

July 28, 2016

Reference No. \_\_\_\_\_

Mr. Jason Murgia, Chairman  
Chairman and Members  
Niagara Falls Public Water Authority  
5815 Buffalo Avenue  
Niagara Falls, New York 14304

Ms. Gretchen Leffler, Chairman  
Chairman and Members  
Niagara Falls Water Board  
5815 Buffalo Avenue  
Niagara Falls, New York 14304

Re: Continuing Disclosure Report of the Consulting Engineer and Rate Consultant Water, Wastewater and Stormwater System

Dear Chairmen and Members of the Authority and Board:

The purpose of this letter and the accompanying 2016 Continuing Disclosure Report (“2016 CDR” or “2016 Report”) is to update the conclusions of the independent engineering and financial analysis that were included in the 2015 Continuing Disclosure Report (“2015 CDR”), dated July 23, 2015.

The Niagara Falls Public Water Authority (the “Authority”) and the Niagara Falls Water Board (the “Board”) are required to deliver certain financial information and operating data in each fiscal year to the Electronic Municipal Market Access (“EMMA”) System implemented by the Municipal Securities Rulemaking Board established pursuant to Section 15B(b)(1) of the Securities Exchange Act of 1934 or any successor thereto. This 2016 CDR is intended to meet those requirements. The information and data is for the benefit of the beneficial owners of the bonds issued for the Board by the New York State Environmental Facilities Corporation (“NYSEFC”) in 2015 which were used to entirely refund the Series 2005 EFC Serial Bonds; 2014 EFC bonds, 2013 EFC Bonds and 2012 EFC Bonds; and the bonds issued by the Authority in 2013 and 2005 (the “2013 Authority Bonds” and the “2005 Authority Bonds”, respectively) collectively referred to as the “Outstanding Bonds”. All terms referred to in this letter and the accompanying 2016 Report that are not defined herein are as defined in the Official Statements for the Outstanding Bonds.

The projections presented in this letter and the accompanying 2016 Report are preliminary in nature and are based on the recent financial experience of the Board and the Authority and assumptions regarding future policy decisions of the Board and its performance. The projections include provisions for the financing of future improvements to the Water, Wastewater and Stormwater System (the “System”) of the Board as reflected in the Preliminary Capital Improvement Program (the “CIP”). The projected cash flows are also presented as a preliminary draft that is subject to change. The projected cash flows are intended to assess the ability of the Board and Authority to meet the operating costs, working capital needs and other financial requirements including the debt service requirements associated with the Outstanding Bonds and future financing for the period of 2016 through 2020 (the “Projection Period”). All references to years in the 2016 Report refer to the fiscal years of the Board and Authority which end on December 31. As Consulting Engineer to the Authority, AECOM USA, Inc (“AECOM”) provides the engineering and operations-related opinions of this letter and the 2016 Report. In order to assess the anticipated operating condition of the System during the projection period, AECOM evaluated the proposed improvements and additions to the System under the CIP. Drescher & Malecki LLP, Rate Consultant to the Board, provides the financial and management consulting opinions of this letter and the 2016 Report.

In preparing this 2016 Report, we reviewed, to a reasonable extent, the books, records, reports, operating information and statistical data of the Authority and the Board, and conducted other investigations and analyses as deemed necessary to prepare this 2016 Report.

Based on our studies, we offer the following opinions and conclusions:

- The System is currently in adequate condition to support the delivery of water, wastewater and stormwater services and the generation of user revenues.
- The water treatment facilities are in good condition, requiring few modifications during the projection period. The water distribution system is currently in adequate condition overall although the rate of leakage is higher than typical industry averages.
- The wastewater treatment plant (the “WWTP”) is in fair condition overall, but certain components are in poor condition. During the projection period, the wastewater treatment facilities will require both routine and non-routine repairs, replacements and improvements as described herein. As described in the 2015 Report, certain improvements to the wastewater treatment facilities have been recently completed addressing many components that were previously in poor condition. Additional capital improvements will be implemented in 2016 and beyond within the wastewater treatment facilities.
- The wastewater collection system is in adequate condition overall but certain facilities require capital improvements as described herein. Additional capital improvements will be implemented in 2016 and beyond within the wastewater collection system.
- Board staff, including management and operations personnel, are well qualified and effectively organized.
- Through appropriate technology, staffing, tools, and equipment, the Board has operations and maintenance programs that are capable of ensuring the continued effective operation of the System. The System should continue to provide adequate levels of service with minimal disruption.
- The Board is currently in compliance with the conditions of all existing permits, regulations, and other requirements governing safe drinking water standards. The wastewater treatment facilities have been in compliance with all existing permits, regulations, and other requirements, with certain minor exceptions. The wastewater discharge permit requires that additional improvements be made within the sewer collection system, principally relating to Combined Sewer Overflow (CSO). While an Order On Consent requires Sanitary Sewer Overflow (SSO) abatement. The Board, in conjunction with professional engineering consultants, prepared separate plans to address the CSO and SSO issues. Both plans were approved by the NYSDEC. The CIP includes funding for anticipated capital improvements that will address the requirements of the permit during the Projection Period.
- In 2004, the Board authorized the development of a Master Plan for wastewater treatment (the “Strategic Wastewater Treatment Master Plan”). The Master Plan concluded that the upgrading of the existing wastewater treatment plant was more cost effective than other alternatives such as the construction of a new treatment plant. The Master Plan identified

the need for significant capital improvements at the wastewater treatment plant. The Board has retained firms to provide engineering design services in support of the planned improvements. Improvements to the influent screens, carbon filter valves and controls and heating, ventilation and air conditioning (“HVAC”) improvements in the carbon building were completed in early 2009 and 2010 (Phases 1 and 2).

Phase 2A upgrades to the WWTP were completed in the first quarter of 2013 and include upgrades and replacement to the filter backwash pumps, instrumentation, and controls. Also in 2013, a second gravity thickener for sludge processing was being refurbished. The underground subsidence repairs that threatened plant utilities was also performed in 2013. Phase III rehabilitation and replacement project is 40% complete as of July 2016, and is expected to be fully complete in early 2017. The work includes carbon filter upgrades, sedimentation basin upgrades, plant water system upgrades, sludge blanket detectors in the gravity thickeners, miscellaneous heating and ventilation system upgrades, grit piping system improvements, and exterior door replacements (partial). The flood mitigation project work continues and is expected to be complete in January 2017. When complete there will be four (4) new main pumps (pumps, motors, drives) along with new controls for both the main pumps and the intermediate pumps.

During the summer of 2013 a roof repair and replacement project was undertaken at the WWTP and included the replacement of approximately 78,000 square feet of roofs. Strategic structural repairs to building exteriors including concrete and masonry repairs were undertaken as part of this project. In the summer of 2014 additional masonry and building envelope repairs were performed to address areas in the worst condition or having a potential for building leakage. Additional roof, building envelope and masonry repairs will be required in the future and are included on the WWTP’s Capital Improvement Plan.

- A July 2014 letter received from the NYSDEC required the Board to address an ongoing turbidity issue in the lower Niagara River that is created by the wastewater treatment plant’s outfall. A study to determine the impact of the outfall was completed and submitted to the NYSDEC in the fall of 2015. To date no response on the turbidity study has been received from the NYSDEC. Similarly the wastewater treatment facility is under an Order on Consent to address mercury in its discharges. The order includes the requirement to evaluate the treatment plant and collection system to determine the source and means of mitigating the presence of mercury in the plant discharges. The NFWB has contracted with an engineering consultant to perform this evaluation which must be submitted to the NYSDEC in the fall of 2016. The impact of these two NYSDEC actions is yet to be determined but may result in additional expenditures for engineering and capital improvements.
- The Board previously reached an agreement with the New York Power Authority (“NYPA”) related to the infiltration of water from NYPA’s hydropower intake facilities into the Falls Street Tunnel (the “FST”). This infiltration accounted for over 20% of the total influent flow into the wastewater treatment plant of the Board. Under the terms of the Agreement, NYPA paid \$19 million to the Board in November 2007; the proceeds of which were intended to reduce or eliminate the NYPA FST inflow. The Board completed a predesign feasibility study in 2008 which evaluated the alternatives that would achieve that objective. The design of the recommended improvements began in 2009; construction was initiated in 2011, and was completed in 2012. The final cost of the construction project (\$6.2 million) was significantly less than the funds paid to the

Board. Following the FST project, a post-construction inspection revealed that groundwater leakage was occurring in an adjacent sewer/tunnel (the Iroquois Street Sewer) and was also a candidate for repairs that would lead to infiltration reduction. A study and detailed design was conducted in 2013 and construction was initiated in the fall of 2014, finishing up in early 2015. In addition to eliminating groundwater infiltration, the repairs were desperately needed to thwart a potential sewer collapse that appeared to be inevitable without the repairs being undertaken. The construction cost of \$2.5 million was also paid from NYPA settlement money. Although it is still early on in the post construction evaluation of plant influent flows, it appears that significant flow reductions are being achieved. Benefits from the reduced influent flowrate include: reduced chemical use, increased wet weather capture, and making capacity available for potential future residential/commercial/industrial development. The remaining monies from the \$19 million payment, beyond the actual amounts needed for the FST and Iroquois Street sewer repairs, are available for other utility capital projects identified in the Board's CIP.

- In 2009, the Board was approved for \$11 million in funding from the New York State Environment Facilities Corporation ("NYSEFC") to complete the second phase of cleaning and restoration of the North Gorge Interceptor ("NGI"). The funding, administered through the NYSEFC, was approximately \$5.5 million provided in the form of a subsidized loan at 50% of the market interest, and approximately \$5.5 million in principal forgiveness from an American Recovery and Reinvestment Act grant. Construction on the NGI was completed during 2011.
- In 2012 the Board undertook a project to examine the wastewater plant to look for energy saving opportunities. The study was funded by the New York Power Authority (NYPA) and the New York State Environmental Facilities Corporation (NYSEFC). As a result of that project, \$2.2 million in energy saving upgrades were identified. The design of this project was completed in 2015, and as of July 2016 is slated to start construction by the end of July 2016. The work includes the following sedimentation basin upgrades: removal of non-functional paddle flocculators, installation of baffles to promote flocculation, rebuilding sludge and grit pump and sludge screw motor controls to enable Supervisory Control and Data Acquisition (SCADA) operation, and replacement of polymer addition piping. In addition miscellaneous heating and ventilation and lighting system upgrades to promote energy efficiency will be performed. Construction is expected to be completed in 2017.
- It is anticipated that the Board will fund the CIP through the following sources: existing monies in its Construction Fund; the proceeds of anticipated future bonds issued by the Authority; proceeds from the NYPA payment; and additional surplus funds generated in each year. Significant additional improvements to the wastewater treatment plant will be required both within and beyond the Projection Period.
- Collective bargaining agreements with all four of the Board's labor unions expired on December 31, 2010. The previous union contract created a second tier benefit package for employees hired after January 2008. This new tier continues to provide long-term savings to the Board as new employees replace outgoing retirees. The package includes a more modest health care plan with a 20% employee contribution, a halving of paid sick and holidays, and a new paid time-off plan. The unionized work force continues to work under the terms of the expired agreements. Negotiations on the now expired contracts are ongoing.

- In 2004, the Board authorized the preparation of a Competitiveness Plan for its operations. The Competitiveness Plan identified opportunities to optimize operations and maintenance services while reducing the required number of employees over time through increased automation, employee training, improved tools and equipment and other techniques. From September 2003 to April 30, 2016, the number of employees declined from 141 to 87. The intent of the Board is to implement changes in technology and business processes simultaneously with attrition in the workforce in order to optimize the efficiency and effectiveness of its operations.
- Water sales to customers of the System decreased in 2008, 2009 and 2010 by 5.5%, 13.4% and 9.8%, respectively, as compared to the demand in the prior year. Then in 2011, 2012, 2013 and 2014 water sales increased by 3.1%, 4.2%, 7.9% and 6.7% respectively. However in 2015 water sales to customers of the system decreased by 5.4%, which was due to a number of factors. The Board's second largest customer announced their closure which will take effect in 2017 and will impact revenues by roughly \$2 million annually. Additionally, at the end of 2016 the Cricket Cell Tower Lease is expiring.
- Year-to-date cash collections from customer payments are slightly below expectations most likely due to a decrease in usage. The Board's personnel expenses in 2016 are currently lower than projected due to four employees retiring in the past year and an increase in the number of employees opting out of the insurance plan and taking a buyout. Table 16 of the 2016 CDR summarizes the current preliminary estimate of revenues, expenses, debt service, other expenses and debt service coverage for 2016 through 2020. All amounts are subject to change.
- Based on the year-to-date results, the Board will have to carefully monitor its cash flows during 2016 to ensure that debt service coverage requirements are met. While current projections show the Board will meet debt service coverage requirements for 2016, there are many factors, such as declines in customer usage, weather and economic conditions, which could affect such projections. The Board should carefully monitor revenues and expenses in 2016 to ensure that debt service coverage requirements are met. Table 16 of the 2016 CDR was reviewed by the members of the Board in advance of the issuance of this Report.
- The Board has increased the rates 4.4% for water and wastewater service in the City of Niagara Falls (the "City") for 2016 as compared to those for 2015. The preliminary projections of cash flows and rates for 2016 through 2020 are presented in Table 16 of the 2016 CDR.

The projected rate increases included in Table 16 of the 2016 CDR are preliminary and subject to change. The future increases in the rates of the Board are dependent upon upcoming Board policy decisions regarding: the size, scope and timing of the CIP; the use of the remaining monies from the NYPA settlement; and potential reductions in annual operation and maintenance expenses. Future increases in rates are also dependent upon actual experience and future assumptions regarding customer demand as well as other factors. The Board has expressed its interest in minimizing rate increases while at the same time meeting its financial, capital investment and operating obligations. As a

result of all of the above considerations, actual increases adopted by the Board may differ from the amounts shown above.

- Current rates for water and wastewater service are comparable to surrounding service providers.
- The Board is in compliance with the reserve fund requirements of the Resolution, including the required amounts on deposit in the Debt Service Reserve Fund and the Operating Reserve Fund.
- During the analysis of 2016-2020 revenues and revenue requirements, Drescher & Malecki LLP reviewed certain assumptions with respect to conditions, events and circumstances, which may occur in the future. The firm believes that these assumptions are reasonable and attainable, although actual results will differ from those forecasted as influenced by the conditions, events and circumstances that actually occur.

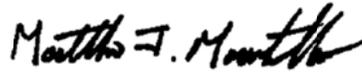
We wish to extend our gratitude to the Board and the Authority for the support provided in preparing this report. We appreciate the opportunity to be of service in this important matter.

Very truly yours,



John Goeddertz, Ph.D.  
AECOM USA, Inc.  
Consulting Engineer

Very truly yours,



Matthew J. Montalbo, CPA  
Drescher & Malecki LLP  
Rate Consultant

## **Continuing Disclosure Report of the Consulting Engineer and Rate Consultant**

### **Introduction**

This 2016 Continuing Disclosure Report, prepared in July 2016 (the “2016 CDR” or the “2016 Report”), provides information to supplement and update information presented in the Feasibility Report of the Consulting Engineer and Rate Consultant, prepared in August 2005 (the “2005 Report”), included in the Official Statement for the 2005 Authority Bonds, the Feasibility Report prepared in June 2013, included in the Official Statement for the 2013 Bonds (the “2013 Report”), the 2007 Continuing Disclosure Report prepared in June 2007, the 2008 Continuing Disclosure Report prepared in June 2008, the 2009 Continuing Disclosure Report prepared in July 2009, the 2010 Continuing Disclosure Report prepared in July 2010, the 2011 Continuing Disclosure Report prepared in June 2011, the 2012 Continuing Disclosure Report prepared in June 2012, the 2014 Continuing Disclosure Report prepared in July 2014, and the 2015 Continuing Disclosure Report prepared in July 2015 collectively referred to as the “Prior Reports”. Except where noted, the table numbers and titles used in the 2016 CDR correspond to the table numbers and titles in the Prior Reports. In matters presented in the Prior Reports where we have been advised by the Board that no material change has occurred since the preparation of the Prior Reports, no additional information is presented in this 2016 CDR. Throughout the 2016 CDR, references are made to the Water, Wastewater and Stormwater System of the Board (the “System”) which serves the City of Niagara Falls, NY (the “City”) and provides water service to small portions of adjacent communities.

### **Board and Authority Members**

Ms. Gretchen Leffler became the Chairman of the Board in 2016 (having previously served as a member of the Board). Mr. Gary Laible is the Vice Chairman of the Board and Mr. Lawrence Edwards is the Treasurer of the Board. Ms. Renae Kimble and Mr. Ted Janese III are members of the Board.

Mr. Jason Murgia is the Chairperson of the Authority (having previously been a member of the Authority). Mr. Sanquin Starks is the Vice Chairman of the Authority. Mr. Daniel Weiss is the Treasurer of the Authority and Mr. Paul Drof serves as Secretary.

**Organization and Staff of the Board**

Mr. Paul Drof is the Executive Director of the Board. Mr. Drof has over 30 years of progressive experience in the environmental water and wastewater industry, with an emphasis on strategic budgeting and planning along with innovative process optimization and cost-saving initiatives. In the field of water and wastewater, Mr. Drof has extensive knowledge of industrial pretreatment programs, activated sludge and physical-chemical treatment, carbon adsorption and regeneration, hazardous waste site remediation, public-private partnerships, process review and optimization and regulatory experience.

Mr. Drof received a Bachelor of Science degree from the State University of New York at Fredonia (SUNY-Fredonia). He also conducted post-graduate studies in biology at SUNY-Fredonia. He is a licensed water treatment plant operator and a licensed wastewater treatment operator in New York State. Prior to joining the Board, Mr. Drof served as Superintendent of Water/Wastewater Treatment for the City of North Tonawanda, NY.

The total staffing levels have declined since the Board acquired the System in September, 2003. Staffing levels are expected to remain stable or decline in the future as the Board has increased the automation of the System and provided enhanced employee training, new business processes and improved tools and equipment.

The table presented below illustrates the staffing levels for the System as of April 30, 2016.

*Table 1 – System Staffing*

	<u>Staff Positions</u> *
Water Facilities Division	36.5
Wastewater Facilities Division	<u>50.5</u>
Total System	<u><u>87.0</u></u>

\* Denotes filled positions. Authority and Board members, as well as, personnel providing support services are not included in the above figures. The above totals also do not include staff members that are currently on unpaid leave.

The City provided certain support services to the System in the form of engineering, legal, billing and collection, accounting and fleet maintenance services during the initial years of the Board's operations. Under the terms of the Operations Agreement between the City and the Board, the Board notified the City that it wished to assume direct responsibility for the support services

provided by the City. For example, the Board installed a new financial management system and began billing customer accounts during 2008. The City continues to work with the Board in providing collection services for accounts and tax collection services. Under the terms of the agreement, the Board will pay the City approximately \$90,000 per year for the services it receives.

### **Water Treatment**

The average daily output from the Board’s water treatment plant for 2012 through 2015 is shown in the following table.

*Table 2 – Average Daily Production of Treated Water*

<b>Year</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Flow (MGD)	18.38	17.90	21.50	21.33

### **Water Distribution System**

The distribution system consists of approximately 260 miles of various diameter water mains, 2,287 fire hydrants, over 5,000 valves, two elevated water storage tanks and over 19,000 metered services. The distribution system is a single pressure system. The Water System services the City and several “out-of-town” customers adjoining the City. The Water System also has two major inter-municipal interconnections with the Niagara County Water District that allow for the purchase/sale of water in either direction for emergency or shut down maintenance events.

Treated water is pumped from the water treatment plant to the Water System’s 260 miles of pipe and also to the 56<sup>th</sup> Street elevated water storage tank that has a capacity of 2 million gallons (“mg”). The elevated tank provides added reliability to the Water System, as it will transparently pick up full system demand if the high-lift pump station is shutdown. A second 2 mg elevated storage tank at Beech Avenue is currently shut down and isolated from the Water System. This facility is being used to generate revenues through the lease of space for cellular antennas. The water distribution system utilizes various materials of construction including lined and unlined cast or ductile iron, polyvinyl chloride (PVC), reinforced concrete pressure pipe (RCPP), and high density polyethylene (HDPE) varying in size from 6 inch to 30 inch.

The following tables provide information on the water mains and the approximate age of the pipes comprising the water distribution system:

*Table 3 – Water Distribution System Piping*

<u>Water Main</u>	<u>Material Type</u>	<u>Length (ft)</u>
6-inch	PVC	1,500
8-inch	PVC	2,610
10-inch	PVC	700
12-inch	Asbestos Cement	5,500
20-inch	Cast/Ductile Iron	7,800
24-inch	RCPP	5,600
30-inch	RCPP	13,370
36-inch	RCPP	16,810
42-inch	RCPP	7,850
2-inch	Cast/Ductile Iron	700
4-inch	Cast/Ductile Iron	95,030
6-inch	Cast/Ductile Iron	596,540
8-inch	Cast/Ductile Iron	239,680
10-inch	Cast/Ductile Iron	121,455
12-inch	Cast/Ductile Iron	102,045
14-inch	HDPE	6,540
16-inch	Cast/Ductile Iron	59,660
20-inch	Cast/Ductile Iron	46,730
24-inch	Cast/Ductile Iron	26,230
30-inch	Cast/Ductile Iron	9,060
	Total	1,356,350

**Table 4 – Niagara Falls Water Distribution System  
Approximate Age of Pipe**

<u>Age</u>	<u>Feet</u>	<u>Percent</u>
1890-1910	65,802	5%
1911-1930	515,179	38%
1931-1950	288,940	21%
1951-1970	251,682	18%
1971-1990	144,121	11%
1991-2015	<u>101,772</u>	<u>7%</u>
Total	1,367,496	100%

### Unbilled Water

In Prior Reports, this section was described as unaccounted-for water. The term unaccounted-for water is redefined below and a definition is provided for unbilled water. The Water Facilities Division calculates the percentage of unbilled water based on the difference in quantity between the treated water pumped into the Water System and the number of billed units provided to customers, divided by the treated water pumped. Unbilled water includes both known uses that are not measured or billed (e.g., water used in firefighting and hydrant flushing) and unaccounted-for water such as losses due to leaks in the System. Unbilled water has been 60% percent or more of treated water for the last five years, a percentage that is significantly higher than typical industry averages. This percentage increased 2% from 2014 to 2015, although the 2015 percentage is consistent with the 2011, 2012 and 2014 values. The table presented below shows the average percentages of unbilled water by year.

**Table 5 – Unbilled Water**

<b>Year</b>	<b>Percent of Treated Water</b>
2012	68%
2013	62%
2014	67%
2015	69%

The marginal cost to the Board of treating and pumping water that is not sold is relatively low. Notwithstanding the absence of a significant cost incentive, the CIP for the Water System is focused primarily on improvements to the distribution system that, over time, together with the increased focus on identifying lost water should result in a decline in unaccounted-for water. In

2012, and 2013 through 2015 the Board embarked on an aggressive meter replacement program. In 2012 a pilot study was performed that included replacement of 450 meters. In 2013 through 2015, 16,000 residential and commercial meters have been replaced. The new meters are auto-read (drive by), which will reduce labor necessary to obtain meter readings and free up personnel for more important tasks. The objective of the meter replacement program is to improve the accuracy of the water meters as metered water use is the means by which revenue is generated. Based on the experiences of other water utilities in similar situations, the implementation of these programs should lead to a reduction in unaccounted-for water.

### **Water System Staffing**

The following table illustrates the number of personnel in each of the eight (8) sections of the Water System as of April 30, 2016.

*Table 6 – Water System Staffing*

<b>Section</b>	<b>Staff Positions</b>
Laboratory	3.0
Administration	5.0
Information Technology	3.0
Engineering	3.0
Purification Operations	7.5
Inside Water Maintenance	2.0
Outside Water Maintenance	8.5
Meter Shop	<u>4.5</u>
Total Water System Staff	<u><u>36.5</u></u>

Based on our review of the Water System, including interviews and discussions with its management and staff, we believe that the Water System is adequately staffed and key management personnel have the qualifications and experience commensurate with their responsibilities.

### **Wastewater Treatment**

The table on the following page identifies the historical flows through the wastewater treatment plant (“WWTP”).

*Table 7 – Average Daily Wastewater Volume Treated*

Year	2012	2013	2014	2015
Flow (MGD)	31.15	32.89	32.35	29.10

**Wastewater Facilities**

The facilities of the Wastewater System include a wastewater treatment plant (“WWTP”), 8 pumping stations, over 255 miles of combined and separate sanitary sewer lines and 6 combined sewer overflow points. The Wastewater System uses a collection system of lateral, collection and trunk sewers that convey wastewater to the WWTP. The majority of the service area utilizes combined sewers that carry both wastewater and storm water in one pipe. Pipe sizes range from 8 inches to 72 inches in diameter. The Wastewater System also includes approximately 15 miles of large conveyance structures ranging in size from 36 inches to 32 feet in diameter (tunnels).

The eastern portion of the City has a separated sanitary system and storm sewer system. This portion of the Wastewater System uses pumps to alleviate sanitary sewer overflows that occur during certain wet weather events. This procedure complies with the terms of the Board’s permit from the DEC. The pumping stations of the Board are listed in the following table:

*Table 8 – Pump Station and Bypass Station Capacities*

<u>Lift Station</u>	<u>Location</u>	<u>Approximate Capacity (MGD)</u>
Gorge	Gorge Pump Station Site	19.5
LS-1	Stephenson & 81st Streets	4.3
LS-2	Griffon Avenue	1.0
LS-3	Buffalo Avenue & 56th Street	1.7
LS-4	91st Street & Luick Avenue	1.7
LS-6	81st Street & Frontier Avenue	4.3
LS-7	Boiler Avenue & Military Road	0.8
LS-8	101st Street	1.0
BPS-1	Cayuga Drive & South Military Road	2.9
BPS-2	West Rivershore Drive	1.0

Like most urban systems of its age with combined storm water and sanitary sewer systems, the Wastewater System has incurred problems with infiltration whereby storm water and ground water enter the pipes devoted to wastewater. This has resulted in added treatment expense.

Like the Water System, the Wastewater System obtains low-cost hydropower from National Grid, which is made available through NYPA. In the case of the Wastewater System, this amounts to approximately 1.6 megawatts per year.

**Wastewater System Staffing**

The table presented below illustrates the number of personnel in each of the six (6) sections of the Wastewater System as of April 30, 2016:

*Table 9 – Wastewater System Staffing*

<b>Section</b>	<b>Staff Positions</b>
Monitoring and Compliance	3.5
Analytical Services	5.0
Sewer Collection System Maintenance (1)	8.5
Administrative / Technical	5.0
Plant Operations	15.5
Plant Maintenance	<u>13.0</u>
Total Wastewater System Staff	<u><u>50.5</u></u>

- 1) Includes sanitary sewers, combined sewers and storm sewers. Positions for stormwater maintenance were paid for through the City’s General Fund, prior to acquisition of the System by the Board.

Based on our review of the Wastewater System, including interviews and discussions with its management and staff, we believe that the Wastewater System is adequately staffed and key management personnel have the qualifications and experience commensurate with their responsibilities.

**Wastewater System Customer Base**

The Wastewater System serves the City and, through a mutual services agreement, limited portions of the Town of Niagara. The Wastewater System serves a population of approximately 50,193 according to the 2010 U.S. Census. The table on the following page shows consumption and revenue information by category of customer.

Table 10 – Wastewater Demand, Revenue and Account Information by Customer Class

<u>Class of Customer</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
<b>Residential/Commercial</b>					
Consumption (CCF)	1,329,279	1,344,810	1,331,527	1,346,029	1,315,516
Number of Accounts	18,484	18,509	18,470	18,249	18,401
Revenues	\$ 5,613,519	\$ 5,786,365	\$ 6,145,555	\$ 6,342,644	\$ 6,290,567
<b>Industrial</b>					
Consumption (CCF)	725,931	780,293	849,504	745,073	741,580
Number of Accounts	339	250	253	255	258
Revenues	\$ 2,483,215	\$ 3,356,519	\$ 3,709,417	\$ 3,465,432	\$ 3,827,590
<b>Significant Industrial Users (SIU)</b>					
Consumption (CCF)	820,292	868,945	1,123,975	1,362,443	1,209,147
Number of Accounts	23	23	24	24	24
Revenues	\$ 5,418,185	\$ 4,278,686	\$ 7,172,091	\$ 7,696,309	\$ 9,496,590
<b>Non-Resident Users*</b>					
Consumption (CCF)	6,724	8,499	11,452	3,467	-
Number of Accounts	27	28	27	27	-
Revenues	\$ 32,736	\$ 384,520	\$ 468,650	\$ (294,307)	\$ -
<b>Total</b>					
Consumption (CCF)	2,882,226	3,002,547	3,316,458	3,457,012	3,266,243
Number of Accounts	18,873	18,810	18,774	18,555	18,683
Revenues	\$ 13,547,655	\$ 13,806,090	\$ 17,495,713	\$ 17,210,078	\$ 19,614,747
Plus: Other Departmental Revenues	1,025,404	855,355	947,686	1,176,706	1,498,021
Less: Adjustments	(79,904)	(88,275)	(120,350)	(102,359)	(296,620)
<b>Total Departmental Revenue</b>	<u>\$ 14,493,155</u>	<u>\$ 14,573,170</u>	<u>\$ 18,323,049</u>	<u>\$ 18,284,425</u>	<u>20,816,148</u>

\*Non-Resident Users are only water supplied, no wastewater activity in 2015.

### **Preliminary Capital Improvement Program (CIP)**

The Board and the Authority have the responsibility to adopt and implement the CIP for the System. Table 11 presents the CIP for the System for 2016 through 2019. The CIP is updated periodically. The updated CIP as presented herein was reviewed and approved by the Board on May 26, 2016. The amounts presented include an allowance for inflation. The Board plans to review and update the CIP by the end of 2016; thus, all projects and amounts for 2016 through 2019 are preliminary and subject to change.

Table 11 – Capital Improvement Plan (“CIP”)

Description	2016	2017	2018	2019	Total
<b>COMBINED PROJECTS (WATER AND WASTEWATER)</b>					
IT Plan Implementation	\$ 40,000	\$ 30,000	\$ 40,000	\$ 30,000	\$ 140,000
Meter Replacement & Upgrades	68,300	70,000	70,000	70,000	278,300
Fleet Replacement	225,200	90,000	480,000	80,000	875,200
Water/sewer GIS/GPS Mapping	5,000	5,000	5,000	5,000	20,000
<b>WASTEWATER INFRASTRUCTURE PROJECTS</b>					
WWTP Rehab Phase 3	400,000				400,000
WWTP Rehab Phase 4		288,100	2,500,000		2,788,100
WWTP Rehab Phase 5				200,000	200,000
WWTP Roof Repairs		150,000	1,350,000		1,500,000
WWTP/GPS Miscellaneous	200,000	140,000	140,000	140,000	620,000
WWTP Hypochlorite System Improvements	70,000				70,000
WWTP Flood Damage Recovery	550,000				550,000
WWTP Structural/Masonry Repairs			80,000	374,000	454,000
WWTP Effluent Turbidity Study	170,000				170,000
WWTP Mercury Reduction Project	20,400				20,400
Sanitary Lift Station Electrical Upgrades	65,000	370,000			435,000
WWTP Standby Generator	70,000	400,000			470,000
Sewer Replacements & Repairs	300,000	325,000	325,000	325,000	1,275,000
Belden Center Sewer Rehabilitation Work	25,000				25,000
LaSalle Area Sewer Improvements (SSO)	150,000	1,050,000	270,000	370,000	1,840,000
CSO Long Term Control (LTC) Implementation			10,000		10,000
CSO Outfall Structural Repairs			300,000	2,500,000	2,800,000
Tunnel Inspection	260,000				260,000
Gorge Pumping Station Rehabilitation		500,000	4,000,000		4,500,000
WWTP Energy Efficiency [NYPA]	2,270,000				2,270,000
<b>WATER INFRASTRUCTURE PROJECTS</b>					
Ontario Ave - 13th to 18th Street		400,000			400,000
Military Road Main, between Jacob and Cayuga		210,000			210,000
Bollier Avenue Main, between 82nd and Military	250,000				250,000
10th St., Lockport to North		600,000			600,000
Whitney Avenue, 18th Street to Hyde Park Blvd			850,000		850,000
Buffalo Avenue Point to City Docks	450,000				450,000
Large Valve Replacement	100,000	70,000	70,000	70,000	310,000
Leak Detection / Distribution Modeling	70,000				70,000
Hydrant Replacement	192,000	80,000	80,000	80,000	432,000
Water Miscellaneous Improvements	170,000	170,000	170,000	100,000	610,000
WTP Vent Line Replacement		53,000			53,000
Abandon 20" Victory Pipe WM		170,000			170,000
<b>Total</b>	<b>\$6,120,900</b>	<b>\$5,171,100</b>	<b>\$10,740,000</b>	<b>\$4,344,000</b>	<b>\$26,376,000</b>

\*\* Note that the 2020 projections are not available as of the date of the Continuing Disclosure Report

On a System-wide basis, the CIP includes provisions for the implementation of new technology which is primarily focused on the monitoring and control of water and wastewater facilities. Such technology will enable Board personnel to continue to attempt to operate more efficiently and effectively. The past improvements have allowed for some significant reductions in personnel. While further improvements may provide the opportunity for additional minor staff reductions, the future improvements may allow for more efficient use of utilities, reduce water system loss and overall better system management. Funds are also included each year for the replacement of Board vehicles.

The CIP for the Water System is focused primarily on distribution system improvements to enhance overall water quality, system reliability and reduce water loss, including a water main, hydrant and large valve replacement programs. In addition, the meter replacement program has become an important part of reducing the cost of reading meters and replacement of older faulty meters. The remainder of the 72nd Street water main was replaced in late 2015 and a portion of the Bollier Avenue water main is scheduled for replacement in the second half of 2016. The City of Niagara Falls has/is providing design, contract administration and inspection services on both projects.

The improvements in the Wastewater System represent the larger share of the budgeted funds, with the continued upgrades at the wastewater plant consuming the greatest amount of the planned investments. Investments in pumping stations, tunnels/interceptors and the collection system also will continue.

With \$21 million of planned CIP spending in 2015-2016, there will be a significant focus on the Wastewater System. The CIP includes \$2 million over the four year period for SSO-related improvements in the LaSalle area of the City. Funds for the continued implementation of the Long-Term Control Plan (LTCP) and to address CSOs are included in 2016 through 2019 projects. The most important pumping station for the Wastewater System is the Gorge Pumping Station. When last upgraded in 2006 the estimated remaining life of the pumps was 10 years. The CIP includes funds for a replacement of Gorge Pumping Station pumps, motors, and drives in 2017/2018. The largest investments provided for in the CIP are for WWTP improvements. Completion of the flood mitigation measures that were necessary following the July 2013 flooding event at the WWTP should occur in January 2017. Upon completion of that work four (4) new main pumps, motors, and drives will have been installed including all new SCADA controls for both the main pumps and the intermediate pumps.

The Phase III WWTP upgrades (\$5.4 million) are under construction (40% complete) with an expected completion date in January 2017. Phase III work includes:

- Continued replacement of carbon filtration mechanical equipment,
- Sedimentation Basin 1 replacement of traveling bridge with chain and flight scraper system (expected to be a prototype for eventual conversion of all basins to chain and flight scraper system),
- Polymer feed and transfer pumps replacement for polymer feed to both the sedimentation basins and the belt filter presses.
- Plant water pumps, motors, and VFD replacement.
- Sludge blanket detectors in the gravity thickeners to improve thickener operation.
- Miscellaneous heating and ventilation system improvements in the Sludge and Pump Buildings.
- Minor grit piping improvements.
- Exterior door replacement.
- Additional process monitoring instrumentation.

As of July 2016 the WWTP is also initiating construction on its Energy Efficiency Project that was funded by low cost grants from the New York Power Authority. Work should be complete in late 2017. The \$2.4 million project includes:

- Remove inoperable paddle flocculators in all five (5) sedimentation basins and replace with curtain baffles that promote flocculation with no required energy input.
- Relocate/replace polymer addition piping in the five (5) sedimentation basins.
- Replace heating and ventilation equipment utilizing electric heat with new units fired with natural gas.
- Install new gas fired infrared heaters in the outside sewer garage.
- Rebuild the primary sedimentation basin sludge and grit pump motor controls (17 pumps) to enable SCADA control of this equipment.
- Rebuild the primary sedimentation basin sludge screws motor controls to enable SCADA control of this equipment.
- Miscellaneous lighting upgrades to reduce electricity consumption and improve lighting.

In the Water Distribution System, the CIP includes funds for five (5) specific water distribution main replacement projects, continued replacement of large valves, continued leak detection & distribution system modeling to reduce leakage rates, and funding for unplanned system repairs. The specific areas identified for replacement have been prioritized based on factors such as the history of main breaks, known areas of leakage, the need to upgrade the size or materials of the main and other factors. The continued implementation of a water main replacement program should, over time, reduce the level of unaccounted-for water in the Water System.

In the opinion of AECOM, the CIP is reasonable and will help ensure that quality water and wastewater services are provided to customers in a reliable manner. However, there remains unanswered questions regarding the potential outcome of ongoing turbidity and mercury studies that may result in the need to modify or refocus the CIP in subsequent years in order to satisfy potential regulatory action.

### Sources and Uses of Funds

Table 12 presents the anticipated sources and uses of funds for the CIP. The amounts shown are preliminary, pending policy decisions of the Board.

*Table 12 – Sources and Use of Funds for the CIP*

	2016	2017	2018	2019
Opening balance, January 1: Remaining funds restricted for capital projects**	\$ 15,297,444	\$ 11,655,444	\$ 12,925,444	\$ 16,425,444
Sources of CIP funds:				
Prior year coverage	2,313,900	3,591,100	4,240,000	1,644,000
Bonded	-	-	10,000,000	-
NYSED EFC Grants	165,000	580,000	-	-
NYPA Loan	-	2,270,000	-	-
Use of CIP funds:				
CIP spending (per Table 11)	<u>(6,120,900)</u>	<u>(5,171,100)</u>	<u>(10,740,000)</u>	<u>(4,344,000)</u>
Ending balance, December 31	<u>\$ 11,655,444</u>	<u>\$ 12,925,444</u>	<u>\$ 16,425,444</u>	<u>\$ 13,725,444</u>

\*\* The beginning balance includes NYPA funding remaining from \$19m settlement, bond proceeds and annual contributions from operating funding coverage.

It is anticipated that the cash requirements of the CIP for the 2016-2019 period will be met through 1) remaining funds currently on hand with the Board received from the New York Power Authority; 2) remaining funds on hand from cash surpluses from operations of the preceding years; 3) interest on funds on hand whose use is restricted to capital improvements; and, 4) the proceeds of bonded debt to be issued by the Authority. Table 12 assumes that the Board will utilize bond proceeds beginning in 2018 to continue with the projects designated in the 2018 and 2019 CIP.

### Outstanding Debt

The table on the following page summarizes the outstanding bond issues and remaining principal amounts attributable to the System as of December 31, 2015.

*Table 13 –Outstanding Debt*

<b>Debt Instrument</b>	<b>Principal Balance December 31, 2015</b>
Niagara Falls Public Water Authority Bonds:	
Series 2005 Bonds	\$ 23,115,000
Series 2013A Bonds	35,780,000
Series 2013B Bonds	7,005,000
NYSEFC Water Revolving Funds Revenue Bonds:	
Series 2013B - Clean Water	12,975,000
Series 2013B - Drinking Water	5,580,000
Series 2013B - Drinking Water	4,590,000
Series 2013B - Drinking Water	2,295,000
Series 2015D - Drinking Water	4,380,000
Series 2014B - Drinking Water	4,095,000
Series 2012B - Clean Water	5,900,000
<b>Total Amount</b>	<b><u>\$ 105,715,000</u></b>

In 2015, the Authority issued the Series 2015D Revenue Bonds. Proceeds of the Series 2015D Bond were used to refund a 2005 EFC Series bond issued by the Niagara Falls Public Water Authority (NFPWA). The annual principal and interest payments associated with the outstanding debt during the Projection Period are included in the Preliminary Projection of Cash Flows that is shown in Table 16.

#### **Historical Cash Flows and Debt Service Coverage**

The Board acquired the System from the City in September 2003. The Board has now completed twelve full years as the owner and operator of the System. A summary of the financial performance achieved during the years ending December 31, 2013, December 31, 2014, and December 31, 2015 is provided in Table 14.

*Table 14 – Historical Financial Performance*

<b>Line</b>	<b>Description</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
1	Receipts from customers	\$ 28,014,397	\$ 29,837,965	\$ 32,027,073
2	Receipts from Occidental	500,000	-	-
3	Interest earnings	568,750	534,736	618,846
4	Proceeds from sales of assets	-	-	26,141
5	Total cash receipts	29,083,147	30,372,701	32,672,060
6	Restricted cash - Judgement	-	-	331,404
7	Payments to employees	9,588,930	10,179,348	10,638,539
8	Payments to suppliers	7,574,719	8,231,572	7,410,106
9	Total operating expenses	17,163,649	18,410,920	18,380,049
10	Cash available for debt service (line 5 - line 9)	11,919,498	11,961,781	14,292,011
11	Interest payment	4,414,814	4,347,076	4,214,711
12	Principal payment	3,010,000	3,199,060	3,540,000
13	Total debt service	7,424,814	7,546,136	7,754,711
14	Surplus (line 10 - line 13)	4,494,684	4,415,645	6,537,300
15	Debt service coverage (line 10/line 13)	1.61	1.59	1.84

The preceding table has been prepared based on information presented in the annual financial statements of the Board. The financial statements of the Board for the year ended December 31, 2015 were audited by the firm of EFPR Group, LLP and the years ended December 31, 2014 and December 31, 2013 were audited by the firm of Toski & Co., P.C., Certified Public Accountants.

Total cash collections from customer billings include payments related to current billings as well as arrears payments.

Prior to 2015, water sales steadily increased in 2012, 2013 and 2014 by approximately 4.2%, 7.9%, and 6.7%, respectively, compared to usage in the prior year. In 2015, water sales decreased by 5.4%, due to a number of factors, including extreme winter conditions.

Interest earnings on the funds of the Board have been negatively impacted due to the effects of lower interest rates on investments that were available in financial markets. However, 2015 and year-to-date 2016 interest earnings on the funds of the Board were higher than prior years due to an increase in the amount of cash on hand throughout the year.

The results for the year ending December 31, 2013 indicate that the actual debt service coverage achieved by the Board was 161%, again exceeding the minimum requirement of 115% of debt service. The results for the year ending December 31, 2014 indicate that the actual debt service coverage achieved by the Board was 159%, again exceeding the minimum requirement of 115% of debt service. The results for the year ending December 31, 2015 indicate that the actual debt service coverage achieved by the Board was 184%, also exceeding the minimum requirement of 115% of debt service.

In January 2008 the Board reached a settlement in the collective bargaining agreements with all four of its labor unions. The agreements, which expired on December 31, 2010, create a second tier benefit package for employees hired after January 2008. This new tier has provided significant savings to the Board as new employees replace outgoing retirees. The package includes a more modest health care plan with a 20% employee contribution, a halving of paid sick and holidays, and a new paid time-off plan. Over one-half of Board employees are eligible for retirement within the next 5 years. Contract talks with collective bargaining units are ongoing.

In 2010 a New York State Retirement Incentive Program offered by the Board under Part A of Chapter 105, Laws of 2010 of the State of New York identified and targeted certain Board employees. The incentive provided one additional month of service credit for each year of credited service an eligible member has at retirement. The maximum additional incentive service credit was three years.

The Board analyzed the potential financial and staffing resourcing effects and determined that offering such incentive would provide net positive effects. 15 Board employees accepted the incentive and retired prior to the incentive deadline of December 31, 2010. The first year savings from this retirement incentive approximated \$190,000.

**Billing and Collection**

All but a limited number of water and sewer customers are billed quarterly based on actual or estimated meter reads. Significant industrial users are billed monthly based on two estimated months followed by an actual meter read in the third month.

Customers of the Board can pay their water and sewer bills either to a lockbox held by First Niagara Bank or to the City of Niagara Falls Billing and Collection Department at City Hall. All revenues, including those collected by the City, are put immediately into the Board’s depository account of the Local Water Fund. The City collects on delinquent accounts and, in particular, any unpaid balances that remain as of November 1 of each year create a lien on the property and are added to the next year’s City tax bill. These liens then become due and payable with the tax collection. The City collects the funds, reconciles the tax roll and water/sewer liens and disburses a check to the Board in July and the following January for the two collection periods. These amounts are reconciled to the Board’s records for verification of the receipts.

The Board has made meter replacement a major priority, since it last replaced meters in 1990 and the life expectancy of the old style meters averages just 10 years. In 2012, the Board tested a pilot program for electronic meter reading. Based on successful results, the Board has converted all water and sewer meters to electronic read only devices. The advantages of electronic meter reading include having a real-time measure of actual use, taking a fraction of the time, eliminating the need to access a customer’s property, minimizing worker’s compensation injuries from weather conditions or animals, and detecting continuous water leaks. The use of electronic meters during the pilot program resulted in a 5-7% increase in revenues, and the Board expects similar results for the recently completed meter replacement program.

***Table 15 – Water and Sewer Billings and Cash Collections – Historical***

<b><u>FYE 12/31</u></b>	<b><u>2011</u></b>	<b><u>2012</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>
Service Billings	\$ 22,071,359	\$ 23,111,514	\$ 27,818,924	\$ 28,331,424	\$ 30,223,999
Penalties	387,701	500,826	697,243	376,347	832,278
Invoice Adjustments	111,090	1,086,332	408,626	349,619	1,050,440
<b>Total Billed</b>	<b>\$ 22,570,150</b>	<b>\$ 24,698,672</b>	<b>\$ 28,924,793</b>	<b>\$ 29,057,390</b>	<b>\$ 32,106,717</b>
Total Cash Collections - Billings	21,694,561	22,652,072	25,830,623	27,952,283	30,237,090
Total Cash Collections - Property Tax Bill	660,271	964,139	948,146	993,678	1,253,582
<b>Total Collections</b>	<b>\$ 22,354,832</b>	<b>\$ 23,616,211</b>	<b>\$ 26,778,769</b>	<b>\$ 28,945,961</b>	<b>\$ 31,490,672</b>
% of Total Cash Collections to Total Billed	99.0%	95.6%	92.6%	99.6%	98.1%

**Compliance with Reserve Fund Requirements**

Under the terms of the Financing Agreement between the Board and the Authority, the Board is required to maintain minimum balances in reserve funds relating to its operating expenses and debt service. The amounts on deposit in the Operation and Maintenance Reserve Fund must equal or exceed two months' of the anticipated operation and maintenance expenses in the upcoming year. The amounts on deposit in the Debt Service Reserve Fund must equal or exceed the maximum annual debt service in any future year. The amounts on deposit in the Board's Operation and Maintenance Reserve Fund and Debt Service Reserve Fund as of December 31, 2015 are in compliance with the requirements of the Financing Agreement. The Board expects to continue to be in compliance with these requirements during 2016.

**Projected Cash Flows and Rates**

The preliminary projection of cash flows of the System is presented in Table 16. These projections are preliminary and subject to change. The future cash flows of the Board are dependent upon many factors, including economic conditions and Board policy decisions regarding the size, scope and timing of the CIP; the use of the remaining monies from the NYPA settlement and potential reductions in annual operation and maintenance expenses. Future increases in rates and revenues are also dependent upon actual experience and assumptions for regarding customer demand as well as other factors. The achievement of any projection of future conditions is dependent upon the occurrence of other future events and circumstances such as changes in the local and national economy, demographic changes, variations in interest rates and inflation, new regulatory agency initiatives and other factors that cannot be predicted. Therefore, the actual financial requirements and performance of the System may vary from the estimates presented herein, and such variations could be material.

The year-to-date cash receipts are slightly below those of the prior year which appears to be attributed to decrease in usage. However, there is insufficient data to reach any conclusions regarding usage trends for the year.

The projected cash flows in 2016 through 2020 assume that the Board will enact increases in water and wastewater rates and charges of an average of 4.4% in 2016, 0% in 2017, 1.5% in 2018, 2.5% in 2019 and 3.5% in 2020. The projection indicates that under the conditions reflected herein, the System will generate operating revenues of approximately \$33.0 million in 2016, and approximately \$32.9 million in 2020.

Taking into consideration non-operating revenues, total revenues available for debt service and expenses are projected to be \$14.6 million in 2016, decreasing to \$10.8 million in 2020. These projections are preliminary and subject to change. The projected user payments reflect the assumption that water consumption by customers will remain stable throughout the projection period. However, DuPont Chemours, the Board's second largest customer announced their closure in 2015 which will affect revenues by approximately \$2 million anticipated to begin in late 2016. If such projections in water sales are not achieved, then the Board will have to increase water and sewer rates at a pace that is greater than assumed and/or decrease expenses in order to achieve the debt service coverage requirement.

On a preliminary basis, operating expenses are projected to increase from approximately \$19.0 million in 2016 to \$22.6 million in 2020. Operating expenses in 2016 through 2020 are expected to increase with inflation, with the exception of employee benefits and chemicals which are projected using historical increases (and which have increased at rates significantly higher than inflation).

The projected debt service includes principal and interest payments on outstanding bonds as well as anticipated future bonds of the Authority. It is presently anticipated that the Authority will issue \$10 million in additional debt in 2017, with the first interest and principal payments on such debt occurring in 2018. These amounts and the timing of the potential issuance of debt are subject to change based on policy decisions by the Board. The proceeds of such bonds or notes will be used to pay a portion of the costs associated with the CIP.

In 2012, pursuant to its agreement with the City, the Board is obligated to make annual payments in lieu of taxes to the City. The projected amount to be paid from 2016 through 2020 is \$700,000 per year.

The debt service coverage ratios in Table 16 are based on total revenues available for expenses and debt service minus Operating Expenses divided by Total Debt Service. It is projected that debt service coverage will be equal to, or greater than, the minimum requirement of 1.15 throughout the Projection Period. All projections are presented on a preliminary basis and are subject to change. This conclusion assumes the following: the Board adopts the projected rate increases described above, expenses are maintained at or below projected levels, and the future changes in customer usage are consistent with the assumed rate of change. As noted earlier, the actual financial requirements and performance of the System may vary from the estimates presented herein, and such variations could be material. With regard to the figures presented in Table 16, the preliminary projections show that debt service coverage is maintained at

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approximately the minimum levels required by the Bond Resolution. Drescher & Malecki LLP recommends that the Board consider taking the actions necessary such that the debt service coverage and surplus exceed the minimum requirement of 1.15 throughout the Projection Period so that if adverse changes occur (e.g., a greater than assumed decline in customer usage), the Board will have some flexibility to address such changes.

Table 16 – Preliminary Projections of Cash Flows and Rates

Line		2016	2017	2018	2019	2020
<b>Revenues</b>						
1	Water and wastewater user payments	33,020,163	30,716,453	30,988,295	31,759,117	32,865,246
2	Interest earnings	603,375	588,291	576,525	564,995	553,695
3	Occidental payments	-	-	-	-	-
4	Total	33,623,538	31,304,744	31,564,820	32,324,112	33,418,941
<b>Operations and Maintenance Expenses</b>						
5	Salaries and benefits	10,528,463	11,071,577	11,586,816	12,135,300	12,719,501
6	Chemicals/sludge	3,014,125	3,154,108	3,299,804	3,451,442	3,609,263
7	City services	100,000	100,000	100,000	100,000	100,000
8	Insurance/safety	624,567	653,574	683,764	715,185	747,888
9	Maintenance	920,036	962,765	1,007,237	1,053,523	1,101,697
10	Utilities	1,399,378	1,464,369	1,532,011	1,602,412	1,675,685
11	Other expenses	1,044,965	1,093,496	1,144,007	1,196,578	1,251,293
12	Authority/Board expenses	655,803	668,919	682,297	695,943	709,862
13	PILOT payment to City	700,000	700,000	700,000	700,000	700,000
14	Total	18,987,338	19,868,807	20,735,935	21,650,384	22,615,188
15	<b>Revenues available for debt service</b>	14,636,200	11,435,937	10,828,885	10,673,728	10,803,753
<b>Debt Service</b>						
16	Debt service on outstanding bonds	7,711,356	7,705,541	7,745,996	7,725,959	7,876,352
17	Debt service on NYPA energy loan	-	267,800	267,800	267,800	267,800
18	Debt service on future Authority bonds	-	-	900,000	900,000	900,000
19	Total	7,711,356	7,973,341	8,913,796	8,893,759	9,044,152
20	<b>Surplus (line 15 - line 19)</b>	6,924,844	3,462,596	1,915,089	1,779,969	1,759,601
21	<b>Debt Service Coverage</b>	1.90	1.43	1.21	1.20	1.19
22	<b>Rate Increase</b>	4.4%	0.0%	1.5%	2.5%	3.5%

## Notes:

- 1) Projected cash flow and rates above are subject to change.

**Water Sales by Customer Class**

Table 17 on the page below illustrates the water consumption by customer class for each of the last four years.

*Table 17 – Water Consumption by Customer Class  
(Units in ccf (100 cubic feet))*

	2012	2013	2014	2015
<b>District 1 - Residential</b>				
1st billing	107,441	97,623	98,751	106,850
2nd billing	100,084	106,943	119,010	121,561
3rd billing	107,303	108,124	125,946	100,775
4th billing	<u>121,971</u>	<u>109,194</u>	<u>119,583</u>	<u>113,855</u>
<b>Total</b>	<u>436,799</u>	<u>421,884</u>	<u>463,290</u>	<u>443,041</u>
<b>District 2 - Residential</b>				
1st billing	121,780	121,268	126,314	123,645
2nd billing	120,228	122,961	125,205	119,175
3rd billing	145,869	128,565	128,231	118,970
4th billing	<u>144,524</u>	<u>139,003</u>	<u>125,790</u>	<u>135,098</u>
<b>Total</b>	<u>532,401</u>	<u>511,797</u>	<u>505,540</u>	<u>496,888</u>
<b>District 3 - Residential</b>				
1st billing	82,469	87,914	100,171	105,873
2nd billing	89,886	86,320	83,967	75,430
3rd billing	103,755	102,190	98,304	99,512
4th billing	<u>99,500</u>	<u>121,422</u>	<u>94,757</u>	<u>94,772</u>
<b>Total</b>	<u>375,610</u>	<u>397,846</u>	<u>377,199</u>	<u>375,587</u>
<b>District - Industrial</b>				
1st billing	184,688	167,364	151,718	168,159
2nd billing	147,461	147,064	186,018	155,325
3rd billing	173,315	192,283	152,253	170,651
4th billing	<u>274,829</u>	<u>265,180</u>	<u>255,084</u>	<u>247,445</u>
<b>Total</b>	<u>780,293</u>	<u>771,891</u>	<u>745,073</u>	<u>741,580</u>
<b>District - SIU</b>				
1st billing	181,210	254,342	400,195	354,036
2nd billing	181,807	297,298	293,664	303,248
3rd billing	225,024	257,648	421,834	256,084
4th billing	<u>280,904</u>	<u>314,687</u>	<u>246,750</u>	<u>295,779</u>
<b>Total</b>	<u>868,945</u>	<u>1,123,975</u>	<u>1,362,443</u>	<u>1,209,147</u>
<b>District - NR</b>				
1st billing	1,620	3,077	763	888
2nd billing	1,813	3,047	1,022	1,051
3rd billing	2,223	2,664	794	925
4th billing	<u>2,843</u>	<u>2,664</u>	<u>888</u>	<u>998</u>
<b>Total</b>	<u>8,499</u>	<u>11,452</u>	<u>3,467</u>	<u>3,862</u>
Grand Total ccf	3,002,547	3,238,845	3,457,012	3,270,105
% Change from Prior Year	4.17%	7.87%	6.74%	-5.41%

In 2008 through 2011, annual water consumption decreased by approximately 5.5%, 13.4%, 9.8% and 3.11% respectively. Part of the decline in 2008 was attributable to the closure of Ferro Industries. The majority of the decline in 2009 was due to a change in water use by one large industrial user; instead of relying on water from the Board, the industry now draws water for its industrial processes from alternate sources. The industry is still a wastewater customer of the Board. The facilities of the former Ferro Industries (which contributed to the reductions in water demand in 2007 and 2008) resumed operation in 2010 as Tam Ceramics, thereby resuming water use and contributing to the increase realized in 2011.

As illustrated by Table 17, water consumption in 2012, 2013, and 2014 increased by 4.17%, 7.87% and 6.74% respectively. In 2015 consumption decreased by 5.41% which was largely due to extreme winter conditions which caused an increase in billing adjustments. Additionally, during 2011, the Board entered into an agreement for the sale of water and treatment of wastewater with Greenpac Mill LLC. Under this agreement the Board is guaranteed significant minimum usage for both water and wastewater services. Additional water sales and wastewater services to Greenpac Mill LLC commenced in mid-2013. Other industrial projects that are currently underway are also anticipated to positively affect water consumption.

The ten largest water customers and wastewater customers are listed in Table 17A below.

*Table 17A – Ten Largest Water and Wastewater Customers*

		<u>Revenue</u>	<u>Total</u>	<u>YTD</u>
1	Norampac Industries #50	\$ 6,800,005	40.42%	\$ 3,379,135
2	Chemours Co, FC, LLC	2,258,184	13.42%	1,065,536
3	Occidental Chemical #22	1,666,246	9.90%	599,914
4	Covanta Niagara, LP #32	1,776,457	10.56%	588,364
5	Seneca NF Gaming - Hotel	951,901	5.66%	423,153
6	Niacet Corporation #17	877,277	5.21%	417,500
7	Seneca NF Gaming - Casino	660,044	3.92%	290,478
8	Goodyear Tire & Rubber Co.	592,109	3.52%	246,198
9	Allied Waste Systems #67	924,695	5.50%	219,626
10	Globe Metallurgical, Inc.	318,053	1.89%	207,886
		<u>\$ 16,824,971</u>	<u>100%</u>	<u>\$ 7,437,790</u>

**Rates for Water Service and Wastewater Service**

The rates for water service and wastewater service in 2016 did increase for both customers within and outside the City. The Board provides wastewater service to Town of Niagara customers outside of the City. The Board reached an agreement with the Town of Niagara in 2015 that includes the use of wastewater flow meters for measuring actual wastewater volumes discharged to the NFWB collection system, along with an increased unit rate. These two changes should result in increased revenues from these Out of District users. In addition, the Board is aggressively pursuing water theft and the potential under-recording of water use to ensure that every customer pays their fair share. This includes timely investigation of low or zero meter readings and the recently completed meter replacement program. Water and wastewater rates for 2016 and 2015 are provided in the financial statements of the Board for the year ended December 31, 2015 and are not repeated here. The consumption-related water rates of the Board for 2015/6 are shown in Table 17B below. Historical rate increases for water and wastewater customers are presented in Table 18 that follows.

***Table 17B – 2016 Rates for Water Customers***

	<b>Inside City (\$/ccf)</b>	<b>Outside City (\$/ccf)</b>
First 20,000 CF	3.27	8.74
Next 60,000 CF	2.83	7.63
Next 120,000 CF	2.40	6.36
> 200,000 CF	1.99	5.35

***Table 18 –Historical Percentage Increases in Rates for Water and Wastewater Customers***

<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
0.0%	2.0%	0.0%	1.0%	6.0%	2.6%	0.0%	4.4%

The rate structure for sewer service consolidates all consumers into two classes: Significant Industrial Users (SIU), and Commercial, Small Industrial, and Residential Users (CSIRU). The user charge system includes ten Substance of Concern charges that are assessed exclusively within the SIU class.

The 2016 wastewater user charges for the CSIRU class of customers are summarized in Table 19.

*Table 19 – 2016 Wastewater Rates for CSIRU Customers*

<u>Minimum Charge</u>	<u>Volume Charge</u>
All meter sizes and flow up to 1,300 cf \$56.29	Usage in excess of 1,300 cf per quarter (per 100 cf) \$4.33

Three of the wastewater user charges for the SIU class of customers in 2016 are summarized in Table 20.

*Table 20 – 2016 Wastewater Rates & Charges for SIU Customers*

<b>Flow Charge (\$/MG)</b>	<b>Solids Charge (\$/lb)</b>	<b>SOC Charge (\$/lb)</b>
3,044	0.98	1.69

**Interest Earnings**

The System will earn interest on the funds maintained by the Board and the Authority. Based on the anticipated balances in each fund and the current investment rates, Table 21 presents the estimated interest earnings for 2016.

*Table 21 – Estimated Interest Earnings - 2016*

<b>Fund</b>	<b>Average End of Month Balance</b>	<b>Interest Earnings Rate</b>	<b>Estimated Annual Earnings</b>
Debt Service restricted cash	\$ 16,000,000	Varies	\$ 588,000
Capital Project restricted cash	15,000,000	0.00-0.10%	4,375
Operating cash	14,500,000	0.15%	11,000
			<u>\$ 603,375</u>

Interest earnings rates have been declining for the past several years and are much lower than historical rates. This situation is affecting the revenue of water utilities across the country.

**System Operating Expenses**

The System's expenses include the costs associated with the operation, maintenance and administration of the water treatment facilities and distribution system, as well as the costs associated with the operations of the wastewater collection and treatment facilities and stormwater facilities. The principal components of operating expenses other than labor as projected for 2016 are shown in Table 22.

*Table 22 – Major Components of Expenses Other Than Labor - 2016*

<b>Item</b>	<b>Amount</b>
Chemicals	\$ 3,450,709
Utilities	1,575,750
Maintenance	1,118,125
Computer Service Contracts / Supplies / Professional Services	1,218,859
Insurance	748,516

Chemicals are used in both the water treatment and the wastewater treatment processes although the majority of the cost of chemicals is wastewater related. The System receives low cost hydroelectric power from the New York Power Authority which significantly reduces its electrical costs relative to market rates. The Board will be proactively seeking opportunities to further reduce such costs. Other expenses are assumed to be affected by inflation as well as the results of cost saving initiatives of the Board during the projection period. The assumed increase due to inflation is 3% per year. The annual savings due to changes in business processes are expected to somewhat offset the cost increases due to inflation during the projection period.

The total operating expenses of the Board in 2013, 2014 and 2015 were approximately \$24.5, \$25.7 million and \$27. million respectively.

**ECONOMIC AND DEMOGRAPHIC DATA**

*The following information was provided by other sources and provides updated information regarding the Board’s Service Area. Since the Service Area consists primarily of the City of Niagara Falls, the information is limited to that portion of the Service Area that is within the boundaries of the City.*

Major Employers in Niagara Falls Area

<b>City / County</b>	<b>Employer</b>	<b>Employees</b>
County	Niagara Falls Air Reserve Station	3310
City	Seneca Niagara Casino and Hotel	2528
County	GM Components Holdings	1675
County	Niagara County	1554
County	Fashion Outlets of Niagara	1434
City	Mount St. Mary's Hospital	1250
City	Niagara Falls City School District	1120
City	Niagara Falls Memorial Medical Center	925
City	Eastern Niagara Health System	806
County	Lockport City School District	728
County	Niagara County Community College	746
City	City of Niagara Falls	658

*Source: Niagara County Department of Economic Development*

Population

Changes in the City’s population compared to changes in the population of the County, the State and the United States are as follows:

	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>% of Change 1990-2000</b>	<b>% of Change 2000-2010</b>
City	61,840	55,593	50,193	-10.10%	-9.71%
County	220,756	219,846	216,469	-0.41%	-1.54%
State	17,990,455	18,876,457	19,378,102	4.92%	2.66%
United States	248,709,873	281,421,906	308,745,338	13.15%	9.71%

*Source: United States Bureau of the Census*

Civilian Labor Force – Annual Average (thousands)

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
City	573.4	573.3	573.2	541.7	550.8
County	105.4	105.3	102.7	100.6	101.6
State	9,504.2	9,621.0	9,636.0	9,532.0	9,679.0

*Source: New York State Department of Labor, Bureau of Labor Statistics, Information not seasonally adjusted (note that “City” refers to the Buffalo-Niagara, NY Metropolitan Statistical Area).*

Yearly Average Unemployment Rates

<b>Year</b>	<b>City</b>	<b>County</b>	<b>State</b>
2011	8.2%	8.4%	8.2%
2012	8.5%	9.0%	8.5%
2013	7.6%	8.0%	7.7%
2014	6.2%	6.5%	6.2%
2015	5.6%	6.2%	5.3%

*Source: New York State Department of Labor, Bureau of Labor Statistics, Information not seasonally adjusted (note that “City” refers to the Buffalo-Niagara, NY Metropolitan Statistical Area).*

Monthly Unemployment Rates

<b>Month</b>	<b>City</b>	<b>County</b>	<b>State</b>
January, 2016	5.6%	6.7%	5.4%
February	5.5%	6.6%	5.4%
March	5.3%	6.4%	5.2%

*Source: New York State Department of Labor, Bureau of Labor Statistics, Information not seasonally adjusted (note that “City” refers to the Buffalo-Niagara, NY Metropolitan Statistical Area).*

Comparative Housing, Income and Population Data (as of December 2013)

	City	State	U.S.
<b>Age Distribution:</b>			
% under 5 years	5.6	6.0	6.4
% 20 to 64	61.0	80.0	80.2
% 65 and over	15.0	13.8	13.4
Median age	39.4	38.1	37.3
Person / Household	2.28	2.61	2.63
<b>Housing:</b>			
% owner occupied housing units	55.8%	54.2%	64.9
Median value housing (\$)	66,600	288,200	176,700
Median gross rent (\$)	718	1,109	962
% housing built 1990 - 2000	7.0	6.0	13.9
% housing built before 1939	33.2	33.1	13.7
% with 5 or more units in structure	14.1	34.9	24.5
<b>Income:</b>			
Per capita income (\$)	20,549	32,382	28,155
Median family income (\$)	32,326	58,003	53,046
% below poverty level	24.9	15.3	15.4

Source: *Census of Population and Housing, U.S. Department of Commerce, Bureau of Census (note that "City" refers only to Niagara Falls)*