Aggregate Levy)	\$228,000
Total	\$1,326,400

The table below summarizes the current costing estimates for the 2019 Annual Road Rehabilitation work based on work completed to date:

Actual Contract Price (Contract Tender Price - \$1,161,959)	\$1,089,400
Add: Non-refundable portion of HST	\$19,178
Add: Engineering (estimate of 8%)	\$87,152
Excess Funds – Emergency Works - Culvert of Cook's Mill Race – Asset No. 2002 – <i>includes engineering estimate of 8%</i>	\$30,700
Excess Funds – Emergency Works - Sideroad 10 North Culvert Replacement – Asset No. 95A – <i>includes engineering estimate of 8%</i>	\$54,000
Total	\$1,280,430

The Township issued a Request for Quote and received two quotes for the emergency works required for Sideroad 10 North Culvert Replacement – Asset No. 95A. GM BluePlan recommended that the Township award the project to the lowest quoted amount of

approximately \$50,000 to Cox Construction. It is recommended that these works be funded from the 2019 Public Works capital surplus.

Applicable Legislation and Requirements

The works for the above projects will be procured in accordance with the Township's Purchasing and Procurement of Goods and Services By-law No. 60/08.

Attachments

None

MINUTES

MEMBERS PRESENT

Councillor John Sepulis, Chair
Deep Basi
Dan Kennedy
Dennis O'Connor
Paul Sadhra

MEMBERS ABSENT

None

OTHERS IN ATTENDANCE

Lynne Banks, Development and Legislative Coordinator
Meagan Ferris, Sr. Planner, County of Wellington
Zach Prince, Planner, County of Wellington
Ravinder Sidhu
Jon Kuiper

1. OPENING REMARKS

The meeting was called to order at 7:00 pm. The Chair welcomed the gallery to the Committee of Adjustment and informed the gallery that Township Staff would present the application, then the applicant would have the opportunity to present the purpose and details of the application and provide any further relevant information. Following this, the public can obtain clarification, ask questions and express their views on the proposal. The members of the Committee can then obtain clarification, ask questions and express their views on the proposal. All application decisions are subject to a 20 day appeal period.

2. DISCLOSURE OF PECUNIARY INTEREST

- None

3. APPROVAL OF MINUTES

Moved by: Dennis O'Connor

Seconded by: Deep Basi

That the Minutes of the Committee of Adjustment meetings held Tuesday, July 9, 2019 be adopted.

CARRIED

4. APPLICATIONS FOR MINOR VARIANCE OR PERMISSION under section 45 of the Planning Act to be heard by the Committee this date:

4a.) Minor Variance Application D13/SID – Ravinder Sidhu – Property described as Part Lot 1, Concession Gore, 563 Townline Road, Puslinch

Requesting relief from provisions of Zoning By-Law #19/85, as amended, to permit a new dwelling with a maximum height of 12.5 metres to the midpoint of the roofline.

- Lynne Banks outlined the application, advised that the notice requirements for the application had been met and then outlined the comments that were received from the circulated agencies and public.
- The owner provided an overview of the application.
- There were no questions from the public.
- Deep Basi inquired that if the pitch of the roof of the proposed building is 45 degrees, could the pitch be reduced and could the height of the first floor of the proposed building be reduced from 12 feet to 10 feet.

- The owner advised that in order to fit the look they would like for the building they don't want to change the roof pitch or the height of the floor.
- John Sepulis asked what the plan is for the existing dwelling already located on the property.
- The owner advised that they would like to keep it if that is possible.
- John Sepulis advised that the owner can enter into an agreement with the Township to reside in the existing dwelling until the new dwelling is built.
- John Sepulis asked when construction of the new dwelling will begin.
- The owner advised that they are hoping to begin construction by the end of August
- Dennis O'Connor inquired if there should be a condition in the minor variance decision that specific setback for the location of the dwelling from the road be set.
- Meagan Ferris advised that a setback of 150 feet from the road allowance can be added as a condition of the minor variance decision.

Moved by: Dan Kennedy

Seconded by: Paul Sadhra

The Committee voted on the motion with all in favour.

That Application D13/SID requesting relief from provisions of Zoning By-Law #19/85, as amended, to permit a new dwelling with a maximum height of 12.5 metres to the midpoint of the roofline.

The request is hereby **Approved** with the following conditions:

1. That Education Development Charges shall be collected prior to the issuance of a building permit.
2. That a permit will be required from the GRCA prior to development
3. That the building setback must be 150 feet from the road allowance.
4. That the owner enter into an agreement with the Township to reside in the existing dwelling while, and until, construction is completed on the new dwelling.

4(b). Minor Variance Application D13/KUI – Jon Kuiper - Property described as Front Part Lot 8, Concession 1, 6680 Concession 1 Puslinch

Requesting relief from provisions of Zoning By-Law #19/85, as amended, to permit:

1. An accessory dwelling with a maximum height of 8.0 metres to the midpoint of the roofline.
 2. An accessory building or structure that exceeds the maximum five per cent permitted lot coverage by 20 square feet.
- Lynne Banks outlined the application, advised that the notice requirements for the application had been met and then outlined the comments that were received from the circulated agencies and public.
 - The owner provided an overview of the application.
 - There were no public comments or questions.
 - Deep Basi inquired if the owner would be putting a second floor in the building
 - The owner advised that he would not be putting in a second floor as the height requirement is for a service van/truck and crane.

Moved by: Dennis O'Connor

Seconded by: Deep Basi

The Committee voted on the motion with all in favour.

That Application D13/KUI requesting relief from provisions of Zoning By-Law #19/85, as amended to permit:

3. An accessory dwelling with a maximum height of 8.0 metres to the midpoint of the roofline.
4. An accessory building or structure that exceeds the maximum five per cent permitted lot coverage by 20 square feet.

The request is hereby **Approved** with the following conditions:

1. That Education Development Charges shall be collected prior to the issuance of a building permit.
2. That the accessory structure cannot be used for commercial/industrial business purposes or for habitation.

5. OTHER MATTERS

5(a) 161 Hume Road

- Lynne Banks advised the Committee that the owner of the property has appealed the decision for the minor variance and that since the consent application was also appealed, then a prehearing conference can be scheduled to decide whether both appeals can be heard by LPAT at the same time.

6. ADJOURNMENT

Moved by: Dan Kennedy

Seconded by: Dennis O'Connor

The Committee of Adjustment meeting adjourned at 7:20 p.m.

CARRIED

MINUTES

MEMBERS PRESENT

Councillor John Sepulis, Chair
Deep Basi
Dan Kennedy
Dennis O'Connor
Paul Sadhra

MEMBERS ABSENT

None

OTHERS IN ATTENDANCE

Lynne Banks, Development and Legislative Coordinator
Meagan Ferris, Sr. Planner, County of Wellington
Zach Prince, Planner, County of Wellington

1 - 6. COMMITTEE OF ADJUSTMENT

- See August 13, 2019 Committee of Adjustment minutes.

7. OPENING REMARKS

The meeting was called to order at 7:21 p.m. The Chair advised that the following portion of the Committee meeting will be reviewing and commenting on development planning applications.

8. DISCLOSURE OF PECUNIARY INTEREST

- Paul Sadhra declared a conflict of interest with respect to Item 12(c) Severance Application B44/19 (D10/SAD) – Resham and Jasvir Sadhra, Part Lot 20, Concession 3, 7000 Wellington Road 34, Township of Puslinch because he resides at the subject property and has an interest in the severance application and refrained from discussions on the matter.
- John Sepulis declared a conflict of interest with respect to Item 12(c) Severance Application B44/19 (D10/SAD) – Resham and Jasvir Sadhra, Part Lot 20, Concession 3, 7000 Wellington Road 34, Township of Puslinch because he has an unsold lot adjacent to the property owned by the applicants, and the creation of the new lot may be perceived as impacting the value of his unsold lot and refrained from discussions on the matter.

Dennis O'Connor, Vice Chair, continued with that portion of the meeting with respect to the Consent Applications.

9. APPROVAL OF MINUTES

Moved by: Dan Kennedy

Seconded by: Paul Sadhra

That the Minutes of the Planning & Development Advisory Committee Meeting held Tuesday, July 9, 2019, be adopted.

CARRIED

10. APPLICATION FOR SITE PLAN URBAN DESIGN REVIEW

- None

11. ZONING BY-LAW AMENDMENT

- None

12. LAND DIVISION

12(a) Severance Application B42-19 (D10/HUE) – Wesley and Sarah Huether, Part Lot 22, Concession 8, 26 Old Brock Road, Puslinch.

Proposed severance is 0.591 hectares with 35m frontage (Part 1 on sketch), existing and proposed rural residential use with existing barn and silos. Barn and silos to be removed.

Retained parcel is 0.84 hectares with 32.27m frontage, existing and proposed rural residential use with existing dwelling and garage.

- The owner provided an overview of the application and advised that the 2 silos located on the property are being removed and that he has already obtained the demolition permit. He further advised that the barn will also be taken down.
- Dennis O'Connor asked what will happen with the shed.
- The owner advised that the portion of the shed on the parcel to be severed will be removed and the remaining portion of the shed on the retained parcel will be moved 5 to 6 metres back from the interior side yard lot line.
- Meagan Ferris asked the owner to check and make sure that a separate demolition permit is not required for removing the shed.

The committee supports the application with the **following conditions** imposed:

1. That the Owner satisfy all the requirements of the Township of Puslinch, financial and otherwise (including taxes paid in full and Consent Review/Condition Clearance fee) which the Township may deem to be necessary at the time of issuance of the Certificate of Consent for the property and orderly development of the subject lands; and further that the Township of Puslinch file with the Secretary-Treasurer of the Planning and Land Division Committee a letter of clearance of this condition..
2. That the Owner obtain an approved Entrance Permit verifying safe access and site lines on the severed parcel from the Township of Puslinch; and further that the Township file with the Secretary-Treasurer of the Planning and Land Division Committee a letter of clearance of this condition.
3. That the distance of the shed on the retained parcel meets lot line setback requirements.

Moved by: Dennis O'Connor

Seconded by: Deep Basi

CARRIED

12(b) Lot Line Adjustment Application B43-19 (D10/HAR) – William Harrison, Part Lot 15, Concession 8, 26 Old Brock Road, Puslinch.

Proposed lot line adjustment is 5.5m frontage x 228.6m = 0.126 hectares (Parcel 2 on sketch), vacant land with part of driveway to be added to abutting rural residential lot – Will & Donna Harrison (Parcel 3 on sketch). Together with an easement from hydro to benefit 7644 Maltby Road East.

- There was no one in attendance to present the application.
- There were no questions from the Committee.

The committee supports the application with the standard conditions imposed.

Moved by: Dennis O'Connor

Seconded by: Deep Basi

CARRIED

12(c) Severance Application B44-19 (D10/SAD) – Rasham and Jasvir Sadhra, Part Lot 20, Concession 3, municipally known as 7000 Wellington Road 34.

Proposed severance is 27m frontage x 152m = 0.4 hectares, vacant land for proposed rural residential use.

Retained parcel is 7.0 hectares with 88m frontage, existing and proposed rural residential use with existing dwelling.

- Jeff Buisman, agent for the owner provided an overview of the application and advised that a minor variance will be required for the reduced lot frontage for the severed lot.
- Dennis O'Connor asked what about removal of trees on the property.
- The owner advised that the trees are not an issue as it has been reforested.
- The owner advised that the trees are not an issue as it has been reforested.

The committee supports the application with the **following conditions** imposed:

1. That the Owner satisfy all the requirements of the Township of Puslinch, financial and otherwise (including taxes paid in full and Consent Review/Condition Clearance fee) which the Township may deem to be necessary at the time of issuance of the Certificate of Consent for the property and orderly development of the subject lands; and further that the Township of Puslinch file with the Secretary-Treasurer of the Planning and Land Division Committee a letter of clearance of this condition.
2. That the Owner obtain an approved Entrance Permit verifying safe access and site lines on the severed parcel from the Township of Puslinch; and further that the Township file with the Secretary-Treasurer of the Planning and Land Division Committee a letter of clearance of this condition.
3. That the Owner apply for, and receive a minor variance for the decreased frontage of the severed parcel.

Moved by: Deep Basi

Seconded by: Dan Kennedy

CARRIED

12(d) Lot Line Adjustment Application B46-19 (D10/IRE) – Robert Ireland, Part Lot 12, Concession 9, municipally known as 4700 Watson Road South, Puslinch.

Proposed lot line adjustment is 532.9 hectares with no frontage, vacant land to be added to abutting vacant lot.

Retained parcel is 2.8 hectares with 105m frontage, existing and proposed rural residential use with existing dwelling and shop.

- Jeff Buisman, agent for the owner provided an overview of the application and advised that a minor variance will be required for the reduced lot frontage for the property being added to.
- Dan Kennedy inquired if there is safe access from the road allowance to the driveway.

- Jeff Buisman advised that there is safe access from the road allowance.
- Dan Kennedy also inquired if the property is zoned agricultural.
- Jeff Buisman advised that it is zoned secondary agricultural.

The committee supports the application with the **following conditions** imposed:

1. That the Owner satisfy all the requirements of the Township of Puslinch, financial and otherwise (including taxes paid in full and Consent Review/Condition Clearance fee) which the Township may deem to be necessary at the time of issuance of the Certificate of Consent for the property and orderly development of the subject lands; and further that the Township of Puslinch file with the Secretary-Treasurer of the Planning and Land Division Committee a letter of clearance of this condition.
2. That the Owner obtain an approved Entrance Permit verifying safe access and site lines on the severed parcel from the Township of Puslinch; and further that the Township file with the Secretary-Treasurer of the Planning and Land Division Committee a letter of clearance of this condition.
3. That the Owner apply for, and receive a minor variance for the decreased frontage of the property being added to.

Moved by: Dan Kennedy

Seconded by: Paul Sadhra

CARRIED

12. OTHER MATTERS

- None

13. CLOSED MEETING

- None

14. NEXT MEETING

- Next Regular Meeting Tuesday, September 10, 2019 @ 7:00 p.m.

15. ADJOURNMENT

Moved by: Dan Kennedy

Seconded by: Paul Sadhra

That the Planning & Development Advisory Committee is adjourned at 7:40 p.m.

CARRIED

THE CORPORATION OF THE TOWNSHIP OF PUSLINCH

BY-LAW NUMBER _____

**A BY-LAW TO AMEND BY-LAW NUMBER 19/85, AS AMENDED,
BEING THE ZONING BY-LAW OF THE TOWNSHIP OF PUSLINCH**

WHEREAS, the Council of the Corporation of the Township of Puslinch deem it appropriate and in the public interest to amend By-Law Number 19/85 pursuant to Sections 34, of the *Planning Act*, R.S.O. 1990 as amended;

**NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE
TOWNSHIP OF PUSLINCH ENACTS AS FOLLOWS:**

1. That Schedule “A” of By-law 19/85 is hereby amended by rezoning CON 1 FRONT PT LOT 17, within the Township of Puslinch, and municipally referred to as 6920 Concession 1, from an AGRICULTURAL (A) ZONE to a site specific **AGRICULTURAL (A-72) ZONE** and, as shown on schedule “A” of this By-law.
2. That subsection 5(4) SPECIAL PROVISIONS of the Agricultural Zone is amended by adding the following site specific provision:

“(ppp) **A-72 (On-farm Diversified Use – Supportive Housing) – Sunrise
Therapeutic Riding and Learning Centre**

Notwithstanding any provisions of this By-law to the contrary and in addition to the uses permitted under subsection 5(2), the following special provisions shall apply to recognize existing uses and permit supportive housing as an on-farm diversified use:

(i) **Additional Uses Permitted**

- Ancillary uses to the existing, therapeutic riding and learning centre and the services provided, including but not limited to one (1) building utilized for supportive housing; a day camp; an administrative office space;
- For the purposes of this by-law, supportive housing is defined as: a building that contains up to a total of twenty-two (22) suites and respite bedrooms, includes one or more amenity areas such as a common dining and kitchen area, and is occupied by up to twenty-two (22) persons, exclusive of staff, who by reasons of their emotional, mental, social or physical condition require a communal living arrangement for their well-being and are provided on-site personal support services in a supervised group setting, utilize the services of the therapeutic riding and learning centre and take part in day to day farm operations.

(ii) **Zone Requirements**

- **Minimum Setback:**
 - That the supportive housing building be constructed in close proximity to and as part of the existing, *farm building cluster* and setback at a minimum:
 - 100 metres from *interior side lot line*;
 - 240 metres from the *front lot line*;
 - 650 metres from the *rear lot line*
- **Maximum Gross Floor Area:**
 - That the supportive housing building shall be limited to a maximum of 2400 m² *gross floor area*.
- **Maximum Building Height:**
 - That the supportive housing building be permitted a maximum *building height* of 10 metres measured to the centre point of the roof.

- **Driveway Entrance:**
 - The existing therapeutic riding and learning centre and associated, ancillary uses shall share the same driveway entrance.
 - **Minimum Parking Requirement:**
 - 44 parking stalls.
 - **Minimum Distance Separation Formulae Requirements:**
 - That the supportive housing building shall be considered a Type A use for the purposes of calculating Minimum Distance Separation I and II (MDS I and II) requirements on adjacent properties; and
 - That Minimum Distance Separation I (MDS I) is not applicable to the ancillary uses, including the supportive housing building and therefore these specific use does not need to meet the required MDS I setbacks from adjacent, livestock structures existing at the time of enactment of this by-law.
 - **Site Plan Control:**
 - That the construction of any buildings or structures associated with the ancillary, on-farm diversified uses, including the supportive housing building, shall be subject to site plan control as per Section 41 of the *Planning Act*, and
 - Site Plan Control does not apply to agricultural buildings.
3. That the subject land as shown on Schedule “A” to this By-Law shall be subject to all applicable regulations of Zoning By-Law 19/85, as amended.
 4. This By-law shall become effective from the date of passage by Council and come into force in accordance with the requirements of the Planning Act, R.S.O. 1990, as amended.

READ THREE TIMES AND FINALLY PASSED IN OPEN COUNCIL THIS _____ OF _____, 2019.

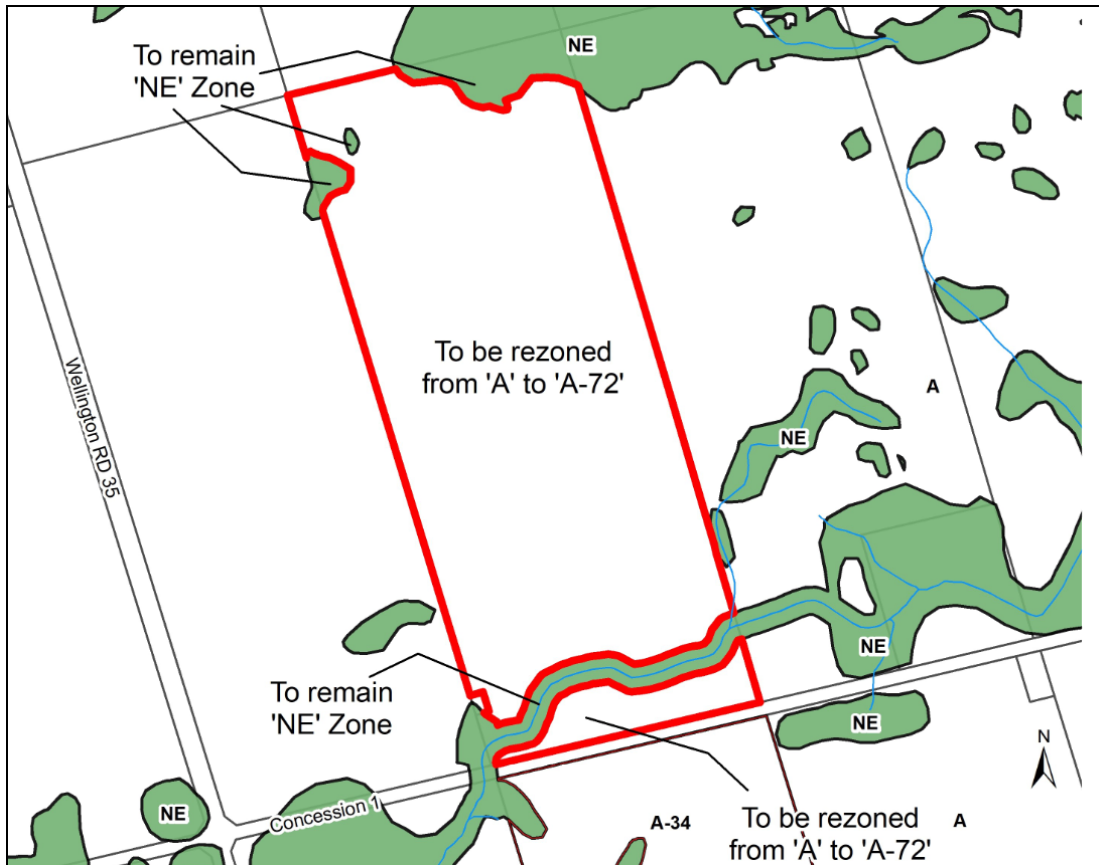
MAYOR

CLERK

THE CORPORATION OF THE TOWNSHIP OF PUSLINCH

BY-LAW NUMBER _____

Schedule "A"



Highlighted area to be rezoned from **"A" Zone** to a site specific **"A-72" Zone**

This is Schedule "A" to By-law No. _____
Passed this ____ day of _____, 2019.

MAYOR

CLERK

THE CORPORATION OF THE TOWNSHIP OF PUSLINCH

EXPLANATION OF BY-LAW NO. _____

By-law Number _____ amends the Township of Puslinch Zoning By-law 19/85 by rezoning CON 1 FRONT PT LOT 17, within the Township of Puslinch, and municipally referred to as 6920 Concession 1, from an AGRICULTURAL (A) ZONE to a site specific AGRICULTURAL (A-72) ZONE, to permit ancillary uses to the existing therapeutic riding and learning centre, establish site specific provisions for a supportive housing use as an on-farm diversified use, and establish Minimum Distance Separation (MDS) requirements.

The subject property is approximately 39.94 hectares (98.7 acres) in size with a therapeutic riding and learning centre, including a riding arena and horse barn, single-detached dwelling, a building used for administrative purposes in relation to the existing uses, and a pool, operating on site.

Within the County's Official Plan, the subject lands are designated as Prime Agricultural lands. This designation permits on-farm diversified uses.

The proposed development is subject to site plan control which will evaluate on-site functionality, setbacks, technical matters related to grading and servicing, design, etc.

THE CORPORATION OF THE TOWNSHIP OF PUSLINCH

BY-LAW NUMBER _____

A BY-LAW TO AMEND BY-LAW NUMBER 023/18, AS AMENDED,
BEING THE ZONING BY-LAW OF THE TOWNSHIP OF PUSLINCH

WHEREAS, the Council of the Corporation of the Township of Puslinch deem it appropriate and in the public interest to amend By-Law Number 023/18 pursuant to Sections 34 of the Planning Act, R.S.O. 1990 as amended;

NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE
TOWNSHIP OF PUSLINCH ENACTS AS FOLLOWS:

- 1. That Schedule “A” of By-law 023/18 is hereby amended by rezoning CON 1 FRONT PT LOT 17, within the Township of Puslinch, and municipally referred to as 6920 Concession 1, from an AGRICULTURAL (A) ZONE to a site specific **AGRICULTURAL (A-91) ZONE**, as shown on schedule “A” of this By-law.
- 2. That Section 14 Site-Specific Special Provisions is amended by adding the following site specific provision:

No.	Zone Designation	Additional Permitted Uses	Prohibited Uses	Site Specific Special Provision
91	A	All uses in the (A) Zone including: Ancillary uses to the existing, therapeutic riding and learning centre and the services provided, including but not limited to one (1) building utilized for supportive housing, a day camp, an administrative office space	N/A	<p>For the purposes of this by-law, supportive housing is defined as: a building that contains up to a total of twenty-two (22) suites and respite bedrooms, includes one or more amenity areas such as a common dining and kitchen area, and is occupied by up to twenty-two (22) persons, exclusive of staff, who by reasons of their emotional, mental, social or physical condition require a communal living arrangement for their well-being and are provided on-site personal support services in a supervised group setting, utilize the services of the therapeutic riding and learning centre and take part in day to day farm operations.</p> <p>Zone Requirements:</p> <p>Minimum Setback That the supportive housing building be constructed in close proximity to and as part of the existing, farm <i>building</i> cluster and setback at a minimum:</p> <p>100 metres from <i>interior side lot line</i>; 240 metres from the <i>front lot line</i>; 650 metres from the <i>rear lot line</i></p> <p>Maximum Gross Floor Area That the supportive housing building shall be limited to a maximum of 2400 m² <i>gross floor area</i>;</p> <p>Maximum Building Height That the supportive housing building be permitted a maximum <i>building</i></p>

				<p><i>height</i> of 10 metres measured to the centre point of the roof.</p> <p>Driveway Entrance The existing therapeutic riding and learning centre and associated, ancillary uses shall share the same driveway entrance.</p> <p>Minimum Parking Requirement 44 parking stalls.</p> <p>Minimum Distance Separation Formulae Requirements That the supportive housing building shall be considered a Type A use for the purposes of calculating Minimum Distance Separation I and II (MDS I and II) requirements on adjacent properties;</p> <p>That Minimum Distance Separation I (MDS I) is not applicable to the ancillary uses, including the supportive housing building and therefore these specific use does not need to meet the required MDS I setbacks from adjacent, livestock structures existing at the time of enactment of this by-law.</p> <p>Site Plan Control That the construction of any buildings or structures associated with the ancillary, on-farm diversified uses, including the supportive housing building, shall be subject to site plan control as per Section 41 of the <i>Planning Act</i>;</p> <p>Site Plan Control does not apply to agricultural structures.</p>
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3. That the subject land as shown on Schedule “A” to this By-Law shall be subject to all applicable regulations of Zoning By-Law 023/18, as amended.
4. This By-law shall become effective from the date of passage by Council and come into force in accordance with the requirements of the Planning Act, R.S.O. 1990, as amended.

READ THREE TIMES AND FINALLY PASSED IN OPEN COUNCIL THIS _____ OF _____, 2019.

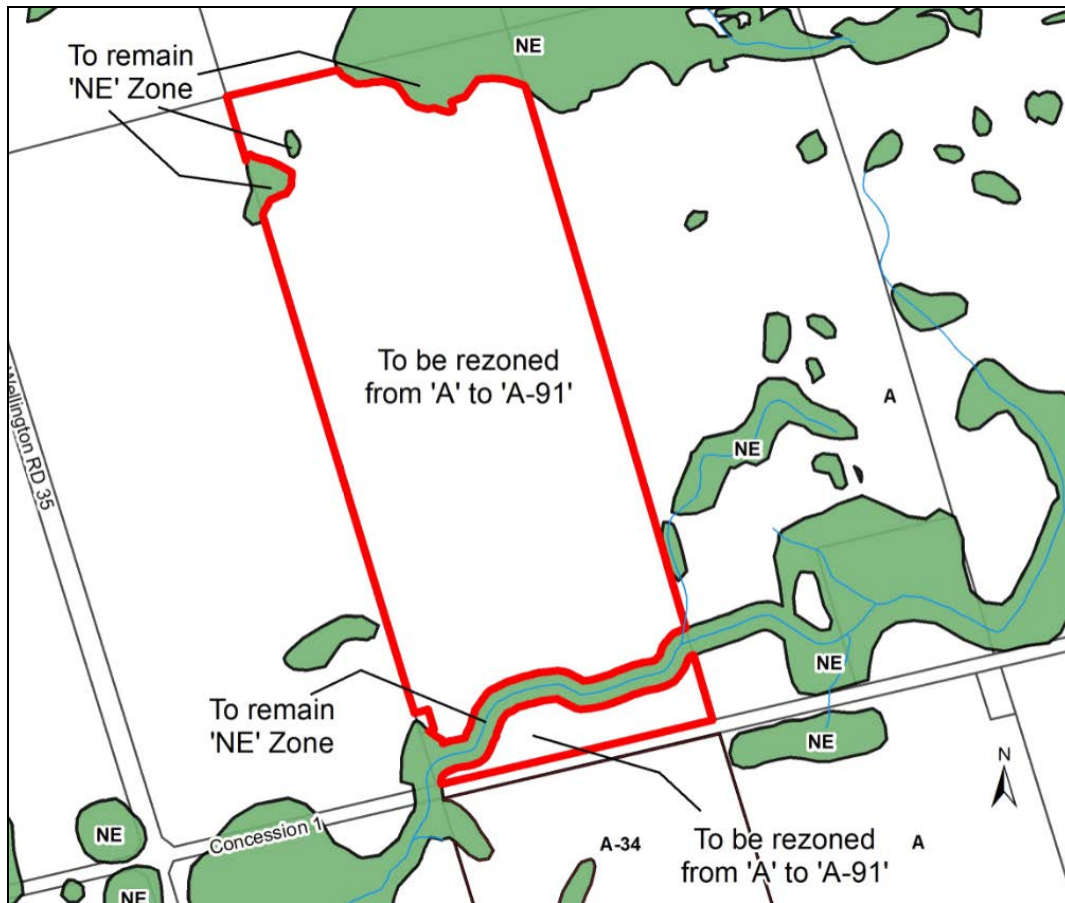
MAYOR

CLERK

THE CORPORATION OF THE TOWNSHIP OF PUSLINCH

BY-LAW NUMBER _____

Schedule "A"



Highlighted area to be rezoned from **"A" Zone** to a site specific **"A-91" Zone**

This is Schedule "A" to By-law No. _____
Passed this ____ day of _____, 2019.

MAYOR

CLERK

THE CORPORATION OF THE TOWNSHIP OF PUSLINCH

EXPLANATION OF BY-LAW NO. _____

By-law Number _____ amends the Township of Puslinch Zoning By-law 23/18 by rezoning CON 1 FRONT PT LOT 17, within the Township of Puslinch, and municipally referred to as 6920 Concession 1, from an AGRICULTURAL (A) ZONE to a site specific AGRICULTURAL (A-91) ZONE to permit ancillary uses to the existing therapeutic riding and learning centre, establish site specific provisions for a supportive housing use as an on-farm diversified use, and establish Minimum Distance Separation (MDS) requirements.

The subject property is approximately 39.94 hectares (98.7 acres) in size with a therapeutic riding and learning centre, including a riding arena and horse barn, single-detached dwelling, a building used for administrative purposes in relation to the existing uses, and a pool, operating on site.

Within the County's Official Plan, the subject lands are designated as Prime Agricultural lands. This designation permits on-farm diversified uses.

The proposed development is subject to site plan control which will evaluate on-site functionality, setbacks, technical matters related to grading and servicing, design, etc.

THE CORPORATION OF THE TOWNSHIP OF PUSLINCH

BY-LAW NUMBER 056-2019

Being a by-law to confirm the proceedings of the Council of the Corporation of the Township of Puslinch at its Regular Council meeting held on September 18, 2019.

WHEREAS by Section 5 of the *Municipal Act, 2001, S.O. 2001, c.25* the powers of a municipal corporation are to be exercised by its Council;

AND WHEREAS by Section 5, Subsection (3) of the *Municipal Act*, a municipal power including a municipality's capacity, rights, powers and privileges under section 8, shall be exercised by by-law unless the municipality is specifically authorized to do otherwise;

AND WHEREAS it is deemed expedient that the proceedings of the Council of the Corporation of the Township of Puslinch at its Regular Council meeting held on September 18, 2019 be confirmed and adopted by By-law;

NOW THEREFORE the Council of the Corporation of the Township of Puslinch hereby enacts as follows:

- 1) The action of the Council of the Corporation of the Township of Puslinch, in respect of each recommendation contained in the reports of the Committees and each motion and resolution passed and other action taken by the Council at said meeting are hereby adopted and confirmed.
- 2) The Head of Council and proper official of the Corporation are hereby authorized and directed to do all things necessary to give effect to the said action of the Council.
- 3) The Head of Council and the Clerk are hereby authorized and directed to execute all documents required by statute to be executed by them, as may be necessary in that behalf and the Clerk authorized and directed to affix the seal of the said Corporation to all such documents.

READ A FIRST, SECOND AND THIRD TIME AND FINALLY PASSED THIS 18th DAY OF SEPTEMBER, 2019.

James Seeley, Mayor

Patrick Moyle, Clerk/CAO