TransAqua

GREATER MONCTON WASTEWATER COMMISSION

COMMISSION DES EAUX USÉES DU GRAND MONCTON

Annual Report **2018** Building TransAqua for a Better Environment

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Mission and Vision

MISSION To collect and treat wastewater in a reliable, cost-efficient and environmentally responsible manner.

VISION To be an outstanding environmental steward supporting regional planning, economic development and quality of life for the communities of Dieppe, Moncton and Riverview.

1.2 History 1983-Present

The Greater Moncton Sewerage Commission (GMSC) was created by an order-in-council in 1983 based on a model outlined in a consultant's report by Boyd A. Touchie Engineering Ltd. and Anderson Associates Limited in consultation with the three municipalities and the Government of New Brunswick.

The GMSC was then mandated to implement the Master Plan as laid out in the study. From 1983 to 1995, the GMSC oversaw the construction of a 31-km network of collector sewers intercepting more than 80 untreated outfalls; the construction of a major pumping station along with eight smaller ones; implementation of an advanced primary treatment system; and implementation of a long-term sustainable Biosolids Management Program with a new innovative composting system.

In 2012, the federal government's new Wastewater Systems Effluent Regulations (WSER-2012) were enacted under the Fisheries Act. This legislation guides the effluent compliance requirements for wastewater treatment facilities and requires that the Commission meet these new requirements by 2020.

The Greater Moncton Sewerage Commission changed its legal corporate name to the Greater Moncton Wastewater Commission (GMWC) in 2014 and introduced a new trade name, TransAqua as the day-to-day business name. TransAqua is bilingual, easier to remember and better conveys what the Commission does: transforming ("trans") wastewater ("aqua") and returning it to nature, i.e. the Petitcodiac River. Changes to its Board and management structure in 2012 have improved transparency, accountability, public communication effort and operations.

After 34 years, the Commission continues to move away from concentrating on what goes into the pipe (i.e. sewage) and concentrate on what comes out of the other end – high quality treated wastewater which will be enhanced after secondary treatment is implemented by 2020. These mandated upgrades will be the main focus of TransAqua's activities between 2018 and 2020. We take our responsibility as an environmental steward very seriously and are committed to being part of the solution. Other initiatives which were planned for prior to – or in – 2018 include:

- Begin construction of Phase 3A (Bioreactor excavation), 3C (4th Clarifier) and 4 (Sludge Handling Building) while Phase 1 (Preliminary Treatment) and Phase 2 (Primary Treatment) continued;
- Development and approval of the 2019-2023 GMWC Strategic Plan;
- Commission approval for the formal Asset Management Program with Commission commitment included in the 2019-2023 GMWC Strategic Plan and the adoption of the GMWC Asset Management Policy;
- Public Safety Canada submitted its final Report for the Cyber Security Resilience Review completed for TransAqua's IT systems.
- Municipalities / TransAqua signing ceremony the Agreement for the Service Agreement and CSO Reporting Agreement;
- Completion of the 2018 TransAqua Public Opinion Survey;
- The Pile Tracking and Control System has been developed and implemented at the Composting Facility in order to track biosolids piles from cradle to grave;
- Computerized Maintenance Management Software development has continued. An Asset Hierarchy has been developed and asset information continued to be gathered.
- The Residential Unit Rate remained at $210 per unit in 2017 and 2018.

The Commission continues to be proven as an effective tri-community model and has demonstrated co-operation and the ability and efficiency to deliver. Its assets are well managed and maintained within a sustainable financial model that remains affordable to ratepayers. The administration, operations and maintenance teams continue to meet current expectations and aim to anticipate future needs to the benefit of all ratepayers, stakeholders and the environment.

2. CHAIR'S REPORT

With funding in place for the TransAqua upgrade project and commencement of construction last year, 2018 saw increased activity as various construction phases were awarded and progress continued. There is much more detail in the General Managers report and the Board is very satisfied with the work of staff on this project which is consuming a large amount of their time. This is particularly true now that the Commission is acting as the General Contractor for more recent phases. The Board was pleased to approve this recommendation from staff which has resulted in better control of the project and increases the possibility of cost savings while ensuring quality is maintained.

In 2018 TransAqua continued to raise its community profile and increase public awareness of the organization. Although the latest public opinion poll presented to the Board in November showed that there was still a generally low understanding of TransAqua there was a significant improvement compared to the last poll done in 2016. As a publicly funded organization, TransAqua believes it is important that our partners and stakeholders are aware of what we do and what their funds provide. TransAqua will continue to try and improve this awareness on an ongoing basis through participation in community events, facility tours, providing speakers etc.

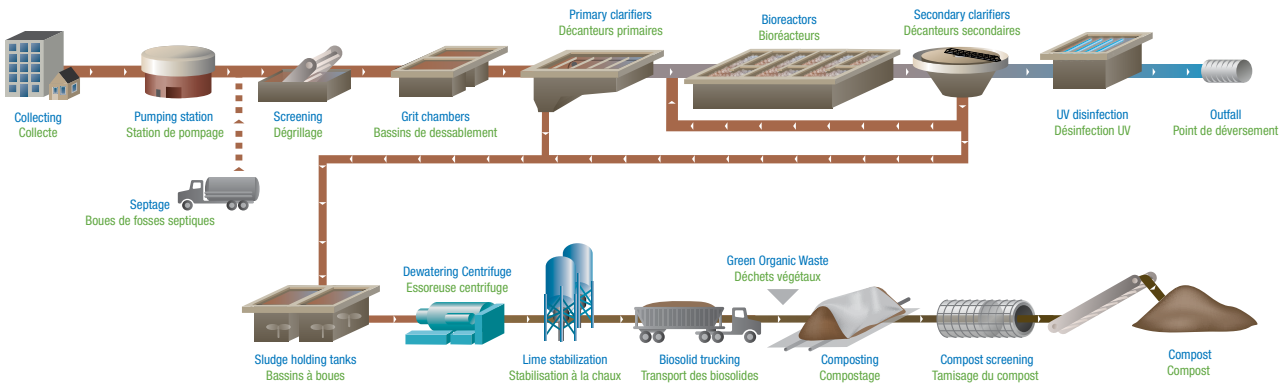
The Board continued to review, upgrade and approve policies and procedures that provide for the efficient and effective operation of the organization. All items from the Gabbey Report (an organizational review) were addressed and finalized in 2018. A new Strategic Plan was approved by the Board in September and covers the 5-year period from 2019 – 2023. Commission staff will be reporting regularly to the Board on progress in implementing the goals and objectives of this plan. Additional details may be found on the TransAqua website and the Board would encourage all interested parties to look at the Strategic Plan and our website in general.

2018 saw one new board member added as Mylene Roy was replaced by Dr. Yves Gagnon as a representative for the City of Dieppe. The Board welcomes Yves and looks forward to taking advantage of his knowledge and experience with a number of organizations connected with technology, research and dealing with public policies. Mylene will be missed for her input on a wide variety of technical issues dealing with TransAqua operations. TransAqua has been fortunate in having interested and committed Board members and staff and as Chairman I express my appreciation for all of them.

The next few years will be exciting for TransAqua as our upgrade project continues to move forward to its expected completion in 2020. In addition to this major capital project the Board and staff will be working on other projects and improvements to operations. As the Board and staff work together to bring these projects to fruition there is no doubt that the Greater Moncton Area will end up with an organization and state of the art facility that will serve its needs for many years into the future.

Respectfully submitted,

David Muir, CPA, CA
Chair



Wastewater TreatmentProcess Using Biological Nutrient Removal (BNR) Process

3. GENERAL MANAGER'S REPORT

3.1 2018 Overview

The Commission has completed a busy year of construction for the WWTF Upgrade and Modernization Project. The new Bar Screen and Grit equipment was commissioned in 2018 with construction beginning on the fourth clarifier and Sludge Handling Building. The bioreactor excavation began in 2018 that will continue into 2019. Work continues towards completion of the Primary Clarifiers and Septage Receiving Building.

With the Commission's Mission and Vision in mind, the management team continued to focus on the four strategic objectives of the 2014-2018 strategic priorities, primarily the upgrade of the facility to a point where effluent released into the local environment complies with the federal wastewater regulations by 2020. The management team and their respective support staff have continued the great work and high standards for which the Commission is known. In 2018, all 2013 "Wastewater Conveyance, Asset Development and Ownership Study" (Gabbey Report) recommendations were addressed. The WWTF Upgrade and Modernization Funding Contribution Agreement with INFC and RDC was secured and construction is underway. TransAqua worked successfully with the tri-community Councils to sign the remaining Service Agreement and CSO Reporting Agreement. Asset Management planning continued to reach the goal towards financial sustainability.

The following projects were completed in 2018 in line with TransAqua's long-term strategic plan objectives:

- All required legislated and operational requirements were met in 2018 with the submission of National Pollutant Release Inventory, Combined Sewer Overflow Reports, quarterly Quality Monitoring Report through ERRIS and to NBDELG, the GMWC Annual Report, compost site groundwater monitoring wells analysis, AMEC/ STANTEC river sampling program analysis, GHG Report to Environment and Climate Change Canada and the BNQ site visits to ensure compost conformity;
- Capital Projects completed in 2018 include the Pile Tracking and Control System at the Composting Facility;
- Public Safety Canada submitted a Cyber Security Resilience Review Report in 2018;
- The Community Compost Open House was held in May 2018;
- The General Manager gave a number of presentations in 2018 to various groups such as Rotary Clubs, Tri-Community Council, PROBUS Club of Moncton, Edith Cavell Middle School and the Jones Lake Cub Scouts;
- The laboratory passed the 2018 CALA Proficiency Testing in March and October;

- TransAqua staff exceeded its Safety Goal in 2017 of resolving 70% of all safety issues brought forward to the JHSC. In 2018, 29 new safety items were identified with 28 items being resolved with 14 outstanding safety items carrying over into 2019; and
- Updated the TransAqua website (www.transaqua.ca) on a regular basis;

TransAqua would like to thank all community members who took an active interest in TransAqua and its activities in 2018 through participation with our nationally recognized compost program, through various visits and tours and providing ongoing support for TransAqua as it continues to work toward meeting the 2020 regulatory deadline for improved wastewater treatment standards. through various visits and tours and providing ongoing support for TransAqua as it continues to work toward meeting the 2020 regulatory deadline for improved wastewater treatment standards.

Respectfully submitted,

R. Kevin Rice, B.Sc., CET
General Manager

3.2 2014-2018 Strategic Plan Update

There are four Strategic Priorities outlined in the 2014-2018 Strategic Plan; Minimizing Negative Environmental Impact of GMSC, Common Vision and Plan with Municipal and Community Partners, Long Term Reliability and Sustainability of GMSC Infrastructure and Long Term Financial Viability and Cost Effectiveness. In 2018, a number of Goals to support the Strategic Priorities have been completed:

1 **Minimizing Negative Environmental Impact of GMSC**
- All strategic goals have been met with the Biosolids Management Policy being approved by the Commission. TransAqua partnered with a local bark supply hauler to provide compost to implement an experimental project mixing compost with DFO's ocean dredging material to determine if a viable final compost product is possible.

2 **Common Vision and Plan with Municipal and Community Partners**
- The Commission and its Municipal partners signed the Service Agreement and Agreement for CSO Reporting Agreement between GMWC and Moncton, Riverview and Dieppe. TransAqua continues to present its annual budget to Moncton, Dieppe and Riverview Councils at their request. TransAqua's Annual General Meeting (AGM) is open to the public and will held at TransAqua's new Boardroom in 2018. TransAqua ensures timely and appropriate communications with all levels of government (municipal, provincial, federal), NGOs and ratepayers regarding its activities. All Gabbey Report recommendations have been addressed.

3 **Long Term Reliability and Sustainability of GMSC Infrastructure** - in 2018, The Computerized Maintenance Management System (CMMS) progressed with the inclusion of a consultant to assist with developing the asset hierarchy and working with the CMMS Committee to keep the project moving forward. A GMWC Infrastructure Report Card was developed that will be implemented in 2021. The GMWC Asset Management Policy was developed in 2018 with plans to develop the GMWC Strategic Plan in 2019. The Asset Risk Assessment and Mitigation Planning will be developed in 2020.

4 **Long Term Financial Viability and Cost Effectiveness** - While GMWC is not currently required to borrow any funds to manage its Operations or Capital Program, planning is underway to identify the infrastructure deficit and develop long-term financial plans to ensure the Unit Rate is sufficient to deal with any infrastructure deficit that is identified by 2021.

MONCTON Dieppe Riverview

3.3 Existing Assets and Condition

Currently, TransAqua's infrastructure consists of eight Remote Pumping Stations, 31 km of trunk sewers and tunnels, a Main Pumping Station, a Wastewater Treatment Facility (WWTF) located at Outhouse Point in Riverview and a Composting Facility located in Moncton on a 140-hectare property. In 2018, the renovation of the Administration Building was completed, the new bar screens and grit chambers commissioned and continuing construction of the primary clarifiers, fourth secondary clarifier and Sludge Handling Building.

3.3.1 Collector Sewer System

Eight Remote Pumping Stations along the collector sewer system are operated to pump wastewater to the WWTF and to protect low-lying areas from flooding during wet weather events. The 31 km of trunk sewers and tunnels extend to the causeway around the traffic circle and all the way to Dover Road on the north side of the Petitcodiac River. On the Riverview side, it extends from the causeway to Mill Creek. The culminating achievement of this collector network is the 1.1-km-long tunnel under the riverbed from Bore Park to the Main Pumping Station. It is a 1.6-m diameter tunnel and is 22 m below the ground surface. In 2018, just over 2.7 kms of sewer was inspected along Coverdale Road beginning at Pine Glen Road along Hillsborough Road to the wastewater treatment facility's Main Pumping Station using the modified boat.

3.3.2 Main Pumping Station

The Main Pumping Station located on the plant site at Outhouse Point (property having been granted initially to a Mr. Robert Outhouse) is the heart of the collector sewer system, a point of collection for all lines and continuous pumping to the WWTF. The station is equipped with four non-clog type vertical centrifugal pumps, rated at 1020 L/s at 28.7 m head. The cylindrical structure extends 30 m below grade and 9 m above ground, much like a 10-storey building underground.

3.3.3 Wastewater Treatment Facility (WWTF)

The preliminary treatment building houses screening equipment, grit tanks, grit handling equipment, chemical storage and feeding equipment. Three 39-m diameter settling tanks are used for the chemically enhanced primary treatment. The dewatering building houses dewatering centrifuges, screw conveyors, lime silos and polymer equipment all of which transform the wastewater by-products (sludge) extracted from wastewater into an important feedstock for the Composting Facility, namely biosolids.

The actual WWTF was commissioned in 1994 with a capacity of 115,000 m^3 per day, or 25 million gallons per day. The plant was designed to facilitate expansion to biological treatment in the future which will be completed by the end of 2021.

3.3.4 Composting Facility

The composting process used by the Commission combines bottom positive aeration and a cover system on three large concrete thermophilic composting pads. The key to the composting process is the mix ratio of biosolids and wood waste consisting primarily of bark and ground forestry waste. The bulking material provides a source of carbon but is essential in obtaining a porosity that facilitates the migration of air for a thorough and complete aerobic process.

The upgraded system has a capacity to process 15,000 tonnes of biosolids mixed with 15,000 tonnes of wood waste for a total of 30,000 tonnes of input materials per year that will accommodate additional biosolids due to the commissioning of secondary treatment in 2020.

Compost curing and finishing take place on adjacent asphalt pads. The design concept is based on total containment of surface runoff from rainfall and snowmelt from the composting site flowing into an on-site retention pond together with leachate generated from the composting process and then flowing back to the wastewater treatment plant through sanitary sewers for treatment.

3.4 Wastewater Operations

In 2018 the WWTF treated more than 25.6 million m^3 of wastewater or an average of 70,352 m^3 per day. At this flow rate, 28 Olympic-size swimming pools would be filled in a day. The wastewater treatment plant power consumption for 2018 was 6,105 MW hours or an average of 16,727 KW hours per day with an average monthly power bill of $45,594. Much of this increase can be attributed to the WWTF Upgrade and Modernization Project.

Screening of large objects and removal of inorganics such as sand and gravel particles are accomplished through the screening and grit-removal processes. The materials removed are then transported to the Southeast Regional Service Commission waste management facility for disposal.

The existing enhanced primary treatment is designed to remove suspended solids and reduce biochemical oxygen demand to some extent. In 2018, the removal rate of Total Suspended Solids (TSS) was measured at 69%. Biological Oxygen Demand (BOD) is a measure of organic biodegradable matter which is partially removed (approximately 46%) with the current process. The planned plant upgrades to biological treatment would bring these removal rates to more than 95%.

Approximately 9,618 m^3 of septage collected from rural communities surrounding Greater Moncton (50-km radius) were also treated at the WWTF.

Chemically assisted primary treatment uses chemical coagulants to increase the removal of settleable solids. Sludge is dewatered by centrifuge to increase dryness. Lime is then added to produce lime-stabilized biosolids. In 2018, 11,183 tonnes of biosolids with an average solids content of 28.2% were shipped from the WWTF to the Composting Facility.

The five-year historical operational data can be seen below in Table 1:

Table 1: 2014 – 2018 Historical WWTF Operational Data

		2014	2015	2016	2017	2018
Annual volume	m^3	27,328,601	25,341,627	22,869,117	22,814,067	25,646,213
Daily average	m^3/day	74,865	69,384	62,554	62,531	70,352
Anionic polymer	tonnes	0.4	0.7	0.7	0.7	0.6
Cationic polymer	tonnes	10.4	10.9	13.4	13.5	13.5
Ferric sulfate	tonnes	390.3	398.5	452.7	427.5	406.6
Lime	tonnes	127.3	118.9	113.3	108.67	187.2
Power consumption	MW	5,557	5,137	5,063	5,139	6,105
Diesel Generators	hours	190	187	177	225	145
Biosolids (Wet)	tonnes	10,855	11,449	11,311	11,128	11,183
Biosolids (Dry)	tonnes	3,089	3,229	3,169	3,082	3,154
Solids	%	28.4	28.2	28.0	27.7	28.2
Precipitation	mm	1501	1352	995	1052	1360
Cost / m^3	$	$0.17	$0.20	$0.21	$0.19	$0.19

The total cost to treat 1 m^3 of wastewater in 2018 was $0.19. In recent years, citizens are using less water and there has been less precipitation (rain and snowmelt). This has resulted in less wastewater from citizens and combined sewers requiring treatment. Because of this lack of dilution, more chemicals are required to remove solids however no significant variation is seen in biosolids production and effluent quality.

3.4.1 Regulatory Compliance

In 2018 TransAqua effluent discharged to the Petitcodiac River met requirements set in the Transitional Authorization issued by the New Brunswick DELG in November 2014. This authorization sets conditions for effluent quality that are appropriate for the current Advanced Primary Treatment Process in place:

- The average carbonaceous biochemical oxygen demand ($CBOD_5$) must not exceed 130 mg/L.
- The average concentration of total suspended solids (TSS) in the effluent must not exceed 96 mg/L.
- The maximum concentration of un-ionized ammonia in the effluent should be less than 1.25 mg/L, expressed as nitrogen (N), at 15ºC ±1ºC.

2018 average effluent concentrations for the pollutants above described are as follows:

- Carbonaceous biochemical oxygen demand (CBOD5): 91 mg/L.
- Total suspended solids (TSS): 55 mg/L.
- Un-ionized ammonia: 0.099 mg/L, expressed as nitrogen (N), at 15ºC ±1ºC

Table 2 contains monthly averages for TSS and $CBOD_5$ and maximum concentrations of un-ionized ammonia for 2018:

By 2020, TransAqua discharge to the Petitcodiac River will meet the Wastewater System Effluent Regulations (WSER). These federal regulations require that WWTF effluent must not be acutely lethal and must also meet the following conditions at the final discharge point to be authorized to be discharged:

- The average carbonaceous biochemical oxygen demand ($CBOD_5$) must not exceed 25 mg/L.
- The average concentration of total suspended solids in the effluent must not exceed 25 mg/L.
- The average concentration of total residual chlorine in the effluent must not exceed 0.02 mg/L.
- The maximum concentration of un-ionized ammonia in the effluent should be less than 1.25 mg/L, expressed as nitrogen (N), at 15ºC ±1ºC.

Table 2: 2018 Monthly Effluent Average

2018	$CBOD_5$ mg/L	TSS mg/L	Un-NH_3 max mg/L
January	100	55	0.143
February	86	57	0.078
March	73	55	0.069
April	52	47	0.092
May	69	55	0.072
June	73	55	0.120
July	86	64	0.087
August	101	53	0.091
September	107	61	0.095
October	96	49	0.109
November	77	47	0.087
December	87	60	0.116
Average	**84**	**55**	**0.097**

3.4.2 Laboratory Operations

The TransAqua wastewater laboratory is located at the WWTF Operations Center. This laboratory produces essential data that enables personnel to determine wastewater characteristics, process efficiency and effluent quality. Adjustments and improvements to treatment processes can be done based on laboratory results. The Canadian Association for Laboratory Accreditation Inc. (CALA) provides laboratories with national accreditation that meet rigorous testing quality standards. As part of the accreditation process, laboratories are required to participate in biannual (March, October) Proficiency Testing for some of the following parameters that are currently being tested at the TransAqua laboratory:

- pH and temperature
- Total suspended solids (TSS) and volatile suspended solids (VSS)
- Five-day carbonaceous biochemical oxygen demand ($CBOD_5$)
- Chemical oxygen demand (COD)
- Ammonia
- Total Kjeldahl nitrogen (TKN)
- Total phosphorus (TP)
- Alkalinity

Table 3 outlines the Proficiency Testing Parameters and the scores received since this program began in 2016. Results must be higher than 70% to achieve proficiency. The lower score for pH testing resulted from a faulty pH probe that was discovered as a result of the proficiency testing and was subsequently replaced.

Table 3: Proficiency Testing results

PARAMETER	OCTOBER 2016	MARCH 2017	OCTOBER 2017	MARCH 2018	OCTOBER 2018
Ammonia	85	99	88	95	98
CBOD	94	95	91	81	84
Total Suspended Solids	95	97	96	94	94
pH	91	96	81	96	88

TransAqua's laboratory participated in the 2018 CALA Proficiency Testing Program and passed all parameters that were required to be submitted. In 2018, upgrades to the Administration Building, including the laboratory, will allow the laboratory to apply for CALA accreditation. TransAqua's Certificate of Approval issued by the Province of New Brunswick requires certain parameters to be analyzed by a nationally accredited laboratory. By achieving the accreditation status, TransAqua's laboratory will meet the federal and provincial testing requirements.

3.5 Composting Operations

Wastewater treatment by-products, or biosolids, are used as a key ingredient in the TransAqua composting process. Up until recently, biosolids were considered to be 'waste' that required expensive disposal. Personal attitudes are quickly changing to realize that compost containing biosolids are nutrient rich and are being seen as a value added product that can be reintroduced to the earth for many uses.

Treatment of biosolids at the WWTF involves conditioning with liquid lime, dewatering by high-speed centrifuges followed by the addition of dry lime. These centrifuges will be upgraded in 2019 not only to extend their life cycle by another 20 years but also increase their processing capacity to deal with additional solids that will be generated by the secondary treatment process that will be commissioned by 2020.

Biosolids are transferred to the Composting Facility where they are mixed with green waste consisting of bark (from sawmills), ground forestry waste, wood chips and other green waste. The initial mixture is two parts of green waste to one part of biosolids by volume. Biosolids are much denser (heavier) than green waste.

In 2018, 10,983 tonnes of treated biosolids were processed along with approximately 10,983 tonnes of green waste. The initial mix produced 39 windrows which are 50 m long on the composting pad. Windrows spend a minimum of eight weeks on the active aerated pad and are turned over three times. The windrows are covered with a breathable cover during the initial phases and can reach temperatures of more than 70°C. The windrows are then moved and grouped into lots on the curing pad where they are conditioned and left to compost at a slower rate while cooling down. The complete process takes one year. Consequently, 2018's production will be available for use in 2019.

Processing and product usage in 2018 involved screening of the 2017 stockpiles (lots) for use by the general public, landscapers and local municipalities.

The public was allowed to pick up compost free of charge from the self-loading bins. If customers required a small tractor to load their truck or trailer, a $15 / cubic yard fee was paid. Product was sold to landscapers and is also provided to the Greater Moncton area municipalities for their horticultural activities.

The five-year usage summary (tonnes) is shown in Table 3. There were approximately 9,600 tonnes of 2017 product available to the public in 2018.

Table 4: 2013 – 2018 Historical Compost Operational Data (tonnes)

Compost Clientele	2013	2014	2015	2016	2017	2018
Public pick-up bins	4,000	3,696	4,000	5,750	5,000	5,300
Commercial users	515	160	960	1,000	1,000	650
City of Moncton	42	535	800	40	130	100
City of Dieppe	1,009	26	200	60	60	10
Town of Riverview	16	34	96	150	60	100
Community projects	128	24	400	200	200	160
Trials/tests/promotional	680	600	400	200	150	1,500
Miscellaneous/TransAqua	400	400	400	200	200	500
Annual compost output totals	6,790	5,476	7,256	7,600	7,400	8,320
End of Season Inventory			1,750	100	3,000	3,840

TransAqua was pleased that public, commercial and municipal participation in 2018 was the highest so far! To put this in a visual perspective, TransAqua could load approximately 600 to 700 dump trucks with compost every year. Once secondary treatment is commissioned, up to 25% more biosolids will be created that will be converted into compost and made available to the public as a value added product.

The product available for use in 2018 were Lots 2017-1 to 2017-15, each tested in order to confirm product quality. Approximately 3,840 tonnes of screened and approved compost from Lots 2017-6 and 2017-9 to 2017-15 remained on site at the end of the season and will be available for use in early 2019. There were 13 lots created in 2018. TransAqua is working with a bark supply contractor to provide compost to conduct a pilot program blending TransAqua's compost with the Canadian Department of Fisheries and Ocean's ocean dredging material and an effort to produce a viable product that can meet the Category "AA" standard.

3.5.1 BNQ Compost Certification

TransAqua's Composting Facility operation was developed on the basis of meeting BNQ standards (Bureau de Normalisation du Québec).

The BNQ is a standard development organization which is part of the Centre de Recherche Industrielle du Québec (CRIQ). The BNQ was created in 1961 and is one of the four standards-development organizations accredited by the Standards Council of Canada and is therefore a member of the National Standards System.

The Commission went through the process of obtaining BNQ certification in 2009 for its Category "A" quality compost. This certification is under the Standard CAN/BNQ 0413-200/2016. Product certification level was upgraded to Category "AA" in 2011 – which is the highest certification level achievable in Canada for compost.

TransAqua's Biosolids Certificate of Conformity expires on January 31, 2021.

3.5.2 CQA Certification

TransAqua is a member of the Canadian Composting Council (CCC) and is also a member of its Compost Quality Alliance (CQA) Program. The CCC is active at continuing education through regional workshops and an annual conference. Although there is no regulatory requirement, TransAqua operators have received the Level 1 Compost Facility Operator certification through this organization.

3.6 Human Resources

Front Row: Gordon Buck; Lawton Hicks; Conrad Allain; Candace Jonah; Patricia Casas; Stella Richard; Jennifer Langille; Christopher Petrie - Second Row: Marc Hebert, Burtis Hayes, Peter Brown, Jordan Welsh, Shawn Hackett and Kevin Rice

In 2018, TransAqua employed a staff of 16, augmented in the summer months with university and college students from the local community.

The overall system of collector sewers and pumping stations, the WWTF and Composting Facility was overseen by General Manager who is supported by a management and administration team, WWTF operators, maintenance personnel for mechanical and electrical systems, a laboratory technician and heavy equipment operators for the Composting Facility.

In addition to the General Manager position, the management team also consists of the Director of Finance and Administration (responsible for all in-house financial activities), the Director of Technical Services (responsible for delivery of capital programs and engineering activities), the Manager of Solid Systems (responsible for composting activities and overall operational maintenance requirements) and the Manager of Liquid Systems (responsible for WWTF and WWPS performance). In 2018, TransAqua made the decision to become the General Contractor for the remainder ($77.9M) of the WWTF Upgrade and Modernization Project. The Wastewater Systems Engineer is acting as the Project Manager and the Lead Operator is acting as the Construction Manager. This model is expected to save all funding partners approximately $3.4M.

Many TransAqua personnel completed training initiatives took place in 2018 that includes and industry conferences such as the Canadian Network of Asset Managers, Atlantic Infrastructure Management Network, Canadian Composting Council, CWWA and ACWWA.

3.7 Public Outreach

TransAqua plays a significant role in raising awareness of the importance of wastewater treatment on public health and the environment. TransAqua provides meaningful sponsorship including sponsorship and in-kind services in 2018 for the following industry and public organizations; GMCC, AIM Network and Light-Up Riverview.

TransAqua maintains a bilingual website, www.transaqua.ca, to promote its current communication strategy, to keep the local community informed of its operations and goals for the future, to allow for the public to register to receive information and update progress of the treatment plant upgrade. TransAqua also engages in social media campaigns to provide information to those people that have registered to receive information.

TransAqua continued to host numerous technical tours on a regular basis to school classes, technical colleges, universities and local community groups. Elected municipal government representatives toured the WWTF throughout 2018. The Community Compost Open House was held in May 2018.

During 2018, the public was invited to pick up Type "A" and "AA" compost; the highest provincial and nationally accredited quality compost at the Compost Facility off Delong Drive. For small quantities (self-loaded), the product was provided free of charge.

Those citizens that required assistance loading a trailer or pickup truck were charged $15 / cubic yard. TransAqua expects to increase its public compost advertising in 2019.

TransAqua staff participated in the Town of Riverview's business friendly Pumpkin Personalities Contest and the Riverview Fire and Rescue Open House in October. TransAqua's booth giveaways included poo emoji stress balls and markers along with dancing flowers that were a big hit with children and adults alike!

3.8 Capital Works Program

3.8.1 Advanced Biological Treatment

The federal government enacted new Wastewater Systems Effluent Regulations (WSER-2012) under the Fisheries Act in July 2012 to harmonize regulatory and reporting requirements across Canada. This regulation came as a result of the Canadian Council of Ministers of the Environment's (CCME) Canada-wide strategy for management of municipal wastewater effluent.

The current treatment works provide for an Advanced Primary Treatment Process. The new regulations will require that the WWTF be upgraded to an Advanced Biological Treatment Process in order for it to achieve new effluent requirements. The new requirements are in place now, however the Commission has been given until 2020 to complete the upgrades required to support the biological process.

Detailed design began for the bioreactor in 2018. The final outcome will be that TransAqua will own and operate the only 4-step feed Biological Nutrient Removal WWTF in Canada. This technology is required for the biological process to effectively treat low temperature wastewater as a result of snowmelt that enters combined sewers. This demonstrates TransAqua staff's innovative spirit that serves the ratepayers very well.

The WWTF Upgrade and Modernization Project is underway with the following work completed in 2018:

Septage Receiving Facility - is fully constructed and will be commissioned in early 2019. The System includes a grinder pump, screen trough and auger to remove heavy solids.

Fine Bar Screens - has been fully commissioned in 2018. The System includes two new 6mm fine screens and a 12mm backup coarse screen replacing two 20mm coarse bar screens.

Grit System – has been fully commissioned in 2018. The System includes two additional grit tanks, along with new process equipment.

Primary Clarifiers and Pump Room - the 4 Primary Clarifier tanks are nearing completion with the exception of repairs required for the tank floors. All primary sludge pumping and scum pumping equipment along with the heavy piping, grinders and valves is installed. Electrical work and the MCC installation and wiring for the Primary Tanks, Sludge Pumps and Scum Pumps are nearly complete. Testing and verification of the control wiring and MCC wiring has been done. Installation of the sludge removal system equipment is installed in Tank # 1.

Secondary Clarifier # 4 – The clarifier floor slab and ¼ of the clarifier wall is complete. Work continues for the remaining wall sections and overflow weir channels in 2019.

Sludge Handling Building – The basement that houses the sludge transfer and mixing equipment and 3 sludge holding and mixing tanks are complete. The building envelope will begin construction in January 2019.

Bioreactor – Excavation began in November 2018 with completion in February 2019.

The Project has become a design-build model in order to meet the federal regulations by the end of 2020. 2018 was originally scheduled to be a design year. Staff concerns about meeting the construction deadline resulted in the beginning of construction for the 4th clarifier, Sludge Handling Building and bioreactor excavation. The detailed design for the bioreactor will be completed early in 2019 for construction to begin in March 2019. Major contractor resources for concrete reinforcement, concrete formwork, concrete supply, mechanical & electrical, site safety services and site labour has been secured for the remainder of the Project.

As a result of Phase 1 and 2 construction being projected at 10 months late on a 10-month contract using the existing General Contractor, TransAqua decided to become the General Contractor for the remainder of the Project construction. The Wastewater Systems Engineer is the Project Manager and the Lead Operator is the Construction Manager and a Junior Engineer was hired. This will result in major savings (General Contractor overhead, profit, etc.) to the ratepayer and a construction schedule that is achievable without sacrificing quality.

3.8.2 Collector System

The Greater Moncton Wastewater Commission's Collector System is over 30 km long and spans from the Causeway on both sides of the Petitcodiac River to Mill Creek on the Riverview side and around the traffic circle and along the dykes in Dieppe all the way to Dover Road. The majority of collector sewers were constructed between 1983-1990.

The Long-term Sustainable Wastewater Collection and Treatment Strategy (June 2010) identified wastewater conveyance improvements that will ensure that a robust collector system is maintained and can continue to provide a reliable service well into the future.

Major projects were identified and preliminary planning completed on the major conveyance projects that include a second river crossing, a new pumping station at Virginia Avenue in Dieppe, a new pumping station at Fox Creek and a new major forcemain 3800 m long. These new conveyance assets in Dieppe are being implemented to redirect flows from the Fox Creek drainage zones to the new Babineau Creek Trunk sewer. This major trunk sewer in Dieppe is the result of the rapid growth occurring in that municipality and the knowledge that the Commission would eventually use some of the capacity with the construction of a secondary Collector line from Fox Creek. The proposed Forcemain will be installed along Fox Creek Road and Bourque Road. The new Babineau Creek trunk sewer was constructed through a cost share agreement between the Commission and the City of Dieppe.

The City of Moncton has also completed a study of how to redirect the flows from the rapidly developing North East drainage basins into the future Virginia Pumping Station. The redirected flows from Moncton North East and all of the Dieppe flows will be handled at the future Virginia Pumping Station. These projects, aside from improving the resilience of the collector network and having a second River Crossing, will ensure that all uncombined (sanitary only) wastewater is conveyed to the headworks of the plant at all times unaffected by the effects of the heavily combined sewers.

Any future work on expanding the GMWC collector sewer will need to be coordinated closely with area municipalities. In 2019, the Technical Committee involving the three municipalities to develop a Wastewater and CSO Conveyance Strategy. This will ensure that all current and future projects are reviewed and opportunities identified in achieving an efficient and affordable Strategy.

3.8.3 Combined Sewer Overflows (CSO)

A Combined Sewer Overflow Long-term Strategy was developed to address overflows resulting during wet weather events. The older parts of Moncton and some smaller areas in Dieppe and Riverview contribute to the combined wastewater. The largest volumes originate from the older central parts of Moncton. As it is considered too costly to separate sewers in the built-up areas, a strategy was developed to meet the new federal regulations.

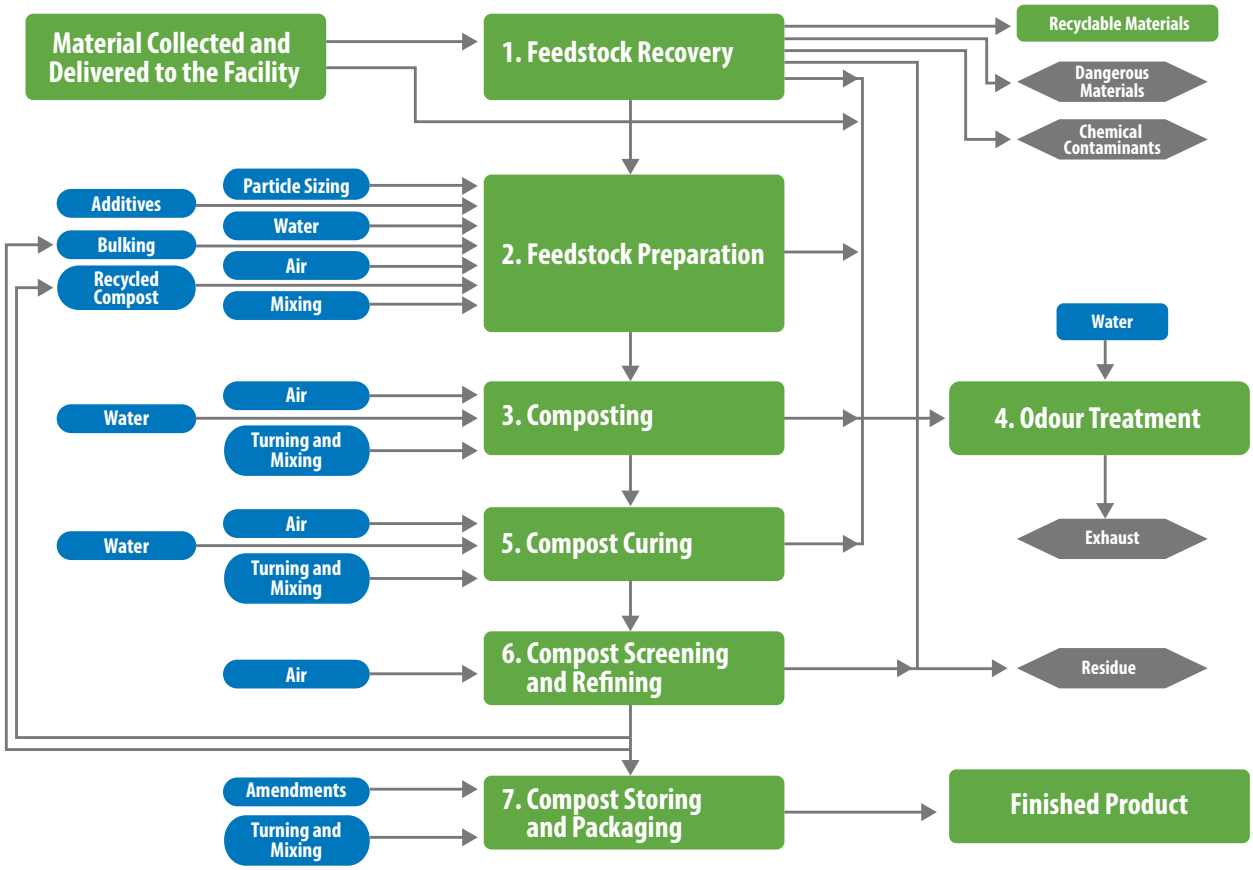
It is important to note that the municipalities have taken many initiatives to reduce rainfall or snowmelt into the sanitary sewers over the years. These efforts combined with maximizing the use of treatment facilities located at the Wastewater Treatment Facility and implementing remote pumping and pretreatment facilities will allow the Commission to reach the objectives. The WWTF Preliminary and Primary Treatment process equipment will deal with the initial flush for significant rainfall events. Remote facilities planned for locations including the Causeway, Jonathan Creek and South Elmwood pumping stations will incorporate pumping and fine screening to maintain a maximum hydraulic level in the Collector Sewer and provide preliminary treatment for highly dilute wastewater.

The Commission is required to monitor CSO discharges and report volumes discharged per CSO structure per month to federal and provincial authorities annually. The Commission uses hydraulic modeling software and actual plant measurements to estimate the volume of CSO discharge from its different structures along its collector system. Data such as hourly precipitation, pumping station levels, and dry weather flows are placed into the model to recreate collector system hydraulic conditions. The model is used to estimate discharge, frequency and duration of CSO events and to also estimate treated effluent discharges to the Petitcodiac River. These reports have been filed for a few years now. The current CSO capture rate is determined yearly. With the initiatives by municipalities and establishment of CSO assets by the commission, it will be possible to measure the increase in capture rate over time. The implementation of off-site CSO facilities will be undertaken following completion of the Biological Treatment Process.

3.8.4 Composting Facility

In 2018, Compost Pads No. 1 and No. 2 were updated to the new control equipment using wireless probes and integrated into the Plant SCADA system. A new pile management system was developed by plant staff and installed by a contracted system integrator so that the process is monitored and controlled in a consistent manner. This system generates data for each compost pile from cradle to grave to ensure transparency and accountability.

Biosolids Composting Process



3.8.5. Plant Automation

The Commission embarked on a modernization program of its Supervisory Control and Data Acquisition System (SCADA) in 2014. Initially, the focus was on updating workstations and software to allow for a smooth transition to the new-generation control hardware (Programmable Logic Controllers, or PLCs).

These new PLCs will replace the aging older hardware and make use the fibre-optic network for communication. Fibre-optic trunk lines were installed throughout the plant several years ago.

The control hardware upgrade was completed in 2015 at the Dewatering Facility and at the Main Pumping station in the winter of 2016-2017. With expansion and upgrades to the Preliminary Treatment Facilities (Inlet Works) at the Wastewater Treatment Facility, the main control panel was completely refitted in 2018 with new PLC equipment and wiring updated to suit all of the new processes. A new control panel has also been installed in the new Primary Gallery for the new Primary Clarifiers, Sludge Removal Equipment and Pumping Systems. The centrifuge upgrade currently under way will have their PLC's updated in early 2019. The control equipment is all connected to a central fiber optic network with a primary and secondary server.

The completion of the Final Clarifiers upgrade will result in upgrading the existing control panel while the Bioreactor and Blower Building will require their own control system tied to the network.

3.8.6 Fox Creek WWPS Upgrade

The preliminary design for the Fox Creek WWPS Upgrade in Dieppe was completed in 2017 with the detailed design for the substructure initiated in 2018. A detailed evaluation of options for the pumping station configuration was completed in 2018 as well as a pre-selection process for the pumps.

3.8.7. Administration Building Upgrade

The construction work to expand and modernize the Administration Building was completed in 2018. The expansion provided a larger entry area, an expanded board room, additional office spaces, a larger Laboratory, a new exercise room and a new workshop space. The expanded laboratory was required to meet national accreditation standards. The upgrade design also deals with some of the recommendations within the TransAqua Critical Infrastructure Resilience Tool Report conducted by Public Safety Canada. The upgrades that were implemented as a result of these recommendations include: addition of more distance between the parking lot and front entrance, additional security cameras, doors leading from the reception area into the office areas and staff areas, and a door access card system.

3.10 Energy Sustainability

In 2014, TransAqua completed the installation of a pilot project to test commercial grade geothermal heat pumps and plate type heat exchangers in order to confirm design criteria and equipment necessary for a plant-wide heating system using heat extracted from wastewater. The Pilot Plant has been operating since 2014 and has demonstrated the viability of a geothermal heating system using wastewater as a heat source.

Work will continue in 2019 and beyond in quantifying the energy consumption from process equipment and heating. Primary opportunities will be identified and a strategy developed for implementation. It has been established that a central plant heating system could be installed using the knowledge from the pilot program. Efficiencies can be gained on the treatment processes using a variety of methods including high efficiency equipment, variable speed drives, and turbo compressors for aeration. All these initiatives are being implemented with the design of the WWTF Upgrade and Modernization Project.

The Composting Facility is designed with a very low energy input to sustain the fully aerobic process. The process itself generates high temperatures, an important aspect for pathogen inactivation. In view of this excess heat, the concrete pads were equipped with network of polyethylene pipes carrying a glycol solution and configured to extract heat from the hot slab. This heat is then circulated within the blower enclosure to pre-heat intake air and can also be directed to other parts of the pad to melt snow and ice. The Compost Facility Operations Centre was also designed to also take advantage of this green energy. The heating system is a deep-well geothermal system that will be integrated to the pad heat-recovery system using heat exchangers.

4. TREASURER'S REPORT

As of December 31, 2018, revenue was $20,484,957 compared to a budget of $21,920,081 resulting in a year to date variance of $1,435,123. This variance was primarily the result of claims not submitted to Infrastructure Canada and Regional Development Corporation in 2018 in the amount of $1,532,947 due to a pending audit of the General Contractor. This audit was performed by the end 2018. The Commission has accepted the findings which will result in the submission of the remaining $1.5M in early 2019.

Overall expenditures were $7,008,114 which was $911,036 under budget. Expenditures that significantly contributed to a positive operational variance include general maintenance, property tax and depreciation attributed to Phase 1 and 2 not being capitalized as expected in 2018. It must also be noted that $485,000 allocated for cost sharing expenses relating to the Babineau Creek project were not spent because the project was not completed before year end. This will be budgeted for 2019.

We are working hard to meet Federal effluent guidelines by 2020 and have dedicated two of our staff to managing the remaining three phases of the upgrade project allowing TransAqua to become the General Contractor. This innovative approach has been accepted by our funding partners and will result in a significant improvement in oversight of the project and associated savings in project costs. The total project upgrade allowance is $90,407,778. As of December 31, 2018, tenders have been issued in the total amount of $35,367,204 with a total capital spend in 2018 of $16,113,662.

Respectfully submitted,

Jennifer Dingman, PhD
Treasurer

5. COMMISSION MEMBERS

YVES GAGNON
P. Eng., D. Sc.

Representing Dieppe

Current term to September 2022

- Commission Member

BRYAN INGLIS

Representing Moncton

Current term to September 2020

- Commission Member

JENNIFER DINGMAN
PhD

Representing Riverview

Current term to August 2021

- Treasurer of the Commission Board
- Member of Finance, Audit and Governance Committee
- Member of Executive Committee

DAVID MUIR
CPA, CA

Representing Riverview

Current term to Octobre 2020

- Chair of the Commission Board
- Chair of Finance, Audit and Governance Committee
- Member of Executive Committee

CHANEL MICHAUD

Representing Dieppe

Current term to September 2019

- Commission Member

MICHEL DESJARDINS

Representing Moncton

Current term to September 2020

- Secretary of the Commission Board
- Member of Executive Committee

6. 2018 AUDITED FINANCIAL STATEMENTS

GREATER MONCTON WASTEWATER COMMISSION

FINANCIAL STATEMENTS
DECEMBER 31, 2018

TABLE OF CONTENTS

PAGE

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INDEPENDENT AUDITOR'S REPORT

To the Chairman and Members of Greater Moncton Wastewater Commission

REPORT ON THE AUDIT OF THE FINANCIAL STATEMENTS

Opinion

We have audited the financial statements of Greater Moncton Wastewater Commission (the "Commission") which comprise the statement of financial position as at December 31, 2018, and the statements of operations and accumulated surplus, changes in net financial assets and cash flows for the year then ended, and the notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of Greater Moncton Wastewater Commission as at December 31, 2018 and the results of its operations, and its cash flows for the year then ended in accordance with Canadian public sector accounting standards ("PSAS").

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards ("Canadian GAAS"). Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Commission in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with PSAS, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Commission's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Commission or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Commission's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian GAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Canadian GAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due tofraud or error, design and perform audit procedures responsive to those risks, and obtain auditevidence that is sufficient and appropriate to provide a basis for our opinion. The risk of notdetecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the overrideof internal control.
- Obtain an understanding of internal control relevant to the audit in order to design auditprocedures that are appropriate in the circumstances, but not for the purpose of expressing anopinion on the effectiveness of the Commission's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accountingestimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accountingand, based on the audit evidence obtained, whether a material uncertainty exists related to eventsor conditions that may cast significant doubt on the Commission's ability to continue as a goingconcern. If we conclude that a material uncertainty exists, we are required to draw attention inour auditor's report to the related disclosures in the financial statements or, if such disclosures areinadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up tothe date of our auditor's report. However, future events or conditions may cause the Commissionto cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including thedisclosures, and whether the financial statements represent the underlying transactions andevents in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit andsignificant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Chartered Professional Accountants
Moncton, New Brunswick
February 15, 2019

GREATER MONCTON WASTEWATER COMMISSION

STATEMENT OF FINANCIAL POSITION
As at December 31, 2018

	2018 $	2017 $
Financial assets		
Cash		
Operating	**15,521,005**	7,646,240
Reserve funds (Schedule 2)	**12,027**	1,461,579
Accounts receivable		
General	**4,235,319**	3,963,226
Harmonized Sales Tax receivable	**186,073**	359,436
Accrued interest receivable	**271,287**	380,470
Investments (Note 3 and Schedule 2)	**30,963,063**	35,150,000
	51,188,774	48,960,951
Liabilities		
Accounts payable and accrued liabilities	**4,912,296**	3,269,331
Holdbacks payable	**2,141,776**	929,912
	7,054,072	4,199,243
Net assets	**44,134,702**	44,761,708
Non-financial assets		
Tangible capital assets (Note 7)	**63,874,186**	49,959,901
Prepaid expenses and deposits	**261,601**	183,560
	64,135,787	50,143,461
Accumulated surplus	**108,270,489**	94,905,169

Approved by the board and management

David Muir, Chair

Jennifer Dingman, Treasurer

Kevin Rice, General Manager

Jennifer Langille, Director of Finance

The accompanying notes are an integral part of the financial statements.

GREATER MONCTON WASTEWATER COMMISSION

STATEMENT OF OPERATIONS AND ACCUMULATED SURPLUS
Year ended December 31, 2018

	Budget (Unaudited) $	2018 Actual $	2017 Actual $
Revenue			
User fees			
City of Moncton	8,278,410	8,278,410	8,462,790
City of Dieppe	2,443,269	2,443,269	2,341,687
Town of Riverview	1,689,698	1,689,698	1,668,870
	12,411,377	12,411,377	12,473,347
Grants	8,563,702	6,955,399	2,282,884
Interest income	687,855	707,758	807,935
Septic hauler and compost income	257,146	298,899	285,973
	21,920,080	20,373,433	15,850,139
Expenses			
Plant and operating expenses			
Amortization of tangible capital assets	2,078,997	1,893,420	1,802,546
Salaries and benefits	1,847,284	1,778,641	1,727,948
Maintenance and operating	1,530,820	1,622,497	1,396,069
Electricity	622,942	667,543	572,593
Easement and property taxes	685,200	496,808	488,831
Insurance	174,583	175,996	158,877
Consulting services	60,000	47,538	1,677
Telephone	32,030	31,265	32,100
Vehicle expense	6,570	8,762	13,957
Cost sharing	485,000	—	—
	7,523,426	6,722,470	6,194,598
General expenses			
Professional fees and consulting	138,898	109,547	78,848
Travel, training and education	63,689	76,764	50,732
Office expenses	38,564	46,632	43,643
Marketing and communications	85,500	28,875	19,400
Governance	65,463	23,992	48,778
Interest and bank charges	3,610	3,259	3,084
Foreign exchange gain	—	(3,426)	(10,892)
	395,724	285,643	233,593
Total expenses	7,919,150	7,008,113	6,428,191
Annual surplus	14,000,930	13,365,320	9,421,948
Accumulated surplus, beginning of year	—	94,905,169	85,483,221
Accumulated surplus, end of year	—	108,270,489	94,905,169

The accompanying notes are an integral part of the financial statements.

GREATER MONCTON WASTEWATER COMMISSION

STATEMENT OF CHANGES IN NET FINANCIAL ASSETS
Year ended December 31, 2018

	Budget $	2018 $	2017 $
Annual surplus	14,000,930	13,365,320	9,421,948
Acquisition of tangible capital assets	(10,421,249)	(16,113,662)	(9,448,808)
Amortization of tangible capital assets	2,078,997	1,893,420	1,802,546
Gain (loss) on sale of tangible capital assets	—	266,148	75,272
Proceeds on sale of tangible capital assets	—	39,809	11,575
	(8,342,252)	(13,914,285)	(7,559,415)
Change in prepaid expenses	(26,935)	(78,041)	(105,257)
	(8,369,187)	(13,992,326)	(7,664,672)
Change in net financial assets	5,631,743	(627,006)	1,757,276
Net financial assets, beginning of year	38,852,431	44,761,708	43,004,432
Net financial assets, end of year	44,484,174	44,134,702	44,761,708

The accompanying notes are an integral part of the financial statements.

GREATER MONCTON WASTEWATER COMMISSION

STATEMENT OF CASH FLOWS
Year ended December 31, 2018

	2018 $	2017 $
Operating activities		
Annual surplus	13,365,320	9,421,948
Charges to income not involving cash		
Amortization of tangible capital assets	1,893,420	1,802,546
Loss on disposal of tangible capital assets	266,148	75,272
	15,524,888	11,299,766
Change in non-cash assets and liabilities		
Accounts receivable	10,453	(4,061,939)
Prepaid expenses and deposits	(78,041)	(105,257)
Accounts payable and accrued liabilities	1,642,965	1,778,126
Holdbacks payable	1,211,864	893,430
	18,312,129	9,804,126
Investing activities		
Purchase of investments, net of maturities	4,186,937	—
Proceeds on sale of tangible capital assets	39,809	11,575
Acquisitions of tangible capital assets	(16,113,662)	(9,448,808)
	(11,886,916)	(9,437,233)
Net change in cash during the year	6,425,213	366,893
Cash, beginning of year	9,107,819	8,740,926
Cash, end of year	15,533,032	9,107,819
Cash consist of:		
Cash in bank, operating	15,521,005	7,646,240
Cash in bank, reserve funds	12,027	1,461,579
	15,533,032	9,107,819

The accompanying notes are an integral part of the financial statements.

GREATER MONCTON WASTEWATER COMMISSION

NOTES TO FINANCIAL STATEMENTS
Year ended December 31, 2018

1. Purpose of organization

The Greater Moncton Wastewater Commission (the "Commission") is incorporated and operatesunder the provisions of the Province of New Brunswick Municipalities Act and the Clean Environment Act. As a municipality, the Commission is exempt from income tax undersection 149(1)(c) of the Income Tax Act of Canada.

The Commission operates a wastewater treatment plant, wastewater collection system andcomposting facility in the greater Moncton region and provides wastewater treatment for thecities of Moncton and Dieppe and the town of Riverview.

2. Summary of significant accounting policies

The financial statements of the Commission are prepared in accordance with Canadian publicsector accounting standards ("PSAS") and reflect the accounting policies enumerated below.

The focus of PSAS financial statements is on the financial position of the Commission and thechanges thereto. The statement of financial position includes all of the assets and liabilities ofthe Commission.

Budget

The budget figures contained in these financial statements were approved by the Commission on November 16, 2017 and submitted to the Minister of Local Government. Certain budget figures have been reclassified to conform with PSAS financial statement presentation.

Fund accounting

Funds within the financial statements consist of general, capital and reserve funds. The Commission approves certain amounts to be set aside in reserve funds for future operating and capital purposes.

Transfers between funds are recorded as adjustments to the appropriate fund balance.

Asset classification

Assets are classified as either financial or non-financial. Financial assets are assets that could be used to discharge existing liabilities or finance future operations and are not for consumption in the normal course of operations. Non-financial assets are acquired assets that do not normally provide resources to discharge existing liabilities, but instead are employed to deliver government services, may be consumed in the normal course of operations and are not for resale. Non-financial assets include prepaid expenses.

Revenue recognition

The Commission recognizes revenues from user fees, septic hauler and compost income as the services are rendered or the goods are sold, the price is fixed or determinable and collection is reasonably assured. Interest income is recognized on an accrual basis and recorded in the statement of reserve fund balances as a direct increase to the reserve fund.

Government transfers are recognized in the period in which the events giving rise to the transfer occur, providing transfers are authorized, any eligibility criteria have been met, and reasonable estimates of the amounts can be made.

2. Summary of significant accounting policies (continued):

Use of estimates

The preparation of the financial statements in conformity with PSAS requires management tomake estimates that affect the reported amounts of assets and liabilities and disclosure ofcontingent assets and liabilities at the date of the financial statements and the reported amountof revenues and expenses during the reporting period. Actual results may differ from thoseestimates.

Financial instruments

The Commission's financial assets and liabilities are initially measured at fair value and subsequently carried at amortized cost with interest recorded in the statement of operations and accumulated surplus as earned.

Cash and cash equivalents

Cash and cash equivalents includes cash on hand and cash in banks not subject to other restrictions and with a term to maturity of three months or less at date of acquisition.

Tangible capital assets

Tangible capital assets are stated at cost less accumulated amortization. The Commission provides for amortization at rates designed to amortize the cost of the tangible capital assets over their estimated useful lives. Annually, amortization is calculated using the straight-line method over the estimated useful lives as follows:

Operations center	10 – 60 years
Treatment facilities	5 – 60 years
Collection system	10 – 75 years
Fleet	5 – 20 years
Computer hardware and software	3 – 5 years

Assets under construction are not amortized until the asset is available for productive use.

Accrued sick leave

The Commission provides for sick leave that accumulates at 1.25 days per month worked for full-time employees. The employees can accumulate up to a maximum of 150 days. On retirement, any employee having accrued sick leave will receive an allowance equal to fifty percent of the value at a rate of pay effective immediately prior to retirement.

The sick leave is an unfunded benefit. As such, there are no applicable assets. Benefits are paid out of accumulated surplus as they come due. The unfunded liability at December 31, 2018 of $202,381 ($175,361 in 2017) is recorded in accounts payable and accrued liabilities.

3. Investments

The details of the investments held by the Commission are as follows:

	2018	2017
	$	$
Guaranteed investment certificate (2.75%, maturing November 2020)	**5,053,699**	5,000,000
Guaranteed investment certificate (2.75%, maturing November 2020)	**5,053,699**	15,000,000
Guaranteed investment certificate (2.75%, maturing November 2020)	**5,053,699**	5,000,000
Guaranteed investment certificate (2.90%, maturing May 2022)	**5,074,660**	—
Guaranteed investment certificate (2.85%, maturing September 2021)	**5,113,653**	5,075,000
Guaranteed investment certificate (2.85%, maturing September 2021)	**5,613,653**	5,075,000
	30,963,063	35,150,000

4. Post-employment benefits

The Commission sponsors an RRSP plan for substantially all its employees. The plan allows for RRSP contributions of 7% of employee salaries. Prior to December 31, 2016, the employees were not required to pay into the RRSP plan in order to obtain this benefit. Subsequently, in accordance with the collective agreement signed between the Commission and Canadian Union of Public Employees Local 5217 on May 20, 2016, each employee will contribute a minimum percentage of salary each year (2% in 2017, 4% in 2018, 6% in 2019, thereafter 7%). There is no unfunded liability associated with this post-employment benefits payable.

5. Accumulated surplus

The accumulated surplus noted on the statement of financial position is the result of the excess of revenue over expenditures from the commencement of the Commission's operations to the date of financial position. The accumulated surplus is made up of the following:

	2018	2017
	$	$
Net financial assets	**44,134,702**	44,761,708
Non-financial assets	**64,135,787**	50,143,461
	108,270,489	94,905,169

The net financial assets consist of cash flows necessary for day-to-day operations and reserve funds held for future capital expenditures. The non-financial assets consist of tangible capital assets and prepaid expenses that the Commission has purchased or constructed.

6. Financial instruments and risk management

Market risk

Market risk is the risk that the fair value or future cash flows of the Commission's financialinstruments will fluctuate because of changes in market prices. Market risk is comprised ofcurrency risk, interest rate risk and other price risk. The Commission does not consider itselfexposed to these risks.

Credit risk

Credit risk arises from the potential that a debtor will be unable to meet its obligations. The Commission conducts a thorough assessment of its debtors prior to granting credit and actively monitors the financial health of its debtors on a continuous basis. Credit risk arises primarily from cash, accounts receivable, and investments. There are no significant concentrations of credit risk.

Liquidity risk

The Company's objective is to have sufficient liquidity to meet its liabilities when due. The Company monitors its cash balances and cash flows generated from operations to meet its requirements. As at December 31, 2018, the most significant financial liabilities are accounts payable and accrued liabilities, and holdbacks payable.

7. Tangible capital assets

	Land $	Operations centre $	Treatment facilities $	Collection system $	Fleet $	Computer hardware and software $	Assets under construction $	Total $
COST								
Balance – Beginning of year	558,367	2,516,145	51,843,768	34,292,128	1,911,885	187,474	9,233,103	100,542,870
Net additions during the year	—	1,900,385	4,546,300	46,221	41,090	33,645	9,546,021	16,113,662
Disposals during the year	—	(742,791)	(989,373)	—	(18,238)	(465)	(184,147)	(1,935,014)
Balance, end of year	558,367	3,673,739	55,400,695	34,338,349	1,934,737	220,654	18,594,977	114,721,518
ACCUMULATED AMORTIZATION								
Balance – Beginning of year	—	1,863,123	33,873,941	13,985,721	757,420	102,761	—	50,582,966
Amortization during the year	—	96,534	1,094,672	490,405	154,201	57,608	—	1,893,420
Accumulated amortization disposals	—	(742,791)	(871,090)	—	(14,894)	(279)		(1,629,054)
Balance, end of year	—	1,216,866	34,097,523	14,476,126	896,727	160,090	—	50,847,332
Net book value of tangible capital assets 2017	558,367	653,022	18,441,460	20,306,411	1,154,412	84,714	8,761,515	49,959,901
Net book value of tangible capital assets 2018	558,367	2,456,873	21,303,172	19,862,223	1,038,010	60,564	18,594,977	63,874,186

8. Financial instruments and risk management

The Department of Local Government of New Brunswick has requested disclosures in addition to Canadian public sector accounting standards for monitoring purposes. The Commission has provided these disclosure requirements in the following pages.

9. Contingencies

The Company is involved in a claim resolution process with one of its contractors. Based on information currently known to the Commission and after consultation with outside legal counsel, it is management's opinion that the eventual outcome of the proceedings will not have a material effect on the Commission's financial statements. Any amounts awarded as a result of this action will be reflected when known.

GREATER MONCTON WASTEWATER COMMISSION

SCHEDULE OF ANNUAL SURPLUS – SCHEDULE 1
Year ended December 31, 2018 (Unaudited)

	General fund $	Capital Fund $	Reserve Fund $	Total $
2018 annual surplus	14,550,982	(1,893,420)	707,758	13,365,320
Adjustments to annual surplus for funding requirements				
Second previous year surplus	4,961,420	–	–	4,961,420
Transfer from operating to capital	(16,113,662)	16,113,662	–	–
Amortization expense	–	1,893,420	–	1,893,420
Total adjustments to 2018 annual surplus	(11,152,242)	18,007,082	–	6,854,840
2018 annual fund surplus	3,398,740	16,113,662	707,758	20,220,160

SCHEDULE OF RESERVES – SCHEDULE 2
Year ended December 31, 2018 (Unaudited)

	2018 $	2017 $
Reserve fund		
Assets		
Cash	12,027	1,461,579
Accrued interest receivable	271,287	380,470
Investments	30,963,063	35,150,000
Accumulated surplus	31,246,377	36,992,049
Revenue		
Interest	707,758	807,938
Annual surplus	707,758	807,938

GREATER MONCTON WASTEWATER COMMISSION

SCHEDULE OF OPERATING BUDGET TO PUBLIC SECTOR ACCOUNTING – SCHEDULE 3
Year ended December 31, 2018 (Unaudited)

	Operating $	Amortization $	Transfers $	Total $
Revenue				
User fees	12,411,377	—	—	12,411,377
Grant	8,563,702	—	—	8,563,702
Interest and miscellaneous	945,001	—	—	945,001
	21,920,080	—	—	21,920,080
Expenses				
Plant and Operating Expense				
Easement and property taxes	685,200	—	—	685,200
Salaries and benefits	1,847,284	—	—	1,847,284
Amortization of tangible capital assets	—	2,078,997	—	2,078,997
Electricity	622,942	—	—	622,942
Telephone	32,030	—	—	32,030
Insurance	174,583	—	—	174,583
Maintenance and operating	1,530,820	—	—	1,530,820
Consulting services	60,000	—	—	60,000
Vehicle expense	6,570	—	—	6,570
Miscellaneous	485,000	—	—	485,000
	5,444,429	2,078,997	—	7,523,426
General				
Marketing and communications	85,500	—	—	85,500
Office expenses	38,564	—	—	38,564
Travel, training and education	63,689	—	—	63,689
Governance	65,463	—	—	65,463
Interest and bank charges	3,610	—	—	3,610
Professional fees and consulting	138,898	—	—	138,898
	395,724	—	—	395,724
Fiscal services				
Transfers from operating fund to capital fund	10,421,249	—	10,421,249	—
Transfers from operating fund to reserve fund	687,855	—	687,855	—
Second previous surplus	(4,961,420)	—	(4,961,420)	—
	6,147,684	—	6,147,684	—
	11,987,837	2,078,997	6,147,684	7,919,150
Annual surplus	9,932,243	(2,078,997)	6,147,684	14,000,930

7. 2018 Independent Audit Report

Schedule of federal and provincial capital expenditure claim submissions

GREATER MONCTON WASTEWATER COMMISSION

DECEMBER 31, 2018

TABLE OF CONTENTS

PAGE

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INDEPENDENT AUDITOR'S REPORT

To the Management of the Greater Moncton Wastewater Commission

Opinion

We have audited the schedule of federal and provincial capital expenditure claim submissions of the Greater Moncton Wastewater Commission (the "Commission") as at December 31, 2018, including a summary of significant accounting policies (collectively referred to as the "Schedule").

In our opinion, the financial information in the Schedule of the Commission is prepared, in all material respects, in accordance with the basis of accounting described in Note 1.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards ("Canadian GAAS"). Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Schedule* section of our report. We are independent of the Commission in accordance with the ethical requirements that are relevant to our audit of the Schedule in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of Matter – Basis of Accounting and Restriction on Use

We draw attention to Note 1 to the Schedule, which describes the basis of accounting. The Schedule is prepared to assist the Commission to meet the requirements of the contribution agreements with the Regional Development Corporation and Infrastructure Canada. As a result, the Schedule may not be suitable for another purpose. Our opinion is not modified in respect of this matter.

Responsibilities of Management and Those Charged with Governance for the Schedule

Management is responsible for the preparation of the Schedule in accordance with Note 1, and for such internal control as management determines is necessary to enable the preparation of the Schedule that is free from material misstatement, whether due to fraud or error.

In preparing the Schedule, management is responsible for assessing the Commission's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Commission or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Commission's financial reporting process.

Auditor's Responsibilities for the Audit of the Schedule

Our objectives are to obtain reasonable assurance about whether the Schedule as a whole is free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian GAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of this Schedule.

As part of an audit in accordance with Canadian GAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the Schedule whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Commission's internal control.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Commission's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the Schedule or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Commission to cease to continue as a going concern.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates, if any, and related disclosures made by management.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Chartered Professional Accountants
Moncton, New Brunswick
February 15, 2019

GREATER MONCTON WASTEWATER COMMISSION

SCHEDULE OF FEDERAL AND PROVINCIAL CAPITAL EXPENDITURE CLAIM SUBMISSIONS
for the period ended December 31, 2018

Claim #	Date Claimed	Period Covered	Total Claimed Eligible Costs	Provincial Claim	Provincial Total Project	Federal Claim	Federal Total Project	Total Claim
Claim balance beginning					**21,617,440**		**21,305,136**	
2018-06	January 31 2018	Jan 1, 2018 - Jan 30, 2018	1,552,220	388,055	21,229,385	517,407	20,787,729	905,462
2018-07	February 28 2018	Jan 31, 2018 - Feb 28, 2018	1,397,528	349,382	20,880,003	465,843	20,321,886	815,225
2018-08	March 12 2018	Mar 1, 2018 - Mar 12, 2018	751,915	187,877	20,692,126	250,638	20,071,248	438,515
2018-09	May 11, 2018	Mar 12, 2018 - May 10, 2018	2,397,883	599,573	20,092,553	799,298	19,271,950	1,398,871
2018-10	June 15, 2018	May 11, 2018 - Jun 13, 2018	1,153,915	288,479	19,804,074	384,644	18,887,306	673,123
2018-11	July 17, 2018	Jun 14, 2018- Jul 11, 2018	347,081	86,770	19,717,304	115,694	18,771,612	202,464
2018-12	July 17, 2018	Jun 14, 2018 - Jul 11, 2018	945,397	236,349	19,480,955	315,132	18,456,480	551,481
2018-13	August 9 2018	Jul 11, 2018 - Aug 9, 2018	211,469	52,867	19,428,088	70,490	18,385,990	123,357
2018-14	August 31 2018	Aug 9, 2018 - Aug 31 2018	244,590	61,148	19,366,940	81,530	18,304,460	142,678
2018-15	Sept 30 2018	Sep 1, 2018 - Sep 30, 2018	808,951	202,238	19,164,702	269,652	18,034,808	471,890
2018-16	November 7, 2018	Oct 1, 2018 - Nov 7, 2018	475,301	118,486	19,046,216	156,772	17,878,036	275,258
2018-17	December 6, 2018	Nov 7, 2018 - Nov 30, 2018	591,042	149,281	18,896,935	196,988	17,681,048	346,269
2018-18	January 2, 2019	Dec 1, 2018 - Dec 31, 2018	1,043,837	260,959	18,635,976	347,089	17,333,959	608,048
Claim balance ending					**18,635,976**		**17,333,959**	
Total fiscal claim costs			**11,921,129**	**2,981,464**		**3,971,177**		**6,952,641**

The accompanying notes to the schedule are an integral part of this schedule.

NOTES TO THE SCHEDULE
Year ended December 31, 2018

1. Basis of accounting

The schedule of the Commission is prepared in accordance with the requirements as presented in article 9(b) of the contribution agreements of the Regional Development Corporation ("RDC") and Infrastructure Canada ("IC").

TransAqua

GREATER MONCTON WASTEWATER COMMISSION

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