Town of Midland

WASTEWATER SERVICES ANNUAL REPORT

2020

Town of Midland Water & Wastewater Services

Definitions

The following defines terms that appear throughout this report and that will often be used for the duration of the report:

“BOD” – Biochemical Oxygen Demand

“Biosolids” - is a primarily organic solid product by wastewater treatment processes that can be beneficially recycled.

“CFU’” - Colony-Forming Unit.

“Dissolved Oxygen” (DO) - the oxygen freely available in wastewater.

“ECA” - Environmental Certificate Approval.

“Final Effluent” - sewage discharge via the sewage treatment plant outfall after undergoing the full train of unit process.

“Geometric Mean Density” is the ninth root of the product of multiplication of the results of a number of the samples over the period specified.

“I&I” (Inflow and Infiltration) means dilution of sewage decreases the effiency of treatment, and may cause sewage volumes to exceed design capacity.

“Limited Operational Flexibility” (LOF) means any modifications that the Owner is permitted to make to the works under this Approval.

“m^3” - cubic meters.

“NASM” - Non-Agricultural Source Material.

“Overflow” means any discharge to the environment from the sewage Treatment Plant at a location other than the plant outfall (i.e.:storm equalization tank). This type of by-pass recieves partial treatment before it is discharged to the environment.

“Owner” - The Corporation of the Town of Midland and its successors and assignees.

“Phosphorus” - a nonmetal of the nitrogen group.

“By-Pass” - diversion of sewage around one or more unit processes within the Sewage Treatment Plant with the diverted sewage flows being returned to the sewage Treatment Plant treatment train upstream of the final effluent sampling location and discharging to the environment through the sewage treatment plant outfall.

“PLC” - Programmable Logic Controller.

“SCADA” - Supervisory Control and Data Acquisition.

“Supernatant” - the relatively clear water layer between the sludge on the bottom and the scum on the surface of an anaerobic digester, septic tank or secondary clarifier.

“Total Ammonia” - the sum of both NH_3 and NH_4+.

“Water Supervisor” - the Water Supervisor for the Barrie Office of the Ministry.

A number of other technical terms have been used in this report but occur less frequently. Where necessary and to the reader’s benefit, definitions for these terms are provided as they occur.

Executive Summary

The purpose of the Town of Midland Wastewater Services Annual Report is to be a clear and consise assessment of the system's performance. Within the 2020 Reporting Year, there was **no failure to meet effluent limits and objectives.** However, **three (3) overflow events and one (1) scheduled maintenance by-pass event were reported**. For more information about the by-pass and overflows, refer to the *By-pass and Overflows* section on Page 18 of this report.

Additionally, this report is to provide information to all applicable stakeholders and to satisfy the regulatory requirements of the Amended Environmental Compliance Approval *5708-A72SPG* as issued July 20, 2016.

The Owner shall prepare and submit a performance report to the Water Supervisor on an annual basis, within ninety (90) days following the end of the period being reported upon. The first such report shall cover the first annual period following the commencement of operation of the works and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information;

- a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 7, including an overview of the success and adequacy of the Works;

- a description of any operating problems encountered, and corrective actions taken;

- a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;

- a summary of any effluent quality assurance or control measures undertaken in the reporting period;

- a summary of the calibration and maintenance carried out on all effluent monitoring equipment;

- a description of efforts made, and results achieved in meeting the Effluent Objectives of Condition 6.

- a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;

- a summary of any complaints received during the reporting period and any steps taken to address the complaints;

- a summary of all By-pass, spill or abnormal discharge events;

- a copy of all Notice of Modifications submitted to the Water Supervisor as a result of Schedule B, Section 1, with a status report on the implementation of each modification;

- a report summarizing all modifications completed as a result of Schedule B, Section 3; and;

- any other information the Water Supervisor requires from time to time.

The Town of Midland Wastewater System is in a fit state of repair and follows industry best practices during the repair and maintenance of the system. Infrastructure review occurs regularly between Engineering and Wastewater Services to optimize priority projects and minimize common costs.

Copies of the Amended Environmental Compliance Approval *5708-A72SPG* as issued July 20th, 2016 are available upon request.

Introduction

The Town of Midland has prepared this Performance Report for the operations conducted during the 2020 calendar year.

This Performance Report has been prepared to meet the following commitments:

- To provide the Town of Midland, as "the Owner" of the sewage works, a summary of the operation and maintenance of the wastewater treatment plant that took place during the reporting period of January 1st 2020 to December 31st 2020 and
- To comply with Condition 11 of ECA #5708-A72SPG

This Performance Report, provided to the the Town of Midland Mayor and Council, conveys information related to the performance of operations and maintenance, which aids in decision making related to system upgrades and expansion needs.

Ministry of the Environment, Conservation and Parks

The Midland Wastewater Treatment Plant is a conventional activated sludge plant owned and operated by the Town of Midland. The wastewater treatment plant was originally constructed in 1965 as a primary treatment plant. In 1980 the plant was expanded and upgraded to a secondary treatment facility. The treated effluent is discharged via a gravity outfall into Midland Bay (located on Georgian Bay). Environmental Compliance Approval (ECA) Number 5708-A72SPG was issued on July 20th, 2016 and governs the operation of the facility. The ECA identifies an average day design capacity of 15,665 m^3/day and a Peak Flow Rate of 37,000 m^3/day.

The treatment plant and collection system are operated under the following Certificates of Classification:

Class III Wastewater Treatment Certificate #89
Class II Wastewater Collection Certificate #2074

For the reporting period covered in this report, The Corporation of the Town of Midland was defined as the Operating Authority of the Wastewater Treatment Plant and the associated collection system.

Midland Wastewater Treatment Plant 2020 Effluent Flows (m^3)												
DATE	January	February	March	April	May	June	July	August	September	October	November	December
Total	258112.93	193475.65	292160.70	250023.55	215910.01	215018.52	230579.41	231549.43	229432.16	245990.94	239525.01	267953.72
Avg.	8326.22	6671.57	9424.54	8334.12	6964.84	7167.28	7438.05	7469.34	7647.74	7935.19	7984.17	8643.67
Max.	15522.40	7614.65	16813.14	10369.94	8362.45	11122.01	9794.17	10063.18	8958.30	10922.69	10586.00	12387.36
Min.	6959.66	3600.40	6625.74	7508.00	2860.83	5873.67	6740.54	5293.91	6482.31	6838.23	6993.94	7483.87
Average Daily Flow		7833.89										
Max Daily Flow		16813.14										
YEARLY TOTAL		2869732.03										

Figure 1: Midland Wastewater Treatment Plant 2020 Effluent Flow

Flows

The 2020 average daily flow was 7833.89 m^3 or 50% of plant rated capacity. The plant discharged a total of 2,869,732.03 m^3 for the reporting period of January 1st to December 31st 2020. The 2020 maximum daily flow occurred March 10th when the flow recorded was 16,813.14 m^3. On this day Midland observered 26.2 mm of precipitation in a 3.5 hour event.

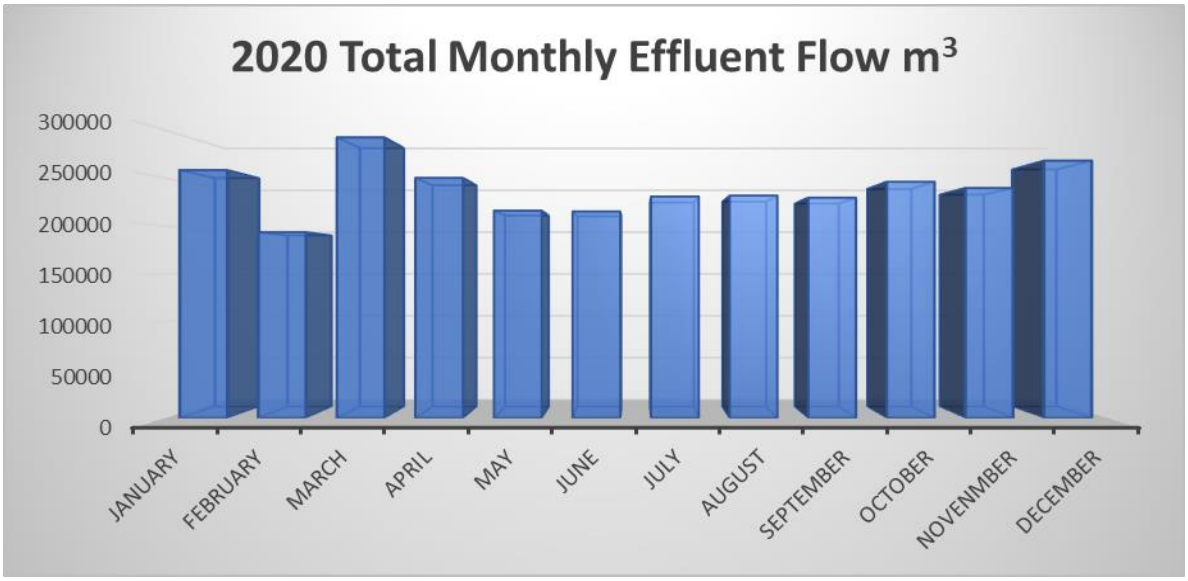

Figure 2: Monthly Effluent Flow in m^3 for 2020.

Effluent Flow

The Total Monthly Discharge Flows are consistent throughout the year with exception to February, March and April due to seasonal thaws and infiltration. This is also evident by the max day flow reading recorded. An Inflow and Infiltration Study (I&I) is being conducted in efforts to reduce the unnecessary treatment of rainwater and runoff during thaw seasons and storm events. Strategies identified in the I&I study should increase the longevity of the Wastewater Collection System/Treatment Plant and provide technical data to make decisions on possible treatment upgrades or process expansions.

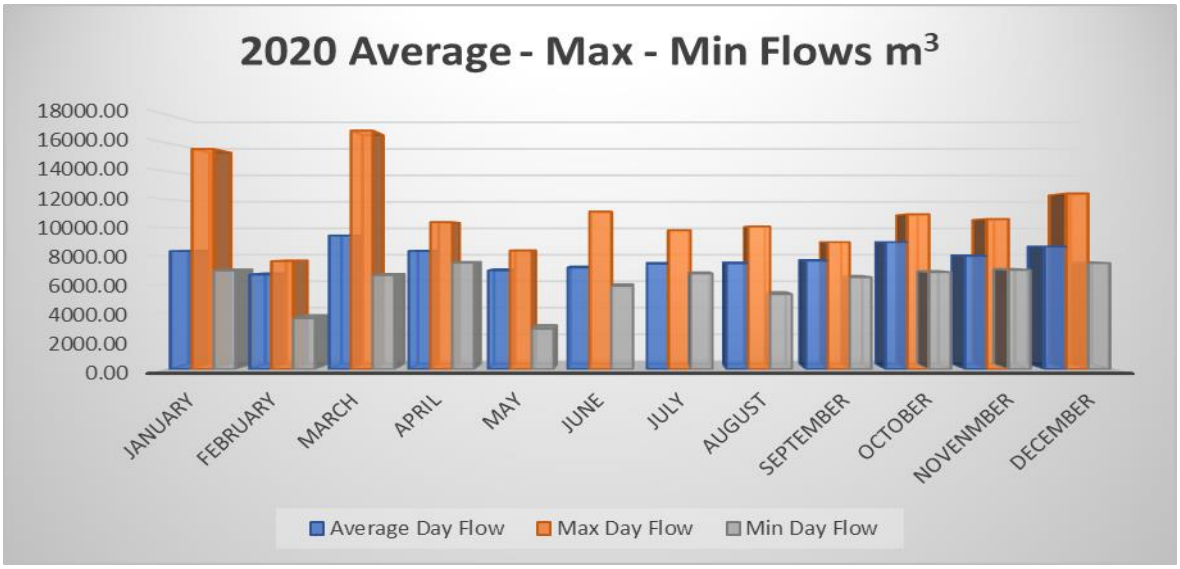

Figure 3: Monthly Average, Max and Min Day Flows in m^3 for 2020.

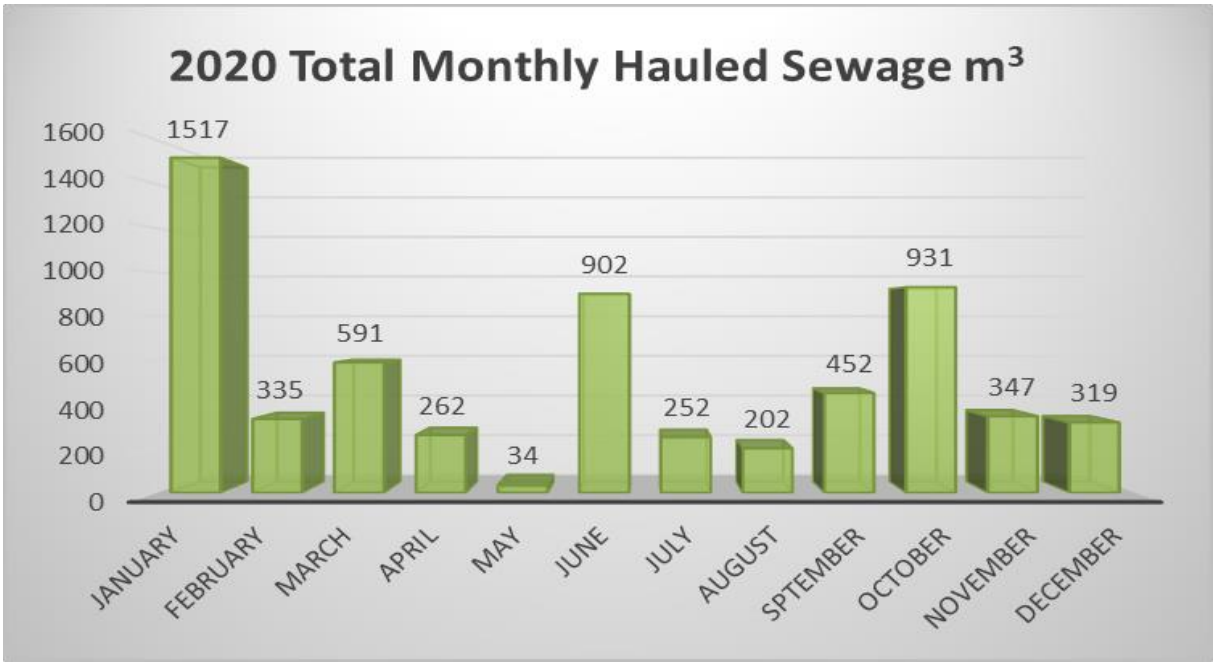

Figure 4: Total Monthly Septage Received m^3 for 2020.

Septage Receiving

Within reporting period of January 1st to December 31st, 2020 the Wastewater Treatment Plant receives additional sewage in the forms of septic and holding tanks, portable toilets, grease traps, marine waste and recreational vehicle holding tanks. The septage received is stored in holding tanks and pumped to the primary clarifier at a time as not to upset the treatment process.

Midland Wastewater Treatment Plant 2020 Effluent Loading														
EFFLUENT LOADING 2020														
Month	**Effluent Flows**	**$CBOD_5$ Annual Average Concentration**		**Total Suspended Solids Annual Average Concentration**		**Total Phosphorus Annual and Monthly Average Concentration (1,716 Kg/Yr)-146 Kg/Month**		**Total Ammonia Nitrogen Monthly Average Concentration**			**pH Monthly Average**	**Total Chlorine Monthly Average Concentration**		**E.Coli**
ECA Limits	m^3	Monthly Average 10 mg/L	Loading 4856 Kg/month	Monthly Average 10 mg/L	Loading 4856 Kg/month	Monthly Avg.	Loading 146 Kg/month	Monthly Average 10mg/L	Monthly Average 15mg/L	Loading Kg/month	pH	Usage Kg/ month	Effluent Residual 0.02 mg/l	Geometric Mean 200 col/100ml
						0.4 Monthly-0.3 Yearly mg/l								
January	258112.93	3.00	774.34	4.50	1161.51	0.09	23.88		0.47	121.31	7.88	582.21	0.002	24
February	193475.65	3.00	580.43	3.75	725.53	0.08	15.96		0.79	152.36	7.87	488.89	0.009	3
March	292160.70	3.00	876.48	4.25	1241.68	0.08	22.64		0.53	154.11	7.86	504.43	0.004	1
April	250023.55	3.00	750.07	3.60	900.08	0.06	15.00		0.14	35.50	7.87	453.22	0.001	1
May	215910.01	3.17	683.72	3.50	755.69	0.07	15.47		0.17	36.34	7.83	502.34	0.002	12
June	215018.52	3.00	645.06	6.47	1390.45	0.16	34.40	0.47		101.92	7.71	483.37	0.001	13
July	230579.41	3.00	691.74	4.60	1060.67	0.13	30.90	0.49		113.91	7.88	454.27	0.000	16
August	231549.43	3.25	752.54	3.50	810.42	0.10	22.00	1.26		292.33	7.86	443.67	0.000	9
September	229432.16	3.00	688.30	4.00	917.73	0.11	24.66		0.59	136.28	7.87	394.47	0.000	21
October	245990.94	3.00	737.97	5.75	1414.45	0.11	26.44		0.56	136.52	7.95	430.17	0.001	10
November	239525.01	3.00	718.58	6.50	1556.91	0.13	31.14		0.47	112.58	7.92	461.80	0.000	23
December	267953.72	3.00	803.86	6.80	1822.09	0.13	34.83		0.26	69.67	7.92	560.73	0.000	3
Total	**2869732.03**							0.74	0.44			**5759.57**		
Monthly Average	**239144.34**	3.03	725.26	4.77	1146.43	0.104	24.78	0.52		121.90	7.87	479.96	0.002	11.4
Annual Daily Average	**7760.28**											15.73		
Total Loading			8703.07		1146.43		297.33			1462.85				

Figure 5: Total Monthly Effluent Loading for 2020

Summary and Interpretation of Monitoring Data

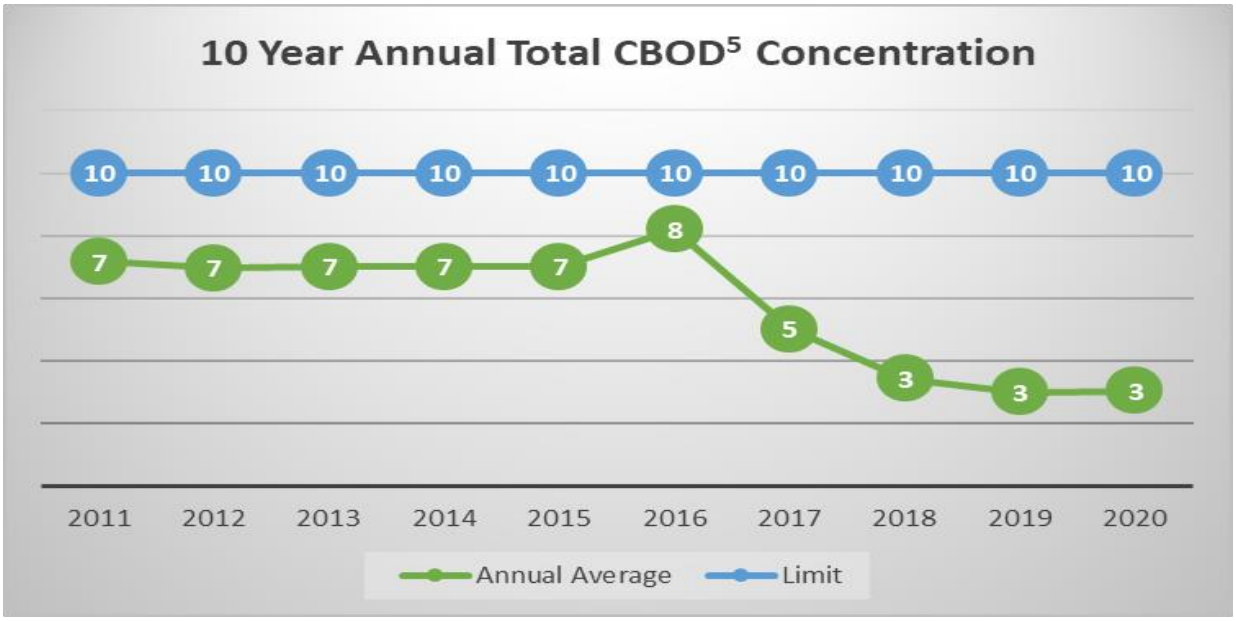

Figure 6: 10 Year Annual Total $CBOD_5$.

Total $CBOD_5$

From the ECA, the Monthly Average Concentration limit for Carbonaceous Biochemical Oxygen Demand ($CBOD_{5)}$ to the environment is 10 mg/l. During the Reporting Period of January 1st to December 31st, 2020 Midland's Monthly Average $CBOD_5$ was 3.0 mg/l and the annual average was also 3.0 mg/l. $CBOD_5$ is a 5-day test that represents the quantity of oxygen which is consumed during aerobic processes of decomposition of organic materials, caused by microorganisms. The BOD therefore provides information on the impact the organic portion of the effluent will have on the oxygen level of the receiving stream, and on aquatic life of the bay.

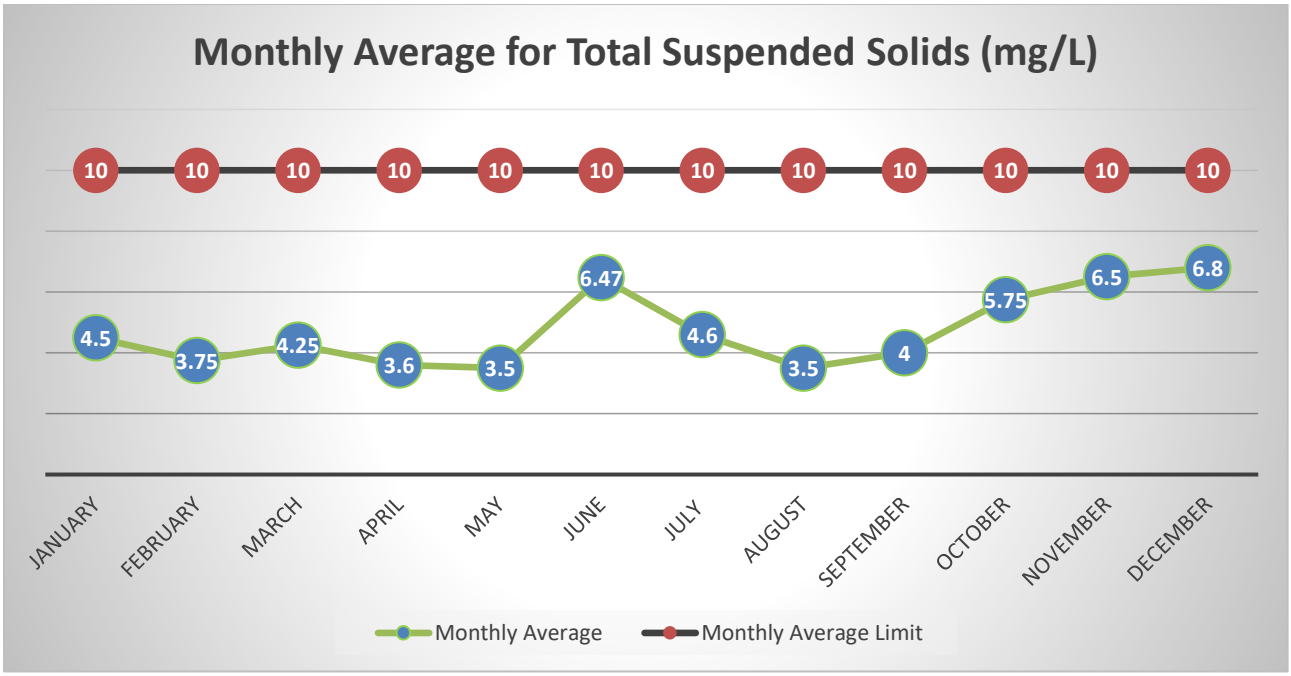

Figure 7: Monthly Average for Total Suspended Solids in mg/L.

Total Suspended Solids

As defined in the ECA, the maximum Monthly Average Concentration for Total Suspended Solids (TSS) released to the environment is 10 mg/l. During the Reporting Period of January 1st and December 31st, 2020 Midland's Monthly Average was 4.77 mg/l. TSS can include a wide variety of material, such as silt, decaying plant and animal matter, and industrial wastes. High concentrations of suspended solids can lower water quality by absorbing light. Waters then become warmer and lessen the ability of the water to hold oxygen necessary for aquatic life.

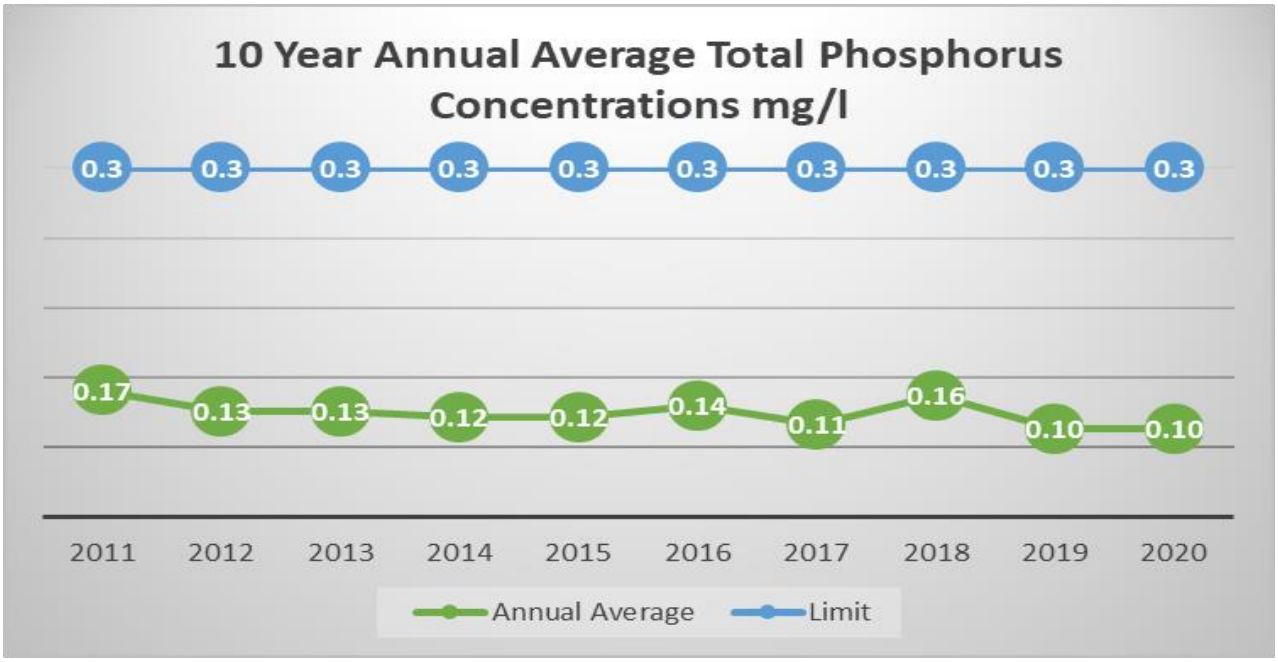

Figure 8: 10 Year Annual Average Total Phosphorus Concentrations

Total Phosphorus

Total Phosphorus is the sum of reactive, condensed and organic phosphorous. It is an essential element for plant life, but when there is too much of it in water, it can speed up eutrophication (a reduction in dissolved oxygen in water bodies caused by an increase of mineral and organic nutrients) of rivers and lakes.

The highest average monthly total phosphorus concentration of 0.16 mg/L took place during the month of June. This concentration results in a total monthly loading for June of 34.40 kg.

The annual average concentration of 0.10 mg/L was below the annual yearly objective of 0.3 mg/L and also well below the 0.4 mg/L monthly limit dictated by the ECA. The total annual phosphorus loading of 297.33 kg/year is well below the ECA limit of 1,716 kg/year. The monthly objective for phosphorus of 146 kg/month was also achieved with a monthly loading average of 24.78 kg/ month.

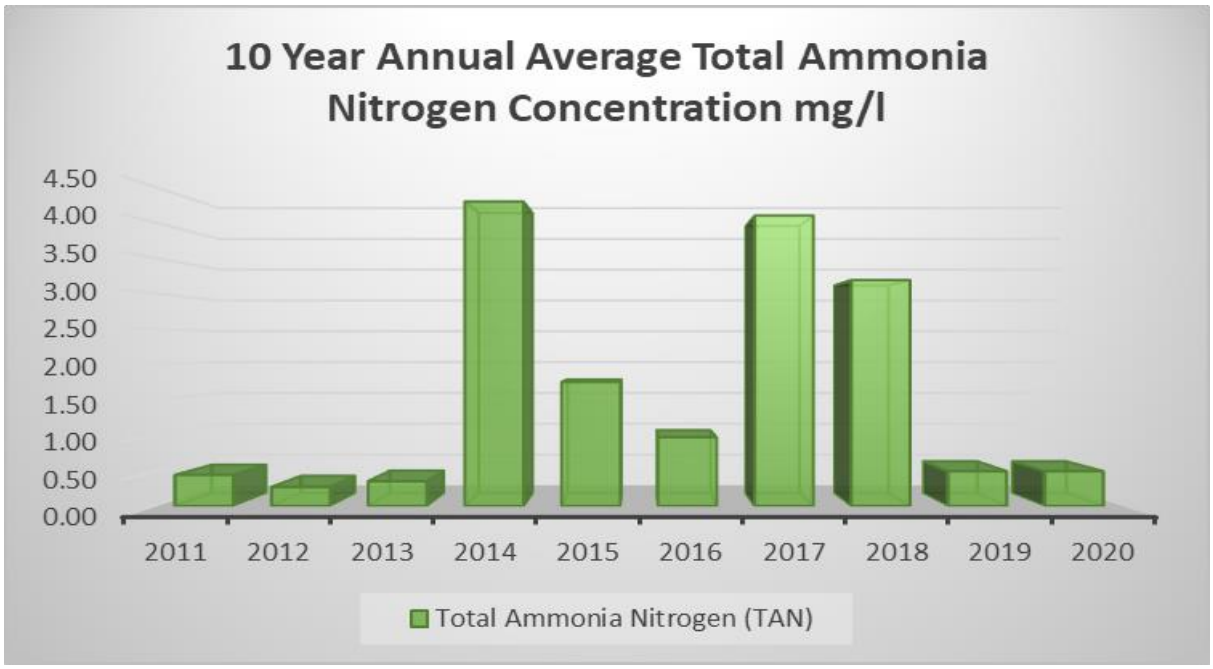

Figure 9: 10 Year Annual Average Total Ammonia Nitrogen Concentration

Total Ammonia Nitrogen

Total Ammonia is the sum of the free ammonia-nitrogen plus the amount of nitrogen from ammonia that has combined with chlorine. Ammonia pollution is a matter of increasing concern for regulatory authorities because of the serious threat it poses to the balance of sensitive habitats and to flora and fauna. Controlling ammonia discharges from wastewater treatment can make a significant contribution to reducing its environmental impact.

The average concentration of Total Ammonia Nitrogen (T.A.N.) between June 1st, 2020 to August 31st, 2020 (Summer) was 0.74 mg/L, the ECA limit is 10 mg/L.

The average concentration of Total Ammonia Nitrogen (T.A.N.) between January 1st, 2020 to May 31st, 2020 and September 1st, 2020 and December 31st 2020 (Winter) was 0.44 mg/L, the ECA limit is 15 mg/L.

The loading objective 5.0 mg/l identified in the ECA was also achieved for the reporting period of January 1st to December 31st, 2020.

Midland Wastewater Treatment Plant 2020 Chlorine Usage and Effluent Residuals														
	January	February	March	April	May	June	July	August	September	October	November	December	Total	Monthly Average
Monthly Chlorine Usage	582.21	488.89	504.43	453.22	502.34	483.37	454.27	443.67	394.47	430.17	461.79	560.73	5759.56	
Monthly Average Daily Chlorine Use	18.78	16.86	16.27	15.11	16.20	16.11	14.65	14.31	13.15	13.88	15.39	18.09		15.73
Monthly Average Effluent Residual	0.002	0.009	0.004	0.001	0.002	0.001	0.000	0.000	0.000	0.001	0.000	0.000		0.002

Figure 10: Monthly and daily chlorine usage in Kg's.

Chlorine Usage

The monthly usage of Chlorine was consistant throughout 2020 with a total usage of 5759.56 kg. The average daily usage also remained consistant and remained between 13.15 kg/day and 18.78 kg/day for the reporting period January 1st and December 31st 2020. The Total Chlorine Residual of 0.002 mg/l in the Effluent was well below the 0.02 mg/l Objective and Limits set out in the ECA.

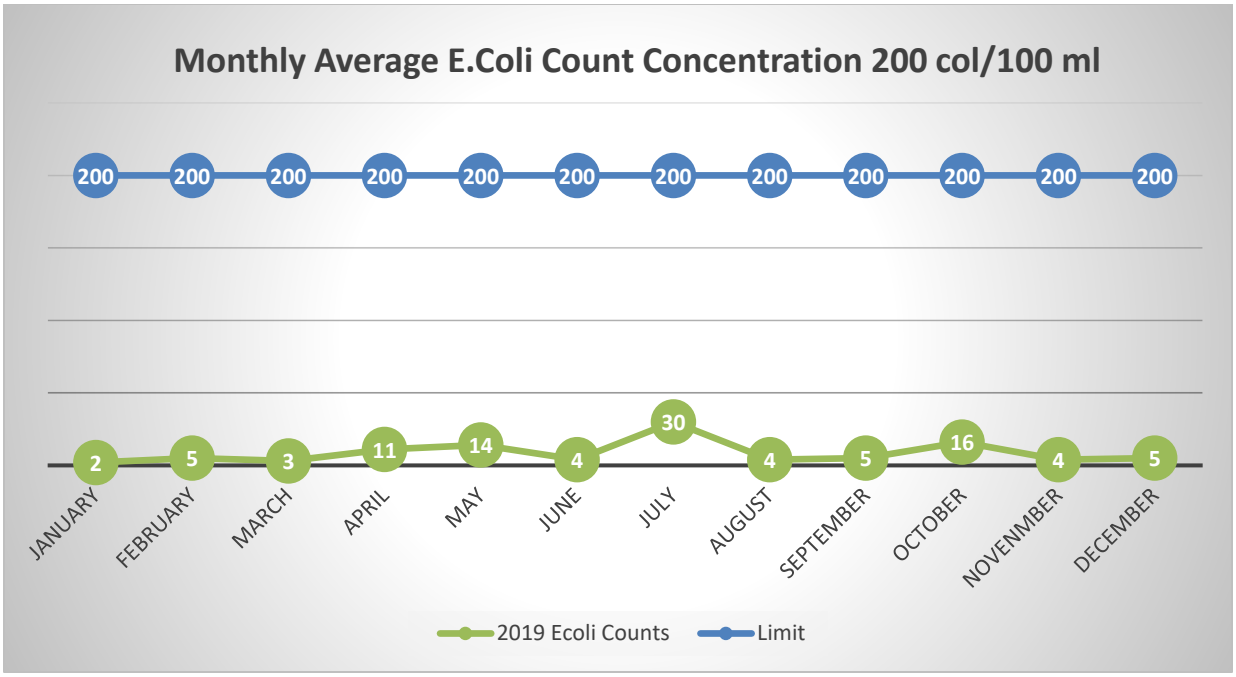

Figure 11: Monthly Average E.Coli Count Concentration 200 col/100 ml

E.Coli

Escherichia coli (*E. coli*) are a group of bacteria commonly found in the intestines of warm-blooded animals, including people. *E. coli* in fresh water can indicate the presence of pathogens (disease-causing organisms) from animal or human feces. The pathogens can cause illness for anyone who ingests them.

From the ECA, the E.Coli. on a Monthly Geometric Mean, must be less than 200 Colony-Forming units/100 ml (CFU's) released to the environment. Midland's Monthly Average E.coli count was 11.4 organisms per 100 ml of effluent discharged from the works.

Operational Improvements

2020 Sewer Sampling Program

In April 2020, the Town of Midland implemented a Sewer Sampling Program. From April to September an average of 1 to 2 samples were collected each week for a total of 30 samples taken at 14 different locations across Midland. The sample locations focused on restaurants, factories, hospitals, and retirement facilities. Approximately 50% of the samples collected showed zero exceedances to Midland's Sewer Use By-Law.

Restaurants sampled showed to have Oil and Grease, Suspended Solids, Phosphorus and Nitrogen parameters exceeding the limits set by the By-Law. Industrial and Institutional locations showed to have little or no loading on the Town of Midlands sewer system or treatment facility. Exceedances to the By-Law are minor in nature and will be able to be rectified with improved onsite treatment and continued facility inspections industry best practice methods and continued facility inspections and sampling.

Sewer Line-Rapid Assessment Program

Water and Wastewater Services have adopted a new sewer inspection program and a Sewer Line-Rapid Assessment Tool, better known as the SL-RAT. This system and equipment will allow for better prediction of maintenance and replacement activies.

The device is operated by a two-person crew and relies on acoustic technology to rapidly assess blockages in a length of sewer pipe between two maintenance-hole structures. The SL-RAT consists of a transmitter — which sends an acoustic signal down the pipe — and a receiver, which estimates the available air space above the sewer flow. A reading of zero indicates that a pipe is completely blocked, while a reading of 10 indicates it's completely open.

The equipment is designed to work optimally in sewer pipes between 150mm and 300mm in diameter to a maximum length of 250m. Once the maintenance-hole covers are removed, readings can be completed in as little as five minutes with no confined space entry.

Chamber A Weir Improvements

Through a detailed investigation it was determined that a flow measurement modification performed in the 1980's to the Chamber A weir was causing strain on SPS#1 during heavy rain events and sometimes resulting in CSOs. With the use of modern radar level sensing equipment the weir was repaired and re-confirgured back to its 1965 design. This repair, should reduce the amount of overflow events.

Hydraulic Modeling

As a part of the Wastewater Master Plan focused on the development of a sanitary trunk sewer system hydraulic computer model, used to present the results of a hydraulic capacity evaluation of the system under various scenarios including existing, development up to 2041 and development beyond 2041. A dynamic model was constructed which utilizes collected sewer flow data and allows the assessment of pump stations and major pressure sewers. The results of the modelling work have been used to identify the recommended preferred servicing strategy for the conveyance system to meet the desired level of service.

NASM/Biosolids

In 2020, 10380m^3 of Digested Biosolids were hauled from the Town of Midland Wastewater Treatment Plant under contract L04-49844 by Region of Huronia Environmental Services (ROHES). This is a 2% decrease from 2019. Efforts by staff to increase supernatant procedures has reduced the amount of Biosolids hauled by ROHES and stored at lagoons located in New Lowell during the winter months and apply to land in the summer months. Biosolids production volumes are expected to be near or slightly less in the 2021 calendar year.

2020 Biosolids Generated and Hauled

2020	January	February	March	April	May	June	July	August	September	October	November	December	Total
Loads	16	14	26	20	23	19	23	22	16	22	24	23	248
Volume m^3	672	588	1092	840	970	802	924	922	672	924	1008	966	10380

Table 1: 2020 Biosolids Generated and Hauled

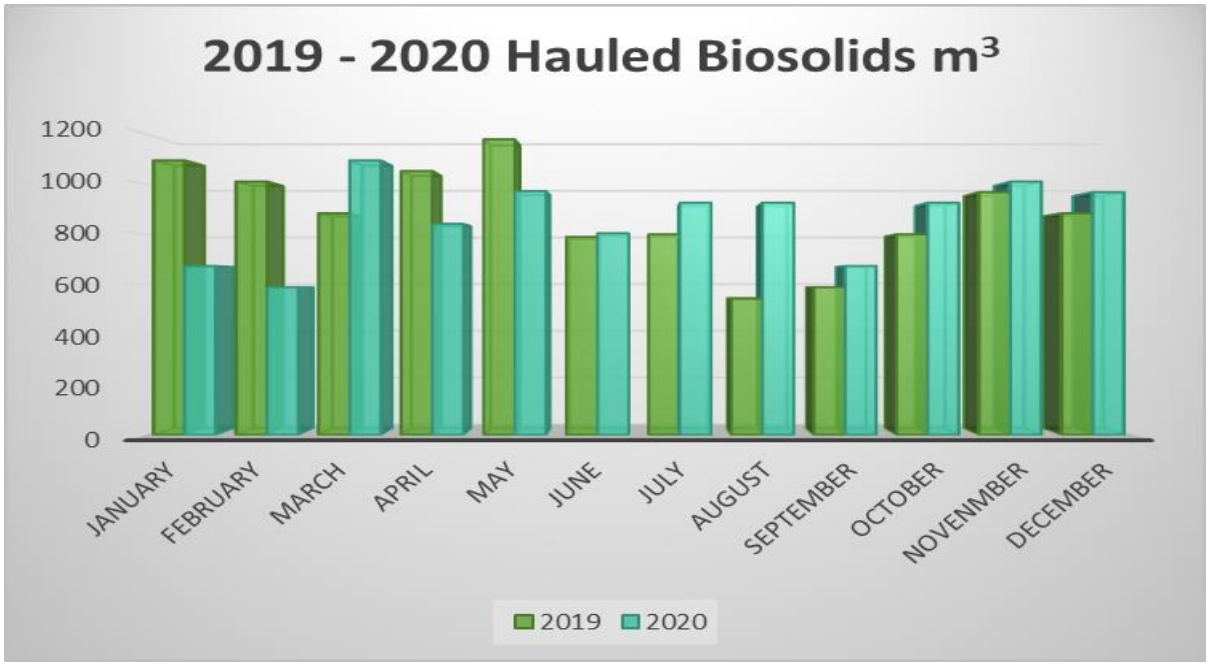

Figure 12: 2019-2020 Hauled Biosolids

Summary of Effluent Quality Assurance and Control Measures

Midland Wastewater Operators collect samples from Raw Sewage, Primary Clarifier Effluent, Aeration Effluent, Primary and Secondary Digesters and Final Effluent on a regular basis throughout the work week and month. Staff use standardized and accepted laboratory techniques when samples are tested for various parameters in-house for process control and effluent quality assurance. A spreadsheet is used to track in-house lab results to perform several calculations used to monitor and measure the effectiveness of the plant performance. In addition to the in-house analysis, samples are collected weekly and sent to a certified laboratory, Caduceon Environmental Laboratories. These sample results are used to determine compliance with the ECA and Ministry Regulation.

Bypasses and Overflows

In 2020 there was (1) scheduled maintenance by-pass event and (3) overflow events that occurred during the reporting period of January 1st to December 31st.

Bypass Event 1, May 6th to May 8th, there was a planned by-pass event for the maintenance and cleaning of the chlorine contact chamber. The measured volume discharged to Georgian Bay from the treatment plant was 14,238.36 m^3 and the event lasted 48 hours.

Overflow Event 1, On May 24th during a heavy rain event, there was an overflow at Chamber "A" to Georgian Bay of 747.0 m^3

Overflow Event 2, June 21st during a heavy rain/severe thunderstorm event, 661.6 m^3 overflowed from Chamber "A" into Georgian Bay.

Overflow Event 3, On June 23rd 532.0 m^3 overflowed from Chamber "A" to Georgian Bay during a rain event.

This is also known as a Collection Sewer Overflow (CSO). All overflows are reported to the Ministry of Environment, Conservation and Parks (MECP) aswell to the Town of Midland's social platforms.

2020 By-Pass and Overflow Report					
Date	**Location**	**Type**	**Volume m^3**	**Duration (Hrs)**	**Rainfall (mm)**
May 6th to May 8th	Plant	Primary	14238.4 m^3	48 Hrs	
May 24th	Chamber A	Secondary	747.0 m^3	0.42 Hrs	
June 21st	Chamber A	Secondary	661 m^3	0.30 Hrs	
June 23rd	Chamber A	Secondary	532.0 m^3	0.33 Hrs	

Wastewater Master Plan and Inflow & Infiltration

J.L. Richards & Associates Limited (JLR) was retained by the Town of Midland (the Town) to complete a Wastewater Master Plan (2020 Master Plan) for the Town's treatment and conveyance system. The Wastewater Master Plan will serve as guidance on short and long-term wastewater infrastructure improvements within the urban boundary of Midland.

The Master Plan was conducted in accordance with Phases 1 and 2 of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (Class EA) (updated November 2015) to fulfill the requirements for Schedule B projects (Approach 2).

The Wastewater Master Plan enables the Town to manage existing system deficiencies, plan for increased growth, and create a long-term infrastructure plan. Overall, this system is understood to be performing well. However, the main issues considered by the 2020 Master Plan include:

• concerns about the impact of combined sewage overflows on the water quality and recreational uses of Georgian Bay;
• an increasing amount infrastructure that is nearing the end of its service life; and
• planning for growth in the Town over the next 20-years and beyond.

This was the first Master Plan conducted for the Town of Midland sanitary system.

The wastewater conveyance system within Midland has been modelled based on GIS data held by the town and survey of specific sections of the infrastructure. The model was calibrated to the results of a flow monitoring program undertaken for three (3) months in spring 2019 as well as previous flow monitoring results.

The model was then simulated under a series of design events with Rainfall Dependent Inflow and Infiltration (RDII) and existing and future population growth scenarios.

The results analysis has shown that:
• The system is within the required level of service under the existing population scenario; however, there is some basement flood risk in the 1:10 year RDII event and one location with surface flooding in the 1:100 year RDII event;
• Under the 2021-2041 predicated population growth there are no changes to level of service or pump station capacity constraints;
• CSO volumes increase due to the increase in population; and,
• There are severe constraints in the existing infrastructure under the population growth predicted beyond 2041 including along the Pillsbury trunk and pump station #7, Vindin.

Calibrations

All flow meters, level transmitter, probes and analyzers are calibrated as per the manufacturers recommendations by a trained, knowledgeable and experienced technician. Calibrations are completed a minimum of once a year. Calibration was completed in June 2020 by SCG Flowmetrix. Calibration Certificates are submitted and retained electronically for each unit and devices. Below is a list of locations of units and devices and description.

	Date	Location	Description	Serial #
1	June 19/20	Midland WWTP	WAS Flow Meter	A98 14063
2	June 19/20	Midland WWTP	RAS Flow Meter	302418
3	June 18/20	Midland WWTP	Final Effluent Flow Meter	PBD/L3050094
4	June 18/20	Midland WWTP	Raw Sewage Tank Level	PDB/K0020132
5	June 18/20	Midland WWTP	Bypass Flow Meter	PBD/A7210157
6	June 19/20	Midland WWTP	Calcium Thiosulfate Level North	PBD/A6281118
7	June 19/20	Midland WWTP	Calcium Thiosulfate Level South	PBD/A680892
8	June 27/19	Midland WWTP	Dechlor Chemical Flow Meter	N1K1225102
9	June 19/20	Midland WWTP	Storm Tank Overflow Meter	N/A
10	June 19/20	Midland WWTP	Storm Tank Level	N/A
11	June 19/20	Midland WWTP	Influent Flow Meter	N/A
12	June 19/20	Midland WWTP	Primary Raw Sludge Flow Meter	A964188
13	June 19/20	Midland WWTP	Alum Pump #1 Flow Meter	N1K2145086
14	June 19/20	Midland WWTP	Alum Pump #2 Flow Meter	N1K2145145
15	June 18/20	Midland WWTP	Bio-Solids Haulage Flow	N1K502510
16	June 19/20	Midland WWTP	Septage Tank Level	N/A
17	June 19/20	Aberdeen SPS #3	Well Level	N/A
18	June 22/20	Pillsbury SPS #4	Well Level	PBD/V7120381
19	June 22/20	Pillsbury SPS #4	Station Flow	3K620000240145
20	June 22/20	Russ Howard SPS #5	Well Level	N/A
21	June 16/20	Vindin SPS #6	Well Level	PBD/W2190022
22	June 17/20	Vindin SPS #6	Outflow Meter	1320A359
23	June 22/20	Bay Port SPS #7	Station Flow Meter	282948
24	June 22/20	Bay Port SPS #7	Well Level	PBD/X5290260
25	June 18/20	Chamber A	Bypass Flow Meter	060903101XV
26	June 19/20	Bay SPS #1	Well Level	N/A
27	June 18/20	Midland WWTP	Secondary Flow to Clarifier Meter	N/A
28	June 18/20	Midland WWTP	Sodium Hypochlorite Flow	N1K4105037

Summary of Maintenance Performed Throughout the Reporting Period

In addition to regular maintenance management programs and maintenance to all effluent monitoring equipment, works were upgraded or replaced in accordance with the Capital Plan as follows:

Software and Procedural

- Development of a Wastewater Equipment Maintenance Plan
- Implementation of a mobile workorder system

Treatment and Lift Station Facilities

- SCADA Server at SPS#1
- Fiber-Optics Communication
- Redundant SCADA Server installation
- Online Process Instrumentation
    - Sodium Hypochlorite Storage Level Measurement
    - Flow Meters at Tiffin and Russell Howard
- Secondary Clarifier #1 Rebuild
- Valve Actuator Replaced Primary Clarifier #3
- Valve Actuator Replaced Storm Tank Inlet
- Cleaned and Inspected Septage Receiving Tank
- Cleaned Storm Tank
- Cleaned and Inspected Pista-Grit (Headworks)
- Float Replacement MH#8 and Aberdeen
- Sludge Building Concrete Floor Repair

Collection System

- SL-RAT Program Development
- 2500m of Sanitary Sewer Relining

Summary of Complaints received throughout the Reporting Period

There were no complaints received by the Town of Midland municipal staff throughout the Reporting Period for the Town of Midland Wastewater Treatment Plant for odour. However, staff are continuing to explore odour control technologies for the Septage Receiving Process.

Limited Operational Flexibility-Notice of Modifications Form

There were no Limited Operation Flexibility or Notice of Modification forms submitted throughout the Reporting Period. All upgrades/modifications have been completed in accordance with the Terms and Conditions of the ECA.

Closing Remarks

Throughout the Reporting Period the Midland WWTP operated to the best of its ability while subject to extensive construction activity, and seasonal influences. With continued construction and typical average daily flows, operations staff expect the WWTP to operate as designed over the next Reporting Period.