This Preliminary Official Statement and the information contained herein are subject to change, completion and amendment without notice. The Series 2021 Bonds may not be sold nor may an offer to buy be accepted prior to the time the Official Statement is delivered in final form. Under no circumstances shall this Preliminary Official Statement constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of the Series 2021 Bonds in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of such jurisdiction.

PRELIMINARY OFFICIAL STATEMENT DATED MAY 26, 2021

NEW ISSUE - BOOK-ENTRY ONLY **See "RATING" herein**

In the opinion of Barclay Damon LLP, Bond Counsel to the Buffalo Sewer Authority (the "Authority"), under existing law and assuming compliance with certain covenants described herein, and the accuracy and completeness of certain representations, certifications of fact and statements of reasonable expectations made by the Authority, interest on the Series 2021 Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986, as amended (the "Code"). Bond Counsel is further of the opinion that interest on the Series 2021 Bonds is not an item of tax preference for purposes of the alternative minimum tax imposed under the Code. Bond Counsel is also of the opinion that, under existing statutes, interest on the Series 2021 Bonds is exempt from personal income taxes imposed by the State of New York or any political subdivision thereof (including The City of New York). See "TAX MATTERS" herein.

BUFFALO
SEWER AUTHORITY

$51,755,000*
BUFFALO SEWER AUTHORITY
Sewer System Environmental Impact
Revenue Bonds, Series 2021 (Green Bonds)

Dated: Date of Issuance Due: as shown on the inside cover

The Buffalo Sewer Authority (the "Authority") $51,755,000* Sewer System Environmental Impact Revenue Bonds, Series 2021 (Green Bonds) (the "Series 2021 Bonds") will be issued in fully registered form without coupons. The Series 2021 Bonds will be registered in the name of Cede & Co., as nominee of The Depository Trust Company, New York, New York ("DTC"). DTC will act as securities depository for the Series 2021 Bonds. So long as Cede & Co. is the registered owner of the Series 2021 Bonds, as nominee for DTC, principal and interest shall be payable to Cede & Co., as nominee for DTC, which will, in turn, remit such principal and interest to the DTC participants for subsequent disbursement to the beneficial owners of the Series 2021 Bonds. Individual purchases of the Series 2021 Bonds will be made in book-entry form only in denominations of $5,000 or multiples thereof. Beneficial owners of the Series 2021 Bonds will not receive physical delivery of Series 2021 Bond certificates.

The Series 2021 Bonds mature on June 15 in each of the years and in the amounts set forth herein. Interest on the Series 2021 Bonds is payable at the rates specified herein on each June 15 and December 15, commencing December 15, 2021. Interest on the Series 2021 Bonds will be calculated on the basis of a 30-day month and a 360-day year.

The Series 2021 Bonds are special obligations of the Authority payable solely from revenues and other moneys pledged for such payment pursuant to the Authority Act and the Bond Resolution (both as defined herein). The Series 2021 Bonds shall not in any respect be a general obligation of the Authority to which the full faith and credit of the Authority is pledged and shall not in any manner or to any extent constitute or be a charge upon any moneys or property of the Authority not specifically pledged thereto by the Bond Resolution. The Authority has no taxing power. The Series 2021 Bonds are not a debt of the State of New York or the City of Buffalo, New York, and neither the State of New York nor the City of Buffalo, New York, is liable thereon, nor are the Series 2021 Bonds payable out of any funds other than those of the Authority pledged thereto.

The Series 2021 Bonds are subject to optional redemption, mandatory sinking fund redemption and mandatory redemption with unspent Series 2021 Bond proceeds prior to their stated maturities as more fully described herein.

The Authority expects to receive a commitment from one or more national municipal bond insurers (i) to guarantee the scheduled payment of principal of and interest on all or a portion of the Series 2021 Bonds, when due, pursuant to a financial guaranty insurance policy to be issued concurrently with the issuance of the Series 2021 Bonds and/or (ii) to provide a reserve account insurance policy, to be issued concurrently with the issuance of the Series 2021 Bonds, for the purpose of satisfying all or a portion of the Debt Reserve Requirement (as defined herein) with respect to the Series 2021 Bonds. Assuming one or more of such commitments is received by the Authority, the decision as to which of the Series 2021 Bonds, if any, such financial guaranty insurance policy shall apply and whether and in what amount a reserve account insurance policy will be procured will be made by the Authority at the time of pricing the Series 2021 Bonds. See "SECURITY FOR THE SERIES 2021 BONDS" herein for a discussion of a Credit Facility and a Reserve Fund Facility (as defined herein).

The Series 2021 Bonds are offered for delivery when, as, and if issued, subject to the legal opinion of Bond Counsel to the Authority, Barclay Damon LLP, Buffalo, New York. Certain legal matters will be passed upon for the Authority by the Corporation Counsel of the City of Buffalo, New York, and for the underwriter by McCarter & English, LLP, New York, New York. It is expected that the Series 2021 Bonds will be available for delivery through the facilities of DTC on or about June 16, 2021*.

This cover page contains certain information for quick reference only. It is not a summary of this issue. Investors must read the entire Official Statement to obtain information essential to the making of an informed investment decision.

Morgan Stanley

Dated: _____, 2021

* Preliminary, subject to change.

BUFFALO SEWER AUTHORITY

$51,755,000*
Sewer System Environmental Impact Revenue Bonds,
Series 2021 (Green Bonds)

Serial Bonds*

Year* (June 15)	Principal Amount*	Interest Rate	Yield	CUSIP**	Year* (June 15)	Principal Amount*	Interest Rate	Yield	CUSIP**
2022	$1,205,000				2030	$1,460,000			
2023	1,235,000				2031	1,535,000			
2024	1,285,000				2032	1,360,000			
2025	1,350,000				2033	1,430,000			
2026	1,415,000				2034	1,500,000			
2027	1,485,000				2035	1,575,000			
2028	1,560,000				2036	1,655,000			
2029	1,390,000								

Step Coupon Term Bonds*[1]

$24,900,000* _____% (initial rate) Step Coupon Term Bonds due June 15, 2049* - Yield _____ CUSIP _____**

Term Bonds*

$5,415,000* _____% Term Bonds due June 15, 2051* - Yield _____ CUSIP _____**

* Preliminary, subject to change.

** Copyright, American Bankers Association (ABA). CUSIP data herein are provided by CUSIP Global Services, operated on behalf of the ABA by S&P Capital IQ, a division of McGraw-Hill Financial, Inc. CUSIP (Committee on Uniform Securities Identification Procedures) numbers used in this Official Statement have been assigned by an independent company not affiliated with the Authority, and the Authority is not responsible for the selection or use of the CUSIP numbers. CUSIP numbers are included solely for the convenience of bondholders and no representation is made as to the correctness of such CUSIP numbers. CUSIP numbers assigned to securities may be changed during the term of such securities based on a number of factors including, but not limited to, the refunding or defeasance of such securities or the use of secondary market financial products. The Authority has not agreed to, and there is no duty or obligation to, update this Official Statement to reflect any change or correction in the CUSIP numbers set forth above.

[1] See "THE SERIES 2021 BONDS – Series 2021 Step Coupon Term Bonds Due June 15, 2049*" herein.

BUFFALO SEWER AUTHORITY

BOARD OF DIRECTORS

HERBERT L. BELLAMY, JR. .....Chairman

CHRISTOPHER ROOSEVELT..... Vice Chairman

ELEANOR PETRUCCI ..... Secretary

EXECUTIVE STAFF

OLUWOLE A. McFOY, P.E. ..... General Manager and Chief Executive Officer

THOMAS SMITH ..... Secretary to the General Manager and Chief of Staff

RONALD BROWN ..... Executive Secretary and Chief Financial Officer

ADVISORS

BARCLAY DAMON LLP ..... Bond Counsel

CAPITAL MARKETS ADVISORS, LLC. ..... Municipal Advisor

QUANTIFIED VENTURES. ..... Outcomes-Based Financing Coordinator

GREELEY AND HANSEN ..... Consulting Engineer

DRESCHER & MALECKI LLP ..... Auditor

TRUSTEE FOR THE SERIES 2021 BONDS

MANUFACTURERS AND TRADERS TRUST COMPANY

The Series 2021 Bonds will be exempt from registration under the Securities Act of 1933, as amended. As obligations of a political subdivision of the State of New York, the Series 2021 Bonds also will be exempt from registration under the securities laws of New York.

No dealer, broker, salesman or other person has been authorized by the Authority or the Underwriter to give any information or to make any representations with respect to the Authority, the City, the Service Area, the System, the Rain Check Projects, the Bond Resolution, the Series 2021 Bonds or the Continuing Disclosure Agreement (as such terms are defined herein), other than as contained in this Official Statement in connection with the offering of the Series 2021 Bonds, and, if given or made, such information or representations must not be relied upon as having been authorized by the Authority or the Underwriter.

Brief descriptions of the Authority, the City, the Service Area, the System, the Rain Check Projects, the Bond Resolution, the Series 2021 Bonds and the Continuing Disclosure Agreement are set forth in this Official Statement. However, any description or summary of any documents, statutes, resolutions, reports or other instruments, as set forth herein, is qualified in its entirety by reference to the definitive forms of such documents, statutes, resolutions, reports and other instruments, copies of which may be examined at the principal corporate offices of the Authority located at City Hall, Room 1038, Buffalo, New York 14202-3378 (telephone: 716-851-4664).

This Official Statement is not to be construed as a contract or agreement between the Authority and the purchasers or holders of any of the Series 2021 Bonds.

The Underwriter has provided the following sentence for inclusion in this Official Statement: The Underwriter has reviewed the information in this Official Statement in accordance with, and as part of, its responsibilities to investors under federal securities laws as applied to the facts and circumstances of this transaction, but the Underwriter does not guarantee the accuracy or completeness of such information.

Any statements in this Official Statement involving matters of opinion, projections or estimates, whether or not expressly so stated, are intended as such and not as representations of fact. No representation is made that any of such statements will be realized. This Official Statement contains statements that, to the extent they are not recitations of historical fact, constitute "forward looking statements." In this respect, the words "estimate," "project," "anticipate," "expect," "intend," "believe" and similar expressions, to the extent that they are used herein, are intended to identify forward-looking statements. The achievement of certain results or other expectations contained in such forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause the actual results, performance or achievements described to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Neither the Authority nor the Underwriter plans to issue any updates or revisions to those forward-looking statements if or when the expectations, or events, conditions or circumstances on which such statements are based, occur.

The Authority may place a copy of this Official Statement on its website at *https://www.buffalosewer.org/*. Unless this Official Statement specifically and expressly indicates otherwise, no statement on the Authority's website is included and incorporated by specific cross-reference or constitutes a part of this Official Statement. The Authority has prepared its website information for the convenience of the public, but investors should not make any decision in reliance upon that information. Typographical or other errors may have occurred in converting original source documents to digital format, and the Authority assumes no liability or responsibility for errors or omissions on its website. Further, the Authority disclaims any duty or obligation either to update or to maintain that information or any responsibility or liability for any damages caused by viruses in the

electronic files on its website. The Authority also assumes no liability or responsibility for any errors or omission or for any updates to dated website information.

This Official Statement does not constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of, the Series 2021 Bonds by any person in any jurisdiction in which it is unlawful for such person to make such offer, solicitation or sale. This Official Statement is distributed in connection with the sale of the Series 2021 Bonds referred to herein and may not be used, in whole or in part, for any other purpose. The information and expressions of opinion herein are subject to change without notice, and neither the delivery of this Official Statement nor any sales made hereunder shall, under any circumstances, create any implication that there has been no change in such information since the date hereof or any earlier date as of which any information contained herein is given.

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SUMMARY

This Summary is provided for the convenience of potential investors and is expressly qualified by the entire Official Statement (including the cover and inside cover pages hereof and each of the Appendices attached hereto), which should be reviewed in its entirety by potential investors. Capitalized terms used in this Summary and not defined in this Summary shall have the respective meanings ascribed to such terms in the body of this Official Statement.

Issuer: Buffalo Sewer Authority (the "Authority").

The Authority's primary service area is the territory within the boundaries of the City of Buffalo (the "City"), in the State of New York (the "State"). The Authority is responsible, pursuant to its Authority Act (hereinafter defined), for both the collection and the treatment of all sewage generated within the City. Currently, approximately 70% of the wastewater collected and treated by the Authority originates within the City. In addition, the Authority has entered into seven (7) service contracts with fourteen (14) municipalities and sewer districts located in Erie County to provide wastewater treatment services.

Issue: $51,755,000* aggregate principal amount of "Sewer System Environmental Impact Revenue Bonds, Series 2021 (Green Bonds)" (the "Series 2021 Bonds").

Authorization: The Series 2021 Bonds are being issued pursuant to: (i) the Buffalo Sewer Authority Act, Title 8 of Article 5 of the Public Authorities Law, Chapter 43-A of the Consolidated Laws of the State of New York, as amended from time to time (the "Authority Act"); (ii) all other applicable laws; and (iii) the "Amended and Restated Sewer System Revenue Bond Resolution" of the Authority, duly adopted by the Authority on May 26, 2021 (the "General Bond Resolution"), as supplemented by the "Supplemental Sewer System Revenue Bond Resolution," duly adopted by the Authority on May 26, 2021 (the "Supplemental Resolution"; the General Bond Resolution, as supplemented by the Supplemental Resolution and as further amended and supplemented from time to time in accordance with the terms thereof shall be referred to herein as the "Bond Resolution"). See "THE SERIES 2021 BONDS" herein.

Dated Date: Date of Issuance.

Interest Due: June 15 and December 15, commencing December 15, 2021.

Step Coupon Bonds: The Series 2021 Bonds maturing on June 15, 2049* will be issued as step coupon term bonds and will bear the specified rates of interest during each rate period as described in "THE SERIES 2021 BONDS – Series 2021 Step Coupon Term Bonds Due June 15, 2049*" herein.

Principal Due: June 15 in each year as shown on the inside cover of this Official Statement.

Redemption: The Series 2021 Bonds will be subject to optional redemption, mandatory

* Preliminary, subject to change.

Redemption: The Series 2021 Bonds will be subject to optional redemption, mandatory redemption and mandatory sinking fund redemption, all as more fully described in this Official Statement. See "THE SERIES 2021 BONDS – Optional Redemption," "– Mandatory Sinking Fund Redemption" and "– Mandatory Redemption with Unspent Series 2021 Bond Proceeds" herein.

Purpose: A portion of the proceeds of the Series 2021 Bonds shall be used to finance the Rain Check Projects (as herein defined), consisting of the planning, design, construction and monitoring by the Authority of various green infrastructure initiatives within the City of Buffalo (including, but not limited to, rain gardens, green roofs, stormwater planters and tree planting practices, as well as impervious surface removal), with such green infrastructure initiatives to be identified and selected by the Authority through the Rain Check 2.0 Program (as herein defined) and implemented on public land, with the intent of achieving stormwater management objectives as established by the Authority pursuant to its Authority LTCP (as herein defined). See "THE RAIN CHECK PROJECTS" herein.

Designation as "Environmental Impact Bonds": The Authority is designating the Series 2021 Bonds as "Environmental Impact Bonds." The "Environmental Impact Bonds" designation reflects the fact that: (i) as with the Green Bonds designation with respect to the Series 2021 Bonds, the proceeds of the Series 2021 Bonds will be used for projects that create environmental benefits; and (ii) the environmental benefits of those funded projects will be objectively measured, verified and publicly reported, including to the bondholders. The second feature, relating to the measurement and verification of outcomes achieved, and the public reporting thereof (including to bondholders), distinguishes Environmental Impact Bonds from traditional Green Bonds, for which environmental benefits may be estimated initially but may not necessarily be tracked, verified or publicly reported (including to bondholders). The Authority and Quantified Ventures have developed the Project Technical Memo, which describes the projected impact of the Rain Check Projects, their value to the Authority, and the methods for evaluating their impact based upon the selected Primary Outcome Metric (as herein defined) relating to the Rain Check Projects. For information concerning the Rain Check Projects, see "THE RAIN CHECK PROJECTS" herein and Appendix B hereto, "Project Technical Memo." See also, "THE SERIES 2021 BONDS – Designation of the Series 2021 Bonds as 'Environmental Impact Bonds' and 'Green Bonds,'" herein.

Designation as "Green Bonds": The Authority is designating the Series 2021 Bonds as "Green Bonds" based upon the environmental benefits that will be realized by the Rain Check Projects to be financed with proceeds of the Series 2021 Bonds. Such Series 2021 Project consists of stormwater management objectives that will reduce the flow of stormwater into the sewer collection system of the Authority, thereby minimizing the frequency and severity of combined sewer overflow events within the City in satisfaction of certain (but not all) of the stormwater management objectives of the Authority as set forth in the Authority LTCP. For information concerning the Rain Check Projects, see "THE RAIN CHECK PROJECTS" herein and Appendix B hereto, "Project Technical Memo." See also, "THE SERIES 2021 BONDS – Designation of the Series 2021 Bonds as 'Environmental Impact Bonds' and 'Green Bonds,'" herein.

Sources of Payment and Security: The Series 2021 Bonds are special obligations of the Authority payable solely from revenues and other moneys pledged for such payment pursuant to the Authority Act and the Bond Resolution. The Series 2021 Bonds shall not in any respect be a general obligation of the Authority to which the full faith and credit of the Authority is pledged and shall not in any manner or to any extent constitute or be a charge upon any moneys or property of the Authority not specifically pledged thereto by the Bond Resolution. The Authority has no taxing power. The Series 2021 Bonds are not a debt of the State or the City, and neither the State nor the City is liable hereon, nor are the Series 2021 Bonds payable out of any funds other than those of the Authority. See "SECURITY FOR THE SERIES 2021 BONDS" herein.

Credit Rating: The Series 2021 Bonds are rated "A+" by S&P Global Ratings, a business unit of Standard & Poor's Financial Services LLC. See "RATING" herein.

Tax Matters: In the opinion of Barclay Damon LLP, Bond Counsel to the Authority, under existing law and assuming compliance with certain covenants described herein, and the accuracy and completeness of certain representations, certifications of fact and statements of reasonable expectations made by the Authority, interest on the Series 2021 Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986, as amended (the "Code"). Bond Counsel is further of the opinion that interest on the Series 2021 Bonds is not an item of tax preference for purposes of the alternative minimum tax imposed under the Code. Bond Counsel is also of the opinion that, under existing statutes, interest on the Series 2021 Bonds is exempt from personal income taxes imposed by the State of New York or any political subdivision thereof (including The City of New York).

Book-Entry Form: The Series 2021 Bonds will be registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York, which will act as securities depository for the Series 2021 Bonds. See "THE SERIES 2021 BONDS – Book-Entry-Only System" herein.

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OFFICIAL STATEMENT

of the

BUFFALO SEWER AUTHORITY

Relating to its

$51,755,000*
Sewer System Environmental Impact Revenue Bonds, Series 2021
(Green Bonds)

INTRODUCTION

This Official Statement, which includes the cover and inside cover pages hereof, the Summary herein and each of the Appendices attached hereto, has been disseminated by the Buffalo Sewer Authority, a body corporate and politic constituting a public benefit corporation of the State of New York (the "Authority"), to provide certain information relating to the Authority and to the issuance, sale and delivery by the Authority of its "Sewer System Environmental Impact Revenue Bonds, Series 2021 (Green Bonds)", dated the date of issuance thereof, in the aggregate principal amount of $51,755,000* ("Series 2021 Bonds").

The Series 2021 Bonds are being issued pursuant to: (i) the Buffalo Sewer Authority Act, Title 8 of Article 5 of the Public Authorities Law, Chapter 43-A of the Consolidated Laws of the State of New York, as amended from time to time (the "Authority Act"); (ii) all other applicable laws; and (iii) the "Amended and Restated Sewer System Revenue Bond Resolution" of the Authority, duly adopted by the Authority on May 26, 2021 (the "General Bond Resolution"), as supplemented by the "Supplemental Sewer System Revenue Bond Resolution," duly adopted by the Authority on May 26, 2021 (the "Supplemental Resolution"; the General Bond Resolution, as supplemented by the Supplemental Resolution and as further amended and supplemented from time to time in accordance with the terms thereof shall be referred to herein as the "Bond Resolution").

The Authority previously adopted its Sewer System Revenue Bond Resolution on June 29, 1977 (the "Existing Resolution"). Pursuant to the Existing Resolution, the Authority has issued its Revenue Bonds, Series J, K, L, M, N and 2021 (EFC) (collectively, the "Existing Bonds"). The Series 2021 Bonds will be issued on a parity with the lien on the granted on the Revenues (as defined herein) securing the Existing Bonds. The General Bond Resolution will take effect upon, among other things, the written consent of the sole holder of the Existing Bonds to the adoption by the Authority of the General Bond Resolution.

The Authority

The Authority is a body corporate and politic constituting a public benefit corporation organized and existing pursuant to the Authority Act. The Authority is authorized to issue its bonds, including the Series 2021 Bonds, pursuant to the terms and provisions of the Authority Act.

* Preliminary, subject to change.

While the Authority Act empowers the Authority to dispose of the sewage of all municipalities within Erie County, New York, the Authority's primary service area is the territory within the boundaries of the City of Buffalo (the "City"), in the State of New York (the "State"). The Authority is responsible, pursuant to the Authority Act, for both the collection and the treatment of all sewage generated within the City. Currently, approximately 70% of the wastewater collected and treated by the Authority originates within the City. In addition, the Authority has entered into seven (7) service contracts with several municipalities and sewer districts located in Erie County to provide wastewater treatment services.

The Authority conducts its operations through five departments: (i) the Sewage Treatment Department; (ii) the Sewer Maintenance Department; (iii) the Engineering Department; (iv) the Administrative Department; and (v) the Industrial Waste Department, and had 227 employees as of June 30, 2020. The Authority, pursuant to the Authority Act and with the consent of the City, also makes use of the facilities and services of various City departments. Such services include billing services performed by the Buffalo Water Board, a New York State public benefit corporation established under the Buffalo Municipal Water Finance Authority Act (the "Buffalo Water Board"), and also billing and collection services performed by the City's Commissioner of Administration and Finance.

The Comptroller of the City also acts as the Comptroller for the Authority. The Comptroller of the State and the New York State Authorities Budget Office have oversight of the Authority. As an environmental facility, the New York State Department of Environmental Conservation ("NYSDEC") and the United States Environmental Protection Agency (the "USEPA") have oversight of the Authority. See "BUFFALO SEWER AUTHORITY" herein for more information about the Authority.

Purpose for the Issuance of the Series 2021 Bonds by the Authority

A portion of the proceeds of the Series 2021 Bonds shall be used to finance the Rain Check Projects (as hereinafter defined), consisting of the planning, design, construction and monitoring by the Authority of various green infrastructure initiatives within the City (including, but not limited to, rain gardens, green roofs, stormwater planters and tree planting practices, as well as impervious surface removal), with such green infrastructure initiatives to be identified and selected by the Authority through the Rain Check 2.0 Program (as hereinafter defined) and implemented on public land or rights-of-way owned by the City or the Authority, with the intent of achieving certain (but not all) of the stormwater management objectives as established by the Authority pursuant to its Authority LTCP (as hereinafter defined). See "THE RAIN CHECK PROJECTS" herein

The Issuance of the Series 2021 Bonds as Environmental Impact Bonds

The Authority is designating the Series 2021 Bonds as "Environmental Impact Bonds." The "Environmental Impact Bonds" designation reflects the fact that: (i) as with the Green Bonds designation with respect to the Series 2021 Bonds, the proceeds of the Series 2021 Bonds will be used for projects that create environmental benefits; and (ii) the environmental benefits of those funded projects will be objectively measured, verified and publicly reported, including to the bondholders. The second feature, relating to the measurement and verification of outcomes achieved, and the public reporting thereof (including to bondholders), distinguishes Environmental Impact Bonds from traditional Green Bonds, for which environmental benefits may be estimated initially but may not necessarily be tracked, verified or publicly reported (including to bondholders). The Authority and Quantified Ventures have developed the Project Technical Memo, which describes the projected impact of the Rain Check Projects, their value to the Authority, and the methods for evaluating their impact based upon the selected Primary Outcome Metric (as herein defined) relating to the Rain Check Projects. For information concerning the Rain Check Projects, see "THE RAIN CHECK PROJECTS" herein and Appendix B hereto, "Project Technical Memo."

See also, "THE SERIES 2021 BONDS – Designation of the Series 2021 Bonds as 'Environmental Impact Bonds' and 'Green Bonds,'" herein.

The Issuance of the Series 2021 Bonds as Green Bonds

The Authority is designating the Series 2021 Bonds as "Green Bonds" based upon the environmental benefits to be realized by the Rain Check Projects to be financed with proceeds of the Series 2021 Bonds. Such Series 2021 Project consists of stormwater management objectives that will reduce the flow of stormwater into the sewer collection system of the Authority, thereby minimizing the frequency and severity of combined sewer overflow events within the City in satisfaction of certain (but not all) of the stormwater management objectives of the Authority as set forth in the Authority LTCP. For information concerning the Rain Check Projects, see "THE RAIN CHECK PROJECTS" herein and Appendix B hereto, "Project Technical Memo." See also, "THE SERIES 2021 BONDS – Designation of the Series 2021 Bonds as 'Environmental Impact Bonds' and 'Green Bonds,'" herein.

Security for the Series 2021 Bonds

The Series 2021 Bonds are special obligations of the Authority payable solely from revenues and other moneys pledged for such payment pursuant to the Authority Act and the Bond Resolution. The Series 2021 Bonds shall not in any respect be a general obligation of the Authority to which the full faith and credit of the Authority is pledged and shall not in any manner or to any extent constitute or be a charge upon any moneys or property of the Authority not specifically pledged thereto by the Bond Resolution. The Authority has no taxing power. The Series 2021 Bonds are not a debt of the State or the City, and neither the State nor the City is liable thereon, nor are the Series 2021 Bonds payable out of any funds other than those of the Authority. For a more detailed discussion of the security for the Series 2021 Bonds, see "SECURITY FOR THE SERIES 2021 BONDS" and Appendix E - "Summary of Certain Provisions of the Bond Resolution" herein.

Redemption of the Series 2021 Bonds

The Series 2021 Bonds will be subject to optional redemption, mandatory sinking fund redemption and mandatory redemption with unspent Series 2021 Bond proceeds, all as more fully described herein. See "THE SERIES 2021 BONDS – Optional Redemption," "– Mandatory Sinking Fund Redemption" and "– Mandatory Redemption with Unspent Series 2021 Bond Proceeds" herein.

Review by Persons Considering a Purchase of the Series 2021 Bonds

This introduction is a brief description of certain of the matters set forth in this Official Statement and is qualified by reference to the entire Official Statement. Persons considering a purchase of the Series 2021 Bonds should read this Official Statement in its entirety, including, without limitation, the cover and inside cover pages, the Summary herein and each of the Appendices attached hereto. The summaries of, and references to, all documents, statutes, resolutions, reports and other instruments that are referred to herein do not purport to be complete, comprehensive or definitive, and each such summary and reference is further qualified in its entirety by reference to such document, statute, resolution, report or instrument.

Persons considering a purchase of the Series 2021 Bonds should read "SECURITY FOR THE SERIES 2021 BONDS" and "ENFORCEABILITY OF REMEDIES" herein for a discussion of the collateral security for the Series 2021 Bonds, the enforcement of remedies with respect thereto, and certain risks associated with holding the Series 2021 Bonds.

Brief descriptions of the Authority, the City, the Service Area, the System, the Rain Check Projects, the Bond Resolution, the Series 2021 Bonds and the Continuing Disclosure Agreement (as such terms are defined herein) are set forth in this Official Statement. However, any description or summary of any documents, statutes, resolutions, reports or other instruments, as set forth herein, is qualified in its entirety by reference to the definitive forms of such documents, statutes, resolutions, reports and other instruments, copies of which may be examined at the principal corporate offices of the Authority located at City Hall, Room 1038, Buffalo, New York 14202-3378 (telephone 716-851-4664) (the "Authority Offices").

The COVID-19 (Coronavirus) Outbreak

An outbreak of the infectious disease COVID-19 (Coronavirus), a respiratory disease caused by a new strain of coronavirus that was first detected in China and has since spread to other countries, including the United States, has been declared a Public Health Emergency of International Concern by the World Health Organization and a global pandemic. On March 13, 2020, in response to the COVID-19 outbreak, the President of the United States declared a national emergency.

On March 7, 2020, due to the COVID-19 outbreak, Governor Cuomo (the "Governor") declared a State disaster emergency for the entire State of New York, which declaration has been extended serially by the Governor with the most recent extension scheduled to expire on June 16. 2021. The suspensions and modifications of certain statutes, local laws, ordinances, orders, rules or regulations, in connection with the State disaster emergency declaration, have been implemented and subsequently extended serially.

Pursuant to the Governor's State disaster emergency declaration as well as the unanimous approvals in December 2020 of the State's Clinical Advisory Task Force, the State began administering the COVID-19 vaccine to State residents in phases based upon need and risk. According to the State Department of Health, both the federal government and the State have developed plans to ensure that all State residents will receive a COVID-19 vaccine as soon as sufficient quantities are available and distributed, at no cost no matter where they live.

Quarantine and other "social distancing" measures undertaken by government agencies, businesses, schools and other entities, in response to the COVID-19 outbreak, have altered behavior and have affected commerce in a manner that has materially adversely affected global and local economies. As a direct result, the rate of unemployment, nationally and within the State, has increased materially. In addition, markets in the United States and globally have experienced significant volatility.

The impact of the COVID-19 outbreak upon the State, generally, and the financial performance and business operations of the Authority cannot be accurately predicted at this time. However, the COVID-19 outbreak, and the continued escalation and spread of such outbreak, (i) will have a material adverse effect upon state and national economies, including, without limitation, (A) the economy of the State, generally, and (B) the financial performance and business operations of the Authority, and (ii) is anticipated by the Authority to have a material adverse effect upon the collection by the Authority of rates, charges and other revenues.

The Authority has experienced an 8.12% decrease in cash receipts in the twelve-month period concluding on March 31, 2021 as compared to the twelve-month period concluding on March 31, 2020. Currently, the Authority projects an eight percent (8%) decrease in total revenue for the fiscal year ending June 30, 2021, and a four percent (4%) decrease in total revenue for the fiscal year ending June 30, 2022, in each case, as compared to the prior fiscal year. See "RATES AND CHARGES – Impact of COVID-19 upon the Collection of Rates and Charges" herein. The Authority's recently-approved budget for its 2022 fiscal year reflects a decrease (versus the 2021 fiscal year budget) of 5% in operating expenses for each Authority

department. Overall, the 2022 fiscal year budget reflects a 2% decrease in expenses (taking into account the anticipated increase in debt service and debt reserves associated with the issuance of the Series 2021 Bonds). The Authority is sensitive to the adverse financial impact of the COVID-19 outbreak upon many of its customers, and continues to make appropriate accommodations. More specifically, the Authority (i) has increased the number of payment plans for delinquent customers, and (ii) remains committed to its moratorium on service shut-offs and foreclosures on delinquent properties. The Authority anticipates the receipt of federal COVID-19 relief funding for the Authority, and is monitoring the enactment and implementation of such federal legislation. See "THE AUTHORITY SYSTEM – Legislative Developments" herein.

THE RAIN CHECK PROJECTS

Introductory Description of the Rain Check Projects

The Rain Check Projects (as hereinafter defined) to be undertaken by the Authority with a portion of the proceeds of the Series 2021 Bonds will consist of an initiative to minimize combined sewer overflow events within the City through the planning, design, construction and monitoring of various green infrastructure initiatives within the City. The Rain Check Projects, through their various green infrastructure initiatives, are intended to achieve certain (but not all) of the stormwater management objectives of the Authority LTCP (as hereinafter defined) through the implementation of a portion of the Rain Check 2.0 Program (as hereinafter defined). Each of the Rain Check Projects, their green infrastructure initiatives, the Authority LTCP, the Rain Check 1.0 Program and the Rain Check 2.0 Program are more thoroughly described below.

See "THE RAIN CHECK PROJECTS – The Rain Check Projects to be Financed with Proceeds of the Series 2021 Bonds," below, for a general description of the Rain Check Projects. In addition, attached hereto as Appendix B is the "Buffalo Sewer Authority Environmental Impact Bond (EIB) Technical Memorandum" (the "Project Technical Memo") prepared by Quantified Ventures on behalf of the Authority. The Project Technical Memo describes, in greater detail, the Rain Check Projects, their anticipated outcomes and the methodology related to certain evaluation metrics. The Authority has undertaken to make certain voluntary disclosure with respect to the Rain Check Projects for a limited period of time. The Authority's voluntary disclosure undertaking is summarized below under "LIMITED VOLUNTARY CONTINUING DISCLOSURE RELATED TO THE RAIN CHECK PROJECTS," and described in the Project Technical Memo. The Authority may modify, amend or discontinue the voluntary disclosure at any time in its sole discretion without the consent of the holders of the Series 2021 Bonds.

The Authority's Combined Sewer System and Combined Sewer Overflow Events

The Authority sewer system that serves the City is a "combined sewer system" (a "CSS") that combines (i) the collection of sanitary sewage and (ii) the collection of stormwater, via the same network of collection pipes. During dry weather, sewage can successfully flow through the collection pipes of the CSS and be treated at the Authority's Bird Island Wastewater Treatment Plant (the "WWTP" or the "Bird Island Plant") prior release into the Niagara River. However, during moderate or severe precipitation events, both stormwater and sewage are collected by, and flow through, the collection pipes of the CSS in a volume that could overwhelm the Bird Island Plant and also result in basement flooding. As a result, mixed stormwater and sewage must be released through "outfalls" along the Niagara River and Lake Erie, as well as other local water bodies, in order to relieve the capacity pressure on the CSS, including the Bird Island Plant.

The CSS was constructed with 65 permitted combined sewer overflow ("CSO") outfalls designed to relieve capacity pressure on the CSS during precipitation events and, thereby, protect the downstream treatment facilities of the Bird Island Plant and also prevent basement flooding. Since the original construction of the CSS, the Authority has completed a number of CSS improvement projects resulting in the reduction of the number of CSO outfalls that are required. Currently, the CSS includes 52 permitted CSO outfalls.

The CSO outfalls discharge combined sewage into the waterbodies that surround and traverse the City: the Niagara River, the Buffalo River, the Black Rock Canal, Erie Basin Marina, Cazenovia Creek, Scajaquada Creek and Cornelius Creek (an underground waterbody near Hertel Avenue). The volume of CSO outfall discharges varies depending on the frequency and intensity of precipitation events. For each of the last seven (7) years, the CSO outfalls were activated as follows:

Table #1: Activation of the CSO Outfalls During each of the Last Seven Years

Year:	Number of Times the CSO Outfalls Were Activated:	Millions of Gallons of Combined Sewage Discharged:
2014	833	1,616
2015	693	2,204
2016	721	1,684
2017	926	3,809
2018	743	1,793
2019	518	2,681
2020	338	1,340

In 1994, the USEPA issued a national CSO Control Policy, requiring communities with CSSs to develop a "Long Term Control Plan" (a "LTCP") that complies with the requirements of the federal Clean Water Act, including those requirements relating to the attainment of current or revised water quality standards to reflect wet weather instream conditions.

While this USEPA LTCP initiative focuses primarily upon the network of CSS collection pipes of the Authority that serve the City, the Authority's Bird Island Plant also is an integral part of the Authority's CSS.

Immediately after the establishment of the Authority in 1935, the Bird Island Plant, a primary wastewater treatment plant focused upon disinfection and the removal of solids from wastewater, was constructed by the Authority and began operation on July 1, 1938. With the financial support of federal and State grants, secondary treatment facilities, which provide for additional treatment and disinfection of wastewater, were added by the Authority at the Bird Island Plant between 1975 and 1979, and placed in service in 1981.

Completed and current upgrades to the Bird Island Plant will enable improved treatment of up to 320 million gallons per day (MGD) of flow through the secondary treatment system and, following completion of currently anticipated future upgrades to the Bird Island Plant, improved treatment of up to 400 MGD through the secondary treatment system. All treated flows are discharged by the Bird Island Plant to the Niagara River via two permitted outfalls. The Bird Island Plant also is equipped with a third emergency outfall that is used to protect the Bird Island Plant in the event of extreme precipitation events or equipment malfunction in order to prevent the plant influent flow from exceeding the Bird Island Plant's treatment capacity.

See "THE AUTHORITY SYSTEM" herein for a description of the CSS, including the Bird Island Plant. See also, Appendix C hereto: "Environmental Impact Bond Engineering Report."

The Contribution of Climate Change to Combined Sewer Overflow Events

While the Authority's CSS that combines (i) the collection of sanitary sewage and (ii) the collection of stormwater, via the same network of collection pipes, is the immediate cause of the frequency and severity of CSO events, the Authority anticipates that its challenges with respect to stormwater management will increase in the future due to the changing climatic conditions that are projected. Average precipitation in the City is anticipated to increase, with annual increases of up to four (4) inches on average by mid-century and annual increases of up to seven (7) inches on average by the end of the century. Precipitation events greater than one (1) inch are expected to increase by up to two (2) days by 2050 and by two (2) to four (4) days by 2100. See the Project Technical Memo attached hereto as Appendix B. This increased precipitation is expected by the Authority to increase the risk of flooding and put additional strain on the Authority's current CSS infrastructure within the City thereby increasing the frequency and severity of CSO events.

Climate change presents other climactic challenges, including flash flooding in low elevations, the generation of greenhouse gases and an increase in the "urban heat island effect" within the City. Pursuant to the "urban heat island effect" urban areas trap and retain more heat than the surrounding rural and suburban areas, due to the high concentration of structures and corresponding lower concentration of natural landscapes. Neighborhoods with lower vegetation density can be hotter, affecting both human health and cooling costs.

See "THE RAIN CHECK PROJECTS – The Projected Environmental, Social and Economic Outcomes of the Rain Check 2.0 Program," below, for a discussion of the impact of green infrastructure upon the effects of climate change. See also, "THE AUTHORITY SYSTEM – Preparations for Climate Change."

Development by the Authority of the Authority LTCP

In July of 2004, the Authority submitted its LTCP for CSO abatement (the "2004 LTCP") to the NYSDEC. In 2008, the Authority commenced additional work to update its 2004 LTCP (i) to respond to comments that it received from the NYSDEC and (ii) to address additional evaluations conducted by the Authority at the request of the NYSDEC and the USEPA (collectively, the "Regulatory Agencies"). From 2008 through early 2012, the Authority and the Regulatory Agencies discussed revisions to the 2004 LTCP. On March 15, 2012, the USEPA, pursuant to an Administrative Order, directed the Authority to submit an updated LTCP to the Regulatory Agencies no later than April 30, 2012. Following completion and submission of the April 2012 LTCP, the Regulatory Agencies provided comments. In response to the comments that were received by the Authority from the Regulatory Agencies, the Authority developed a "Green Infrastructure Master Plan" (the "GI Master Plan"). In response to Regulatory Agency comments to the GI Master Plan, the 2004 LTCP has been revised and updated to incorporate the findings as set forth in the "GI Master Plan"

and was finalized in January of 2014 (the 2004 LTCP, as revised, updated and finalized in 2014, is referred to herein as the "Authority LTCP"). See "THE RAIN CHECK PROJECTS – The Development by the Authority of its Green Infrastructure Master Plan" below.

The development and implementation by the Authority of the Authority LTCP, as an abatement plan for CSOs, is required pursuant to the terms of the State Pollutant Discharge Elimination System (SPDES) permit issued by New York State to the Authority. In addition, the enforcement of the Authority LTCP is the subject of an Administrative Order issued by the USEPA (the "USEPA Administrative Order"). For a discussion of the USEPA Administrative Order to which the Authority is subject with respect to the implementation of its Authority LTCP, including (i) the terms and requirements of the USEPA Order and (ii) the requirements thereof relating to the schedule for implementation of the Authority LTCP, see "THE AUTHORITY SYSTEM – Environmental Regulation of the Authority Relating to the Authority LTCP: The USEPA Administrative Order" herein.

In addition to the development of this update to the 2004 LTCP and finalization of its Authority LTCP, the Authority has continued to work diligently to reduce CSO overflow volumes and frequencies through capital improvements undertaken by the Authority to the CSS, including capital improvements to the Bird Island Plant.

See "THE AUTHORITY SYSTEM" herein for a description of the CSS, including the Bird Island Plant. See also, Appendix C hereto: "Environmental Impact Bond Engineering Report."

The Development by the Authority of its Green Infrastructure Master Plan

In determining how to address the CSO overflow challenge and to respond to the comments provided by the Regulatory Agencies to the April 2012 updates to the 2004 LTCP, the Authority developed its GI Master Plan. The GI Master Plan addresses (i) the implementation of real time controls ("RTC") to maximize the efficient use of the existing CSS infrastructure and (ii) the development of green infrastructure in order to reduce the amount of stormwater entering its CSS.

See "THE RAIN CHECK PROJECTS – Green Infrastructure Initiatives as a Remedy for Combined Sewer Overflow Events," below, for a description of green infrastructure technologies. See Appendix C hereto: "Environmental Impact Bond Engineering Report," for a discussion of the implementation of RTC.

The GI Master Plan includes further refinements to the green infrastructure impervious surface control targets that were presented in the April 2012 updates to the 2004 LTCP. Specifically, the refinements as presented by the GI Master Plan are intended to determine, on a more localized level, where the CSS would most benefit from green infrastructure technologies. The GI Master Plan does this by further dividing CSO basins into sub-basins. By focusing on the CSO sub-basin level, the GI Master Plan closely identifies which portions of the larger CSO basins are disproportionately contributing to the Authority's CSO challenge and, therefore, where green infrastructure technologies would provide the greatest benefit to the CSS.

Refining the impervious control acreage to the CSO sub-basin level permits the Authority to better identify the CSO basins (and by extension the CSO outfalls) that will most benefit from the implementation of green infrastructure technologies, and also permits the Authority to determine which basins will not benefit from the implementation of green infrastructure technologies because they already are at or below the recommended level of control or do not discharge directly to receiving waters. As a result of this exercise, recommended green infrastructure acreages increased in the Black Rock Canal and the Erie Basin, and decreased in the Cazenovia Creek, the Buffalo River, the Niagara River and the Scajaquada Creek basins.

Because this CSO sub-basin-level green infrastructure allocation provides a more refined and cost-effective approach, the Authority is working towards a 1,315-acre total green infrastructure program initiative pursuant to its GI Master Plan.

The 1,315-acre initiative that is referenced above is a minimum program commitment pursuant to the GI Master Plan. Additional green infrastructure acreage may exceed this minimum program commitment and can be used in conjunction with the optimization of "gray" infrastructure projects. This approach permits the Authority to adaptively manage the green infrastructure program to incorporate lessons learned and take advantage of land use and infrastructure investments to deliver the maximum public benefits at the lowest cost.

The GI Master Plan also provides requested detail on the Phase 1 green infrastructure projects to be implemented during the first five-year period of the GI Master Plan.

Green Infrastructure Initiatives as a Remedy for Combined Sewer Overflow Events

Green infrastructure initiatives rely upon nature-based and permeable materials to capture and store stormwater on-site during precipitation events, so as to prevent such stormwater from entering the CSS within the City thereby minimizing the frequency and severity of CSO overflow events that impact local waterways. Examples of green infrastructure include the following:

- Green roofs;
- Rain gardens;
- Stormwater planters;
- Tree pits; and
- Permeable pavements.

These nature-based solutions complement "gray" infrastructure initiatives constructed by the Authority, such as (i) added capacity at wastewater treatment plants and (ii) additional tunnels to manage stormwater by storing such stormwater during precipitation events and conveying it to the wastewater treatment plant after the precipitation event is complete and once the flow of combined stormwater and sewage to the downstream wasterwater treatment plant has subsided. Both green infrastructure solutions and gray infrastructure solutions, together, will increase the ability of the Authority to reduce the flow of stormwater that enters its CSS collection pipes and thereby minimize the frequency and severity of CSO events and the impact thereof on local waterways.

In addition to the reduction in the frequency and severity of CSO events, green infrastructure initiatives also provide numerous other social and environmental benefits, as further described, below, under the heading "THE RAIN CHECK PROJECTS – The Projected Environmental, Social and Economic Outcomes of the Rain Check 2.0 Program."

The Rain Check 2.0 Program

Introduction. The Rain Check 2.0 Program is a City-wide initiative that has been developed by the Authority in order to identify and implement green infrastructure within the City in order to achieve the stormwater management objectives as established by the Authority pursuant to its Authority LTCP (the

"Rain Check 2.0 Program"). The Authority commenced the development and implementation of the Rain Check 2.0 Program in 2019. Mitigating the frequency and severity of CSO events is the primary objective of the Rain Check 2.0 Program. In addition, the Rain Check 2.0 Program is intended to (i) improve overall sewer function by reducing the flow of stormwater into the CSS, (ii) build climate change resilience within the City by decreasing the urban heat island effect, reducing local flooding, and sequestering greenhouse gases, and (iii) enhance the quality of life for residents of the City by creating more green space and employment opportunities.

The Rain Check 2.0 Program is a continuation of the original Rain Check initiative, which was the Authority's first generation of green infrastructure investments that was active from 2014 through 2018 in furtherance of the stormwater management objectives of the Authority LTCP (the "Rain Check 1.0 Program"). Projects undertaken as part of the Rain Check 1.0 Program were designed and implemented as "pilot" green infrastructure projects on public properties that included streets, parking lots and roofs, and included the removal of impervious surface areas. These "pilot" green infrastructure projects related to part of the built environment that creates the most runoff from stormwater, and were intended to mitigate the frequency and severity of CSO events. Through the Rain Check 1.0 Program, the Authority has implemented "pilot" green infrastructure projects to manage approximately 66 acres of previously impervious surfaces. See Appendix C hereto: "Environmental Impact Bond Engineering Report," for a discussion (including a list) of green infrastructure initiatives that the Authority previously has undertaken and completed, including those previously undertaken and completed through the Rain Check 1.0 Program.

The Rain Check 2.0 Program. The Rain Check 2.0 Program seeks to install green infrastructure on public land throughout the City. These initiatives include various green infrastructure practices, including, but not limited to, rain gardens, green roofs, stormwater planters and tree planting practices, as well as impervious surface removal. The Rain Check 2.0 Program and the management of impervious surface areas through these various green infrastructure practices will contribute to the ability of the Authority to successfully achieve its stormwater management objectives as established by the Authority LTCP: the management of 1,315 acres of previously impervious surfaces with green infrastructure.

In addition, the Rain Check 2.0 Program will achieve social and economic benefits within the City. The social and economic benefit objectives of the Rain Check 2.0 Program are aligned with other City-wide and regional initiatives, including, without limitation, the revitalization of the City's waterfront, reinvestment in commercial corridors, enhancement of the transportation network, promotion of environmental sustainability, strengthening City neighborhoods, and improving the regional economy. The community benefit objectives of the Rain Check 2.0 Program also are focused upon acknowledging and successfully addressing the realities of inequities by race, ethnicity and neighborhoods within the City by focusing on 6 priority CSO basins that involve vulnerable and marginalized populations. See "THE RAIN CHECK PROJECTS – The Projected Environmental, Social and Economic Outcomes of the Rain Check 2.0 Program," below, for additional information concerning such social and economic benefits of the Rain Check 2.0 Program.

The Future Development of the Rain Check 2.0 Program. Currently, the Authority is exploring an expansion of the Rain Check 2.0 Program pursuant to which the Authority would provide grant funding or other financial incentives to private property owners to install green infrastructure on their property pursuant to, and in satisfaction of, the terms of a formal contractual agreement between the Authority and the private property owner. The implementation of green infrastructure on private property would materially expand the number of opportunities for green infrastructure improvements throughout the City in furtherance of the objectives of the Authority LTCP. This collaboration with private property owners to install green infrastructure on their property remains subject to development, and the concept has not yet

been finalized by the Authority. As this component of the Rain Check 2.0 Program is finalized and implemented, the Authority may elect to adjust some or all aspects thereof as briefly described herein.

The Projected Environmental, Social and Economic Outcomes of the Rain Check 2.0 Program

The management of previously impervious surfaces within the City with green infrastructure through the implementation of the Rain Check 2.0 Program will (i) contribute materially towards the Authority LTCP commitment to manage 1,315 acres of previously impervious surfaces with green infrastructure to reduce the frequency and severity of CSO events, and (ii) advance the City's response to the climate crisis by reducing flooding, mitigating the "urban heat island effect" and sequestering greenhouse gases.

In addition to implementation by the Authority of green infrastructure objectives and the achievement of environmental outcomes in a manner consistent with the Authority LTCP commitment, the Rain Check 2.0 Program is intended to achieve social and economic outcomes within the City, including the following: (i) enhance air quality through the use of vegetated practices that filter air pollutants (such as particulate matter) and thereby improve public health; (ii) create green employment opportunities through a workforce development program, as well as design and construction procurement policies; and (iii) beautify and enhance the quality of life within neighborhoods by increasing access to green space and green amenities. These benefits accrue to various stakeholders within the City, including homeowners, residents and City agencies.

More specifically, pursuant to the terms of the Rain Check 2.0 Program, the Authority has established the following employment objectives:

- No less than 30% of all hours worked on the green infrastructure projects of the Rain Check 2.0 Program will be performed by persons who are women or minorities;

- No less than 30% of all program funds spent on the green infrastructure projects of the Rain Check 2.0 Program will be used to retain firms that are women or minority owned; and

- No less than 30% of all hours worked on the green infrastructure projects of the Rain Check 2.0 Program will be performed by persons who are residents of the City.

In addition to the above employment objectives, the Authority has partnered with PowerCorp PHL, Heart of the City Neighborhoods, Inc., and the Service Collaborative of WNY, Inc. to create a workforce development program that will train and develop individuals from low-income and underserved communities within the City to meet the growing needs of the Authority's Green Infrastructure Maintenance Department. More specifically and by way of example, the Authority has established a green infrastructure workforce development program to hire and train individuals who reside in priority CSO basins 26 and 53 (described below) to work on green infrastructure maintenance. CSO basins 26 and 53 currently experience high levels of unemployment, high poverty and low educational attainment, as compared to the City overall. The Authority anticipates hiring, for its Green Infrastructure Maintenance Department, the first group of 5-10 people by the end of 2021, with a total of 40-50 people employed through this program during the next five (5) years.

The Authority seeks to address inequalities in race, ethnicity and neighborhoods by focusing investments in areas within the six (6) priority CSO basins (described below) that are anticipated to have a high equity-benefit from more green infrastructure amenities and through inclusive public engagement and participation in green infrastructure project design and implementation.

The Authority's "Rain Check 2.0 Opportunity Report" (the "Opportunity Report") includes an "Equity Index" and related analyses that define the Authority's commitment to social equity considerations in the planning, placement, design and impact of green infrastructure initiatives. Pursuant to the standards of the Opportunity Report, six (6) priority CSO basins will be the primary subject of green infrastructure initiatives though the Rain Check 2.0 Program during the next seven (7) years. These priority CSO basins (collectively, the "Priority CSO Basins") are CSO Basin 14, CSO Basin 26, CSO Basin 27, CSO Basin 28, CSO Basin 33 and CSO Basin 53. The Authority plans to use the analyses that are set forth in the Opportunity Report, including the Equity Index, to track progress toward social outcomes by identifying green infrastructure projects approved and implemented in neighborhoods with identified inequities. Currently, the Opportunity Report may be accessed via the following publicly accessible website: raincheckbuffalo.org/opportunityreport/. (The Authority's inclusion of such material via its publicly accessible website is strictly voluntary and may be discontinued at any time in the Authority's sole discretion without the consent of the holders of the Series 2021 Bonds.) See "THE AUTHORITY SYSTEM - Recent Awards Received by the Authority" for a list of various awards and recognition received by the Authority in connection with its Opportunity Report.

The Rain Check Projects to be Financed with Proceeds of the Series 2021 Bonds

Description of The Rain Check Projects. A portion of the proceeds of the Series 2021 Bonds shall be used to finance projects (collectively, the "Rain Check Projects") consisting of the planning, design, construction and monitoring by the Authority of various green infrastructure initiatives to be implemented on public land (including street rights-of-way) within the City, which green infrastructure initiatives shall include, but not be limited to, rain gardens, green roofs, stormwater planters and tree planting practices, as well as impervious surface removal. The Authority will engage engineering, urban planning, and landscape architecture firms to design and implement the Rain Check Projects. The green infrastructure initiatives that shall be incorporated into the Rain Check Projects shall be identified and selected by the Authority through the Rain Check 2.0 Program in a manner consistent with the Opportunity Report, with the intent of achieving certain (but not all) of the stormwater management objectives as established by the Authority pursuant to the Authority LTCP.

Certain of the Rain Check Projects shall be implemented as green infrastructure improvements within the following six (6) Priority CSO Basins organized into three (3) Rain Check Project areas, as indicated below:

- CSO Basin 53;
- CSO Basins 26, 27 and 33; and
- CSO Basins 14 and 28.

The balance of the Rain Check Projects will be implemented outside of the six (6) Priority CSO Basins, and will consist of various green infrastructure initiatives collectively referred to by the Authority as the "City of Buffalo Major Projects."

The Authority currently projects completion of the Rain Check Projects by June 15, 2028.

See the Project Technical Memo attached hereto as Appendix B for a more detailed description of the Rain Check Projects and the scope of work that is required in order to complete the Rain Check Projects. The Project Technical Memo, prepared by Quantified Ventures on behalf of the Authority, describes, in greater detail, the Rain Check Projects, their anticipated outcomes and the methodology related to certain evaluation metrics.

Outcomes to be Achieved by the Rain Check Projects. The Rain Check Projects are projected by the Authority to contribute to the achievement of the environmental outcomes, as well as the social and economic outcomes, as described, above, under the subheading entitled "The Projected Environmental, Social and Economic Outcomes of the Rain Check 2.0 Program." With respect to the environmental outcomes, the primary goal of the Authority in financing its Rain Check Projects with proceeds of its Series 2021 Bonds is to manage at least 200 acres of impervious surfaces with green infrastructure in order to reduce the frequency and severity of CSO events and thereby achieve certain (but not all) of the stormwater management objectives as established by the Authority pursuant to the Authority LTCP. See the subheading, below, "Procedures for the Measurement and Validation of the Environmental Outcomes of the Rain Check Projects: The 'Outcome Threshold.'"

Estimated Costs of the Rain Check Projects. Table #2, below, identifies the estimated costs of each component of the Rain Check Projects (including construction costs as well as design and engineering costs), and the allocation of a portion of the proceeds of the Series 2021 Bonds to each component of the Rain Check Projects. Note that these are estimated cost allocations and remain subject to change as each component of the Rain Check Projects is commenced and completed.

Table #2: Estimated Costs of the Rain Check Projects and Allocation of the Series 2021 Bond Proceeds to Such Costs

Component of the Rain Check Projects:	**Allocation of Proceeds of the Series 2021 Bonds to the Cost of each Component of the Rain Check Projects:**
CSO Basin 53	$5,000,000
CSO Basins 26, 27 and 33	$23,000,000
CSO Basins 14 and 28	$19,000,000
City of Buffalo Major Projects	$5,000,000
Third-Party Evaluation and Reporting	$1,000,000
Total:	$53,000,000

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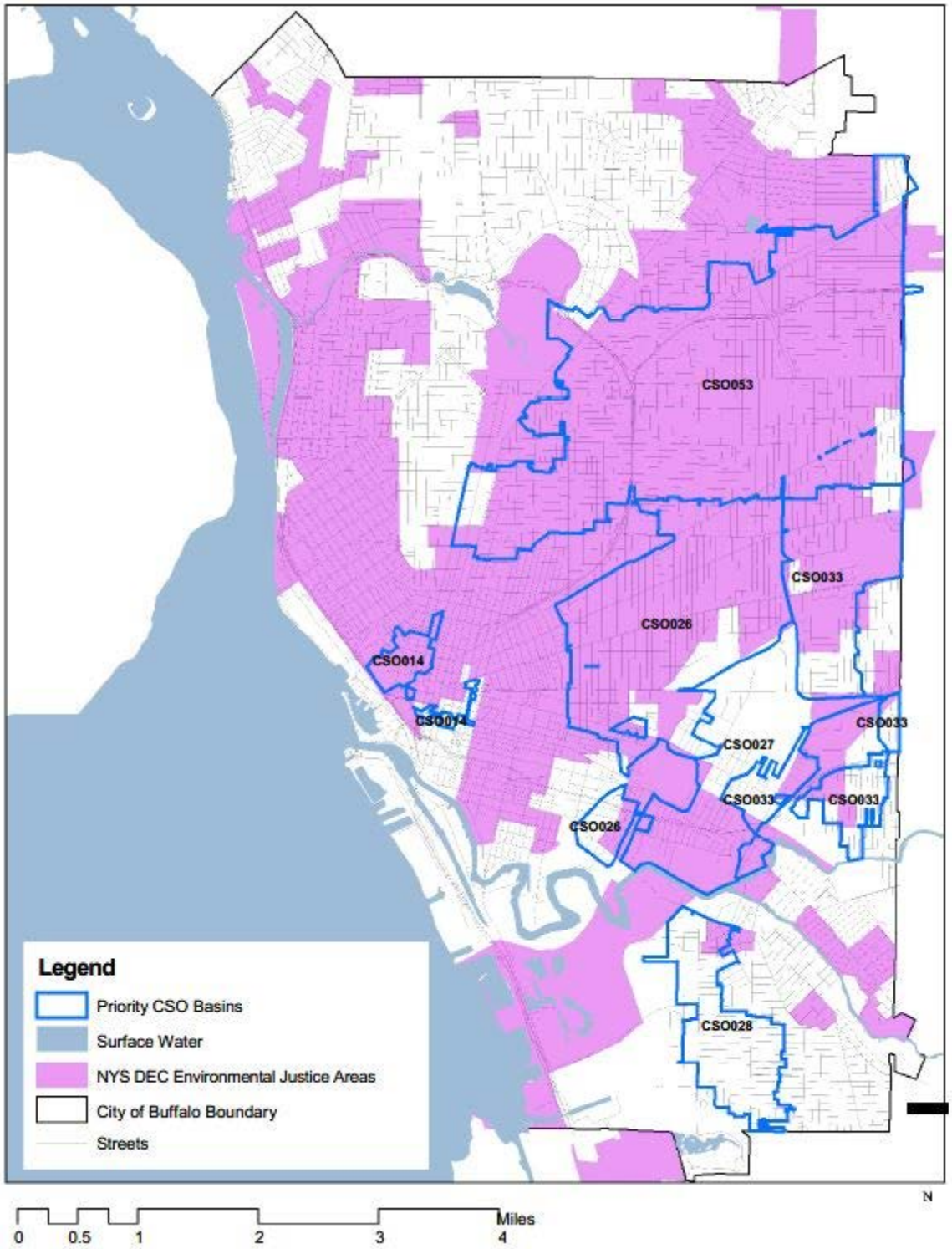
Map #1: The Priority CSO Basins within the City and the NYSDEC Environmental Justice Areas Relative to the Social and Economic Outcomes within the City as Established by the Authority.



Procedures for the Measurement and Validation of the Environmental Outcomes of the Rain Check Projects: The "Outcome Threshold"

The Authority has retained Arcadis, an independent third-party validator ("Arcadis"), to collect data and report information regarding the environmental outcomes associated with each component of the Rain Check Projects.

More specifically, Arcadis will prepare (i) an annual report each year with respect to the implementation by the Authority of the Rain Check Projects, as well as (ii) a final report when the Authority successfully achieves its outcome threshold of at least 200 acres of impervious surface managed through the implementation of the Rain Check Projects (the "Outcome Threshold"); the Outcome Threshold currently is anticipated by the Authority to be achieved by June 15, 2028. These reports will address all green infrastructure initiatives undertaken by the Authority as part of the Rain Check Projects with proceeds of the Series 2021 Bonds.

Arcadis is familiar with (i) the standard methods included in the NYSDEC Stormwater Design Manual for calculating acres of impervious surface managed through the implementation of green infrastructure and (ii) engineering principles associated with green infrastructure and, therefore, shall be responsible for validating that the Rain Check Projects are constructed as designed and that the Rain Check Projects successfully achieve the Outcome Threshold. Pentagram will create high-end visualization and graphic design for the annual and final reports that are prepared by Arcadis, while Prospect Hill Consulting will support Arcadis with data input necessary for the annual and final reports. See the Project Technical Memo, attached hereto as Appendix B, for additional information and detail concerning the methodology that will be employed by Arcadis for purposes of measuring and validating the Outcome Threshold and reporting thereon.

The annual reports and the final report prepared by Arcadis, as described herein, will be made available voluntarily by the Authority on the Authority's publicly accessible website, the Electronic Municipal Market Access system operated by the Municipal Securities Rulemaking Board ("EMMA"), and via other platforms such as a CDP and the NASDAQ Sustainable Bond Network. The Authority may modify, amend or discontinue this voluntary disclosure at any time in its sole discretion without the consent of the holders of the Series 2021 Bonds.

Arcadis has an existing relationship with the Authority regarding (i) the modeling of CSO events and (ii) the measurement of the removal of stormwater from the Authority's CSS via each of its Authority LTCP compliance initiatives, including, without limitation, the implementation of the Rain Check Projects. However, Arcadis has not, and will not, participate in the design and implementation of the Rain Check Projects, and the measurement and validation of the environmental success of the Rain Check Projects will be determined solely by compliance by the Authority with the Outcome Threshold (as measured and validated by Arcadis) and not by the removal of stormwater from the Authority's CSS (as may be measured by Arcadis). While the removal of stormwater from the Authority's CSS is relevant to the Authority's compliance with, and achievement of the goals set forth in, the Authority LTCP, such removal of stormwater from the Authority's CSS has not been established by the Authority as a measure of success with respect to the implementation of the Rain Check Projects. The sole measure of success with respect to the implementation of the Rain Check Projects is the achievement by the Authority of the Outcome Threshold as measured and validated by Arcadis (as described herein).

THE SERIES 2021 BONDS

General Description

The Series 2021 Bonds will be dated the date of issuance thereof, and are scheduled to mature on June 15 in the years (the "Principal Payment Dates") and in the principal amounts set forth on the inside cover page hereof. The Series 2021 Bonds will bear interest from their dated date payable by check or draft semiannually on June 15 and December 15 of each year until their respective maturities (the "Interest Payment Dates"), commencing December 15, 2021, at the rates per annum set forth on the inside cover page hereof.

The Series 2021 Bonds will be payable as to principal (including any sinking fund installment) upon presentation and surrender thereof at the corporate trust office of the Trustee. The Series 2021 Bonds will be issued as fully registered bonds in the denomination of one bond per aggregate principal amount of the stated maturity thereof, and, when issued, will be registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York ("DTC"). Purchases of beneficial interests in the Series 2021 Bonds will be made in book-entry-only form (without certificates) in denominations of $5,000 or any whole multiple thereof.

Series 2021 Step Coupon Term Bonds Due June 15, 2049*

The Series 2021 Bonds maturing on June 15, 2049* in the principal amount of $24,900,000* will be issued as step coupon term bonds (the "Series 2021 Step Coupon Term Bonds"). The following rates of interest apply to the outstanding principal amount of Series 2021 Step Coupon Term Bonds during the following periods:

From:	To and Including:	Interest Rate:
Date of Delivery	June 14, 20__	_____%
June 15, 20__	June 14, 20__	_____%
June 15, 20__	June 14, 20__	_____%
June 15, 20__	June 14, 20__	_____%
June 15, 20__	June 15, 20__	_____%

Authorization for the Issuance of the Series 2021 Bonds

The Series 2021 Bonds are being issued pursuant to the Authority Act, all other applicable law and the Bond Resolution. The Series 2021 Bonds will constitute valid and binding special obligations of the Authority, and will be secured by a pledge of certain revenues of the Authority on a parity with the pledge securing the Existing Bonds in accordance with the terms of the Bond Resolution.

The Series 2021 Bonds are secured on a parity basis with all other Senior Bonds issued pursuant to the Bond Resolution. The proceeds of the Series 2021 Bonds will be used to finance the Rain Check Projects (as defined herein). See "THE RAIN CHECK PROJECTS" herein.

* Preliminary, subject to change.

Designation of the Series 2021 Bonds as "Environmental Impact Bonds" and "Green Bonds"

Environmental Benefits of the Rain Check Projects. The Authority is designating the Series 2021 Bonds as "Environmental Impact Bonds" and "Green Bonds" based upon the environmental benefits to be realized from the implementation of the Rain Check Projects to be financed with proceeds of the Series 2021 Bonds. Such Rain Check Projects consist of stormwater management objectives that will reduce the flow of stormwater into the CSS of the Authority, thereby minimizing the frequency and severity of CSO events within the City in satisfaction of certain (but not all) of the stormwater management objectives of the Authority as set forth in the Authority LTCP. Achievement of these stormwater management objectives will (i) improve overall sewer function by reducing flows from entering the CSS, (ii) build climate change resilience within the City by decreasing the urban heat island effect, reducing local flooding, and sequestering greenhouse gases, and (iii) enhance the quality of life for residents of the City by creating more green space and employment opportunities. The stormwater management objectives will be achieved through the implementation of various green infrastructure initiatives within the City (including, but not limited to, rain gardens, green roofs, stormwater planters and tree planting practices, as well as impervious surface removal). These green infrastructure initiatives shall be identified and selected by the Authority through the Rain Check 2.0 Program in a manner consistent with the Opportunity Report, with the intent of achieving certain (but not all) of the stormwater management objectives as established by the Authority pursuant to the Authority LTCP. Further details concerning the Rain Check Projects are set forth in "THE RAIN CHECK PROJECTS" herein and in the Project Technical Memo attached hereto as Appendix B.

Environmental Impact Bonds. The "Environmental Impact Bonds" designation reflects the fact that: (i) as with the Green Bonds designation with respect to the Series 2021 Bonds, the proceeds of the Series 2021 Bonds will be used for projects that create environmental benefits; and (ii) the environmental benefits of those funded projects will be objectively measured, verified and publicly reported, including to the bondholders. The second feature, relating to the measurement and verification of outcomes achieved, and the public reporting thereof (including to bondholders), distinguishes Environmental Impact Bonds from traditional Green Bonds, for which environmental benefits may be estimated initially but may not necessarily be tracked, verified or publicly reported (including to bondholders). The Authority and Quantified Ventures have developed the Project Technical Memo, which details the methodology behind the pre-construction estimation and post-construction evaluation of the Primary Outcome Metric (as defined below). The Project Technical Memo is attached hereto as Appendix B.

There is no assurance that the Rain Check Projects financed with the proceeds of the Series 2021 Bonds will produce the intended environmental benefits; but holders of the Series 2021 Bonds do not assume any risk of payment default with respect to the Series 2021 Bonds in the event that the Rain Check Projects financed with the proceeds of the Series 2021 Bonds fails to produce the intended environmental benefit. The term "Environmental Impact Bonds" is not intended to provide or imply that holders of Series 2021 Bonds are entitled to any additional security or benefits other than as provided in the Bond Resolution.

Green Bonds. The "Green Bonds" designation is designed to track the generally accepted Green Bond Principles (the "Green Bond Principles") promulgated by the International Capital Market Association (the "ICMA"). By reference to the ICMA's "Green and Social Bonds: A High-Level Mapping to the Sustainable Development Goals" (June 2018), the Authority has determined that this designation reflects the use of proceeds of the Series 2021 Bonds in a manner that is consistent with "Goal 1: No Poverty," "Goal 3: Good Health and Well-Being," "Goal 6: Clean Water and Sanitation," "Goal 8: Decent Work and Economic Growth," "Goal 10: Reduced Inequalities," and "Goal 13: Climate Action" of the 17 United Nations Sustainable Development Goals (referred to collectively as the "UNSDGs"). The Green Bond Principles have four core components: (i) Use of Proceeds; (ii) Process for Project Evaluation and Selection; (iii) Management of Proceeds; and (iv) Reporting. These core components as applicable to the

Authority and the Series 2021 Bonds are described further below. Additional information with respect to alignment with the Green Bond Principles and the UNSDGs is set forth in the Project Technical Memo attached hereto as Appendix B.

The purpose of designating and offering the Series 2021 Bonds as "Green Bonds" is to allow investors to invest directly in bonds that finance environmentally beneficial projects. However, there is no assurance that the Rain Check Projects financed with the proceeds of the Series 2021 Bonds will produce the intended environmental benefits; but holders of the Series 2021 Bonds do not assume any risk of payment default with respect to the Series 2021 Bonds in the event that the Rain Check Projects financed with the proceeds of the Series 2021 Bonds fails to produce the intended environmental benefit. The term "Green Bonds" is not intended to provide or imply that holders of Series 2021 Bonds are entitled to any additional security or benefits other than as provided in the Bond Resolution. The Authority does not assume any obligation to ensure compliance with the Green Bonds Principles as such principles may evolve over time.

Alignment with the Four Core Components of the Green Bonds Principles.

1. Use of the Series 2021 Bond Proceeds: A portion of the proceeds of the Series 2021 Bonds shall be used to finance the Rain Check Projects consisting of the planning, design, construction and monitoring by the Authority of various green infrastructure initiatives to be implemented on public land within the City, which green infrastructure initiatives shall include, but not be limited to, rain gardens, green roofs, stormwater planters and tree planting practices, as well as impervious surface removal. These green infrastructure initiatives shall be identified and selected by the Authority through the Rain Check 2.0 Program in a manner consistent with the Opportunity Report, with the intent of achieving certain (but not all) of the stormwater management objectives as established by the Authority pursuant to the Authority LTCP. See "THE RAIN CHECK PROJECTS – The Rain Check Projects to be Financed with Proceeds of the Series 2021 Bonds," above, for a description of the Rain Check Projects. See also the Project Technical Memo attached hereto as Appendix B for a more detailed description of the Rain Check Projects. The Project Technical Memo, prepared by Quantified Ventures on behalf of the Authority, describes, in greater detail, the Rain Check Projects, their anticipated outcomes and the methodology related to certain evaluation metrics.

2. Process for Project Evaluation and Selection: There are three elements to the evaluation and selection by the Authority of the Rain Check Projects: (i) the Rain Check 2.0 Program as the City-wide initiative that has been developed by the Authority in order to identify and implement green infrastructure within the City in satisfaction of the objectives of the Authority LTCP; (ii) the Authority's "Rain Check 2.0 Opportunity Report," which includes an "Equity Index" and related analyses that define the Authority's commitment to social equity considerations in the planning, placement, design and impact of green infrastructure initiatives within the City, and pursuant to which the Basin Rain Check Projects were prioritized as the primary subjects of green infrastructure initiatives though the Rain Check 2.0 Program, and (iii) the inclusion of public participation, through the Authority's public outreach and engagement initiatives, in green infrastructure design decision-making.

3. Management of the Series 2021 Bond Proceeds: The net proceeds of the Series 2021 Bonds remaining after payment of issuance costs and the deposit to the Series Debt Reserve Fund will be used by the Authority to pay the costs of the planning, design, construction and monitoring of the Rain Check Projects. Such amounts will be tracked and disbursed for such purposes and, pending disbursement, will be invested in accordance with the terms of the Bond Resolution.

4. Environmental Impact Bond and Green Bond Reporting: The Authority has engaged Arcadis, an independent third-party validator, to report annually on the use of proceeds of the Series 2021 Bonds for the Rain Check Projects, along with the development and construction progress made through completion of each Rain Check Project. Arcadis also will produce a final report that will corroborate the construction and completion of the Rain Check Projects in accordance with their plans and specifications, and include in such report confirmation that the Authority has achieved its Outcome Threshold of at least 200 acres of impervious surface managed through the implementation of the Rain Check Projects. The annual reports and the final report prepared by Arcadis, as described herein, will be made available voluntarily by the Authority on the Authority's publicly accessible website, EMMA, and via other platforms such as a CDP and the NASDAQ Sustainable Bond Network. The Authority's voluntary disclosure undertaking is further described under "LIMITED VOLUNTARY CONTINUING DISCLOSURE RELATED TO THE RAIN CHECK PROJECTS" and in the Project Technical Memo attached hereto as Appendix B. The Authority may modify, amend or discontinue this voluntary disclosure at any time in its sole discretion without the consent of the holders of the Series 2021 Bonds.

Primary Outcome Metric. The Authority's objective in undertaking the Rain Check Projects is to manage, with green infrastructure, at least 200 acres of additional impervious area by June 15, 2028, with most of such acreage located within the six Priority CSO Basins and a small percentage thereof relating to the "City of Buffalo Major Projects." The Rain Check Projects contribute to the achievement of a portion of the Authority's broader green infrastructure objectives, as identified in the Authority LTCP, to reduce the frequency and severity of CSO events within the City. Incorporating green infrastructure as a CSO reduction strategy is expected to reduce short-term project implementation costs and long-term maintenance costs for the Authority, as well as maximize social and economic outcomes for the community that are associated with the green infrastructure improvements of the Rain Check Projects.

The "Primary Outcome Metric" for the Rain Check Projects will be "Acres of Impervious Surface Managed" through the implementation of projects identified through the Rain Check 2.0 Program (the "Primary Outcome Metric"). This Primary Outcome Metric will be measured according to the standards established in the most recent version of the "New York State Department of Environmental Conservation Stormwater Management Design Manual." The Primary Outcome Metric was chosen for the following reasons:

- *Directly Relevant to Authority LTCP Objectives:* The Authority LTCP defines the Authority's path to water quality compliance and, to this end, identifies a goal of 1,315 acres of impervious surface to be managed through implementation of green infrastructure projects. With 637 acres remaining toward this goal (currently scheduled to be achieved by 2034, but subject to extension at the request of the Authority), the Authority will use the Rain Check 2.0 Program to address this gap.

- *Tied to Uncertainty:* The Primary Outcome Metric reflects the key uncertainty associated with the Rain Check 2.0 Program: The ability of the Authority to increase the pace of green infrastructure implementation.

- *Cost-Effective to Quantify:* Acres managed can be tracked and verified through as-built surveys.

The Authority has engaged Arcadis, an independent third-party validator, to produce annual reports and a final report with respect to the Rain Check Projects. The content of these reports and the manner in which these reports will be disclosed to the holders of the Series 2021 Bonds is described under the subheading, above, entitled "Environmental Impact Bond and Green Bond Reporting." The Authority's voluntary disclosure undertaking is further described under "LIMITED VOLUNTARY CONTINUING

DISCLOSURE RELATED TO THE RAIN CHECK PROJECTS" and in the Project Technical Memo attached hereto as Appendix B.

Optional Redemption

The Series 2021 Bonds maturing on or after June 15, 2029 will be subject to redemption prior to maturity at the option of the Authority on June 15, 2028 and thereafter on any date, as a whole or in part:

(i) if the Primary Outcome Metric has been satisfied at the time the Authority exercises its option to redeem the Series 2021 Bonds, at 100% of the principal amount to be redeemed plus accrued interest to the date of redemption, in such order of maturity as is selected by the Authority and by lot within a maturity, in principal amounts of $5,000 or integral multiples thereof; or

(ii) if the Primary Outcome Metric has not been satisfied at the time the Authority exercises its option to redeem the Series 2021 Bonds:

- at 103% of the principal amount to be redeemed, if redemption occurs on or after June 15, 2028 and before June 15, 2029; or
- at 102% of the principal amount to be redeemed, if redemption occurs on or after June 15, 2029 and before June 15, 2030; or
- at 101% of the principal amount to be redeemed, if redemption occurs on or after June 15, 2030 and before June 15, 2031; or
- at 100% of the principal amount to be redeemed, if redemption occurs on or after June 15, 2031;

in each case, plus accrued interest to the date of redemption, in such order of maturity as is selected by the Authority and by lot within a maturity, in principal amounts of $5,000 or integral multiples thereof.

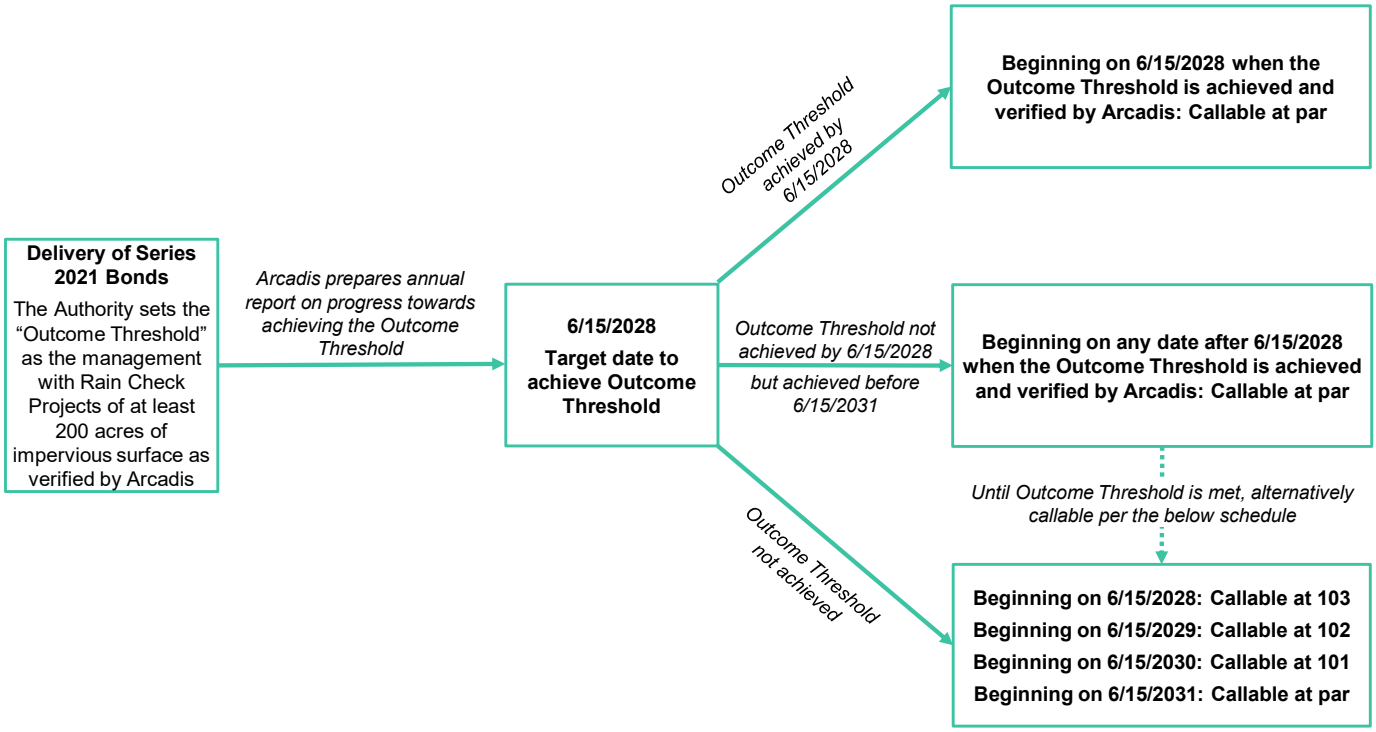
See Chart #1 on the succeeding page for an explanatory diagram regarding the optional redemption of the Series 2021 Bonds.

So long as the Series 2021 Bonds are registered in book-entry only form and DTC, or a successor securities depository, is the sole registered owner of such Series 2021 Bonds, if less than all of a particular maturity of a series of the Series 2021 Bonds is called for redemption, the particular series of the Series 2021 Bonds or portions thereof to be redeemed shall be allocated on a pro rata basis in accordance with DTC rules and procedures, provided that, so long as the Series 2021 Bonds are held in book-entry form, the selection for redemption of such series of the Series 2021 Bonds shall be made in accordance with the operational arrangements of DTC then in effect and, if the DTC operational arrangements do not allow for redemption on a pro rata basis, the Series 2021 Bonds will be selected for redemption, in accordance with DTC procedures, by lot. If a particular Series 2021 Bond is called for partial redemption, upon its surrender a new Series 2021 Bond, representing the unredeemed balance of the principal amount of such Series 2021 Bond, will be issued to its Bondholder.

Chart #1: Optional Redemption of the Series 2021 Bonds.

Series 2021 Bonds: Environmental Impact Bonds and Green Bonds Designation

The Authority's Ability to Call the Series 2021 Bonds Based upon Achievement of the Outcome Threshold



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Mandatory Sinking Fund Redemption

The Series 2021 Step Coupon Term Bonds maturing on August 1, 2049* are subject to mandatory redemption by lot from mandatory sinking fund installments, at a redemption price equal to par plus accrued interest to the redemption date, on June 15 of the following years and in the following amounts, such redemption amounts to be subject to proportionate reduction in the event of partial optional redemption of such Series 2021 Step Coupon Term Bonds:

Year*	**Amount***
2037	$1,470,000
2038	$1,540,000
2039	$1,615,000
2040	$1,690,000
2041	$1,770,000
2042	$1,730,000
2043	$1,825,000
2044	$1,925,000
2045	$2,030,000
2046	$2,145,000
2047	$2,260,000
2048	$2,385,000
2049 (stated maturity)	$2,515,000

The Series 2021 Bonds maturing on June 15, 2051* are subject to mandatory redemption by lot from mandatory sinking fund installments, at a redemption price equal to par plus accrued interest to the redemption date, on June 15 of the following years and in the following amounts, such redemption amounts to be subject to proportionate reduction in the event of partial optional redemption of such Series 2021 Bonds:

Year*	**Amount***
2050	$2,655,000
2051 (stated maturity)	$2,760,000

Mandatory Redemption with Unspent Series 2021 Bond Proceeds

Any amounts remaining in the Construction Fund for the Series 2021 Bonds upon completion of the Rain Check Projects shall be deposited in the Redemption Fund and applied on the next interest payment date for the Series 2021 Bonds to redeem Series 2021 Bonds, at par plus accrued interest to the date of redemption, in such order of maturity as is selected by the Authority and by lot within a maturity.

* Preliminary, subject to change.

Notice of Redemption

The Trustee shall give notice of redemption to the registered owners of the Series 2021 Bonds, at least once not less than thirty (30) days prior to the date fixed for the redemption thereof. The Trustee shall, upon written instruction of an Authorized Officer, give such notice either by (i) delivery of a copy of such notice not less than thirty days before the redemption date, to the registered owners of any Bonds that are to be redeemed, at their last addresses, if any, appearing upon the registry books, or (ii) publication once a week for at least two successive weeks in an Authorized Newspaper, the first such publication to be not less than thirty days nor more than sixty days prior to the redemption date, but such delivery or publication shall not be a condition precedent to such redemption and failure so to deliver or publish any such notice shall not affect the validity of the proceedings for the redemption of Bonds.

In the case of an optional redemption, the notice may state (i) that it is conditioned upon the deposit of moneys, in an amount equal to the amount necessary to effect the redemption, with the Paying Agent no later than the redemption date, or (ii) that the Authority retains the right to rescind such notice at any time prior to the scheduled redemption date if the Authority delivers a certificate of an Authorized Officer to the Paying Agent instructing the Paying Agent to rescind the redemption notice (in either case, a "Conditional Redemption"), and such notice and optional redemption shall be of no effect if such moneys are not so deposited or if the notice is rescinded as described herein. The Paying Agent shall give prompt notice of such rescission to the affected Bondholders.

So long as DTC or its nominee is the Bondholder, the Authority and the Trustee will recognize DTC or its nominee as the Bondholder for all purposes, including notices and voting. Conveyance of notices and other communications by DTC to Direct Participants (hereinafter defined), by Direct Participants to Indirect Participants (hereinafter defined), and by Direct Participants and Indirect Participants to Beneficial Owners (hereinafter defined) will be governed by arrangements among them, subject to any statutory and regulatory requirements as may be in effect from time to time. So long as DTC or its nominee is the Bondholder, any failure on the part of DTC or failure on the part of a nominee of a Beneficial Owner (having received notice from a Direct Participant or otherwise) to notify the Beneficial Owner so affected, shall not affect the validity of the redemption.

Book-Entry-Only System

DTC will act as securities depository for the Series 2021 Bonds. The Series 2021 Bonds will be issued as fully-registered securities registered in the name of Cede & Co. (DTC's partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully-registered Series 2021 Bond certificate will be issued for each maturity of the Series 2021 Bonds, and will be deposited with DTC.

DTC, the world's largest depository, is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code, and a "clearing agency" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934. DTC holds and provides asset servicing for over 3.6 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) that DTC's participants ("DTC Direct Participants") deposit with DTC. DTC also facilitates the post-trade settlement among DTC Direct Participants of sales and other securities transactions in deposited securities through electronic computerized book-entry transfer and pledges between DTC Direct Participants' accounts. This eliminates the need for physical movement of securities certificates. DTC Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations and certain other organizations. DTC is a wholly-owned subsidiary of

The Depository Trust & Clearing Corporation ("DTCC"). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies and clearing corporations that clear through or maintain a custodial relationship with a DTC Direct Participant, either directly or indirectly ("DTC Indirect Participants" and, together with DTC Direct Participants, "DTC Participants"). The DTC rules applicable to its DTC Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com and www.dtc.org.

Purchases of the Series 2021 Bonds under the DTC system must be made by or through DTC Direct Participants, which will receive a credit for the Series 2021 Bonds on DTC's records. The ownership interest of each actual purchaser of each Series 2021 Bond ("Beneficial Owner") is in turn to be recorded on the DTC Direct Participants' and DTC Indirect Participants' records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial Owners, however, are expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the DTC Direct Participant or DTC Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the Series 2021 Bonds are to be accomplished by entries made on the books of DTC Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in Series 2021 Bonds, except in the event that use of the book-entry-system for the Series 2021 Bonds is discontinued.

To facilitate subsequent transfers, all Series 2021 Bonds deposited by DTC Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. The deposit of Series 2021 Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not affect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Series 2021 Bonds. DTC's records reflect only the identity of the DTC Direct Participants to whose accounts such Series 2021 Bonds are credited, which may or may not be the Beneficial Owners. The DTC Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to DTC Direct Participants, by DTC Direct Participants to DTC Indirect Participants, and by DTC Direct Participants and DTC Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to the Series 2021 Bonds unless authorized by a Direct Participant in accordance with DTC's MMI Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the Authority as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those DTC Direct Participants to whose accounts the Series 2021 Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal, redemption premium, if any, of and interest payments on the Series 2021 Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit DTC Direct Participants' accounts upon DTC's receipt of funds and corresponding details from the Authority or the Trustee, on the payable date in accordance with their respective holdings shown on DTC's records. Payments by DTC Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name", and will be the responsibility of such DTC

Participant and not of DTC, the Trustee, the Paying Agent or the Authority, subject to any statutory or regulatory requirements as may be in effect from time to time.

Payment of principal, redemption premium, if any, of and interest to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC, is the responsibility of the Authority or the Trustee. Disbursement of such payments to DTC Direct Participants will be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners will be the responsibility of DTC Direct Participants and DTC Indirect Participants.

DTC may discontinue providing its services as depository with respect to the Series 2021 Bonds at any time by giving reasonable notice to the Authority or the Trustee. Under such circumstances, in the event that a successor securities depository is not obtained, Series 2021 Bond certificates are required to be printed and delivered.

The Authority may decide to discontinue use of the system of book-entry transfers through DTC (or a successor securities depository). In that event, Series 2021 Bond certificates will be printed and delivered.

The information in this section concerning DTC and DTC's book-entry system has been obtained from sources that the Authority believes to be reliable, but the Authority takes no responsibility for the accuracy thereof. The Beneficial Owners should confirm the foregoing information with DTC or the DTC Participants.

The Authority, the Trustee and the Paying Agent cannot and do not give any assurances that DTC will distribute to the DTC Direct Participants or that the DTC Direct Participants or the DTC Indirect Participants will distribute to the Beneficial Owners of the Series 2021 Bonds (i) payments of principal, redemption premium, if any, of or interest on the Series 2021 Bonds, (ii) certificates representing an ownership interest or other confirmation of beneficial ownership interests in the Series 2021 Bonds, or (iii) redemption or other notices sent to DTC or Cede & Co., its nominee, as the registered owner of the Series 2021 Bonds, or that they will do so on a timely basis or that DTC, its DTC Direct Participants or its DTC Indirect Participants will serve and act in the manner described in this Official Statement.

None of the Authority, the Trustee nor the Paying Agent will have any responsibility or obligations to any DTC Direct Participant, DTC Indirect Participant or any person claiming a beneficial ownership interest in the Series 2021 Bonds under or through DTC or any DTC Direct Participant, or any other person who is not shown in the registration books of the Authority kept by the Trustee as being a Series 2021 Bondholder. The Authority, the Trustee and the Paying Agent shall have no responsibility with respect to (i) any ownership interest in the Series 2021 Bonds, (ii) the payment by DTC to any DTC Direct Participant or by any DTC Direct Participants or DTC Indirect Participant of any amount due to any Beneficial Owner in respect of the principal of or interest on the Series 2021 Bonds, (iii) the delivery to any DTC Participant or any Beneficial Owner of any notice which is permitted or required to be given to the holders of the Series 2021 Bonds (the "Series 2021 Bondholders") under the Bond Resolution, or (iv) any consent given or other action taken by DTC or Cede & Co. as Series 2021 Bondholder.

So long as Cede & Co. is the registered owner of the Series 2021 Bonds, as the nominee of DTC, references herein to the Series 2021 Bondholders or registered owners of the Series 2021 Bonds (other than under the captions "TAX MATTERS" and "SECONDARY MARKET DISCLOSURE") shall mean Cede & Co., and shall not mean the Beneficial Owners of the Series 2021 Bonds.

SECURITY FOR THE SERIES 2021 BONDS

The General Bond Resolution and the Supplemental Resolution

The following summary of the security for the Series 2021 Bonds is qualified in its entirety and reference is hereby made to Appendix E and to the Bond Resolution, which set forth in further detail provisions relating to the security for the Series 2021 Bonds. For definitions of certain capitalized terms used but not defined herein, see Appendix E - "Summary of Certain Provisions of the Bond Resolution."

The Series 2021 Bonds are special obligations of the Authority payable solely from revenues and other moneys pledged for such payment pursuant to the Authority Act and the Bond Resolution and on a parity with the Existing Bonds. The Series 2021 Bonds shall not in any respect be a general obligation of the Authority to which the full faith and credit of the Authority is pledged and shall not in any manner or to any extent constitute or be a charge upon any moneys or property of the Authority not specifically pledged thereto by the Bond Resolution. The Authority has no taxing power. The Series 2021 Bonds are not a debt of the State or the City, and neither the State nor the City is liable thereon, nor are the Series 2021 Bonds payable out of any funds other than those of the Authority.

The General Bond Resolution provides for the issuance of senior bonds and subordinated indebtedness thereunder. The Authority may issue additional bonds on a parity with the Series 2021 Bonds and the Existing Bonds (collectively, "Bonds") upon the satisfaction of certain conditions. See Appendix E - "Summary of Certain Provisions of the Bond Resolution - Provisions for Issuance of Bonds," and "- Provisions for Refunding Issues" herein. All Bonds are equally and ratably secured under the provisions of the Bond Resolution and by the Funds and Accounts established thereunder, and all Bonds will be on parity with the Series 2021 Bonds and the Existing Bonds. See "Debt Reserve Fund" below. In addition, the General Bond Resolution provides for the issuance of bond anticipation notes. The proceeds of such Bonds may be pledged for the payment of the principal of and interest on such notes and any such pledge shall have a priority over any other pledge of such proceeds created by the General Bond Resolution. The Authority may also pledge the Revenues to the payment of the interest on the principal of such notes. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Bond Anticipation Notes" herein.

The General Bond Resolution also permits the issuance of Subordinated Indebtedness. Subordinated Indebtedness is subordinate to the pledge and lien on Revenues securing Series 2021 Bonds. In the event of any Event of Default under the General Resolution, so long as there are any Bonds Outstanding, directions to the Trustee with respect to remedies shall be given by holders of a majority in principal amount of the Outstanding Senior Bonds. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Subordinated Indebtedness" herein.

The General Bond Resolution also permits the Authority to obtain or cause to be obtained one or more Credit Facilities providing for or securing payment of all or a portion of the principal installments or redemption price or premium, if any, or interest due or to become due on such Bonds, providing for the purchase of such Bonds by the Credit Issuer of such Credit Facility or providing funds for the purchase of such Bonds by the Authority. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Credit Facilities" herein.

To the extent a Bond Insurer makes any payment of principal of or interest on Bonds in accordance with its Bond Insurance Policy, such Bond Insurer shall become subrogated to the rights of the recipients of such payments in accordance with the terms of its Bond Insurance Policy. Upon the occurrence and continuance of an Event of Default, a Bond Insurer of a Series of Bonds, if such Bond Insurer is not in payment default under its Bond Insurance Policy, shall be deemed to be the sole owner of such Bonds for purposes of (A)

directing and controlling the enforcement of all rights and remedies with respect to such Series of Bonds, including any waiver of an Event of Default, and (B) exercising any voting right or privilege or giving any consent or direction or taking any other action that the Bondholders of such Bonds are entitled to take pursuant to the General Bond Resolution. No provision expressly recognizing or granting rights in or to a Bond Insurer shall be modified without the consent of such Bond Insurer. A Bond Insurer's rights under Section 1009 of the General Bond Resolution shall be suspended during any period in which such Bond Insurer is in default in its payment obligations under its Bond Insurance Policy (except to the extent of amounts previously paid by such Bond Insurer and due and owing to such Bond Insurer) and shall be of no force or effect if its Bond Insurance Policy is no longer in effect or if the Bond Insurer asserts that its Bond Insurance Policy is not in effect or if the Bond Insurer waives such rights in writing. The rights granted to a Bond Insurer under Section 1009 of the General Bond Resolution are granted in consideration of such Bond Insurer issuing its Bond Insurance Policy. The Authority shall provide each Bond Insurer immediate notice of any Event of Default described in Section 1002(1) or 1002(2) of the General Bond Resolution and notice of any other Event of Default occurring hereunder within 30 days of the occurrence thereof. Each Bond Insurer of any Bonds shall be considered a third party beneficiary of this Resolution with respect to such Bonds. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Control by Bond Insurer" herein.

The Authority may at any time adopt a Supplemental Resolution making a modification or amendment permitted by the provisions of Section 902 of the General Bond Resolution, to take effect when and as provided in Section 903 of the General Bond Resolution. The consent of Bondholders of any Series of Bonds to be issued under a Supplemental Resolution that requires consent pursuant to the provisions of Section 902 of the General Bond Resolution shall be deemed given by such Bondholders if: (1) the nature of the amendment effected by such Supplemental Resolution is disclosed in the official statement or other offering document pursuant to which such Series of Bonds is offered and sold to the public; and (2) the underwriters or initial purchasers for resale of such Series of Bonds consent in writing to such Supplemental Resolution and file such written consent with the Trustee, which consent will have the same effect as a consent of a Bondholder filed with the Trustee pursuant to Section 903(B) of the General Bond Resolution. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Powers of Amendment" and "-Consent of Bondholders" herein.

The Pledged Revenues

In the General Bond Resolution, the Authority pledges for the security for Bonds, including the Series 2021 Bonds and the Existing Bonds, (a) its Revenues (except any investment earnings on any Funds or accounts of the Authority that are on deposit in the Rebate Fund or that are required to be deposited therein for rebate to the United States of America pursuant the provisions of the Code in order to comply with the Authority's covenants in any Supplemental Resolution for such Series of Bonds so as to ensure that interest on any Bonds that are issued as tax exempt obligations continues to be excludable from gross income under the Code), (b) its Funds and any Accounts (except amounts in the Rebate Fund and any Account of the Construction Fund held by New York Environmental Facilities Corporation (the "EFC") as provided in Section 502(B) of the General Bond Resolution, which Account shall secure only the Series of Bonds to which it relates), and (c) its other moneys, securities and other funds to be received, held or set aside by the Authority or by any Fiduciary pursuant to the General Bond Resolution. The Authority's pledge will be valid and binding from the time when it is made, and the Revenues, moneys, securities and other funds so pledged and then or thereafter received by the Authority shall immediately be subject to the lien of such pledge without any physical delivery or further act. The lien of such pledge and the obligation to perform the contractual provisions under the Bond Resolution contained therein shall have priority over any or all other obligations and liabilities of the Authority, except that such lien shall be subordinate to and inferior to the cost of operation and maintenance of the Sewer System, and will be valid and binding as against all

parties having claims of any kind in tort, contract or otherwise against the Authority, irrespective of whether such parties have notice thereof. The lien securing Subordinate Indebtedness shall be subordinate to and inferior to the lien securing the Senior Bonds under the General Bond Resolution. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Pledge Effected by General Bond Resolution" herein.

"Revenues" means all rates, charges, rents, sewer rents, fees, assessments and other realized income derived or to be derived by or for the account of the Authority from or for the ownership, operation, use or services of the Sewer System, including the proceeds of any business interruption insurance, and any amounts paid into and credited to the Net Revenue Fund pursuant to the General Bond Resolution, but shall not include (a) any refundable customer deposit, (b) any amount received or receivable from the United States or the State (or any agency of either thereof) or from any other source as or on account of a contribution for or with respect to (i) the construction, acquisition, improvement, extension, renewal or other development of any part of the Sewer System, or (ii) the financing or repayment of financing of any of the foregoing, (c) sanitation or other charges that the Authority collects not for services of the Sewer System but solely as a fiscal agent or in another such agency capacity, other than the net revenues of such sanitation or other charges retained by the Authority to the extent allocated to the Sewer System, or (d) any amount received by or paid to the Authority that is required to be charged or collected by or paid to the Authority under the terms of any grant agreement with the United States of America or any agency thereof or the State or any agency thereof and which is received by or paid to the Authority in an agency capacity under such grant agreement. For the purposes of determining compliance with the coverage test set forth in Section 709(C) of the General Bond Resolution, the computation of Revenues with respect to any period of time shall be increased (to the extent set forth in Section 709(C)) of the General Bond Resolution by the amount of transfers during such period from the Rate Stabilization Fund to the Net Revenue Fund pursuant to Section 509 of the General Bond Resolution, and decreased by the amount of transfers during such period from the Net Revenue Fund to the Rate Stabilization Fund pursuant to Section 509 of the General Bond Resolution.

Creation of Funds

Pursuant to the General Bond Resolution, the Authority establishes and creates the following Funds held by the Trustee, provided, however, that the EFC may hold any Account of the Construction Fund related to a particular Series of Bonds issued to EFC Bonds ("EFC Bonds") to the extent set forth in the Supplemental Resolution authorizing such Series of EFC Bonds: the Construction Fund, the Net Revenue Fund, the Debt Service Fund, the Debt Reserve Fund, the Redemption Fund, the Subordinated Indebtedness Fund, the Surplus Fund and the Rebate Fund. The Trustee shall, at the request of the Authority, establish within any Fund such Accounts as shall be designated in a Supplemental Resolution or the written instructions of an Authorized Officer.

In addition to the Funds held by the Trustee, the Authority shall establish a Capital Improvement Fund, an Operating Fund and a Rate Stabilization Fund, which shall be held by one or more Depositaries designated by and under the supervision of the Authority. The Capital Improvement Fund shall be used for the payment of Capital Costs of the Sewer System. The Operating Fund shall be used for the collection of Revenues and the payment of Operating Expenses and shall provide amounts for deposit in the Net Revenue Fund as provided in Section 504 of the General Bond Resolution. The Rate Stabilization Fund shall be used to manage the receipt of Revenues and payment of expenses by the Authority. The Authority may, at any time, transfer amounts on deposit in the Capital Improvement Fund, the Operating Fund and the Rate Stabilization Fund to the Net Revenue Fund for application in accordance with Sections 504(B), 504(D) and 504(E) of the General Bond Resolution. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Establishment of Funds and Accounts" herein.

Net Revenue Fund; Flow of Funds.

The General Bond Resolution provides that the Authority will promptly cause all Revenues to be deposited promptly in the Operating Fund, except as otherwise expressly provided in the General Bond Resolution. As soon as practicable after the twenty-fifth day of each month, after reserving therein any amount deemed necessary to provide a reserve for the payment of the following month's Operating Expenses based on the Annual Budget (as the same may be amended as provided in Section 707 of the General Bond Resolution), the balance remaining in the Operating Fund shall be paid to the Trustee for deposit in the Net Revenue Fund.

The Trustee will transfer from the Net Revenue Fund to the Debt Service Fund, no later than the last day of the month in which the Authority makes a payment to the Trustee in accordance with Section 504(A) of the General Bond Resolution, an amount for each Series of Outstanding Senior Bonds equal to the sum of: (1) an amount equal to 1/6 of the amount of interest falling due on the Bonds of such Series on the next Interest Payment Date, or such other proportionate amount as shall be necessary to ensure monthly deposits for the payment in full of interest on the next Interest Payment Date, as set forth in the Supplemental Resolution authorizing such Series; and (2) an amount equal to 1/12 of the amount of principal falling due on the next date upon which an installment of principal (including a Sinking Fund Installment) falls due on the Bonds of such Series, or such other proportionate amount as shall be necessary to ensure monthly deposits for the payment in full of principal (including a Sinking Fund Installment) on such date, as set forth in the Supplemental Resolution authorizing such Series. In making the credits required by Section 504(B) of the General Bond Resolution, any amounts required to be credited to the Debt Service Fund or otherwise paid to a Paying Agent representing accrued interest received on the sale of Bonds, interest capitalized from the proceeds of the Bonds of the Series, any earnings on moneys in the Debt Service Fund and any other transfers and credits otherwise made or required to be made to the Debt Service Fund or otherwise paid to a Paying Agent shall be taken into consideration and allowed for.

The Trustee shall pay out of the Net Revenue Fund to the Authority for deposit in the Operating Fund at any time or from time to time the amount specified in a Certificate of an Authorized Officer of the Authority as necessary for the payment of Operating Expenses due to the insufficiency of amounts available for such purpose in the Operating Fund.

On or before the last day of each month, the Trustee will apply amounts then on deposit in the Net Revenue Fund to the making of the following payments or transfers, but only to the extent available and in the order specified below:

(1) There shall be transferred to the Debt Reserve Fund the amount, if any, required pursuant to Section 506(C) of the General Bond Resolution with respect to Series Debt Reserve Accounts securing Senior Bonds.

(2) If the Trustee receives a written direction from an Authorized Officer, there shall be transferred to the Operating Fund the amount, if any, specified in such written direction as necessary to cause the amount on deposit in the Operating Fund to equal the Operating Reserve Requirement.

(3) There shall be transferred to the Subordinated Indebtedness Fund an amount for each Series of Outstanding Subordinated Indebtedness equal to the sum of: (a) an amount equal to 1/6 of the amount of interest falling due on the Bonds of such Series on the next Interest Payment Date, or such other proportionate amount as shall be necessary to ensure monthly deposits for the payment in full of interest on the next Interest Payment Date, as set forth in

the Supplemental Resolution authorizing such Series; and (b) an amount equal to 1/12 of the amount of principal falling due on the next date upon which an installment of principal (including a Sinking Fund Installment) falls due on the Bonds of such Series, or such other proportionate amount as shall be necessary to ensure monthly deposits for the payment in full of principal (including a Sinking Fund Installment) on such date, as set forth in the Supplemental Resolution authorizing such Series. In making the credits required by Section 504(D)(iii) of the General Bond Resolution, any amounts required to be credited to the Subordinated Indebtedness Fund or otherwise paid to a Paying Agent representing accrued interest received on the sale of Bonds, interest capitalized from the proceeds of the Bonds of the Series, any earnings on moneys in the Subordinated Indebtedness Fund and any other transfers and credits otherwise made or required to be made to the Subordinated Indebtedness Fund or otherwise paid to a Paying Agent shall be taken into consideration and allowed for.

(4) There shall be transferred to the Debt Reserve Fund the amounts, if any, required pursuant to Section 506(C) of the General Bond Resolution with respect to Series Debt Reserve Accounts securing Subordinated Indebtedness.

On or before the last day of each Fiscal Year, after making all of the payments and transfers described in Sections 504(B), (C) and (D) in the General Bond Resolution, the Trustee will apply amounts then on deposit in the Net Revenue Fund to the making of the following payments or transfers, but only to the extent available and in the order specified below:

(1) There shall be transferred to the Capital Improvement Fund an amount equal to the Renewal and Extension Requirement for such Fiscal Year.

(2) There shall be transferred to the Rate Stabilization Fund the amount, if any, designated in a Certificate of an Authorized Officer.

(3) Any amount remaining after the above payments or transfers have been made shall be deposited in the Surplus Fund.

See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Net Revenue Fund; Flow of Funds" herein.

The Construction Fund

The Authority will establish within the Construction Fund a separate Account for each Project for which a Series of Bonds is issued. There shall be deposited from time to time in the applicable Account of the Construction Fund any amount required to be deposited therein pursuant to the General Bond Resolution and any Supplemental Resolution and any other amounts received and determined to be deposited therein from time to time that are not otherwise required to be applied in accordance with the General Bond Resolution.

Amounts in each separate Account of the Construction Fund shall be expended only: (1) to pay Capital Costs of the Project for which such account was established; (2) if the Supplemental Resolution authorizing a Series of Bonds provides for a Capitalized Interest Account for such Bonds, to pay interest on such Bonds from such Capitalized Interest Account; and (3) to the extent that the amounts in any other Fund or Account are insufficient or unavailable therefor, to pay the principal of and interest on the Bonds of such Series when due, but in the case of (3) above only in the event that there shall have been filed with the Trustee: (a)

a Certificate of an Authorized Officer in form and substance satisfactory to the Trustee stating that the Revenues expected to be received thereafter together with such other specified amounts as are expected to be made available therefor by the Authority will be insufficient to pay in full all Outstanding Bonds when and as the same shall become due in accordance with their terms and in reasonable detail, the basis for such certification; and (b) a Counsel's Opinion that such payment will not result in a violation of any existing law. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Construction Fund" herein.

The Debt Reserve Fund

There shall be deposited in the Debt Reserve Fund all amounts required to be deposited therein pursuant to the General Bond Resolution and any other amounts received and determined to be deposited therein by the Authority. The Series Debt Reserve Account maintained for all Common Debt Reserve Secured Bonds shall be funded at all times to the Common Debt Reserve Requirement, and each other Series Debt Reserve Account shall be funded at all times to the applicable Separate Series Debt Reserve Requirement as set forth in the applicable Supplemental Resolution.

In lieu of or in substitution for moneys, the Authority may deposit or cause to be deposited with the Trustee a Reserve Fund Facility for the benefit of Bondholders of a Series for all or any part of the applicable Debt Reserve Requirement; provided the Reserve Fund Facility meets the requirements set forth in the General Bond Resolution. Such Reserve Fund Facility shall be payable to the Paying Agent (upon the giving of notice required under the General Bond Resolution) on any Interest Payment Date or redemption date on which a deficiency exists that cannot be cured by moneys in any other fund or account held pursuant to the General Bond Resolution and available for such purpose. For the purposes of this Section 506 and Section 514 of the General Bond Resolution, in computing the amount on deposit in the applicable Series Debt Reserve Account, a Reserve Fund Facility shall be valued at the amount available to be paid thereunder on the date of computation.

If any Series Debt Reserve Account contains both a Reserve Fund Facility and cash, the cash shall be drawn down completely prior to any draw on the Reserve Fund Facility. If more than one Reserve Fund Facility is on deposit in a Series Debt Reserve Account, amounts required to be drawn thereon shall be done on a pro rata basis. The Authority agrees to pay all costs owing in regard to any Reserve Fund Facility from the amounts pledged under Section 501 of the General Bond Resolution, first to reimburse the Reserve Fund Facility Provider for amounts advanced under such Reserve Fund Facility, second, to replenish any cash deficiencies in such Series Debt Reserve Account, and third, to pay the Reserve Fund Facility Provider applicable expenses and interest on amounts advanced under the Reserve Fund Facility. The General Bond Resolution shall not be discharged or defeased while any obligations are owing in regard to a Reserve Fund Facility on deposit in such Series Debt Reserve Account. The Authority will not optionally redeem Bonds secured by a Reserve Fund Facility unless all amounts owing in regard to such Reserve Fund Facility on deposit in the Series Debt Reserve Account for such Bonds have been paid in full. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Debt Service Fund" herein.

The Rate Stabilization Fund

The Rate Stabilization Fund authorized by Section 502 of the General Bond Resolution shall be held by the Authority in an Account separate and apart from all other funds and Accounts of the Authority and payments therefrom shall be made as hereinafter provided. Moneys may be transferred by the Authority to the Rate Stabilization Fund from the Net Revenue Fund as provided in Section 504 of the General Bond Resolution as determined by an Authorized Officer. At any time, the Authority shall transfer from the Rate

Stabilization Fund to the Net Revenue Fund an amount determined by an Authorized Officer. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Rate Stabilization Fund" herein.

Subordinate Indebtedness Fund

Amounts on deposit in the Subordinated Indebtedness Fund shall be applied by the Trustee solely to the maintenance of reserves for, or the payment of, Subordinated Indebtedness, or as otherwise provided by the resolution of the Authority authorizing each issue of Subordinated Indebtedness.

If at any time the amount in any Series Debt Reserve Account in the Debt Reserve Fund with respect to any Senior Bonds shall be less than the Series Debt Reserve Requirement with respect to such Senior Bonds, the Trustee shall withdraw from the Subordinated Indebtedness Fund and deposit in the Debt Reserve Fund, for allocation to such Series Debt Reserve Account, the amount necessary (or all the moneys in said Fund, if less than the amount necessary) to make up such deficiency.

If, upon the payment in full of all Subordinated Indebtedness, any amount remains on deposit in the Subordinated Indebtedness Fund, such amount shall be transferred to the Net Revenue Fund. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Subordinated Indebtedness Fund" herein.

The Surplus Fund

There shall be deposited in the Surplus Fund all amounts required to be deposited therein pursuant to the General Bond Resolution and any other amounts received and determined to be deposited therein by the Authority.

Amounts in the Surplus Fund may at any time, as directed by the Certificate of an Authorized Officer, be transferred to the Capital Improvement Fund, the Redemption Fund or the Operating Fund or be paid to the Authority for any lawful purpose of the Authority in connection with the Sewer System.

To the extent that moneys on deposit in the Net Revenue Fund are insufficient to make the required interest and principal payments on Senior Bonds, moneys in the Surplus Fund shall be transferred to the Net Revenue Fund, and then there shall be withdrawals from the Rate Stabilization Fund, Capital Improvement Fund, Construction Fund, Debt Reserve Fund, Subordinated Indebtedness Fund and Operating Fund, in that order, to cure any such deficiencies. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – The Surplus Fund" herein.

The Rate Covenant

With respect to all direct or indirect connection with, and all use and services of, the Sewer System, the Authority shall make, impose, charge and collect service rates, charges, fees and tolls in accordance with the Authority Act. At least annually, the Authority shall cause the Rate Consultant to review and verify the adequacy of the rates and charges then in effect to meet the coverage test set forth in Section 709(C) of the General Bond Resolution.

The present schedule of rates and charges for services furnished by the Sewer System both within and outside the territorial limits of the Authority, including the service charges, minimum deposits, connection charges and meter rates, and the rules and regulations of the Authority relating therefor, may be adjusted or revised provided that the resulting Revenues satisfy the requirements set forth in Section 709(C) of the General Bond Resolution. All users receiving services from the Sewer System shall pay therefor at the established rates. There shall be no free services rendered by the Sewer System except that the Authority

may but is not required to exempt from sewer rent based on assessed valuation property exempted from real property taxes imposed by the City. Free services may be rendered by the Authority to the City for municipal buildings and other customary municipal purposes.

From time to time and as often as it shall appear necessary, the rates, charges, rents, sewer rents, fees and assessments established for the Sewer System will be adjusted whenever necessary or proper so that the Revenues collected in each Fiscal Year will be at least equal to the sum of (1) the amount estimated to be required in the current Fiscal Year to pay Operating Expenses, plus (2) the greater of (a) 120% of Debt Service on Senior Bonds for such Fiscal Year or (b) the sum for such Fiscal Year of (i) 100% of the Debt Service on Senior Bonds and Subordinated Indebtedness, (ii) the amounts estimated to be required to meet Debt Reserve Requirements with respect to any Bonds, (iii) the Renewal and Extension Requirement, and (iv) the Operating Reserve Requirement. In calculating Revenues pursuant to Section 709(C) of the General Bond Resolution, the Authority shall include transfers from the Rate Stabilization Fund to the Net Revenue Fund during such Fiscal Year (as provided in Section 509 of the General Bond Resolution), but only to the extent of 20% of Debt Service on Senior Bonds for such Fiscal Year, and transfers from the Net Revenue Fund to the Rate Stabilization Fund during such Fiscal Year (as provided in Sections 504(E)(1) and 509 of the General Bond Resolution. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Rate Covenant" herein.

The Failure to Comply with Covenants

If the Authority fails to adjust rates, charges, rents, sewer rents, fees and assessments (as provided in Section 709(C) of the General Bond Resolution), but the Authority in the next Fiscal Year has promptly taken all available measures to adjust such rates, charges, rents, sewer rents, fees and assessments as advised by a Rate Consultant retained by the Authority to review the operations of the System, there shall be no Event of Default (as described in Section 1002 of the General Bond Resolution) until at least the end of such next Fiscal Year and then only if Revenues are less than the amount required by Section 709 of the General Bond Resolution. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Rate Covenant" herein.

Events of Default

The following each constitute an "Events of Default" pursuant to the terms of the General Bond Resolution:

1. if default shall be made in the due and punctual payment of the principal or Redemption Price of any Sinking Fund Payment on any Bond when and as the same shall become due and payable, whether at maturity or upon call for redemption, or otherwise; or

2. if default shall be made in the due and punctual payment of any installment of interest on any Bond, when and as such interest installment shall become due and payable, and such default shall continue for a period of five days; or

3. if default shall be made by the Authority in the performance or observance of any other of the covenants, agreements or conditions contained in the General Bond Resolution, any Supplemental Resolution or in the Bonds, and such default shall continue for a period of forty-five days after written notice thereof to the Authority by the Trustee or to the Authority and to the Trustee by the holders of not less than 25% in principal amount of the Bonds Outstanding; or

4. if the Authority shall file a petition or otherwise seek relief under any federal or state bankruptcy or similar law;

then, upon the happening and continuance of any Event of Default specified in clause (1) or (2), the Trustee shall (by notice in writing to the Authority), or, upon the happening and continuance of any Event of Default specified in clause (3) or (4), the Trustee may, and upon the written request of the holders of not less than 25% in principal amount of the Bonds Outstanding the Trustee shall, in any such case unless the principal of all the Bonds then Outstanding shall already have become due and payable, declare the principal of all the Bonds then Outstanding, and the interest accrued thereon, to be due and payable immediately, and upon any such declaration the same shall become and be immediately due and payable, anything in the General Bond Resolution or in any of the Bonds contained to the contrary notwithstanding. The right of the Trustee to make any such declaration as aforesaid, however, is subject to the condition that if, at any time after such declaration, but before the Bonds shall have matured by their terms, all overdue installments of principal and interest upon the Bonds, together with the reasonable and proper charges, expenses and liabilities of the Trustee, and all other sums then payable by the Authority under the General Bond Resolution (except the principal of, and interest accrued since the next preceding interest date on, the Bonds due and payable solely by virtue of such declaration) shall either be paid by or for the account of the Authority or provision satisfactory to the Trustee shall be made for such payment, and all defaults under the Bonds or under the General Bond Resolution (other than the payment of principal and interest due and payable solely by reason of such declaration) shall be made good or be secured to the satisfaction of the Trustee or provision deemed by the Trustee to be adequate shall be made therefor, then and in every such case the holders of a majority in principal amount of the Bonds Outstanding, by written notice to the Authority and to the Trustee, may rescind such declaration and annul such default in its entirety, or, if the Trustee shall have acted without a direction from the holders of the Bonds as aforesaid at the time of such request, and if there shall not have been theretofore delivered to the Trustee written direction to the contrary by the holders of a majority in principal amount of the Bonds then Outstanding, then any such declaration shall ipso facto be deemed to be rescinded and any such default and its consequences shall ipso facto be deemed to be annulled, but no such rescission and annulment shall extend to or affect any subsequent default or impair or exhaust any right or power consequent thereon. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Events of Default" herein.

Incurrence of Additional Indebtedness

Except in the case of (A) Refunding Bonds or (B) additional Bonds issued to pay the capital cost of completing a Project for which Bonds have previously been issued, the Authority shall not issue additional Bonds unless the Revenues for any twelve (12) consecutive month period within the twenty-four (24) consecutive months immediately preceding the date of issuance of such additional Bonds (excluding any transfers between the Net Revenue Fund and the Rate Stabilization Fund during this period), are at least equal to the sum of (1) the amount required or estimated to be required in any future Fiscal Year described in the following clause (2) to pay Operating Expenses, plus (2) the greater of (a) 120% of the maximum Debt Service on Senior Bonds for any future Fiscal Year (calculated with respect to all Senior Bonds then Outstanding and the additional Bonds); or (b) 100% of the maximum Debt Service on the aggregate of any Senior Bonds and Subordinated Indebtedness for any future Fiscal Year (calculated with respect to all Bonds then Outstanding and the additional Bonds), excluding any amounts provided as capitalized interest from the proceeds of such Bonds but including Debt Service on such Bonds and on additional Bonds estimated by the Certificate of a Consulting Engineer as required to be issued to complete the Project to be financed with the proceeds of such Bonds; provided, however, that Revenues for such twelve (12) month period may be adjusted for purposes of Section 714 of the General Bond Resolution: (X) to reflect for such period revisions in the rates, fees, rentals and other charges of the Authority for the services of the System made after the commencement of such period and preceding the date of issuance of the additional Bonds;

(Y) to reflect any increase in Revenues due to any new facilities of the Sewer System having been placed into use and operation subsequent to the commencement of such period and preceding the date of issuance of the additional Bonds, as certified by the Consulting Engineer; and (Z) to include an amount equal to the average annual contribution to Revenues for the first three full Fiscal Years commencing after the date of acquisition thereof, estimated to be made by facilities anticipated to be acquired and expected to be placed into use and operation within two years of the date of issuance of such additional Bonds, as certified by the Consulting Engineer. See Appendix E - "Summary of Certain Provisions of the Bond Resolution – Provisions for Issuance of Bonds" herein.

ENFORCEABILITY OF REMEDIES

The Series 2021 Bonds are payable from the sources, and are secured, as described in this Official Statement. The practical realization of value from the collateral for the Series 2021 Bonds described herein upon any default will depend upon the exercise of various remedies specified by the General Bond Resolution and the Supplemental Resolution and the then-value of the collateral and other regulatory approvals. These and other remedies may, in many respects, require judicial actions which are often subject to discretion and delay.

Under existing law, the remedies specified by the General Bond Resolution and the Supplemental Resolution may not be readily available or may be limited. A court may decide not to order the performance of the covenants contained in those documents. The legal opinions to be delivered concurrently with the delivery of the Series 2021 Bonds will be qualified as to the enforceability of the various agreements and other instruments by limitations imposed by State and federal laws, rulings and decisions affecting remedies and by bankruptcy, insolvency, reorganization, moratorium or other laws affecting the enforcement of creditors' rights generally.

SOURCES AND USES OF FUNDS FOR THE SERIES 2021 BONDS

Sources:	
Aggregate Principal Amount of the Series 2021 Bonds	$
Original Issue Premium	$
TOTAL SOURCES OF FUNDS	$
Uses:	
Deposit into the Construction Fund	$
Deposit into the Series Debt Reserve Fund	$
Costs of Issuance[(1)]	$
Underwriter's Discount	$
TOTAL USES OF FUNDS	$

(1) Costs of Issuance include, without limitation, legal counsel fees, financial advisory fees, fees of the Trustee, Rating Agency fees, costs associated with the preparation and dissemination of this Official Statement, and to the extent applicable, fees associated with a Credit Facility and/or a Reserve Fund Facility.

BUFFALO SEWER AUTHORITY

Purposes and Powers of the Authority

Creation of the Authority. In 1935, the Legislature of the State of New York created the Authority, pursuant to the enactment of the Authority Act, as a body corporate and politic constituting a public benefit corporation. Pursuant to the Authority Act, the Authority assumed, in 1938, complete jurisdiction and control over the then-existing CSS (the combined sewer and storm water collection system) of the City. Both (i) the validity of the Authority Act and (ii) the separate existence of the Authority from the City were affirmed by the New York Court of Appeals in *Robertson v. Zimmerman*, 268 N.Y. 52 (1935).

Primary Statutory Powers of the Authority. The Authority Act empowers the Authority to dispose of the sewage of all municipalities within Erie County. The Authority has entered into contracts with several municipalities and sewer districts in Erie County to provide wastewater treatment services. See "THE AUTHORITY'S SERVICE AREA – Description of the Service Area of the Authority: The City and the Outside Districts" and "—Authority Service Contracts with the Outside Districts," herein. However, the Authority's primary service area is the territory within the boundaries of the City. Currently, approximately 70% of the wastewater treated by the Authority originates in the City. Pursuant to the Authority Act, the Authority is responsible for both the collection and treatment of sewage in the City.

Among the Authority's primary statutory powers, pursuant to the Authority Act, are the following:

- the power to construct, maintain, operate and improve its collection and treatment system (the "System");
- the power to fix and collect rates, rentals and other charges for its services subject to any applicable agreements with bondholders;
- the power to use and acquire property within or without the City by purchase or, in the name of and through the City, by condemnation;
- the power to make contracts;
- the power to fix and collect rates and rentals;
- the power to sue and be sued; and
- the power to borrow money and issue negotiable bonds and notes, and to provide for the rights of the holders thereof.

A Brief History of the Authority

During the early development of the City, the Niagara River was used as an economical and convenient means of disposal of the City's sewage. On June 8, 1882, the City created a five-person Board of Commissioners of Sewers to construct sewers throughout the City. The majority of the sewers were laid in the City between 1882 and 1900. The sewer system was constructed to carry combined sewage and stormwater to (i) the Buffalo River, (ii) Scajaquada Creek and (iii) Black Rock Canal. Untreated sewage was discharged directly into these water bodies at several points throughout the City. As the City continued to grow and expand, so did the volume and concentration of sewage discharged to these receiving water

bodies. The health of the receiving water bodies, as well as the surrounding environment, became severely threatened.

In 1935, the New York State Department of Health mandated that the City discontinue, without delay, pollution of the receiving water bodies. Persistent pollution and disease, as well as treaties between the United States and Canada (the "Boundary Waters Treaty"), led to a reassessment of the means by which, not only the City, but many cities adjacent to the United States – Canadian border, disposed of untreated sewage into receiving water bodies. The Niagara River was specifically identified as among the most important of the border receiving water bodies.

The Authority was created in the Spring of 1935, as a body corporate and politic constituting a public benefit corporation, pursuant to the Authority Act. Delegated to the Authority by the Authority Act was responsibility for providing an effectual means of relieving the Niagara River, other tributary streams and receiving water bodies from pollution by sewage and waste. The Authority was authorized to borrow money, issue bonds and provide for their repayment, fix and collect rates and rentals, and, in general, assume full responsibility for carrying out the mandate of the State Department of Health.

By 1938, the Authority had established a system of intercepting sewers to bring sewage from the City to a then-modern and efficient primary sewage treatment plant where solid matter was removed and incinerated, and all liquid matter chlorinated. With respect to the collection system, the City constructed a then-state-of-the-art combined sewer system (the CSS) that collected and transmitted both sewage and stormwater within a single pipe system. By design, the CSS was constructed with a number of overflow points, referred to as combined sewer overflows (the CSOs), which relieved the CSS during precipitation events when the large amounts of water (stormwater primarily) could have damaged the sewage treatment plant as well as private property (i.e., basement flooding). For decades following its construction, the System (and its CSS) served the City and surrounding suburbs effectively, and continues to do so today.

With increasing national awareness of the need to more fully protect our water resources, the State, in 1966, directed further improvements to the facilities of the Authority by requiring that the Authority provide secondary treatment. With the financial support of federal and State grants, secondary treatment facilities, which provide for additional treatment and disinfection of wastewater, were added by the Authority at the Bird Island Plant between 1975 and 1979, and placed in service in 1981. Throughout this period, the CSS continued to operate adequately with few improvements.

In the early 1990s, the regulatory focus shifted from the treatment facilities to the collection systems. In the City, and nationally, the emphasis was placed upon the impact of CSO events and on their reduction. In addition, the Authority recognized the general inadequacy of the stormwater capabilities of the existing CSS within the City, and developed a comprehensive plan for the enlargement and betterment of the capacity of the CSS in order to address stormwater. The Authority has since been engaged in the construction of sewers according to this plan, and has eliminated (i) a number of the System's designed CSOs and (ii) many areas of formerly prevalent basement and surface flooding. Over time, the need for continued reduction in the frequency and severity of CSO events has been recognized by regulatory agencies as well as the Authority, and, in recent years, all new construction has been planned by the Authority, whenever possible, to achieve this result.

The Comptroller of the State of New York and the New York State Authorities Budget Office have oversight of the Authority. In addition, the NYSDEC and the USEPA have oversight of the Authority, given its status as an environmental facility.

Organization and Management of the Authority

The Authority conducts its operations through five (5) departments: (i) the Sewage Treatment Department; (ii) the Sewer Maintenance Department; (iii) the Engineering Department; (iv) the Administrative Department; and (v) the Industrial Waste Department.

Pursuant to provisions of the Authority Act and via an agreement with the City entered into on February 2, 1983, the Authority makes use of the facilities and services of various City departments in connection with the administration and management of the Authority. Such services include: (i) billing and collection services performed for the Authority by the Buffalo Water Board in connection with the sewer rents of the Authority that are based upon water usage; and (ii) billing and collection services performed for the Authority by the City's Commissioner of Administration and Finance (the Department of Assessment and Taxation and the Department of Treasury) in connection with sewer rents of the Authority that are based upon assessed valuation of the real property to which service is provided by the Authority. In addition, the Comptroller of the City acts as the Comptroller of the Authority. The City's Commissioner of Administration and Finance acts in the same capacity for the Authority. Corporation Counsel to the City provides counsel to the Authority.

Various contractual arrangements that the City, the Buffalo Water Board and the Authority have entered into impact the provision of billing services for the Authority. The City and the Buffalo Water Board entered into an Operations Agreement, dated September 24, 1992, pursuant to the terms of which the Buffalo Water Board manages the City's water system in reliance upon City employees. Subsequently, the Buffalo Water Board entered into a Management Agreement, dated July 1, 2010, with Veolia Water North America–Northeast, LLC ("Veolia") to manage the operations of the City's water system. On June 11, 2014, the Authority, the Buffalo Water Board and Veolia entered into a Memorandum of Understanding that establishes policies and procedures to facilitate the billing and collection of customer accounts for both the water charges of the Buffalo Water Board and the sewer rents of the Authority that are based upon water usage, each in a manner consistent with applicable law and regulations. In addition, the billing and collection of those sewer rents of the Authority that are based upon assessed valuation of the real property to which service is provided by the Authority is provided by the City's Department of Assessment and Taxation and the City's Department of Treasury. The Authority considers its service arrangements with the City, the Buffalo Water Board, and Veolia to be efficient and economical and, although it is authorized to provide internally for all administrative functions currently being performed on its behalf by each of the City, the Buffalo Water Board, and Veolia, the Authority has no current plans to do so.

Membership of the Authority Board

Pursuant to the Authority Act, the Authority is governed by five (5) board members (the "Authority Board"), each serving three-year staggered terms and each of whom must be a resident of the City. Each member of the Authority Board is appointed by the Mayor of the City, subject to confirmation by the City Common Council. Members of the Authority Board may be re-appointed to successive terms, with no limit to the number of terms that may be served. Pursuant to the Authority Act and the New York Public Officers Law, all Authority Board members continue to hold office until their successors are appointed and qualified as provided above. Currently, there are two vacant Authority Board positions. The name of each current member of the Authority Board, their position on the Authority Board, and their occupation are as follows:

Table #3
The Authority Board

Name:	Position:	Term:	Occupation:
Herbert L. Bellamy, Jr.	Chairman	Pleasure of the Mayor	Chief Executive Officer of Bellamy Enterprises and Chief Executive Officer of Buffalo's Black Achievers, Inc.
Christopher Roosevelt	Vice Chairman	Pleasure of the Mayor	Buffalo Water Authority: Purchasing, Receiving and Stock Person
Eleanor Petrucci	Secretary	Pleasure of the Mayor	Supervisor of Food, Faculty Student Association of SUNY Buffalo and Supervisor of the Union Market Place

Senior Management of the Authority

Oluwole A. McFoy, P.E., General Manager and Chief Executive Officer

Oluwole A. McFoy serves as the General Manager and Chief Executive Officer of the Authority. Mr. McFoy possesses over two decades of leadership in the water sector, (i) advancing innovative strategies, (ii) delivering large-scale multi-million dollar comprehensive plans and capital projects, and (iii) developing and expanding equitable public health policies. Mr. McFoy earned a Bachelor of Science Degree in Civil Engineering from Clarkson University and a Certificate in Executive Management from the University at Buffalo. He is a licensed Professional Engineer registered in the State of New York.

Mr. McFoy joined the Authority in 2006, has served as the Secretary to the General Manager and the Principal Sanitary Engineer and, in 2015, was appointed as the Authority's General Manager and Chief Executive Officer. Mr. McFoy brings a commitment to diversifying the Authority's workforce and stimulating the local Buffalo economy. He facilitated the development of the Authority's award-winning Rain Check 2.0 Program that identifies nature-based solutions to CSO events, regional flooding and stormwater challenges, while reimagining Buffalo's resiliency efforts through an equity lens.

Mr. McFoy has served as Chairman of the Buffalo Water Board since 2007, and serves on the following national, regional and State Boards dedicated to promoting the value of water and changing the culture of the water sector: the National Association of Clean Water Agencies; the US Water Alliance; the Water Agency Leaders' Alliance; and the New York Water and Environment Association. In addition, Mr. McFoy holds board positions locally with Buffalo Erie Niagara Land Improvement Corporation and the Buffalo Society of Natural Sciences, while also serving as an active member of several other community organizations.

See "THE AUTHORITY SYSTEM – Recent Awards Received by the Authority" for a description of various awards received by Mr. McFoy in connection with his leadership of the Authority.

Thomas Smith, Secretary to the General Manager and Chief of Staff

Thomas Smith serves as Secretary to the General Manager and the Chief of Staff for the Authority. Mr. Smith oversees the Authority's business and external affairs. He is the principal confidential advisor to the General Manager, with an extensive background in municipal government. He reviews operating procedures, directs strategic initiatives, and supports interdepartmental functions.

Mr. Smith earned a Bachelor of Science Degree in History from Buffalo State College. He joined the Authority in 2014. Prior to joining the Authority, Mr. Smith was Director of Parks and Recreation for the City of Buffalo.

Ronald Brown, Executive Secretary and Chief Financial Officer

Ronald Brown serves as the Executive Secretary and the Chief Financial Officer of the Authority. He holds a Bachelor of Science Degree in Accounting from the University at Buffalo. Mr. Brown possesses over three decades of experience in financial accounting, federal tax preparation, and financial services. Mr. Brown is responsible for the Authority's approximately $55 million annual budget and overall financial management and policies, including accounting operations, procurement, budgeting, investment and debt management, and financial risk analysis.

Prior to joining the Authority in 2007 as Executive Secretary and Chief Financial Officer, Mr. Brown served as a Senior Commercial Portfolio Manager with Fleet Bank N.A., in which capacity he was responsible for a portfolio consisting of 65 relationships with total commitments of $378 million and outstanding balances of $220 million. His responsibilities included ensuring the ongoing quality of the loan portfolio through the identification of loan risk, preparation of financial statement analysis and commercial underwriting of various senior debt facilities.

Mr. Brown previously served as an Internal Revenue Agent with the U.S. Department of Treasury. Currently, he serves as an adjunct instructor in financial accounting at Buffalo State College.

Gelea Y. James, Director of Employee Relations

Gelea Y. James serves as the Director of Employee Relations for the Authority. Ms. James joined the Authority in such capacity in 2017. She holds a Bachelor of Science Degree in Human Resources and a Masters of Arts Degree in Organizational Leadership from Medaille College. Ms. James has been working in a leadership role in Human Resources for over 15 years.

At the Authority, her responsibilities include direct management of all human resource systems, including labor relations, employee services, environmental health and safety, employee training, employee benefits and performance management. She also is responsible for coaching and counseling over 200 full-time employees, while developing and administering the Authority's human resources policies.

Prior to joining the Authority in 2017, Ms. James worked at Roswell Park Comprehensive Cancer Center as the Manager of Employee Benefits and Services.

Roberta Gaiek, P.E., Treatment Plant Administrator and Chief Water Resource Recovery Facility Engineer

Roberta L. Gaiek has served as the Treatment Plant Administrator for the Authority for over twenty (20) years. She obtained her Bachelor of Science Degree in Civil Engineering and a Master of Science Degree

in Environmental Engineering from the University at Buffalo. Ms. Gaiek serves as the lead engineer for the water resource recovery facility's Capital Improvement Program. In this role, Ms. Gaiek is responsible for facility planning, design and construction with respect to the Bird Island Plant.

Prior to joining the Authority, she worked as an Environmental Engineer with Malcom Pirnie, Inc., which is a firm that provides environmental engineering, science and consulting services.

Ms. Gaiek is a member of the New York Water Environment Association, and has served as the Chair and a Board Member of the Western Chapter of the New York Water Environment Association. She also is a member of the Program Committee of the local Greater Buffalo Environmental Conference.

Alexander Emmerson, Acting Treatment Plant Superintendent

Mr. Emmerson has been employed by the Authority for fourteen (14) years. From 2007 through 2015, he served as a Wastewater Operator II, and from 2015 through 2020 he served as a permanent Shift Superintendent, with responsibilities that included serving as the Shift Superintendent for the treatment plant as well as the Process Coordinator. Mr. Emmerson currently is the Acting Treatment Plant Superintendent, responsible for daily operations, laboratory oversight, industrial waste programs and regulatory permitting.

Mr. Emmerson holds a Bachelor of Science Degree in Social Science Interdisciplinary from the University at Buffalo. He possesses a Grade 4A Wastewater Treatment Operator – NYSDEC Certification. Prior to joining the Authority, Mr. Emmerson was responsible for a number of environmental positions, including asbestos air monitoring and wastewater treatment operations, at different facilities in Western New York State.

Mr. Emmerson is an active member of the New York Water Environment Association, including holding past roles with the local chapter and current roles as a State committee chair and a graduate of the Water Environment Association's Water Leadership Institute.

Paul Harris, Superintendent of Mechanical Maintenance

Mr. Harris joined the Authority in 2018. As Superintendent of Mechanical Maintenance, Mr. Harris is responsible for Facility Asset Management of the entire wastewater treatment plant and all associated outlying stations. Mr. Harris also is responsible for overseeing Safety and Security, Yards and Grounds, Green Infrastructure Maintenance, the Stock & Inventory department, and the Information Technology department.

Paul Harris brings to the Authority over fifteen (15) years of mechanical engineering and project management experience from the private sector. Prior to joining the Authority, Mr. Harris was a Senior Mechanical Equipment Engineer with Praxair, Inc. During his tenure at Praxair, Mr. Harris was a rotating equipment specialist and oversaw word-wide Air Separation Plant development pertaining to major equipment integration, design review, product line development, mechanical & aerodynamic performance testing, commissioning and start-up of in-line radial isothermal compressors up to 50,000 HP and double-ended surface condensing steam turbines up 80,000 HP. Paul also oversaw design and integration of cryogenic systems and plant cooling systems, and provided senior technical support and expertise on static and rotating equipment to all global engineering regions. Mr. Harris holds a Bachelor of Science Degree in Mechanical Engineering from the University at Buffalo. Mr. Harris also holds a Project Management Professional certification.

General Counsel

Currently, the position of General Counsel to the Authority is vacant, and the Authority is engaged in an active search for purposes of an appointment to this position. An Authority staff attorney is acting in an interim capacity until the appointment of a new General Counsel is completed. In addition, Barclay Damon LLP (as successor by merger to Hiscock Barclay and Damon Morey) has been retained by the Authority since 1981 to represent it in various litigation and other legal matters, in addition to its role as Bond Counsel to the Authority in connection with the issuance of Authority indebtedness, including, without limitation, the Series 2021 Bonds. Other law firms are retained regularly by the Authority as outside counsel to represent it in connection various litigation, employment and other legal matters. Pursuant to the Authority Act, the City's Corporation Counsel is the attorney for the Authority; however, due to the establishment by the Authority of the position of General Counsel to the Authority and the Authority's regular retention of outside counsel, the role of the City's Corporation Counsel in representing the Authority has been limited.

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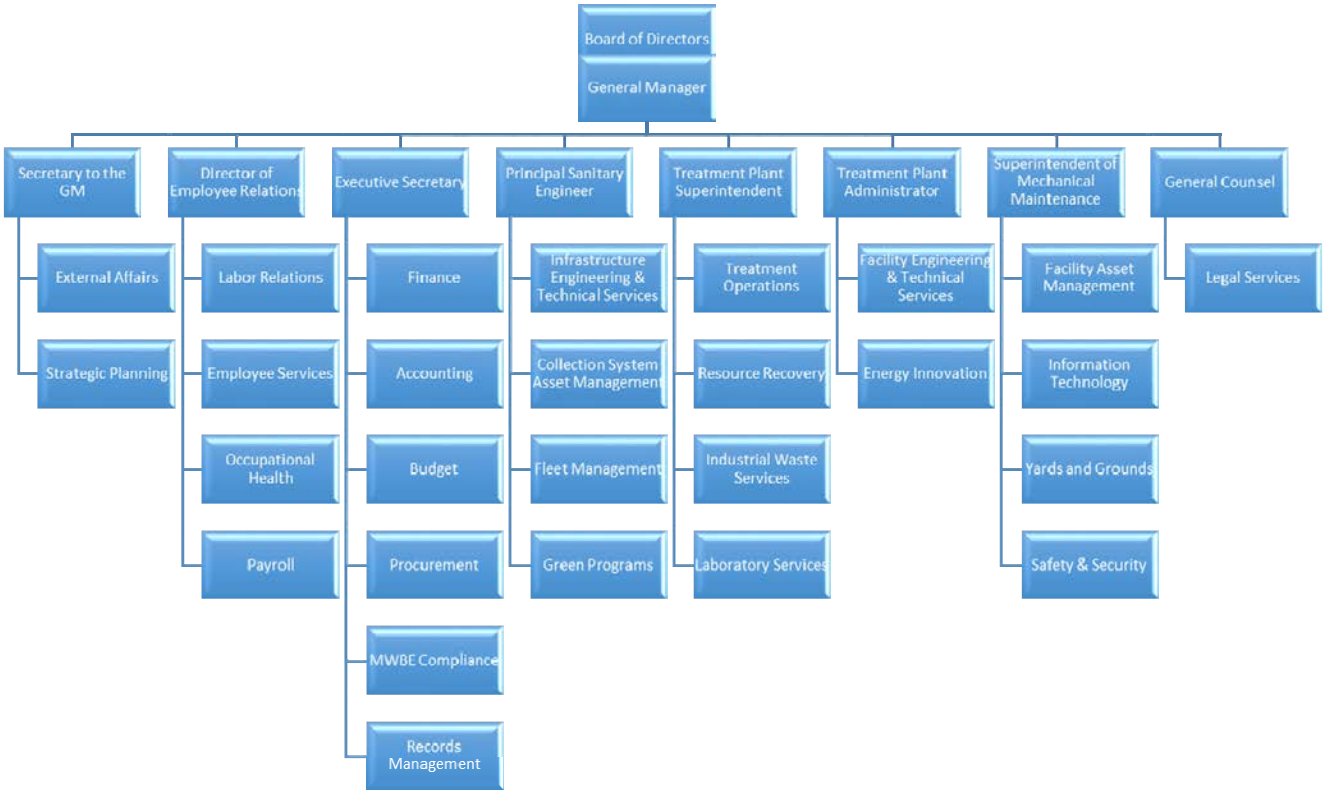
Chart #2: The current organizational chart of the Authority is set forth below.

Organizational Chart of the Authority



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Employees of the Authority

As of December 1, 2020, 227 individuals were employed by the Authority and organized pursuant to the following Authority departments.

Table #4
Authority Departments and Employees

Authority Department	Number of Employees
Administration	22
Sewage Treatment	128
Industrial Waste	8
Engineering	12
Sewer Maintenance	57
Total:	**227**

The Authority recently took part in a strategic management program, which yielded recommendations to more efficiently utilize its personnel. The Sewage Treatment Department and the Sewer Maintenance Department currently are developing and implementing employee training initiatives in order to develop skilled staff, as all Authority areas of specialization face the loss of many long-term personnel due to retirement.

Representation of Authority Employees by Collective Bargaining Units

Authority employees are represented by two bargaining units. The Communications Workers of America (the "CWA") represents the Authority's blue collar employees, and the Civil Service Employees Association (the "CSEA") represents the Authority's white collar employees. Each union has negotiated a respective contract with a termination date of June 30, 2022. It is anticipated by the Authority that negotiations will commence in January of 2022 with respect to a new contract with each bargaining unit.

Pension and Insurance Liabilities of the Authority

All employees of the Authority are members of, and participants in, the New York State & Local Retirement System (the "ERS"). The ERS provides retirement benefits, as well as death and disability benefits. The net position of the ERS is held in the New York State Common Retirement Fund (the "Fund"), which was established to hold all net assets and record changes in plan net position allocated to the ERS. The Comptroller of the State of New York serves as the trustee of the Fund and is the administrator of the ERS. The ERS benefits are established pursuant to the provision of the New York State Retirement and Social Security Law. Once a public employer elects to participate in the ERS, the election is irrevocable. The New York State Constitution provides that pension membership is a contractual relationship, and plan benefits cannot be diminished or impaired. Benefits can be changed for future members only by enactment of a State statute. The Authority also participates in the ERS Group Life Insurance program, which provides death benefits in the form of life insurance. The ERS is included in the State's financial report as a pension trust fund.

The ERS is noncontributory, except for (i) employees who joined the ERS after July 27, 1976, which employees contribute three percent (3%) of their salary for the first ten (10) years of membership, and (ii) employees who joined the ERS on or after January 1, 2010, which employees generally contribute three percent (3.0%) to three and one half percent (3.5%) of their salary for their entire length of service. In

addition, employee contribution rates under ERS tier VI vary based upon a sliding salary scale. For the ERS, the State Comptroller annually certifies the actuarially determined rates expressly used in computing the employers' contributions based upon salaries paid during the ERS's fiscal year ending March 31.

The Authority provides employees with health insurance and dental insurance. The Authority also provides health insurance benefits for retirees, spouses and their covered dependents at no cost to the retirees under a single-employer postemployment benefit plan.

As of the conclusion of the 2020 fiscal year of the Authority (June 30, 2020), the following Authority employees and spouses were covered by the above-described retirement benefit terms:

Table #5
Employees and Spouses Receiving Retirement Benefits

Active, not eligible to retire	105
Active, eligible to retire	49
Retired and surviving spouses	205
Retiree spouses	130
Total:	**489**

Table #6, below, presents the total benefit expenses of the Authority for each of the last five fiscal years. Such benefits include health and dental insurance, life insurance, ERS benefits, workers' compensation and unemployment.

Table #6
Total Benefit Expenses of the Authority
Last Five Fiscal Years

6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
$8,564,882	$9,128,640	$9,325,229	$9,318,973	$9,850,818

The net pension liability for the ERS was last measured as of March 31, 2020 (the conclusion of the State's 2020 fiscal year). The total ERS pension liability used to calculate the ERS net pension liability was determined by actuarial valuations as of April 1, 2019, with update procedures used to roll forward the total pension liability to the measurement date. The Authority's proportion of the ERS net pension liability was based upon a projection of the Authority's long-term share of contributions to the ERS relative to the projected contributions of all ERS participating members, actuarially determined. This information was provided by the ERS in a report provided to the Authority:

Measurement date:	March 31, 2020
Net pension liability:	$11,256,816
Authority's portion of the ERS's total net pension liability:	0.0425097%

The Authority's total "Other Postemployment Benefit" liability of $81,502,059 was measured as of June 30, 2020, and was determined by an interim actuarial valuation as of that date.

THE AUTHORITY'S SERVICE AREA

Description of the Service Area of the Authority: The City and the Outside Districts

The service area of the Authority (the "Service Area") encompasses approximately 110 square miles, and includes all of the area within the corporate limits of the City and certain communities outside the corporate limits of the City. Outside the corporate limits of the City, the Authority has entered into service contracts with (i) twelve (12) sewer districts in Erie County (as identified below), (ii) the Town of Cheektowaga, and (iii) the Village of Sloan, from each of which the Authority receives and treats sanitary sewage pursuant to the terms of the respective service contracts. The municipalities served pursuant to the terms of the service contracts (via the 12 sewer districts or directly) include: the Towns of Alden, Cheektowaga, Elma, Lancaster, Tonawanda and West Seneca, and the Villages of Depew, Lancaster and Sloan. The Authority has not entered into a service contract with the City, as the Authority's provision of services to the City is statutory, pursuant to the terms of the Authority Act, as opposed to contractual. The Authority serves a total population within its Service Area consisting of approximately 550,000 residents.

Table #7, below, identifies, (i) for each of the last ten fiscal years, the flow (presented as millions of gallons per day (MGD)) to the Bird Island Plant as derived by the Authority from each section of the Service Area, (ii) the ten-year MGD average flow to the Bird Island Plant as derived by the Authority from each section of the Service Area, and (iii) the ten-year average percentage of flow to the Bird Island Plant as derived by the Authority from each section of the Service Area.

Table #7
Source of Service Area Flow to the Bird Island Plant
Last Ten Fiscal Years
Including the 10-Year Average Percentage

Service Area:	10 Year Avg. Percentage	10 Year Average	6/30/2011	6/30/2012	6/30/2013	6/30/2014	6/30/2015	6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
County of Erie Sewer District No. 1	**4.199%**	**5.380**	5.571	5.195	5.020	5.568	5.476	3.979	5.638	5.692	5.746	5.921
County of Erie Sewer District No. 4	**11.019%**	**14.120**	13.608	12.793	12.782	14.999	14.110	13.233	14.512	14.385	14.719	16.055
Town of Cheektowaga	**7.738%**	**9.915**	10.300	9.160	9.060	10.380	9.710	8.690	10.090	10.500	10.900	10.360
Town of West Seneca Sewer District Nos. 5, 13 and 14	**5.507%**	**7.057**	6.560	5.500	5.370	7.301	7.040	5.965	7.627	8.276	7.701	9.227
Town of West Seneca Sewer District Nos. 1, 2, 3, 4, 9 and 10	**0.304%**	**0.389**	0.260	0.303	0.075	0.389	0.356	0.935	0.458	0.509	0.493	0.112
Town of West Seneca Sewer District No. 15	**0.008%**	**0.010**	0.003	0.004	0.003	0.003	0.003	0.002	0.004	0.005	0.004	0.067
Village of Sloan	**0.454%**	**0.582**	0.568	0.509	0.588	0.579	0.602	0.565	0.643	0.602	0.628	0.535
City of Buffalo	**70.771%**	**90.681**	99.230	91.077	83.602	91.781	83.604	81.231	86.127	93.831	95.609	100.723
Total Treatment Plant Flow (MGD)		**128.134**	136.100	124.540	116.500	131.000	120.900	114.600	125.100	133.800	135.800	143.000
Total Flow from Outside Districts (MGD)		**37.453**	36.870	33.464	32.898	39.219	37.296	33.369	38.973	39.969	40.191	42.277

The infrastructure connections to each of the twelve (12) sewer districts and two (2) municipalities that are located outside the corporate limits of the City (the "Outside Districts"), pursuant to which the Authority provides sanitary sewage treatment services to the Outside Districts, were constructed prior to the statutory establishment of the Authority. In the 1960s, the USEPA and the NYSDEC formally mandated that the Outside Districts transmit sanitary sewage to the Authority via the existing collection system for treatment by the Authority. It was in connection with such formal mandate by the USEPA and the NYSDEC that the Authority entered into a service contract with each of the Outside Districts. The below table identifies (i) each of the Outside Districts, (ii) each of the seven (7) service contracts that have been entered into and (iii) the date such service contracts were entered into. In addition, in order to comply with the general pretreatment regulations of the federal Clean Water Act, the Authority was regulatorily required by the USEPA to implement and enforce a pretreatment program throughout its Service Area, including with respect to the Outside Districts. Therefore, between 1984 and 1986 (as indicated in the table, below), the Authority amended the service contract with each Outside District for the purpose of establishing and enforcing the pretreatment program requirements for each such Outside District. Finally, Table #8, below, also reflects the most recent contractual revision that the Authority has entered into with respect to each service contract.

Table #8
Service Contracts with the Outside Districts

Service Contracts with the Outside Districts:	Original Contract Date:	Pretreatment Program Amendment:	Most Recent Revision:
County of Erie Sewer District No. 1	1962	1984	1996
County of Erie Sewer District No. 4	1972	1984	1996
Town of Cheektowaga	1977	1984	1996
Town of West Seneca Sewer District Nos. 5, 13 & 14	1960	1986	1996
Town of West Seneca Sewer District Nos. 1, 2, 3, 4, 9 & 10	1979	1986	1996
Town of West Seneca Sewer District No. 15	1979	1986	1996
Village of Sloan	1979	1984	1996

See also, "THE AUTHORITY'S SERVICE AREA – Authority Service Contracts with the Outside Districts" below.

The provision of sewage treatment services by the Authority to Erie County Sewer District No. 4 and the Town of Cheektowaga, in part, is pursuant to the conclusions reached in the modified "Regional Sanitary Sewage Plan Program" (the "Regional Program"), adopted by the Erie-Niagara Counties Regional Planning Board and thereafter approved by the NYSDEC. Pursuant to the terms of the Regional Program, the Authority has responsibility for sewage treatment in the Central Region of Erie County (i.e., Erie County Sewer District No. 4 and the Town of Cheektowaga), with service provided in the three other designated regions within Erie County by non-Authority major facilities located in the Towns of Amherst and Tonawanda (Northern Region), Hamburg (Southwestern Region) and at a location in the Southern Region.

The Regional Program consists only of guidelines, and the Authority provides sewage treatment services within the Central Region on a contractual basis, as described above. There can be no assurance that the Regional Program will not be modified in the future. However, the Central Region governmental units (i.e., Erie County Sewer District No. 4 and the Town of Cheektowaga) remain under contract with the Authority as and to the extent described above. The Authority currently has contractual arrangements with all of the governmental units having jurisdiction over the populated areas in the Central Region. Therefore, the

Authority currently projects that additional future sewage flow from the Central Region will result from increasing population in the areas currently under service contracts rather than as the result of the execution of additional service contracts with additional government units.

Since the establishment of the Authority, but excluding the ninety-six (96) properties described, below (under the subheading, "Non-City Direct Sewer Connections: Retail Service to Portions of Certain Contiguous Municipalities"), the twelve (12) sewer districts and two (2) municipalities that constitute the Outside Districts, as described above, are the only districts and municipalities, outside of the City, to which the Authority has provided sewage treatment services and with which the Authority has entered into a service contract. Therefore, the Authority has not had an experience in which a sewer district or municipality to which it had provided sewage treatment services and/or entered into a service contract thereafter terminated such services and/or service contract. The composition of the Service Area, therefore, has remained consistent since the establishment of the Authority.

See also the subheading, below, "Non-City Direct Sewer Connections: Retail Service to Portions of Certain Contiguous Municipalities" for a description of the provision by the Authority of full sewer service (collection and treatment) to ninety-six (96) properties that are located outside the City, in municipalities that are contiguous to the City. In addition to the above-described sanitary sewer connections to the Outside Districts, there also are MS4 connections between the Authority's MS4 collection system and certain municipalities, other than the City, which service is not the subject of the service agreements with the Outside Districts and which service does not generate revenue for the Authority. For a discussion of such MS4 connections, please see "THE AUTHORITY SYSTEM – Description of the Authority's Collection System – MS4 Connections to Certain Municipalities."

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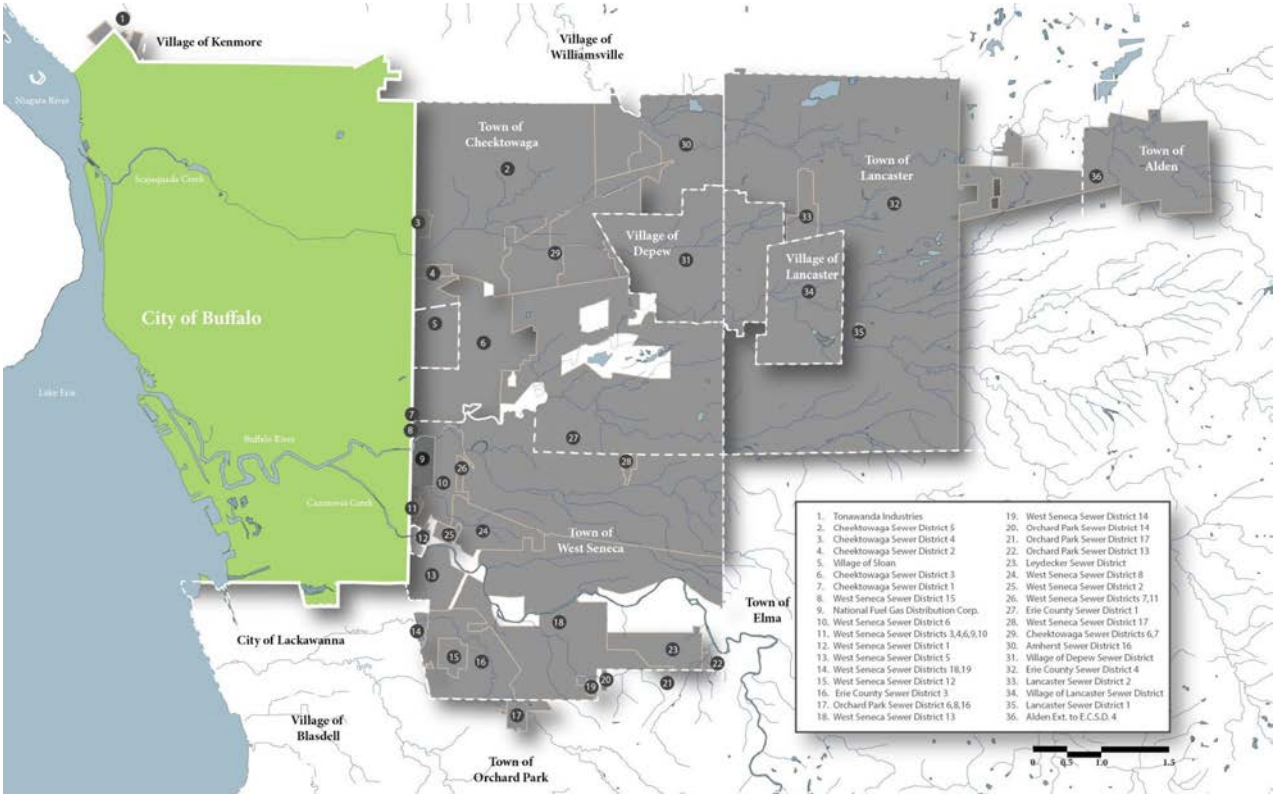
Map #2: The Service Area of the Authority, which includes the Outside Districts.



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The Authority's Customer Base within the City

Table #9, below, identifies the number of Authority customers by type (residential versus commercial) in each of the last ten (10) fiscal years.

Table #9
Number of Sewer Customers by Type
Last Ten Fiscal Years

	Customers	
Fiscal Year	Residential	Commercial
2011	100,613	515
2012	101,462	498
2013	102,628	555
2014	103,562	563
2015	104,327	684
2016	104,920	760
2017	105,148	992
2018	105,633	1,072
2019	107,278	1,081
2020	107,689	1,177

Table #10, below, identifies the ten (10) largest Authority customers, located within the City, as of June 30, 2020, based upon total sewer rent and industrial waste surcharge paid by each. These ten (10) largest Authority customers represent 6.00% of total System revenue.

Table #10
Ten Largest Authority Customers
June 30, 2020

	Authority Customer:	Type of Business:	Sewer Rent Based upon Assessed Valuation:	Sewer Rent Based upon Water Use:	Industrial Waste Surcharge:	Total Sewer Rent and Industrial Waste Surcharge:	Percentage of Total System Revenue:
1	Buffalo Municipal Housing Authority	Municipal Housing	$170,079	$522,639	--	$692,718	1.38%
2	Galbani (Sorrento-Lactalis)	Consumer Foods	6,865	189,991	$276,856	473,712	0.94%
3	Aurubis Buffalo	Copper Mill	6,831	382,312	--	389,142	0.77%
4	Panasonic Solar (Tesla)	Factory	--	329,199	--	329,199	0.66%
5	VA Financial Services Center	Hospital	--	265,673	--	265,673	0.53%
6	Erie County Medical Center	Hospital	--	223,570	--	223,570	0.44%
7	Niagara Mohawk/National Grid	Utility	179,277	10,193	--	189,470	0.38%
8	Kaleida Health	Hospital	--	168,418	2,431	170,849	0.34%
9	City of Buffalo Board of Education	School District	--	146,840	--	146,840	0.29%
10	Mercy Hospital	Hospital	--	134,291	--	134,291	0.27%
	Total:		$363,052	$2,373,126	$279,287	$3,015,465	6.00%

Non-City Direct Sewer Connections: Retail Service to Portions of Certain Contiguous Municipalities

Notwithstanding the above description of the Service Area as consisting of the City and the Outside Districts, the Authority additionally provides full sewer service (collection and treatment) to ninety-six (96)

properties that are located outside the City, in municipalities that are contiguous to the City (the "Non-City Direct Sewer Connections"); however, such service is not provided pursuant to any of the Outside District service agreements. Of these ninety-six (96) Non-City Direct Sewer Connection properties: (i) seventy-one (71) are located in the Town of Cheektowaga; (ii) twelve (12) are located in the Town of West Seneca; (iii) twelve (12) are located in the Town of Tonawanda; and (iv) one (1) is located in the City of Lackawanna. In each case, these Non-City Direct Sewer Connection properties that receive sewer service from the Authority are immediately adjacent to the municipal border; their receipt of sewer service from the Authority is a result of such proximity to the municipal border and the functional practicality of receiving such sewer service from the Authority notwithstanding the fact that such properties are located just outside the City.

Authority Service Contracts with the Outside Districts

There currently are seven (7) service contracts that the Authority has entered into relating to the provision of sewage treatment services by the Authority to the Outside Districts. See "THE AUTHORITY'S SERVICE AREA – Description of the Service Area of the Authority: The City and the Outside Districts." The Authority's service contracts with the Outside Districts do not include a stated termination date, but are terminable at any time at the option of the respective Outside District. Any Outside District that might terminate its service contract with the Authority would be required to incur material capital expenses in order to develop its own treatment facilities as an alternative to the provision of sewage treatment services by the Authority. For this reason and as a result of the USEPA and NYSDEC mandate relating to the provisions of sewage treatment services by the Authority to the Outside Districts, the Authority anticipates the indefinite continuation of each of its existing service contracts.

Pursuant to the terms of each service contract, the respective Outside District is subject to an annual service fee. An independent auditor is retained by the Authority to assist the Authority in producing a "Cost Allocation Report" with respect to the calculation of each Outside District's annual service fee. Such calculation is based upon a complex formula consisting of prescribed charges and percentages that are defined in the "Manual of Sanitary Sewer Charges" that is included as part of each service contract. The annual service fee is manually calculated in reliance upon (i) an empirical measure of Authority costs (as audited) allocable to each Outside District (reflective of the following cost categories: the Bird Island Plant; general administration; sewer maintenance; miscellaneous City services; Authority debt service; and general project costs), (ii) individually specified rates for each Outside District (predetermined in the Manual of Sanitary Sewer Service Charges), (iii) each Outside District's allocable share of the total annual flow of sewage that is treated at the Bird Island Plant, (iv) the number of permitted industrial waste users, and (v) an allocable share of Authority debt service. Pursuant to the calculations set forth in the "Cost Allocation Report," the Outside Districts are billed by the Authority twice each year: (i) prior to June 1 of each year, each Outside District is billed 80% of its total annual service fee as calculated for the preceding year, with payment due on July 1 of each year (or within 30 days of the date of the bill, if billed after June 1); and (ii) on approximately October 15 of each year, each Outside District is billed 20% of its total annual service fee as calculated for the preceding year, with payment due within 45 days of the date of the bill. The service contracts establish arbitration as the method for any dispute resolution between the parties with respect to the calculation of the annual service fee.

Table #11, below, identifies, for each of the last ten (10) fiscal years, the revenue derived by the Authority from each Outside District, pursuant to its respective service contract, as a percentage of total annual Authority revenue.

Table #11
Percentage of Authority Revenue Derived from the Outside Districts
Last Ten Fiscal Years

Outside District	6/30/2011	6/30/2012	6/30/2013	6/30/2014	6/30/2015	6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
County of Erie Sewer District No. 1	3.276%	3.137%	3.256%	3.671%	3.381%	3.480%	3.651%	3.467%	3.132%	3.799%
County of Erie Sewer District No. 4	7.339%	6.994%	7.091%	7.600%	7.589%	7.535%	8.698%	8.053%	7.258%	8.968%
Town of Cheektowaga	5.450%	5.222%	5.138%	5.277%	5.175%	5.042%	5.541%	5.453%	5.136%	4.321%
Town of West Seneca Sewer District Nos. 5, 13 & 14	3.509%	3.365%	3.650%	3.709%	4.295%	4.325%	4.122%	4.542%	4.391%	4.943%
Town of West Seneca Sewer District Nos. 1, 2, 3, 4, 9 & 10	0.208%	0.200%	0.147%	0.205%	0.230%	0.220%	0.242%	0.275%	0.273%	0.319%
Town of West Seneca Sewer District No. 15	0.019%	0.001%	0.002%	0.002%	0.001%	0.002%	0.002%	0.002%	0.002%	0.003%
Village of Sloan	0.276%	0.265%	0.283%	0.292%	0.338%	0.319%	0.367%	0.355%	0.303%	0.382%
Percentage of Total System Revenue Derived from Outside Districts	20.078%	19.184%	19.567%	20.757%	21.010%	20.923%	22.623%	22.148%	20.495%	22.734%

Table #12, below, identifies, for each of the last ten (10) fiscal years, the revenue derived by the Authority from each Outside District, pursuant to its respective service contract.

Table #12
Authority Revenue Derived from the Outside Districts
Last Ten Fiscal Years

Outside District:	6/30/2011	6/30/2012	6/30/2013	6/30/2014	6/30/2015	6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
County of Erie Sewer District No. 1	$1,770,954	$1,751,185	$1,819,533	$1,988,812	$ 2,090,357	$ 1,979,372	$2,261,461	$2,178,158	$1,824,880	$2,105,051
County of Erie Sewer District No. 4	$3,967,094	$3,903,768	$3,962,397	$4,117,120	$ 4,692,388	$ 4,285,434	$5,388,601	$5,058,906	$4,229,320	$4,968,835
Town of Cheektowaga	$2,946,113	$2,914,659	$2,871,315	$2,858,576	$ 3,199,783	$ 2,867,479	$3,432,611	$3,425,153	$2,992,427	$2,393,942
Town of West Seneca Sewer District Nos. 5, 13 & 14	$1,897,124	$1,878,102	$2,039,790	$2,009,306	$ 2,655,605	$ 2,459,505	$2,553,715	$2,853,319	$2,558,418	$2,738,558
Town of West Seneca Sewer District Nos. 1, 2, 3, 4, 9 & 10	$112,394	$111,365	$82,069	$111,233	$142,267	$125,310	$150,119	$172,658	$158,940	$176,918
Town of West Seneca Sewer District No. 15	$10,500	$760	$1,010	$877	$883	$876	$942	$1,422	$1,375	$1,435
Village of Sloan	$149,411	$147,807	$158,275	$158,349	$182,812	$181,532	$227,240	$222,784	$176,589	$211,525
Total Revenue Derived from Outside Districts:	$10,853,590	$10,707,646	$10,934,389	$11,244,273	$12,964,095	$11,899,508	$14,014,689	$13,912,400	$11,941,949	$12,596,264

THE AUTHORITY SYSTEM

Introduction

The Authority owns and operates one of the largest wastewater treatment facilities in the State and a collection system that includes components that were constructed in the 1800s. A diverse staff of operators, chemists, laborers, maintenance personnel, supervisors and management are required to operate and maintain the Authority's collection system and its wastewater treatment facilities in order to ensure the protection of both the public health and the environment. See Appendix C hereto, "Environmental Impact Bond Engineering Report," for a detailed description of the Authority System.

Historic Evolution of the Authority's Collection System

The earliest section of the CSS within the City was laid in the 1840s and the 1850s as part of a comprehensive plan to sewer what is now the downtown core of the City. During the late nineteenth and early twentieth centuries, sewers were installed throughout the vast majority of the City, but, as with the earlier sewers, they discharged directly to the nearest waterbody. In the 1930s, interceptor sewers were installed to collect the dry weather flow and the first flush of wet weather flows and convey them to the Authority's Bird Island Plant and, at the same time, allow additional flows to overflow into the nearest waterbodies. Since the 1930s, the Authority has upgraded its collection system to (i) provide better flood protection for residents, (ii) convey a greater portion of the wet weather flows to the Bird Island Plant, and (iii) bring sanitary wastewater from Service Area districts outside of the City (i.e., the Outside Districts) to the Bird Island Plant. In the 1970s, the Authority oversaw the extension of forcemains and pumping stations to Kelly Island (located in the Buffalo River) and the construction of the Scajaquada Tunnel to divert combined sewer overflows from Scajaquada Creek.

The infrastructure connections to each of the Outside Districts (and the wastewater collection infrastructure thereof), pursuant to which the Authority provides sanitary sewage treatment services to such Outside Districts, were constructed prior to the statutory establishment of the Authority.

Historic Evolution of the Authority's Treatment System

Immediately after the establishment of the Authority in 1935, the Bird Island Plant was constructed by the Authority and began operation on July 1, 1938. With the financial support of federal and State grants, secondary treatment facilities, which provide for additional treatment and disinfection of wastewater, were added by the Authority at the Bird Island Plant between 1975 and 1979, and placed in service in 1981. In 2005, a new grit removal facility was brought online at the Bird Island Plant, replacing the original grit removal system.

Description of the Authority's Collection System

Introduction. The Authority's collection system currently consists of approximately 850 miles of sewer lines: (i) approximately 790 miles of combined sewer (the CSS) lines; and (ii) approximately 60 miles of storm sewer lines. The Service Area of the Authority within the City is served primarily by the Authority's CSS. As of 2020, there were approximately 107,689 residential connections and approximately 1,177 commercial, industrial and governmental connections to the Authority's collection system.

The CSO Outfalls. The CSS was constructed with 65 permitted CSOs outfalls to relieve the CSS during wet weather events in order to protect downstream treatment facilities (the Bird Island Plant) and to prevent basement flooding. In recent years, the Authority has completed numerous CSS capital improvement projects resulting in the elimination of seven (7) CSO outfalls. Currently, the Authority's collection system consists of 52 permitted CSO outfalls. These CSO outfalls discharge to the Niagara River, the Buffalo River, the Black Rock Canal, Erie Basin Marina, Cazenovia Creek, Scajaquada Creek and Cornelius Creek (an underground waterbody near Hertel Avenue). Both the CSO outfalls and the upstream collection system are regulated by the USEPA and the NYSDEC pursuant to the Authority's SPDES permit. See the subheading, below, "Description of Combined Sewer Overflows."

MS4 Outfalls. In addition to conveying CSO events to the above-described receiving waterbodies, many of these CSO outfalls also convey Municipal Separate Storm Sewer System ("MS4") flows to these receiving waterbodies. In addition, the seven (7) recently decommissioned CSO outfalls continue to discharge MS4 flows to the receiving waterbodies. Finally, there also are several "purpose-built" MS4 outfalls in the Authority's collection system that collect MS4 storm water flow for discharge to receiving waterbodies. In

total, there are forty-one (41) MS4 outfalls within the Authority's collection system. These MS4 outfalls and all areas of the collection system that collect, convey and discharge storm water directly to the waterbodies downstream of any CSO regulators are permitted and regulated pursuant to New York State's General Permit for MS4s. This permit requires that all developments of one acre or more obtain a permit pursuant to New York State's "General Permit for Stormwater Permit for Construction Activity" and provide mitigation throughout construction for (i) volume and water quality contamination of new stormwater flows and (ii) erosion and sediment controls.

In addition to the above State regulations, the Authority has imposed local regulations requiring erosion and sediment controls for all construction projects of ten thousand square feet or more of land disturbance regardless of whether the projects drain to the CSS or the MS4s. Additionally, the water quality and volume controls that the New York State permit imposes upon development sites of one acre or more have been extended to these smaller projects for those that drain to the MS4s while separate flow mitigation regulations have been imposed on sites with ten thousand square feet or more of soil disturbance that drain to the CSS.

Sanitary Sewer Connections to the Outside Districts. The Authority does not own, operate or maintain the wastewater collection infrastructure within the Outside Districts. The Authority provides sanitary sewage treatment services to such Outside Districts through infrastructure connections to the wastewater collection infrastructure thereof. The Authority's infrastructure connections to the wastewater collection infrastructure of each Outside District are described below:

- Erie County Sewer District #1 connects to the Authority's collection system through a 36-inch main on Mineral Springs Road at the City line. Flows from Erie County Sewer District #1 are measured through a metering station located just to the east of the I-90 highway overpass of Mineral Springs Road.

- Erie County Sewer District #4 connects to the Authority's Interceptor System through a 66-inch main at Bailey and Seneca Streets. There is one upstream Authority connection to this line at Cable Street and the Buffalo River through a 10-inch combined sewer. The flows from Erie County Sewer District #4 are measured at a metering station located at 75 South Pierce Street.

- The Town of Cheektowaga discharges to the Authority's collection system through a 48-inch connection to the Scajaquada Tunnel in Schiller Park at the City line. The flows are measured through a metering station at the point of interconnection.

- The Village of Sloan connects to the Authority collection system through three distinct connections: (i) an 18-inch sanitary sewer connection to a 20-inch combined sewer on Vanderbilt Street at the City line; (ii) an 8-inch sanitary sewer connection to the 15-inch combined sewer at the intersection of Richard Drive and Cambria Street; and (iii) a 12-inch sanitary sewer connection to a 15-inch combined sewer at Richard Drive and the City line. The Village of Sloan is required to operate and maintain flow metering devices.

- Town of West Seneca Sewer District Nos. 1, 2, and 10 connect to the Authority's collection system through a 20-inch sanitary sewer that discharges to a 20-inch combined sewer at Wildwood Avenue and Beyer Place.

- Town of West Seneca Sewer District No. 3 discharges through a 10-inch sanitary sewer connection to a 10-inch combined sewer at Edson Street at the City line.

- Town of West Seneca Sewer District No. 4 discharges to the Authority's collection system through a 10-inch combined sewer connection at Duerstein Street and the City line.

- Town of West Seneca Sewer District No. 9 discharges to the Authority's collection system through a 12-inch sanitary sewer connection to a 12-inch combined sewer at Burch Street at the City line.

- Town of West Seneca Sewer District Nos. 5, 13, and 14 discharge to the Authority's collection system through a 36-inch sanitary sewer connection to a 42-inch main in Cazenovia Park approximately 300 feet southeast of Cazenovia Parkway.

- Town of West Seneca Sewer District No. 15 connects to the Authority's collection system through a 10-inch sanitary sewer connection at Pierce and Casimir Streets. The Town of West Seneca is required to operate and maintain flow metering devices for all of these points of interconnection relating to each of the above-described Town of West Seneca Sewer Districts.

MS4 Connections to Certain Municipalities. In addition to the above-described sanitary sewer connections to the Outside Districts, there also are MS4 connections between the Authority's MS4 collection system and certain municipalities, other than the City, which service is not the subject of the service agreements with the Outside Districts. These MS4 connections include: (i) the 72-inch Sloan Drain at Vanderbilt and Schiller Streets in the City that serves as an MS4 connection to the Village of Sloan; (ii) the 48-inch Genesee Street MS4 connection to the Town of Cheektowaga; (iii) the 72-inch and the 48-inch MS4 connections at Calais Street to the Town of West Seneca; and (iv) the 30 foot by 14 foot arch Scajaquada Drain that serves as an MS4 connection to the Town of Cheektowaga. Unlike the sanitary sewer connections to the Outside Districts, these MS4 connections are not the subject of a service agreement between the Authority and the respective municipality, because such service by the Authority does not generate revenue as the Authority does not provide treatment services in connection with the collection via the MS4 collection system of such stormwater.

Pressurized Conveyance and Other Collection System Infrastructure. In addition to the gravity CSS and MS4 collection infrastructure as described above, the Authority's collection system also includes the following infrastructure:

- Various pump stations intended to assist in conveying flow through the Authority's collection system to the Bird Island Plant by providing pressurized conveyance of flows from low lying and isolated areas of the collection system:

    - South Buffalo Pump Station;
    - Hamburg Pump Station;
    - East Amherst Street Pump Station;
    - Babcock Pump Station;
    - Walden Heights;
    - Waterfront Village;
    - Tifft Farms;
    - Kelly Island Pump Stations: Ohio-Ganson Pump Station KX; Fuhrmann Pump Station KF; and Skyway Pump Station KS.

- The Hamburg Drain Screening Facility: Constructed to address the aesthetic concerns of the Hamburg Drain CSO outlet at the terminus of the Erie Canal.

- The Amherst Quarry: A retention tank used during rain events.

- The Niagara Street Metering Station: Once used to monitor flows through the Scajaquada Tunnel, but not currently operational.

Description of the Authority's Treatment System

The Bird Island Plant. The Authority's Bird Island Plant, placed into service in 1938, is a Class A Special Wastewater Treatment Facility that discharges into the international boundary water of the Niagara River. The Authority treats approximately 60 billion gallons of wastewater annually (164 million gallons per day (MGD)) at the Bird Island Plant. The Bird Island Plant was designed around an average flow of 180 MGD, with a peak flow of 563 MGD and a peak secondary flow of 360 MGD. Wastewater treatment at the Bird Island Plant is accomplished via the following processes: influent screening with coarse bar screens (2 screens); raw wastewater pumping (6 pumps); screening with fine bar screens (6 screens); grit removal (8 chambers); primary sedimentation (4 tanks); primary settled wastewater pumping (5 pumps); conventional activated sludge treatment (16 tanks); final clarification (16 tanks); and disinfection (4 tanks). Waste activated sludge and primary sludge is pumped to the solids handling facilities. Sludge processing at the Bird Island Plant includes dissolved air flotation thickeners, sludge digestion, sludge mixing tanks, centrifuges for sludge dewatering and sewage sludge incineration.

Sludge processing at the Bird Island Plant includes dissolved air floatation thickeners (7 tanks), sludge digestion (6 digesters), sludge mixing tanks (2 tanks), centrifuges for sludge dewatering (3 units), and sewage sludge incineration (2 active incinerator units). The Authority also receives undigested sewage sludge from the Outside Districts for disposal through incineration at the Bird Island Plant. Screenings collected by the course and fine bar screens as well as grit collected by the grit chambers are sent to off-site landfills for disposal. Incinerator ash also is disposed of via off-site landfilling.

Completed and current upgrades to the Bird Island Plant will enable improved treatment of up to 320 million gallons per day (MGD) of flow through the secondary treatment system and, following completion of currently anticipated future upgrades to the Bird Island Plant, improved treatment of up to 400 MGD through the secondary treatment system.

With the financial support of federal and State grants, secondary treatment facilities, which provide for additional treatment and disinfection of wastewater, were added by the Authority at the Bird Island Plant between 1975 and 1979, and placed in service in 1981.

All treated flows are discharged by the Bird Island Plant to the Niagara River via two permitted outfalls. The Bird Island Plant also is equipped with a third emergency outfall that is used to protect the Bird Island Plant in the event of extreme precipitation events or equipment malfunction in order to prevent the plant influent flow from exceeding the Bird Island Plant's treatment capacity.

The Industrial Pretreatment Program. The primary objective of the Authority's industrial pretreatment program is to monitor and control industrial discharges in order for the Authority to comply with the federal Clean Water Act. More specifically, the goals of the industrial pretreatment program include the following:

- Protect both Authority workforce safety and public health;
- Protect the physical integrity of the Bird Island Plant and its treatment processes;
- Enable the Authority to comply with the wastewater discharge requirements and incinerator air emission standards as set forth in its SPDES Permit;
- Prevent limitations upon sludge disposal options; and
- Administer the Authority's surcharge program for industrial users.

The control and enforcement mechanisms that the Authority employs with businesses in order to monitor and regulate discharges into the System are discharge permits. The Authority's discharge permits are referred to as "Buffalo Pollutant Discharge Elimination Permits" ("BPDES"). Any business that satisfies at least one of the following four (4) criteria, as required by USEPA, must obtain a BPDES permit from the Authority:

- Defined by the USEPA as a categorical discharger;
- Discharges more than 25,000 gallons per day of process wastewater;
- Discharges 5% of a publicly owned treatment work's average daily flow; and
- Designated by the publicly owned treatment work as having a reasonable potential to adversely affect the publicly owned treatment work's operations or violate any pretreatment standard.

The types of industries that may require BPDES permits include: (i) food manufacturers; (ii) metal finishers; (iii) metal molding and casting enterprises; (iv) paper manufacturers; (v) chemical manufacturers; and (vi) industrial laundries. The USEPA has defined over thirty (30) categories of industries that may require receipt of BPDES permits.

A BPDES permits is issued by the Authority for a three-year term. Pursuant to its BPDES permit, a business is required to sample and analyze its wastewater at various frequencies per year. If a business is in violation of its BPDES permit, it is required to investigate, resample and take any corrective actions that are necessary to remedy the violation and prevent the violation from reoccurring. If the violation is significant, as defined by USEPA (i.e., "Significant Non-Compliance"), then the Authority is required to publish in the largest circulating newspaper in the area: (i) information concerning the violation; (ii) action taken by the business; (iii) any fines incurred by the business; and (iv) the business's compliance status.

The Authority issues three types of discharge permits: (i) BPDES discharge permits, as discussed above; (ii) trucker discharge permits; and (iii) temporary discharge permits.

- The trucker discharge permit is a one-year permit. The Authority accepts at the Bird Island Plant septic, port-potty waste, leachate, grease (food grade) and sludges pursuant to a trucker discharge permit.
- The temporary discharge permit is also a one-year permit. Temporary discharge permits primarily are issued to construction and remediation sites.

Authority Discharge Permits Issued and Outstanding as of March 31, 2021:

- BPDES discharge permits: 43
- Outside City Permitted Industries: 39
- Trucker discharge permits: 99
- Temporary discharge permits: 24

The National Pretreatment Program was created pursuant to the federal Clean Water Act, with applicable regulations adopted pursuant to the federal Clean Water Act. These regulations require publicly owned treatment works to implement approved pretreatment programs, if they regulatorily qualify for the program.

The USEPA approves the pretreatment programs, audits the pretreatment programs once every five years, assists the pretreatment programs when new regulations are implemented and when questions arise, and offers training with respect to the operation of pretreatment programs. See "THE AUTHORITY SYSTEM – Permits, Licenses and Approvals Relating to the Operation of the System."

Treatment Data

The Authority is required, pursuant to its SPDES permit, to meet 85% removals of Biochemical Oxygen Demand and Total Suspended Solids, as well as other permit parameters. Digested sludge solids dewatering regularly reaches 25% solids. Yearly average of 34 dry tons per day are incinerated. See "THE AUTHORITY SYSTEM – Permits, Licenses and Approvals Relating to the Operation of the System."

Table #13, below, identifies the volume of sewage treated by the Authority at the Bird Island Plant in each of the last ten (10) fiscal years.

Table #13
Wastewater Treated at the Bird Island Plant
Last Ten Fiscal Years

Fiscal Year	Million Gallons of Wastewater Treated
2011	49,677
2012	45,457
2013	42,523
2014	47,815
2015	44,129
2016	41,829
2017	45,625
2018	47,925
2019	49,786
2020	52,265

Description of Combined Sewer Overflows

The Authority sewer system that serves the City is a combined sewer system (the CSS) that combines (i) the collection of sanitary sewage and (ii) the collection of stormwater, via the same network of collection pipes. During dry weather, sewage can successfully flow through the collection pipes of the CSS and be treated at the Bird Island Plant prior release into the Niagara River. However, during moderate or severe precipitation events, both stormwater and sewage are collected by, and flow through, the collection pipes of the CSS in a volume that could overwhelm the Bird Island Plant and also result in basement flooding. As a result, mixed stormwater and sewage must be released through "outfalls" along the Niagara River and Lake Erie, as well as other local water bodies, in order to relieve the capacity pressure on the CSS, including the Bird Island Plant.

The CSS was constructed with 65 permitted CSO outfalls designed to relieve capacity pressure on the CSS during precipitation events and, thereby, protect the downstream treatment facilities of the Bird Island Plant and also prevent basement flooding. Since the original construction of the CSS, the Authority has completed

a number of CSS improvement projects resulting in the reduction of the number of CSO outfalls that are required. Currently, the CSS includes 52 permitted CSO outfalls.

In 2020, the CSO outfalls were activated a total of 338 times, discharging a total of 1,340 million gallons of combined sewage into the waterbodies that surround and traverse the City: the Niagara River, the Buffalo River, the Black Rock Canal, Erie Basin Marina, Cazenovia Creek, Scajaquada Creek and Cornelius Creek (an underground waterbody near Hertel Avenue). The number of CSO outfall activations has been declining in recent years as the Authority LTCP projects are undertaken, completed and brought online; however, the volume of CSO outfall discharges varies depending on the frequency and intensity of precipitation events. See "THE RAIN CHECK PROJECTS – The Authority's Combined Sewer System and Combined Sewer Overflow Events" for a listing, for each of 2014 through 2020, of the number of CSO outfall activations and the millions of gallons of combined sewage discharged in each such year.

See, generally, "THE RAIN CHECK PROJECTS – The Authority's Combined Sewer System and Combined Sewer Overflow Events" and "—The Contribution of Climate Change to Combined Sewer Overflow Events."

Preparations for Climate Change

The City is not expected to experience the more profound challenges that many other communities will experience as a result of climate change. Nevertheless, the City has been forecast to receive more extreme weather events and an overall warmer climate. Average precipitation in the City is anticipated to increase, with annual increases of up to four (4) inches on average by mid-century and annual increases of up to seven (7) inches on average by the end of the century. Precipitation events greater than one (1) inch are expected to increase by up to two (2) days by 2050 and by two (2) to four (4) days by 2100. See the Project Technical Memo attached hereto as Appendix B. This increased precipitation is expected by the Authority to increase the risk of flooding, particularly in certain low elevation neighborhoods, and put additional strain on the Authority's current CSS infrastructure within the City thereby increasing the frequency and severity of CSO events. Additional challenges include increased health risks, especially in areas with disproportionate levels of asphalt which can contribute to the heat island effect. Pursuant to the heat island effect urban areas trap and retain more heat than the surrounding rural and suburban areas, due to the high concentration of structures and corresponding lower concentration of natural landscapes. Neighborhoods with lower vegetation density can be hotter, affecting both human health and cooling costs.

As part of its preparations for climate change, implementation of green infrastructure pursuant to the Authority LTCP and the GI Master Plan is critical both to decrease flash flooding in low elevations and to decrease the heat island effect. By capturing additional stormwater, the Rain Check Projects will mitigate the likely capacity strain that increased precipitation will have on the City's current CSS stormwater infrastructure. To the extent that the Rain Check Projects includes vegetated green infrastructure practices, installations may mitigate heat impacts as well.

Environmental Regulation of the Authority Relating to the Operation of the System

Sources of environmental oversight and regulation of the Authority relating to its operation of the System include (i) Title V of the federal Clean Air Act, (ii) both the municipal separate storm sewer system provisions and the municipal wastewater provisions of the federal Clean Water Act, and (iii) New York State Environmental Conservation Law.

- With respect to the Bird Island Plant, the CSS, and the MS4, the Authority is required, pursuant to the Federal Clean Water Act, to conduct monitoring, sampling, reporting, record keeping, inspections, and training, and to employ licensed operators.

- Title V of the federal Clean Air Act regulates emissions, sampling, monitoring, training and record keeping for the sludge incinerators that the Authority operates at the Bird Island Plant for the purpose of the disposal of wastewater solids.

- Pursuant to the New York State Environmental Conservation Law and NYSDEC regulations, the Authority must comply with its State Pollutant Discharge Elimination System (SPDES) permit and comply with air quality standards and bulk storage regulations.

The USEPA oversees compliance with the above-described federal statutes. The USEPA has delegated to the NYSDEC regulatory authority to manage compliance with federal environmental statutory and regulatory obligations within New York State. The NYSDEC also monitors compliance with, and enforces, New York State Environmental Law, including those that are not addressed by, or that exceed, federal statutes and regulation.

Environmental Regulation of the Authority Relating to the Authority LTCP: The USEPA Administrative Order

Authority LTCP. The development and implementation by the Authority of the Authority LTCP, as an abatement plan for CSOs, is required pursuant to the terms of the State Pollutant Discharge Elimination System (SPDES) permit issued by the State to the Authority. In addition, the enforcement of the Authority LTCP is the subject of the USEPA Administrative Order. The USEPA Administrative Order requires (i) the phased completion of projects for purposes of achieving implementation by the Authority of its Authority LTCP and (ii) completion of such implementation pursuant to an established schedule.

The Authority LTCP identifies eighty-six (86) projects, as described below, that reflect green, smart and gray solutions:

- *Phase I Projects:* These are an initial series of projects identified during the development of the 2004 LTCP. Recognizing that these projects would likely be constructed regardless of the manner in which the Authority LTCP might be finalized, the Authority, with the concurrence of the Regulatory Agencies, chose to undertake these projects. They include a mix of sewer separation, CSO regulator optimizations (for example, raising weirs and/or removing orifice plates), and supplemental sewer system capacity projects. As the implementation of these projects evolved, several were modified to include RTC and green infrastructure elements.

- *Green Infrastructure:* Manage 1,315 acres of impervious surface area within the City with green infrastructure, pursuant to the Authority's GI Master Plan.

- *Real Time Control Program:* Implement sixteen (16) RTC projects that use the existing excess capacity of large diameter sewer pipes and advanced computer logic to help control CSO discharges into local waterways and local flooding.

- *Additional Sewer Patrol Point Optimizations:* Implement twenty (20) optimization projects that include optimizing weir elevations and orifice plate openings, increasing underflow pipe capacity, and flow redirection.

- *Additional Storage Projects:* Implement three (3) projects that will provide underground storage and pumping facilities to store precipitation event flows and thereafter release them into the CSS after a precipitation event has subsided.

- *Bird Island Plant:* Implement improvements to the Bird Island Plant that will result in additional treatment capacity for precipitation event flows.

In general, the Authority LTCP represents a shift in management philosophy by the Authority away from sewer separation as a primary CSO control technology to a combination of low-cost system optimizations, cost-effective RTC projects and selected green infrastructure projects. While some sewer separation projects are carried forward in the current Authority LTCP, the extent of the areas to be separated has been reduced and replaced in favor of alternative technologies.

See "THE RAIN CHECK PROJECTS – Development by the Authority of the Authority LTCP" for a discussion of the process and time-line pursuant to which the current Authority LTCP evolved and developed pursuant to (i) the regulatory oversight of the Regulatory Agencies and (ii) specifically, enforcement action by the USEPA that culminated in the issuance of the USEPA Administrative Order, which order, as amended, was issued by the USEPA on April 11, 2014.

USEPA Administrative Order. The USEPA Administrative Order memorializes the various processes pursuant to which the 2004 LTCP was reviewed and modified (including, without limitation, for the purpose of the incorporation of the GI Master Plan), culminating in the finalization of the current Authority LTCP. By way of example, without the intent of setting forth the provisions of the USEPA Administrative Order in their entirety, the USEPA Administrative Order mandates the following features that have been included in the current Authority LTCP:

- An evaluation of a range of "sizes" of each system-wide alternative that will, for the typical year, achieve an average volume of wet weather percent capture from 75% to 100% and reduce the average number of untreated CSO outfall events to 0, 1 to 3, 4 to 7 and 8 to 12 per year.

- A determination of the estimated cost of the implementation of the Authority LTCP, including a Financial Capability Analysis.

- An evaluation, using water quality models, of the expected water quality improvements in the receiving waters that will result from implementation of the Authority LTCP.

- The use of green infrastructure wherever feasible, with encouragement by the USEPA to utilize green infrastructure projects, as appropriate, to reduce or replace gray infrastructure projects, provided that any green infrastructure project proposed is anticipated to provide substantially the same or a greater level of control as the alternative gray infrastructure project.

- Green infrastructure projects shall be consistent with the terms of the USEPA Administrative Order and shall achieve the minimum standards identified therein.

- In the event that the Authority implements an approved green infrastructure project that fails to meet the specified performance criteria as set forth in the Authority LTCP, the Authority shall propose, within 180 days after the submittal of the applicable post-construction monitoring report documenting such failure, an additional green or gray infrastructure project.

- The Authority shall implement the Authority LTCP (including each of the projects identified therein) in accordance with the schedule set forth therein, including, without limitation, certain milestones as set forth in the Appendix to the USEPA Administrative Order entitled, "BSA Approved CSO LTCP Implementation Schedule," and shall complete the implementation of the Authority LTCP (including each of the projects identified therein) by not later than March 18, 2034.

The USEPA Administrative Order requires the submission by the Authority of the following reports with respect to the completion of the Authority LTCP: a Post-Construction Monitoring Plan; a Final Post-Construction Monitoring Report; Semi-Annual Status Reports; and Annual Post-Construction Monitoring Reports. The Authority currently intends to continue its practice of providing public access to these reports, promptly following submission to the USEPA, via the Authority's publicly accessible website (buffalosewer.org/about/transparency). See the Authority's publicly accessible website for each of the following that currently are posted via such website: (i) an Executive Summary of the Authority LTCP; (ii) the USEPA Administrative Order; and (iii) those Semi-Annual Status Reports that have been submitted by the Authority to the USEPA prior to the date hereof pursuant to, and in satisfaction of, the USEPA Administrative Order. The Authority's inclusion of such material via its publicly accessible website is strictly voluntary and may be discontinued at any time in the Authority's sole discretion without the consent of the holders of the Series 2021 Bonds.

Enforcement of the USEPA Administrative Order. To the extent that the USEPA commences an action in a United States District Court in connection with a violation of any "Ordered Provision" of the USEPA Administrative Order, the Authority may be subject to (i) civil penalties of up to $37,500 per day for each day of violation, and/or (ii) injunctive relief, all pursuant to applicable provisions of the federal Clean Water Act, as may be imposed by the United States District Court.

Implementation of the Authority LTCP. As noted above, the Authority LTCP establishes a commitment by the Authority to manage 1,315 acres of impervious surface area within the City with green infrastructure. It is possible that additional green infrastructure acreage may exceed this minimum program commitment by the Authority and may be implemented in conjunction with the optimization of gray infrastructure projects to be undertaken by the Authority pursuant to its Authority LTCP. It is estimated by the Authority that approximately 97% of wet weather flows will be captured upon successful implementation by the Authority of the Authority LTCP. See Appendix C hereto: "Environmental Impact Bond Engineering Report," for a discussion of the implementation of the Authority LTCP.

The primary methods through which the Authority will implement the green infrastructure initiatives of the Authority LTCP are (i) the Rain Check 1.0 Program and (ii) the Rain Check 2.0 Program. As of July 1, 2020, 44 of 86 projects (or 51%) identified in the Authority LTCP have been substantially completed, and approximately $129,000,000 has been invested by the Authority in planned projects identified in the Authority LTCP. The phased implementation schedule, pursuant to the USEPA Administrative Order, provides for completion of a majority of the large, complex gray infrastructure storage projects in the latter half of the implementation of the Authority LTCP.

For a discussion of considerations relating to the successful implementation by the Authority of its Authority LTCP, see "FINANCIAL OPERATIONS OF THE AUTHORITY – Forecasted Capital Improvement Initiatives and Investments" and "—Factors Impacting Successful Implementation of Capital Projects" below.

Proposed Modification to the USEPA Administrative Order. Pursuant to the Authority LTCP and the USEPA Administrative Order relating thereto, the initiatives identified in the Authority LTCP are required to be completed by the Authority by March 18, 2034. However, on January 7, 2021, the Authority submitted to the USEPA and the NYSDEC an update to its Financial Capability Analysis. In such update, the Authority demonstrates that an extension of the schedule for the implementation of the initiatives identified in the Authority LTCP will be required in order to relieve the residents of the Service Area of the unaffordable rates that currently are forecast by the Authority in order to achieve the current Authority LTCP implementation schedule. Therefore, as part of its submission to the USEPA and the NYSDEC, the Authority has requested that the USEPA Administrative Order be modified in order to extend the current March 18, 2034 Authority LTCP implementation completion date. Currently, the Authority anticipates that

discussions among the Authority, the USEPA and the NYSDEC regarding this request will commence once the USEPA and the NYSDEC have completed their respective reviews of the updated Financial Capability Analysis, as submitted on January 7, 2021. The Authority is unable to project the response of the USEPA and the NYSDEC to its request that the USEPA Administrative Order be modified in order to extend the current March 18, 2034 Authority LTCP implementation completion date, including, without limitation, any alternative Authority LTCP implementation completion date that might be considered and approved for inclusion in any modification to the USEPA Administrative Order. See "RATES AND CHARGES – Projected Future Rates and Charges" herein.

Permits, Licenses and Approvals Relating to the Operation of the System

Bird Island Plant and CSS SPDES Permit. The Authority possesses the permit required to own and operate the Bird Island Plant and the CSS within the City, pursuant to its State Pollutant Discharge Elimination System (SPDES) Permit Number NY0028410 (https://buffalosewer.org/app/uploads/2017/08/BSA-SPDES-PERMIT.pdf) (the "SPDES Permit"). This current SPDES Permit was issued via letter from the NYSDEC to the Authority in 2014 with an expiration date of June 20, 2019. Filings were completed by the Authority on December 6, 2018 for the purpose of renewing this SPDES permit. In accordance with the State Administrative Procedures Act, the current SPDES Permit shall remain in effect until the NYSDEC makes a final determination with respect to the renewal application of the Authority. There is no applicable timeline or deadline date for the final determination by the NYSDEC in response to the renewal application by the Authority with respect to its SPDES permit.

The SPDES Permit is issued pursuant to Title 8 of Article 17 of the State Environmental Conservation Law and in compliance with the federal Clean Water Act, and sets forth effluent limitations, monitoring and reporting requirements, and other requirements and conditions. Table #14, below, identifies the permit parameters of the SPDES Permit for which a reportable noncompliance occurred during each of the past four years.

Table #14
SPDES Permit Parameters for which a
Reportable Noncompliance Event Occurred
Last Four Years

SPDES PERMIT PARAMETER	2018	2019	2020	3-31-2021
Coliform, fecal general	0	1	0	0
Phosphorus, total	0	0	1	0
BOD, 5-day, percent removal	2	4	10	0
BOD, 5-day, 20 deg. C	0	0	1	0
Solids, suspended percent removal	2	2	0	0
Solids, settleable	0	1	2	0
BOD, 5-day, 20 deg. C	0	1*	2	0

*Monthly limit reported as >18 mg/l due to lab error.

The Authority historically operates pursuant to this SPDES Permit with minimal reported noncompliance events. Of the listed noncompliance events in the above table, most are due to a failure to meet 85% removals of Biochemical Oxygen Demand ("BOD"). This is a byproduct of low influent values and not from excess pounds of BOD in the effluent flows. Effluent BOD results are typically less than 50% of the

permitted monthly limit of 45,036 lbs. Other noncompliance events, other than BOD Effluent percent removals, include:

- During calendar year 2018, monthly total suspended solids percent removal was <85% for the months of February and March. The monthly influent TSS averaged 73 mg/L and 88 mg/L respectively for each of these months. Total suspended solids in the effluent during these two events were each less than 50% of the permitted pounds limit.

- During calendar year 2019, one weekly fecal coliform geometric mean was above the 400 colonies/100 ml permissible limit. This event ceased after secondary tanks were put on-line. This event did not cause the monthly limit of 200 colonies/ml to be exceeded. Monthly total suspended solids for the months of February and March averaged 82% and 85%, respectively. Total suspended solids in the effluent during these two events were each less than 50% of the permitted pounds limit. A July power outage at a secondary control building resulted in two of the twelve daily settleable solids samples to be above permissible limits. This event ceased after power was restored to the building. The August 2019 monthly limit for BOD was reported as >18 mg/L due to a lab error in analysis for the August 6th sample that prevented a result to be recorded for that day.

- During calendar year 2020, the monthly phosphorus limit was exceeded for the month of July and returned to expected values the next month after operational conditions were adjusted. August monthly BOD averaged 32 mg/L. The monthly limit for BOD pounds was not exceeded during this time. The January and June settable solids were surpassed for 2 isolated events causing the 10 am sample on January 6th and the 8 am and 10 am samples on June 19th to be >0.3ml/L. All of the remaining samples on each of these days were within permissible limits. The September 5th weekly BOD averaged higher than the permissible 45 mg/L. All other weekly averages for this month were in the acceptable range.

- During calendar year 2021, as of March 31, 2021, there have been no non-compliance events.

Air Title V Permit. The Authority possesses the permit, effective September 9, 2016, required to own and operate three multiple hearth sewage sludge incinerators at the Bird Island Plant, pursuant to New York State Title V Permit ID# 9-1402-00154/0007 (https://www.dec.ny.gov/dardata/boss/afs/permits/914020015400007_r2.pdf) (the "Air Title V Permit"). This Air Title V Permit has an expiration date of five years after the issuance date thereof and, therefore, is active until September 9, 2021. A renewal application was submitted by the Authority to the NYSDEC by the March 12, 2021 deadline, and currently is under review by the NYSDEC. There is no applicable timeline or deadline date for a final determination by the NYSDEC in response to the renewal application by the Authority with respect to its Air Title V Permit.

Pursuant to the Air Title V Permit, the Authority is required to submit a semiannual deviation report to the NYSDEC at least every six months, reporting permit deviations and incidences of noncompliance, stating the probable cause of such deviations, and identifying any corrective actions or preventive measures taken. The NYSDEC has determined that previously submitted reports lack specific detail and the NYSDEC has requested updated reports to be resubmitted by the Authority with more explicit detail. Additionally, the Authority is required to submit Air Title V Permit Annual Compliance Reports. These reports have been requested by the NYSDEC to be resubmitted by the Authority to include more acceptable formatting and to include additional information pertaining to regulatory requirements. The Authority is currently actively working to resubmit all required reports as requested by the NYSDEC.

The MS4 Permit. The 60 miles of municipal separate storm sewers that the Authority operates within the City are regulated pursuant to State and federal municipal separate storm sewer system (MS4) regulations. In New York State, these regulations are enforced under a general permit (GP-0-15-003

https://www.dec.ny.gov/docs/water_pdf/ms4permit.pdf). The Authority holds SPDES ID Number NYR20A461 pursuant to this permit.

The Industrial Pretreatment Program and Compliance with the SPDES Permit. Please see "THE AUTHORITY SYSTEM - Description of the Authority's Treatment System – *The Industrial Pretreatment Program.*" In June 2019, USEPA, Region 2, conducted a four-day audit of the Authority's industrial pretreatment program. The Authority received the results of this audit on March 2, 2021 and responded to the audit prior to the required May 7, 2021 response date. The USEPA audit consists of, among other things, visiting and inspecting industries that are permitted by the Authority's industrial pretreatment program, reviewing the permitted industry files maintained by the Authority, and reviewing the monitoring conducted by the industry and by the Authority. Currently, the Authority is preparing its response to the audit findings.

Consent Decrees

While the Authority is subject to the USEPA Administrative Order, the Authority is not currently subject to any consent decrees.

Legislative Developments

The Federal 2021 Appropriations and COVID-19 Relief Act that was signed into law on December 27, 2020 provides $638 million to create a "Low-Income Household Drinking Water and Wastewater Emergency Assistance Program." These funds will be disbursed by the U.S. Department of Health and Human Services ("HHS") to the states, which will then distribute the funds to public water and wastewater utilities to assist low-income ratepayers. To date, HHS and the State have not announced how these funds will be distributed; therefore, the Authority does not know (i) what portion of such funding might be received by the State, (ii) what portion of any funding received by the State might be provided to the Authority to assist low-income Authority ratepayers, and (iii) what conditions will apply to the availability to the Authority and its ratepayers regarding this funding. The Federal 2021 Appropriations and COVID-19 Relief Act also includes $25 billion in funds for an "Emergency Rental Assistance Program" to assist households unable to pay rent and utilities as a result of the COVID-19 pandemic. This funding is being disbursed to the states through the U.S. Treasury Department, and the states will distribute the funds directly to households and landlords. The program has not yet been finalized in the State and, therefore, its effect upon Authority customer arrearages remains unknown.

On March 11, 2021, a new COVID-19 economic relief package was signed into law. This law provides an additional $500 million in assistance for water and wastewater ratepayers. It also provides that water and sewer infrastructure projects throughout the nation may be eligible to access a portion of the $350 billion provided in such act for state and local fiscal recovery from revenue losses due to the COVID-19 pandemic. Pursuant to this legislation, it is anticipated that the City may receive as much $350 million. It remains unclear as to whether the Authority will receive any funding pursuant to this legislation.

Due to the fact that policies with respect to the implementation of the legislation described above have not been developed and announced by the federal government and the State, no assurances can be provided by the Authority as to the effect of such legislation upon the Authority or its ratepayers.

Security and Emergency Preparedness.

In 2019, the Authority engaged Ernst & Young to assist it in developing an "Emergency Response Plan" (the "ERP") to establish a collaborative and systematic approach to improve capabilities in order to properly prepare for and respond to hazards that may affect the Authority. The ERP has been completed and fully

implemented by the Authority. Pursuant to the terms of the ERP, the Authority has committed to each of the following:

- Support the ERP concept of operations and carry out assigned functional roles and responsibilities to ensure the effective, orderly, cost-effective and timely delivery of emergency functions;

- Continue to develop, refine and implement Authority planning and exercise and training activities to maintain necessary operational capabilities and corroborate the support of City and County emergency plans;

- Cooperate with City and State senior leadership to provide effective oversight of disaster operations; and

- Make maximum use of existing authorities, organizations, resources, systems and programs to reduce disaster relief costs.

The ERP provides guidance as to how the Authority responds to disasters, with the goal of protecting life and property and ensuring public safety. In addition, the ERP organizes Authority positions that are involved in emergency management into the Incident Command System (the "ICS") according to capabilities, skills, resources and authorities. Using the ICS organization, the ERP outlines how resources will be leveraged and implemented, and how City and County partners will be engaged for support as incident conditions warrant.

Cybersecurity

In order to address cybersecurity, the Authority, through its Information Technology Department, uses firewalls, advanced malware protection, system anti-virus software, endpoint protection, and advanced security and compliance software. Multi-factor authentication is required when accessing the Authority's network remotely. Backups, in a virtual environment, are conducted daily to take a daily snapshot of the environment. In addition, the Authority's Information Technology Department provides training programming in order to educate Authority staff concerning cyber threats, and regularly sends emails to test compliance by Authority staff and keep Authority staff alert and aware concerning malicious phishing attempts that are received via email.

Prior Cybersecurity Breaches

To date, the Authority has not experienced any external breaches of its information technology systems.

Litigation Relating to the System and the Operations of the System.

As of February 25, 2021, there are a total of ten (10) active lawsuits against the Authority for personal injuries or property damage. Additionally, the Authority anticipates that it may be named in a litigation complaint arising from five (5) additional incidents, although no suit against the Authority has yet been filed in connection with these incidents.

The Authority does not anticipate that any of the ten (10) active lawsuits or any litigation that may arise in connection with the five (5) additional incidents, either individually or in the aggregate, if adversely decided, would have a material adverse effect upon the current financial condition of the Authority.

Insurance Relating to the System and Operations of the System

Through its "Liability and Casualty Fund," the Authority is self-insured with respect to property insurance, automobile insurance, comprehensive liability insurance, and workers' compensation claims. In July 1985, the Authority established its Liability and Casualty Fund with an initial budgeted appropriation of $200,000. As of June 30, 2020, the Liability and Casualty Fund had achieved a balance of $1.02 million. All interest earned on monies on deposit in the Liability and Casualty Fund is retained therein. The Liability and Casualty Fund is managed by the Authority's General Counsel and is reviewed by the Authority's Board of Directors biannually.

In addition to its Liability and Casualty Fund, the Authority purchases insurance policies for property, crime and cyber liabilities, as follows:

- The Authority purchases property insurance coverage through Affiliated FM. This property insurance policy provides coverage for all of the Authority's facilities against all risks of physical loss or damage, up to a policy limit of $500,000,000.

- The Authority's crime policy through Zurich Insurance covers the Authority for losses due to theft, forgery, funds transfer fraud, and faithful performance of duty, up to a policy limit of $1,000,000.

- The Authority's cyber policy through Travelers Insurance covers the Authority for losses due to business interruption, extortion or ransom, regulatory fines, and theft or unauthorized use of personal or confidential information, up to a policy limit of $3,000,000.

Recent Awards Received by the Authority

The following awards and recognition have been received (i) in connection with the planning and operational work of the Authority, (ii) as a result of specific projects successfully implemented by the Authority, and (iii) by the administrative leadership of the Authority.

- For each of the last thirty-three (33) consecutive years, the Government Finance Officers Association of the United States and Canada has awarded a "Certificate of Achievement for Excellence in Financial Reporting" to the Authority for its Comprehensive Annual Financial Report.

- The Opportunity Report received the "National Planning Achievement Silver Award for Environmental Planning" in 2020 from the American Planning Association. See "THE RAIN CHECK PROJECTS – The Projected Environmental, Social and Economic Outcomes of the Rain Check 2.0 Program" for a discussion of the Opportunity Report.

- The Opportunity Report received the "Diamond Award" in 2020 from the American Council of Engineering Companies.

- The Opportunity Report received the "Environmental Excellence Award" in 2019 from the Erie County Environmental Management Council.

- The Opportunity Report received the "Best Practice Award" in 2019 from the American Planning Association – Upstate New York Chapter.

- The Willert Park Green Infrastructure Project received the "Envision Bronze Award" in 2020 from the Institute for Sustainable Infrastructure.

- The Willert Park Green Infrastructure Project received the 2018 "Environmental Project of the Year Award" from the Western Branch of the New York Chapter of the American Public Works Association.

- The Hertel Avenue Real Time Control Project received the 2019 "Environmental Project of the Year Award" from the Western Branch of the New York Chapter of the American Public Works Association.

- The Water WORX Community Education Project received the "Environmental Excellence Award" in 2021 from the Erie County Environmental Management Council.

- The Water WORX Community Education Project received the "Public Education Award" in 2020 from the New York Water Environment Association.

- The Water WORX Community Education Project received the "Merit Award for Excellence in Research and Communication" in 2019 from the American Society of Landscape Architects – New York Upstate Chapter.

- The Authority's General Manager, Oluwole A. McFoy, P.E., received the 2021 "Emmeline Moore Award" for significant impact in water quality management from the New York Water Environment Association.

- The Authority's General Manager, Oluwole A. McFoy, P.E., received the 2019 "Charles W. Nichols Award" in recognition of outstanding and meritorious achievements from the Western Branch of the New York Chapter of the American Public Works Association.

- The Authority's General Manager, Oluwole A. McFoy, P.E., received the 2020 "Excellence in Government Administration Award" from the American Society of Public Administrators.

RATES AND CHARGES

Statutory Authority Regarding Rates and Charges; Establishment of Rates and Charges

Statutory Authority. Pursuant to the Authority Act, the Authority is authorized to establish a schedule of sewer rents, which consist of rates and charges to be collected from all users served by the System. Sewer rents may be based upon either water consumed on the premises served by the System or upon any other equitable basis determined by the Authority. In adopting or modifying its sewer rent schedule, the Authority must first adopt and publish a notice of a proposed schedule, which is to be open to inspection at the offices of the Authority for a thirty-day period during which any objections may be filed. The Authority must hear and examine all such objections and, within sixty days of the publication of notice, must adopt a final schedule of sewer rents that is uniform for all property falling within the same classification. While the Authority must consider any objections, it remains the final determiner of the sewer rent schedules. From and after the date that sewer rents are due, the sewer rents become a lien upon the real property within the City served by the System, having the same priority and superiority as the lien of the real property general taxing authority of the City.

Establishing Rates and Charges. The sewer rent charged to each customer of the Authority is comprised of a component based upon water use and a component based upon assessed valuation of the premises served. Water use has been established by the Authority as an appropriate measure of the cost of providing sewer

service, since it has been determined by the Authority that the level of water use is a reliable indication of sewage quantity. The direct service performed by the Authority is the handling and treatment of sanitary sewage, which is measured by water use. This sewer rent charge is shown as a separate item on the water bill.

The indirect benefit or use which all property throughout the City enjoys by reason of services performed by the Authority includes building and maintaining street receivers, collecting and treating storm water from all City streets, and the general benefit by reason of elimination of pollution from the Niagara River and surrounding waters. This sewer rent charge is entered on a separate bill enclosed with the City tax bill and is based upon assessed valuation.

See "THE AUTHORITY'S SERVICE AREA – Description of the Service Area of the Authority" and "— Authority Service Contracts with the Outside Districts" for a discussion of service charges payable pursuant to service contracts entered into by the Authority.

The Billing Methodology Applicable to the Authority Customer Base

The City: Billing Methodology. There are two methodologies by which the Authority's customer base within the City is billed by the Authority: (i) sewer rents based upon assessed valuation; and (ii) sewer rents based upon water use.

The City: Sewer Rents Based Upon Assessed Valuation. The City of Buffalo Department of Assessment and Taxation is responsible for generating and disseminating the annual bills for sewer rents that are calculated based upon the assessed value of each property within the City to which service is provided by the Authority. These sewer rent bills are included with the annual tax bills that are sent to each property address by the Department of Assessment and Taxation. The Authority exempts from liability for this sewer rent real property within the City that is exempt from taxation pursuant to various sections of the New York Real Property Tax Law.

All real property located within the City was reassessed by the Department of Assessment and Taxation in 2019. For the 2021 fiscal year, the total assessed value of real properties in the City is $12,744,275,032. For the 2020 fiscal year, the total assessed value of real properties in the City had been $7,363,398,502. In response to the increase in assessed value of real properties in the City, the Authority reduced sewer rent rates relative to assessed valuations such that there were no material increases in the 2021 fiscal year sewer rents based upon assessed valuation.

Table #15
Revenue From Sewer Rents Based on Assessed Valuation
Last Five Fiscal Years

	6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
Assessed Value Sewer Rents	$12,247,660	$12,108,674	$12,217,483	$12,178,851	$12,157,349
Interest and Penalties on Delinquent Assessed Value Sewer Rents	$281,832	$197,398	$211,588	$207,607	$155,361

The City: Sewer Rents Based Upon Water Use. In addition to the annual sewer rents that are based upon the assessed value of real property within the City to which service is provided by the Authority, quarterly sewer rents are levied upon all real property within the City, which quarterly sewer rents are calculated on the basis

of water usage by customers. As of June 30, 2020, there were 75,036 active water accounts within the City that are billed for sewer rent based upon water use.

Table #16
Revenue from Sewer Rents Based on Water Use
Last Five Fiscal Years

	6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
Flat Rate	$2,871,348	$2,654,271	$2,527,106	$2,453,613	$2,290,189
Metered	$24,306,650	$24,338,983	$24,646,810	$24,627,976	$23,187,593

The Outside Districts: Billing Methodology. See "THE AUTHORITY'S SERVICE AREA – Description of the Service Area of the Authority" and "—Authority Service Contracts with the Outside Districts" for a discussion of service charges payable by each Outside District pursuant to service contracts entered into with the Authority.

The Non-City Direct Sewer Connections. The property owners with respect to the ninety-six (96) Non-City Direct Sewer Connections are billed (i) annually for sewer rent based upon the assessed value of the property and (ii) quarterly for sewer rent based upon water use. All such property owners are billed directly by the Authority, with the exception of the twenty-two (22) Non-City Direct Sewer Connection properties that are located within Town of Cheektowaga; the Town of Cheektowaga is billed directly with respect to these twenty-two (22) Non-City Direct Sewer Connection properties.

For the fiscal year ending June 30, 2021, these Non-City Direct Sewer Connection properties were charged $2.71 per $1,000 of assessed value. Rates for sewer rents based upon water use are the same as the rates for properties within the City: $48.30 for 0 to 4,000 cubic feet of water used per quarter, and $11.09 per thousand cubic feet of water thereafter. All Non-City Direct Sewer Connection properties billed for sewer rents based upon water use also are charged a $6.00 per month connection fee. The Authority revenue generated from these Non-City Direct Sewer Connection properties is less than $75,000 per year.

Billing and Collection Procedures with Respect to Rates and Charges

All sewer rents based upon water use that are imposed by the Authority are billed and collected by Veolia through the use of City employees on behalf of the Authority in conjunction with the City' s own billing and collection procedures. Sewer rent bills based upon water use are mailed to each customer quarterly as part of the City's water bill. The amount of each bill is determined by the volume of water used by the customer in the three months preceding the bill date. Payment is due on sewer rent bills based upon water use within three months of their receipt, and such bills are thereafter considered delinquent. Sewer rent bills based upon assessed valuation are mailed to each customer annually in July, together with the City's property tax bill, for service provided in the fiscal year beginning in such month and are payable by September 30 each year.

Veolia deposits all payments on sewer rents based on water use on the day following their receipt into the Authority's Operating Fund and delivers a daily report on receipts and deposits to the Authority's accounting office. The City's Treasury Department deposits all payments on sewer rents based on assessed value on the day following their receipt into the Authority's Operating Fund and delivers a monthly report on receipts and deposits, to the Authority's accounting office.

Statutory Powers of Enforcement with Respect to the Collection of Rates and Charges

The Authority Act provides that, in the event that any sewer rents based upon assessed valuation remain unpaid for a period of ninety days, the Authority may bring an action to foreclose the sewer rent lien in the same manner as the City enforces the general real property tax lien. The City's Corporation Counsel enforces the Authority's liens, since a delinquency on the tax bill is generally accompanied by a delinquency on the sewer bill. The current policy of the Corporation Counsel is to commence foreclosure proceedings when payments due the City and Authority are one year in arrears, attempting in the interim to secure payment by repeated notification. The Authority Act further provides for the City's Division of Water to shut off the supply of water to any premises served by the Authority if the Authority certifies to the Division of Water that sewer rents, based on water use at such premises, remain unpaid for a period of more than one year and that written notice and demand for payment have been given in accordance with the Authority Act to the owner or occupant of the premises. Pursuant to the Authority's Schedule of Sewer Rents and Other Charges, delinquent sewer accounts currently are assessed a 4.5% penalty rate for each ninety days they are past due.

Notwithstanding the Authority's statutory powers of enforcement with respect to the collection of rates and charges, several initiatives have been implemented in order to provide assistance to low-income customers. The "Pathways to Affordable Water" initiative enables qualifying customers to earn a 20% to 60% discount per year in rates and charges for service from the Authority. Eligibility for participation in the "Pathways to Affordable Water" initiative is based upon household income relative to federal low-income guidelines. Households that receive supplemental security income, public assistance, supplemental nutrition assistance or home energy assistance program benefits are automatically eligible to participate. In addition, commencing on June 1, 2020, an amnesty program was initiated pursuant to which a customer can enter into a deferred payment agreement (with $0 down) that (i) establishes monthly payments that are within the customer's financial resources and capabilities, and (ii) waives interest, penalties and certain fees.

See also "RATES AND CHARGES – Impact of COVID-19 upon the Collection of Rates and Charges" below for a discussion of certain accommodations to customers by the Authority in the context of the COVID-19 outbreak.

Historical Overview of Rates and Charges

Sewer rates and charges, based upon the use of water, have not been increased by the Authority since its 2006 fiscal year. The Authority has not increased the levy of sewer rates and charges, based upon the assessed value of property, since its 2003 fiscal year.

Table #17
Quarterly Sewer Rents Based on Water Use
Last Five Fiscal Years

	6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
First 4,000 CF:	$48.30	$48.30	$48.30	$48.30	$48.30
Each Additional 1,000 CF:	$11.09	$11.09	$11.09	$11.09	$11.09
Connection Fee:	$18.00	$18.00	$18.00	$18.00	$18.00
Percentage Increase:	0%	0%	0%	0%	0%

Table #18
Annual Sewer Rents Based on Assessed Value
Last Five Fiscal Years

	6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
Levy:	$12,050,000	$12,050,000	$12,050,000	$12,050,000	$12,050,000
Rate per $1,000 of Assessed Value:	1.6651	1.6531	1.6311	1.6179	1.6365
Percentage Increase in Levy:	0%	0%	0%	0%	0%

Current Fiscal Year Rates and Charges

For the current fiscal year of the Authority concluding on June 30, 2021, there has been no increase by the Authority to the rates and charges that had been established for the 2020 fiscal year that concluded on June 30, 2020.

Projected Future Rates and Charges

No increase in rates and charges for the 2022 fiscal year concluding on June 30, 2022, or for any fiscal year thereafter, has been approved by the Board of Directors of the Authority. However, see "FINANCIAL OPERATIONS OF THE AUTHORITY – Five Year Pro Forma Projections, Including Assumptions and Disclaimers" herein for a discussion of the Authority's intended comprehensive rate review initiative. See also, the Environmental Impact Bond Engineering Report attached hereto as Appendix C for a discussion of the Authority's rate structure.

A Comparison of Rates and Charges to Peer Systems

Rates for the City and other municipalities are regularly compared by the Authority as part of the rate process. For purposes of comparison, residential user charges are based upon information provided by the identified cities and standardized assumptions regarding water consumption. Table #19, below, presents this comparison for fiscal year 2020.

Table #19
Regional Rate Comparison

City:	**Residential User Charges:**
Rochester, New York	$376.95
Cheektowaga, New York	$393.11
Amherst, New York	$393.64
Buffalo, New York	$393.64
Lackawanna, New York	$627.40

See Appendix C hereto: "Environmental Impact Bond Engineering Report" for a more detailed discussion of rate comparisons to peer systems.

Annual Operational Experience of the Authority with Respect to the Collection of Rates and Charges in Arrears/Default, Including the Exercise of Statutory Enforcement Powers

While the Authority Act provides that the Authority may foreclose on property in the event that sewer rents based upon assessed valuation remain unpaid for a period of ninety (90) days, recent Authority policy has been to commence foreclosure proceedings when payments due to the City and Authority are one year in arrears. However, as a result of the COVID-19 pandemic and the impact thereof upon the Authority's ratepayers, the City's Corporation Counsel has ceased foreclosing upon properties due to delinquent sewer rents based on assessed valuation.

While the Authority Act provides that the supply of water to any premises maybe shut off if sewer rents based upon water use remain unpaid for a period of more than one year, the City and the Authority have not relied upon this measure of enforcement in recent years.

With respect to nonpayment of sewer rents based upon assessed valuations or water use, the City and the Authority work with individual ratepayers to establish payments plans when such ratepayers become delinquent with respect to their sewer rents.

Nevertheless, the Authority reserves the right to employ any enforcement procedure granted to it pursuant to the terms of the Authority Act.

Impact of COVID-19 upon the Collection of Rates and Charges

The Authority has experienced an 8.12% decrease in cash receipts in the twelve-month period concluding on March 31, 2021 as compared to the twelve-month period concluding on March 31, 2020. Currently, the Authority projects an eight percent (8%) decrease in total revenue for the fiscal year ending June 30, 2021, and a four percent (4%) decrease in total revenue for the fiscal year ending June 30, 2022, in each case, as compared to the prior fiscal year. At the June 30, 2020 conclusion of its 2020 fiscal year, the Authority reported a $6,300,000 receivable as a result of delinquent payments by certain of the Outside Districts. The Authority projected the payment of such amount by such Outside Districts in arrears during the 2021 fiscal year. A portion of such delinquent payments have been received by the Authority as of March 31, 2021, and the Authority projects the receipt of the balance of such delinquent payments by the conclusion of the 2021 fiscal year on June 30, 2021. The Authority anticipates the normalization of Outside District payments during the 2022 fiscal year. The Authority projects that, were it not for the delinquent payment during the 2021 fiscal year of the $6,300,000 receivable as reported at the conclusion of the 2020 fiscal year, the projected decrease in total revenue for the fiscal year ending on June 30, 2021 would be a fifteen percent (15%) decrease in total revenue as opposed to an eight percent (8%) decrease in total revenue.

The Authority's recently-approved budget for its 2022 fiscal year reflects a decrease (versus the 2021 fiscal year budget) of 5% in operating expenses for each Authority department. Overall, the 2022 fiscal year budget reflects a 2% decrease in expenses (taking into account the anticipated increase in debt service and debt reserves associated with the issuance of the Series 2021 Bonds).

The Authority is sensitive to the adverse financial impact of the COVID-19 outbreak upon many of its customers, and continues to make appropriate accommodations. More specifically, the Authority (i) has increased the number of payment plans for delinquent customers, and (ii) remains committed to its moratorium on service shut-offs and foreclosures on delinquent properties. Due to the severity of the COVID-19 pandemic, and the financial burden that the pandemic has created for residents within the Service

Area, the Authority froze the accrual of interest on delinquent sewer rents from April 2020 through September 2020. The accrual of interest on delinquent sewer rents was resumed by the Authority as of October 1, 2020.

On May 11, 2021, the State amended the Public Service Law to extend the period during which a municipality is precluded from terminating or discontinuing service to certain residential and other customers for nonpayment of bills, taxes or fees until the earlier of 180 days after the end of the COVID-19 state of emergency or July 1, 2022. The legislation also expanded the definition of "municipality" to include certain public water authorities, and to prohibit the placement, sale or enforcement of any lien on real property for such nonpayment of bills, taxes or fees. Although the legislation does not technically apply to the Authority, since it is not a water authority, the ability of the Authority to discontinue service or enforce liens on real property may, as a practical matter, be impaired if the City or the Buffalo Water Board are subject to such legislative prohibitions.

The Authority anticipates the receipt of federal COVID-19 relief funding for the Authority, and is monitoring the enactment and implementation of such federal legislation. See "THE AUTHORITY SYSTEM – Legislative Developments" herein.

See "RATES AND CHARGES – Annual Operational Experience of the Authority with Respect to the Collection of Rates and Charges in Arrears/Default, Including the Exercise of Statutory Enforcement Powers," above.

Other Sources of Revenue

In addition to rates and charges (sewer rents based on water use, sewer rents based on the assessed value of property and payments pursuant to service agreements by the Outside Districts) received by the Authority, other significant sources of revenue for the Authority are (i) industrial waste surcharges, (ii) industrial waste haulers and (iii) interest earnings on investments.

Industrial Waste Surcharges. The Authority charges industrial users for discharging sewage or waste exhibiting a strength of sewage or waste greater than normal domestic sewage. Revenue from these industrial waste surcharges during the last five fiscal years are as follows:

Table #20
Revenue from Industrial Waste Surcharges
Last Five Fiscal Years

6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
$1,464,069	$1,124,098	$1,515,705	$1,684,329	$1,344,269

Industrial Waste Haulers. The Authority accepts trucked-in waste from industrial waste haulers at its treatment facilities. This waste includes (i) septage (septic tank waste) and portable toilet wastes, (ii) grease trap wastes and (iii) sludge wastes. Revenue from industrial waste haulers during the last five fiscal years are as follows:

Table #21
Revenue from Industrial Waste Haulers
Last Five Fiscal Years

6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
$936,416	$794,508	$1,479,801	$1,967,202	$2,601,182

Interest Earnings on Investments. Another significant source of revenue for the Authority is interest on investments. Interest on investments during the last five fiscal years is as follows:

Table #22
Revenue from Interest Earnings on Investments
Last Five Fiscal Years

6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020
$243,308	$602,482	$1,227,974	$2,154,860	$1,943,174

FINANCIAL OPERATIONS OF THE AUTHORITY

Agreements and Service Arrangements Relating to the Management and Oversight of the Authority

Pursuant to provisions of the Authority Act and via agreement with the City, the Authority makes use of the facilities and services of various City departments in connection with the management of certain Authority operations. In addition, the Authority has entered into service arrangements with the City, the Buffalo Water Board and Veolia in connection with the management of certain Authority operations. See "BUFFALO SEWER AUTHORITY – Organization and Management of the Authority" herein for a discussion of (i) the role of the City in the management of certain Authority operations and (ii) the service arrangements that the Authority has entered into with the City, the Buffalo Water Board and Veolia relating to the management of certain Authority operations. See also, the below subheadings relating to the role of the City with respect to the operational and fiscal management and oversight of the Authority.

City of Buffalo Comptroller's Office. The Comptroller's Office of the City (the "Comptroller") serves as the comptroller and internal auditor for the Authority. The Comptroller (i) approves all Authority contracts, (ii) approves and audits all Authority payments made pursuant to its contracts, (iii) issues all Authority checks, and (iv) operates and maintains Munis, the primary accounting system utilized by the City (including with respect to the Authority). The Comptroller's internal audit function with respect to the Authority consists of a review of all requisite documents, including, but not limited to, purchase orders, blanket orders, invoices, credit memos, packing slips and authorizing signatures for the payment of any good or service. The Comptroller also processes the Authority's payroll and issues all payroll checks. The Comptroller verifies and audits the Authority's time and attendance records, as well as the approval signatures in connection with the "Timekeeper" payroll system. The Comptroller performs internal audits of the Authority's processes and procedures.

The Comptroller also is responsible for calculating and determining the amount owed by the Authority to the ERS. Monthly and annual payments to the ERS by the Authority are reviewed and audited by the Comptroller. Bi-annually, the Authority engages an independent actuarial valuation, pursuant to and in satisfaction of GASB 75, of the potential liability due to postemployment pension benefits and other postemployment benefits other than pensions. See "BUFFALO SEWER AUTHORITY – Pension and

Insurance Liabilities of the Authority" herein for a discussion of pension and insurance programs of the Authority.

City of Buffalo Law Department. The City of Buffalo Law Department (the "Law Department") conducts an independent review of all Authority contracts. Approval by the Law Department of each contract is requisite prior to execution and performance thereof by the Authority, and approval of payment thereunder by the Comptroller. Contract review by the Law Department (i) is intended to verify compliance with all applicable State and local laws, and (ii) includes, but is not limited to, inspection of contract terms and provisions, signatures and approvals, proper insurance coverage, and proper proposal, performance, and maintenance bonds.

The Role of the City of Buffalo Department of Treasury in the Collection of Annual Sewer Rents that are Calculated Based Upon Assessed Valuation. The City of Buffalo Department of Treasury ("Department of Treasury" or "Treasury") receives all payments (cash and checks) of annual sewer rents, payable to, and on behalf of, the Authority, that are calculated based upon the assessed value of each property to which service is provided by the Authority. These Sewer rents, as collected by Treasury on behalf of the Authority, are generated by an annual sewer rent bill that is calculated by the City's Department of Assessment and Taxation based upon the assessed value of each property to which service is provided by the Authority, which sewer rent bill is included with the annual tax bill that is sent to each property address by the Department of Assessment and Taxation. The remit address reflected on each sewer rent bill is an M&T Bank lockbox. Details of payments received via the M&T Bank lockbox are forwarded to Treasury by M&T Bank on a daily basis. Customers also can pay directly at Treasury in City Hall in person or via mail. Treasury enters all payment information received from M&T Bank into the Munis system on a daily basis. The Authority Accounting Department receives a daily report from Treasury and compares this report to what has been entered in the Munis system. The payments received are transferred from the M&T Bank lockbox directly to the Authority's bank account. Any discrepancies among (i) the daily report from Treasury to the Authority's Accounting Department, (ii) payments received as reflected by the Munis system, and (iii) the balance on account in the Authority's bank accounts following the transfer thereto by M&T Bank are investigated and reconciled by Treasury and the Authority's Accounting Department.

See "THE AUTHORITY'S SERVICE AREA – Description of the Service Area of the Authority: The City and the Outside Districts" and "—Authority Service Contracts with the Outside Districts" for a discussion of service charges payable pursuant to service contracts entered into by the Authority.

The Authority also issues invoices through the Munis system for certain services and sewer rents that are directly remitted to the Authority and processed for deposit by Authority personnel in the Accounting Department. These payments are applied against the outstanding invoices as reflected on the Munis system and are deposited the day they are received. All payments received directly by the Authority are logged in by a clerk and are reconciled by a Senior Accountant to payments deposited into the Authority bank accounts.

The City of Buffalo Department of Assessment and Taxation. The City of Buffalo Department of Assessment and Taxation is responsible for generating and disseminating the annual bills for sewer rents that are calculated based upon the assessed value of each property to which service is provided by the Authority. These sewer rent bills are included with the annual tax bills that are sent to each property address by the Department of Assessment and Taxation. The Department of Assessment and Taxation enters accounts receivable information on the Munis system annually, and enters adjustments daily. The Authority exempts from liability for this sewer rent, real property within the City that is exempt from taxation pursuant to various sections of the New York Real Property Tax Law.

All real property located within the City was reassessed by the Department of Assessment and Taxation in 2019. For the 2020-2021 fiscal year, the total assessed value of real properties in the City is

$12,744,275,032. For the 2019-2020 fiscal year, the total assessed value of real properties in the City had been $7,363,398,502.

The Role of the Buffalo Water Board, as Managed by Veolia, in the Collection of Quarterly Sewer Rents that are Calculated Based Upon Water Usage. Veolia is responsible for the billing and collection of quarterly sewer rents that are calculated on the basis of water usage by customers. As of June 30, 2020, there were 75,036 active water accounts that are billed for sewer rent based upon water use. The remit address on these quarterly customer sewer rent bills, based upon water usage, is an M&T Bank lockbox. In addition, customers can utilize Western Union and online payment services, mail in payments, or pay directly at either Buffalo Water Board's customer service center located at 281 Exchange Street or the Treasury Department in City Hall. Payments received via the M&T lockbox are forwarded to Veolia by M&T Bank on a daily basis. Walk-in payments and payments mailed directly to Veolia are forwarded to Treasury on a daily basis.

Operational and Fiscal Management and Oversight by Authority Departments

Authority Accounting Department. Miscellaneous payments received directly by the Authority are deposited with the Department of Treasury the day that such payments are received. No cash, other than petty cash, is held in the offices of the Authority. The Authority Accounting Department reconciles the data on the Munis system to reports received from Treasury and the Buffalo Water Board on a daily basis, and reconciles the data on the Munis system to Authority bank statements on a monthly basis. The Authority Accounting Department is responsible for all wire and bank transfers. All wire and bank transfers are processed by a Supervising Accountant and approved by the Executive Secretary or the General Manager of the Authority.

Authority Purchasing Department. Purchase requisitions are issued by an Authority department head and approved with his or her signature. Thereafter, the requisition is forwarded to the Assistant Supervisor of Fixed Assets within the Authority Purchasing Department. The Authority's Assistant Supervisor of Fixed Assets is responsible for the competitive bidding process for commodity and service purchases.

Purchase requisitions for construction contract payments follow a more rigorous series of approvals, with additional approvals required from a project manager, the Principal Sanitary Engineer, and the General Manager. Once the purchase is received, a Senior Clerk in the Authority's Accounts Payable Division reviews the packing slip, the purchase order, and the vendor invoice. Any discrepancies are reconciled at this time. The Senior Clerk enters the vendor invoice on the Munis system and the Executive Secretary signs the invoice. The invoice is then sent to the City's Comptroller (Audit Division) for an additional audit, review, approval and payment processing.

The Authority Purchasing Department also oversees the Authority stockroom. All materials and supplies purchased by the Authority are delivered to the stockroom, received and inventoried. The inventory is maintained on the IBM Maximo asset management system.

Authority Payroll Department. On a daily basis, the Authority Payroll Department enters information regarding employee hours worked (including overtime and acting time) and information regarding vacation and sick time into the Timekeeper system. At the end of a pay period, each Authority department head receives a summary report from the Timekeeper system that demonstrates total hours worked, overtime, acting time and vacation used by each employee. Each Authority department head verifies the information by signing the summary report and returning it to the Authority Payroll Department.

The General Manager approves the total Authority payroll, and the Authority payroll information is then imported into the Munis system by the City's Comptroller. The Comptroller audits the Authority payroll for the period, and any discrepancies are reconciled and updated. A Senior Accountant from the Authority Accounting Department reviews the Munis general ledger payroll accounts for accuracy.

The Supervising Accountant from the Authority Accounting Department transfers the funds to the disbursement account to fund the payroll for the period. The disbursement account is reconciled by a Senior Accountant and the reconciliation is reviewed by the Supervising Accountant.

FutureComp Claims Administration. FutureComp Claims Administration is the Authority's independent, outside agent that reviews, assesses and verifies all workers' compensation claims and disbursements. The Authority internally receives claims from employees and electronically submits all claims data to FutureComp. FutureComp then reviews and submits all claims information to the New York State Workers' Compensation Board, and monitors the Workers' Compensation Board's determination. FutureComp subsequently forwards all periodic claims payments to the Authority. The information received from FutureComp is reviewed by a Principal Clerk and audited by a Supervising Accountant and the City's Comptroller before payment is issued. Bi-annually, the Authority engages in an independent actuarial valuation of the potential liability due to workers' compensation exposures.

Table #23
Operating Revenues: Charges for Services by Source
Last Ten Fiscal Years

		Operating Revenue – Charges for Services					
						Interest and Penalties	
Year Ended June 30,	Total	Assessed Sewer Rent	Water Sewer Rent	Industrial Waste	Connection Privileges O/S City	Delinquent Assessed Sewer Rent	Delinquent Water Sewer Rent
2011	$52,201,066	$12,053,431	$27,212,053	$2,050,716	$10,322,482	$127,925	$434,459
2012	53,531,965	12,070,207	27,880,651	1,769,262	11,110,756	141,833	559,256
2013	53,688,824	12,097,746	27,285,139	1,850,214	11,501,201	244,666	709,858
2014	52,022,482	12,076,196	27,275,233	2,045,476	9,561,086	221,920	842,571
2015	57,473,938	12,254,685	27,065,019	2,081,615	14,993,203	210,573	868,843
2016	54,155,310	12,247,660	27,177,999	2,425,996	11,049,188	281,832	972,635
2017	57,883,355	12,108,674	26,993,253	1,944,290	15,708,267	197,398	931,473
2018	57,280,969	12,217,483	27,173,917	3,030,640	13,832,219	211,588	815,122
2019	54,353,821	12,178,851	27,081,589	3,699,578	10,367,269	207,607	818,927
2020	51,083,531	12,157,349	25,477,782	4,039,805	8,576,622	155,361	676,612

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The Historic Revenues, Expenses and Fund Deposits of the Authority for the Last Ten Fiscal Years

Table #24
Changes in Fund Balance, Governmental Funds
Last Ten Fiscal Years

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
REVENUES										
Sewer rents—general consumers	$ 51,638,682	$ 52,830,876	$ 52,734,300	$ 50,957,991	$ 56,394,522	$ 52,900,843	$ 56,754,484	$ 56,254,259	$ 53,327,287	$ 50,251,558
Interest on delinquent sewer rents	562,384	701,090	954,524	1,064,491	1,079,416	1,254,467	1,128,871	1,026,710	1,026,534	831,973
Interest on cash and investments	348,572	507,774	357,126	374,859	259,373	343,483	809,462	2,455,992	2,297,237	2,070,426
Miscellaneous	1,507,459	1,776,088	1,834,589	1,774,221	1,657,804	1,736,771	2,384,830	1,486,448	1,259,938	1,852,243
State aid	-	-	-	-	2,439,183	255,616	128,554	265,565	-	-
Federal aid	-	-	-	9,031,991	-	380,907	742,768	1,327,806	357,050	400,000
Total revenues	54,057,097	55,815,828	55,880,539	63,203,553	61,830,298	56,872,087	61,948,969	62,816,780	58,268,046	55,406,200
EXPENDITURES										
Current:										
General administration	1,161,674	1,300,917	1,133,203	1,165,918	1,148,367	1,246,161	1,420,367	1,457,672	1,729,238	1,944,811
Wastewater treatment facilities	18,027,494	17,683,807	16,912,279	16,921,866	17,015,818	16,698,109	16,607,884	17,882,344	18,743,263	19,781,028
Industrial waste	543,074	542,419	513,905	508,944	428,252	426,198	529,169	538,868	543,915	651,492
Engineering	683,679	596,009	664,940	753,015	888,776	1,145,216	874,016	1,030,200	1,014,803	1,134,576
Sewer maintenance	3,868,978	3,420,720	3,114,988	5,784,233	2,918,739	4,135,460	3,103,108	4,194,931	3,787,045	3,778,964
Miscellaneous	4,123,581	4,062,822	4,180,866	4,391,943	4,500,706	4,138,690	4,990,868	4,208,439	4,104,067	4,026,708
Employee benefits	6,478,895	7,091,923	7,505,907	8,256,431	8,601,974	8,564,882	9,128,640	9,325,229	9,318,973	9,850,818
Debt service:										
Principal	8,945,000	6,270,000	3,488,436	10,769,723	1,580,000	2,032,438	1,640,000	1,680,000	1,725,000	1,770,000
Interest and fiscal charges	2,680,650	2,265,947	1,957,709	1,800,298	1,966,969	2,212,115	1,867,989	1,805,638	1,739,476	1,670,332
Capital outlay:	16,359,902	13,208,466	10,067,659	13,546,682	10,372,920	21,846,324	24,929,531	20,009,484	24,302,701	19,426,726
Total expenditures	62,872,927	56,443,030	49,539,892	63,899,053	49,422,521	62,445,593	65,091,572	62,132,805	67,008,481	64,035,455
Excess (deficiency) of revenues over expenditures	(8,815,830)	(628,102)	6,340,647	(695,500)	12,407,777	(5,573,506)	(3,142,603)	683,975	(8,740,435)	(8,629,255)

(continued)

Changes in Fund Balance, Governmental Funds
Last Ten Fiscal Years

(concluded)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
OTHER FINANCING SOURCES (USES)										
Transfers in	21,858,271	20,368,654	13,510,320	38,786,997	28,448,228	24,194,609	21,597,825	23,809,426	19,599,200	16,825,027
Transfers out	(21,858,271)	(20,368,654)	(13,510,320)	(38,786,997)	(28,448,228)	(24,194,609)	(21,597,825)	(23,809,426)	(19,599,200)	(16,825,027)
Long-term conversion of EFC loans payable expected to be refinanced	-	-	-	15,159,256	-	-	-	-	-	-
Proceeds of issuance of debt	-	-	-	-	2,422,054	-	-	-	-	-
Proceeds of refunding bonds	-	-	21,671,564	-	8,967,268	7,094,679	-	-	-	-
Payment to refunded bond escrow agent	-	-	(21,671,564)	-	(8,967,268)	(7,094,679)	-	-	-	-
Total other financing sources (uses)	-	-	-	15,159,256	2,422,054	-	-	-	-	-
Net change in fund balances	$ (8,815,830)	$ (628,102)	$ 6,340,647	$ 14,463,756	$ 14,829,831	$ (5,573,506)	$ (3,142,603)	$ 683,975	$ (8,740,435)	$ (8,629,255)
Debt service as a percentage of noncapital expenditures	24.99%	17.56%	13.80%	24.96%	9.54%	10.97%	8.93%	8.48%	5.17%	7.87%

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The Historic Coverage Ratio Calculations of the Authority for the Last Ten Fiscal Years.

Table #25
Coverage Ratio Calculations
Last Ten Fiscal Years

Year Ended June 30,	Revenues	Direct Operating Expenditures[1]	Net Revenue Available for Debt Service	Debt Service Requirements			
				Principal	Interest	Total	Coverage
2011	$54,057,097	$34,887,375	$19,169,722	$8,945,000	$2,680,650	$11,625,650	1.65
2012	55,815,828	34,698,617	21,117,211	6,270,000	2,265,947	8,535,947	2.47
2013	55,880,539	34,026,088	21,854,451	3,488,436	1,957,709	5,446,145	4.01
2014[2]	54,171,562	37,782,350	16,389,212	10,769,723	1,800,298	12,570,021	1.30
2015	61,830,298	35,502,632	26,327,666	1,580,000	1,966,969	3,546,969	7.42
2016	56,872,087	36,354,716	20,517,371	2,032,438	2,212,115	4,244,553	4.83
2017	61,948,969	36,654,052	25,294,917	1,640,000	1,867,989	3,507,989	7.21
2018	62,816,780	38,637,683	24,179,097	1,680,000	1,805,638	3,485,638	6.94
2019	58,268,046	39,241,304	19,026,742	1,725,000	1,739,476	3,464,476	5.49
2020	55,406,200	41,168,397	14,237,803	1,770,000	1,670,332	3,440,332	4.14

Note: [1] Direct operating expenditures exclude all debt service requirements, capital outlay and other financing uses.
Note: [2] During the fiscal year ended June 30, 2014 the Authority recognized $9,031,991 of Federal Aid that was used to retire principal of the same amount.

Authority Days Cash On Hand Calculation

Table #26
Days Cash on Hand
Last Ten Fiscal Years and
Through March 31, 2021 of the Current Fiscal Year

	6/30/2011	6/30/2012	6/30/2013	6/30/2014	6/30/2015	6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020[2]	3/31/2021[1,2]
Capital Improvement Fund	35,607,796	34,420,341	40,367,554	45,328,160	58,679,085	59,496,626	54,619,752	54,420,264	38,112,306	43,582,815	44,836,724
Liability Fund	1,005,608	1,000,817	1,001,079	997,006	1,094,157	1,077,115	1,097,489	1,003,643	1,010,703	1,019,399	1,017,563
Operating Fund	7,917,667	9,334,129	6,883,474	3,036,609	8,353,525	2,949,742	5,139,194	3,069,457	7,678,608	2,483,163	5,300,144
Surplus Fund	6,049,838	6,144,226	5,999,533	7,999,533	10,001,333	10,008,870	10,082,200	10,000,586	10,008,886	10,006,266	10,010,912
Net Revenue Fund	15,698,310	14,399,923	15,799,169	19,680,653	7,012,418	10,897,544	12,314,950	11,128,576	27,621,867	20,988,002	20,799,336
Total Cash on Hand	66,279,220	65,299,435	70,050,808	77,041,962	85,140,518	84,429,896	83,253,585	79,622,525	84,432,370	78,079,647	81,964,679
Expenses	62,872,927	56,443,930	49,539,892	63,899,053	49,422,521	62,445,593	65,091,572	62,132,805	67,008,481	64,035,455	53,210,599
Days Cash on Hand	385	422	516	440	629	494	467	468	460	445	562

Note: [1] Actual cash balances as of 3/31/2021. Expenses are estimated at 6/30/2021
Note: [2] FY2020 and FY2021 (through 03-31-2021) reflect certain non-recurring federal and State financial assistance.

An Overview of the Operating Budget of the Authority

Table #27
Operating Expenses
Last Ten Fiscal Years

Year Ended June 30,	Total	General Administration	Wastewater Treatment Facilities	Industrial Waste	Engineering	Sewer Maintenance
2011	$43,606,009	$2,044,403	$33,281,903	$922,556	$1,271,881	$6,085,266
2012	43,683,336	2,293,974	33,681,046	908,867	1,152,899	5,646,550
2013	43,940,249	2,206,256	33,773,830	909,499	1,379,289	5,671,375
2014	46,950,146	2,261,187	33,457,338	879,550	1,569,317	8,782,754
2015	44,831,768	2,376,046	34,608,043	766,238	1,918,665	5,162,776
2016	44,955,404	2,532,347	34,482,810	777,510	2,123,261	5,039,476
2017	48,085,232	2,472,798	37,671,328	921,260	1,521,624	5,498,222
2018	51,218,181	2,460,476	39,600,755	909,582	1,738,925	6,508,443
2019	47,095,007	2,524,153	37,456,299	793,948	1,481,299	4,839,308
2020	49,265,878	2,809,113	39,206,343	941,024	1,638,798	4,670,600

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Table #28
Fiscal Year 2021 Operating Budget Performance
as of March 31, 2021

The below analysis presents fiscal year 2021 third quarter performance (actual) as compared to (i) fiscal year 2020 third quarter performance (actual), (ii) estimated fiscal year 2021 year-end performance, and (iii) the fiscal year 2021 budget, with budget variance.

	Actual 3/31/2020	Actual 3/31/2021	Estimated 6/30/2021	Budget 6/30/2021	Budget Variance
REVENUE					
Assessed sewer rents	$12,076,584	$12,073,331	$12,100,000	$12,092,600	$ 7,400
Metered water use sewer rents	18,116,339	17,711,322	20,636,958	24,550,000	(3,913,042)
Flat rate water use sewer rents	1,769,992	1,705,629	2,038,268	2,450,000	(411,732)
Industrial Waste	1,792,436	3,035,254	3,878,213	3,781,000	97,213
Non-Recurring Revenue*	_-	6,000,000	6,000,000	-	6,000,000
Outside district connections	-	1,800,000	19,505,811	12,500,000	7,005,811
Interest on Investments	1,201,911	191,264	355,000	2,000,000	(1,645,000)
Interest on delinquent assessed sewer rent	144,612	109,468	115,987	200,000	(84,013)
Interest on delinquent water use sewer rent	601,880	233,325	300,000	815,000	(515,000)
Miscellaneous	1,457,704	596,782	1,400,000	1,361,400	38,600
Total Revenues	**$37,161,458**	**$43,456,375**	**$66,330,236**	**$59,750,000**	**$ 580,237**
EXPENDITURES					
Salaries and wages	$8,943,168	$9,187,814	$12,250,000	$17,011,106	$ (5,021,407)
Other employee benefits	7,202,834	7,439,504	9,920,000	10,805,685	323,409
Professional services contracts	4,387,242	7,086,563	9,448,750	10,605,301	(2,709,168)
Supplies and materials	5,977,800	5,417,623	7,223,500	11,481,906	(3,433,297)
Other operating expenditures	262,188	457,142	1,475,000	730,329	748,775
Debt Service	1,347,008	1,316,952	3,407,146	7,643,669	(4,236,523)
Total Expenditures	**$28,990,158**	**$31,556,288**	**$43,724,396**	**$59,750,000**	**$(14,932,628)**

* FY2020 and FY2021 (through 03-31-2021) reflect certain non-recurring federal and State financial assistance.

Capital Improvement Program

On an annual basis, the Authority revises its five-year capital projects plan. Additionally, the Authority LTCP identifies a twenty-year timeline, commencing on March 18, 2014, for upgrades to both the CSS and the Bird Island Plant with the objective of reducing the frequency and severity of CSO events.

As part of its Authority LTCP, the Authority has developed its GI Master Plan. This GI Master Plan identifies how many acres of impervious acreage are expected to be managed by new green infrastructure initiatives each year, and how much funding is expected to be expended on these projects during that time. Together with the balance of the Authority LTCP, these timelines and cost estimates, as set forth in the GI Master Plan, are incorporated into the Authority's five-year capital projects plan.

See "THE RAIN CHECK PROJECTS – Development by the Authority of the Authority LTCP" and "—The Development by the Authority of its Green Infrastructure Master Plan" herein.

Historic Capital Improvement Initiatives and Investments

On June 8, 1882, the City created a five-person Board of Commissioners of Sewers to construct sewers throughout the City and convey flows from heavily polluted canals and other more inland waterways to the Niagara River. Between 1882 and 1900, the majority of the sewers were laid in the City. In 1935, the Authority was created with the express purpose of constructing the primary treatment facility and interceptor sewers to convey dry weather flows to that facility. In the 1970s, the Authority oversaw the extension of forcemains and pumping stations to Kelly Island (located in the Buffalo River), the construction of the secondary treatment system, upgrades of the primary treatment system, and the construction of the Scajaquada Tunnel to divert combined sewer overflows from Scajaquada Creek. The investment by the Authority in capital improvements to the Authority System is summarized in Table #29, below, relating to total capital expenditures during the last five (5) fiscal years.

Table #29
Total Capital Expenditures
Last Five Fiscal Years

Fiscal Year	Total Capital Expenditures
2016	$21,846,324
2017	$24,929,531
2018	$20,009,484
2019	$24,302,701
2020	$19,426,726

See "THE AUTHORITY SYSTEM – Historic Evolution of the Authority's Collection System," "Historic Evolution of the Authority's Treatment System," "Description of the Authority's Collection System" and "Description of the Authority's Treatment System" herein. See also, "FINANCIAL OPERATIONS OF THE AUTHORITY – An Overview of the Participation of the Authority in the Clean Water State Revolving Fund Programs of the New York State Environmental Facilities Corporation."

Current Fiscal Year Capital Improvement Initiatives and Investments

During each of its last five fiscal years, the Authority has averaged over $22 million per fiscal year in capital expenditures. Due to the fiscal challenges of the COVID-19 pandemic, the Authority currently estimates that its capital expenditures for the current fiscal year ending June 30, 2021 will be approximately $18 million. Major capital projects currently underway during the current fiscal year include each of the following:

- Raw wastewater pump and motor rehabilitation;
- Replacement of the influent trash racks;
- Primary treatment rehabilitation;
- Real Time Control construction at the Babcock pump station;
- Real Time Control construction at Smith and Eagle Streets;

- Green infrastructure construction on Niagara Street; and

- Re-aerator replacement.

Forecasted Capital Improvement Initiatives and Investments

The Authority LTCP and Funding the Authority LTCP. The projected cost to complete the current Authority LTCP is $537,000,000, with projected required indebtedness of $510,000,000, in order to achieve the current implementation schedule of 20 years; if a 2.8% construction inflationary factor is applied to Authority LTCP project costs per year to coincide with the current completion requirement of 2034, such projected costs increase to $636,000,000. The current Authority LTCP implementation schedule anticipates exceeding the Authority's current statutory debt limit of $250,000,000 by 2025, requiring a revised statutory debt limit of more than double the current debt limit by 2032. See the subheading, below, entitled "An Overview of Applicable Statutory Debt Limits." See also, Appendix C hereto: "Environmental Impact Bond Engineering Report" for a detailed discussion of the financial burden of a 20-year implementation schedule upon the Authority System ratepayers.

The 2020 update to the Authority's Financial Capability Analysis evaluated an alternative to the current 20-year Authority LTCP implementation schedule in order to lessen the financial burden upon the Authority System ratepayers. The alternative is a 20-year extension to the current Authority LTCP implementation schedule, resulting in a new schedule for completion of 2054. The alternative Authority LTCP implementation schedule results in projected completion costs of $482,000,000 and would require a revised statutory debt limit of $321,000,000 in order to achieve the alternative implementation schedule; if a 2.8% construction inflationary factor is applied to Authority LTCP project costs per year to coincide with the alternative completion schedule of 2054, such projected costs increase to $690,000,000. The alternative Authority LTCP implementation schedule anticipates exceeding the current statutory debt limit of $250,000,000 in 2030 and requiring an indexed debt limit of nearly triple by 2054. Revising the debt limit would require an amendment to the Authority Act. If an increase in the Authority's statutory debt limits is not achieved via an amendment to the Authority Act, it is estimated that approximately 50% of the Authority LTCP project costs will need to be funded by the Authority (i) using its cash reserves and (ii) even more significant rate increases to generate adequate revenues.

The Authority's Five-Year Capital Improvement Program and Funding the Authority's Five-Year Capital Improvement Program. The Authority's current 5-year Capital Improvement Program (the "CIP") includes both Authority LTCP projects and non-Authority LTCP projects, and is summarized in the table, below.

The Authority is in the process of applying to EFC for $35 million in funding (the "EFC 2022 Financing") for upgrades and rehabilitation to the secondary treatment system at the Bird Island Plant as part of the CIP, with construction award expected during the Summer of 2021, closing on the EFC 2022 Financing anticipated in 2022, and work to be completed by Summer of 2026.

Currently, the CIP is projected to cost $386,690,000. The projected five-year amount available to the Authority to fund this CIP is approximately $200,000,000. More specifically, the sources of funding available to the Authority for the costs of the CIP consist of the following: (i) the proceeds of the Series 2021 Bonds, (ii) the EFC 2022 Financing, (iii) capital available from reserves ($4,000,000 per year from fiscal year 2022 through 2025 for a total of $16,000,000), and (iv) capital contributions available from operations in the amount of approximately $83,011,321. The resulting currently projected 5-year CIP funding gap is $219,759,000.

The options available to the Authority for purposes of addressing this CIP funding gap include the following:

- Extending the Authority LTCP implementation schedule to stretch out annual capital needs (as discussed above).
- Increasing capital contributions from reserves.
- Scheduling "stretch outs" for non-Authority LTCP projects.
- Issuing additional bonds.
- Receiving federal funding from COVID-19 relief grants.
- Receiving additional federal funding from the American Jobs Plan, with rollout expected in Summer 2021.
- Increasing rates and charges above those currently forecasted.
- Receiving yields from rate structure review, tied to property valuations.

See Appendix C hereto: "Environmental Impact Bond Engineering Report" for a detailed discussion of the CIP, the funding of the CIP, the CIP funding gap and methods of addressing the CIP funding gap.

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Table #30
Five Year Capital Plan

ITEM	PROJECT TITLE:	BUDGET 2020-21	2021-22	2022-23	2023-24	2024-25
	TREATMENT PLANT:					
1	PRIMARY/SECONDARY TREATMENT REHABILITATION	34,000,000	2,000,000	20,000,000	10,000,000	30,000,000
2	GRIT SYSTEM UPGRADE	2,000,000				
3	FACILITY CONTROLS/FIBER OPTIC/SR IO/RWW IO(OVATION UPGRADE)	750,000				
4	GATE 15 THROUGH 20 REHABILITATION	1,500,000				
5	HARBOR GATES/INLET GATES (3) REHABILITATION	1,250,000				
6	POWER SYSTEM SURVEY AND IMPLEMENTATION	5,000,000	15,000,000	15,000,000	10,000,000	
7	STRUCTURAL REHABILITATION OF FACILITIES	1,500,000	1,000,000	1,000,000	1,000,000	1,000,000
8	IWS WASTEHAULER ONSITE FACILITIES		2,500,000			
9	FACILITY CONTROLS/FIBER OPTIC/SR IO/RWW IO		1,500,000	700,000	700,000	
10	REPLACE AHU'S 7-14		1,400,000	1,000,000	1,000,000	1,000,000
11	FINAL CLARIFIER BUILDINGS REHAB		3,500,000			
12	INTERIOR IMPROVEMENTS THROUGHOUT PLANT		750,000	750,000	750,000	750,000
13	PLANT WIDE PIPE EVALUATION AND REPAIR		500,000	500,000	500,000	500,000
14	RWW/SWW PUMP AND MOTOR REHABILITATION/DISCHARGE VALVE			1,500,000		
15	HIGH STRENGTH FOOD WASTE			2,000,000		
16	ELECTRICAL SUB-METERING AND DISTRIBUTION MODIFICATIONS			750,000		
17	ENGINEERING TERM CONTRACTS				1,500,000	
18	WASTE HEAT RECOVERY BOILERS				800,000	
19	AUXILIARY BOILER #2 UPGRADE				475,000	
20	DIGESTER AND MIXING IMPROVEMENT				1,200,000	1,800,000
21	INC DUCT WORK EXPANS AND DEMO OF OLD AUX BOILER APC SYSTEM				200,000	
22	STRUCTURAL REHABILITATION OF PROCESS TANKS				1,000,000	1,000,000
23	SECONDARY SYSTEM CONTROL VALVE/MAGMETER REPLACEMENT				2,000,000	2,000,000
24	EXHAUST FAN FOR AMHERST RECEIVING STATION				200,000	
25	FERROUS CHLORIDE AND HYPO TANK REPLACEMENT				300,000	
26	REHAB CHEMICAL HANDLING/DEWATERING POLY DELIVERY AREA				350,000	
27	COMBINED HEAT AND POWER				9,000,000	9,000,000
28	GAS COMPRESSORS				1,000,000	
29	CLEAN/REPAIR FINAL EFFLUENT CONTACT TANKS					700,000
30	DIGAS FLEET VEHICLES AND FILLING STATION					5,000,000
31	SECONDARY CLARIFIER WEIR REFURBISHMENT					200,000
32	AERATION/FC SCUM EJECTOR REHABILITATION					150,000
33	MEGA-STRUCTURE AND TUNNELS FLOOR REPAIR					550,000
34	SWW #4 PUMP AND MOTOR INSTALLATION					2,000,000
35	EXTENSION OF NEW FINAL EFFLUENT LINE					350,000
36	INCINERATOR #1 UPGRADE					7,000,000
37	CENTRIFUGE #4 INSTALLATION					2,500,000
	COLLECTION SYSTEM:					
38	SEWER CLEANING, INSPECTION, AND ANALYSIS - PREVENTATIVE	1,500,000			1,500,000	
39	SEWER CLEANING, INSPECTION, AND ANALYSIS - CORRECTIVE	3,000,000			3,000,000	
40	SEWER REPAIR & REPLACEMENT	3,250,000			3,250,000	
41	NO-DIG SEWER REHABILITATIONS			1,500,000		
42	ENGINEERING TERM CONTRACTS				1,000,000	
43	PRIVATE PROPERTY GI GRANT PROGRAM	1,800,000	3,600,000	3,600,000	3,600,000	3,600,000
44	GI PROJECTS	2,700,000	2,700,000	12,000,000	12,000,000	12,000,000
45	NORTH DISTRICT RTC	246,000	3,850,000		132,000	2,054,000
46	SCAJAQUADA DISTRICT RTC		1,904,000	131,000	2,213,000	2,703,000
47	SOUTH CENTRAL DISTRICT RTC	121,000	1,895,000	121,000	1,895,000	
48	NORTH RELIEF INTERCEPTOR			5,400,000		48,600,000
49	CSO 013 STORAGE PROJECT	15,000,000				
		73,617,000	**42,099,000**	**65,952,000**	**70,565,000**	**134,457,000**
	TOTAL:	**386,690,000**				

Factors Impacting Successful Implementation of Capital Projects

General Considerations as to Successful Implementation. In addition to financial capability considerations and the Authority's objective to avoid undue burdens upon the most vulnerable residents of the City, as one of the poorest cities in the nation, the successful and timely implementation of capital projects generally is adversely impacted by: (i) debt limits; (ii) adequate staffing to oversee projects; (iii) government contract bidding regulations; and (iv) permitting requirements.

Successful Implementation of the Authority LTCP. On January 7, 2021, the Authority submitted to the USEPA and the NYSDEC an update to its Financial Capability Analysis. In such update, the Authority demonstrates that an extension of the schedule for the implementation of the initiatives identified in the Authority LTCP will be required in order to relieve the residents of the Service Area of the unaffordable rates that currently are forecast by the Authority in order to achieve the current Authority LTCP implementation schedule. Therefore, as part of its submission to the USEPA and the NYSDEC, the Authority has requested that the USEPA Administrative Order be modified in order to extend the current March 18, 2034 Authority LTCP implementation completion date. Currently, the Authority anticipates that discussions among the Authority, the USEPA and the NYSDEC regarding this request will commence once the USEPA and the NYSDEC have completed their respective reviews of the updated Financial Capability Analysis, as submitted on January 7, 2021. The Authority is unable to project the response of the USEPA and the NYSDEC to its request that the USEPA Administrative Order be modified in order to extend the current March 18, 2034 Authority LTCP implementation completion date, including, without limitation, any alternative Authority LTCP implementation completion date that might be considered and approved for inclusion in any modification to the USEPA Administrative Order. See "FINANCIAL OPERATIONS OF THE AUTHORITY – Forecasted Capital Improvement Initiatives and Investments" and Appendix C hereto: "Environmental Impact Bond Engineering Report" for a detailed discussion of the schedule for the implementation of the Authority LTCP.

Successful Implementation of the CIP. With respect to the successful implementation of the CIP, see "FINANCIAL OPERATIONS OF THE AUTHORITY – Forecasted Capital Improvement Initiatives and Investments" and Appendix C hereto: "Environmental Impact Bond Engineering Report" for a discussion of the availability of sufficient funding for the CIP, the existence of a funding gap and options available to the Authority for purposes of addressing the CIP funding gap.

Strategic Initiatives

Please see "THE RAIN CHECK PROJECTS – The Development by the Authority of the Authority LTCP" and "—The Development by the Authority of its Green Infrastructure Master Plan" relating to the implementation by the Authority of its Authority LTCP and its GI Master Plan as strategic priorities. As an additional strategic priority, the Authority is pursuing operational policies and legislative developments to improve opportunities for minority-owned businesses, women-owned businesses, service-disabled veteran-owned business, and small businesses to work with the Authority with respect to Authority projects.

In September, 2020, the Authority Board of Directors approved revised purchasing guidelines that, in accordance with State law, provide that the Authority may use a best value determination when awarding purchase contracts and service contracts. As part of this initiative, bids submitted by businesses that are certified as minority or woman-owned businesses ("M/WBEs") and/or are certified as service-disabled veteran-owned businesses ("SDVOBs") will be evaluated as if their bid price is 10-20% lower than their actual bid. The Authority focused upon M/WBEs and SDVOBs because there are existing State and county certification processes for these businesses that can be relied upon by the Authority. However, the Authority additionally is considering implementation of specific criteria for a business to qualify as a small business, and thereby establish a price preference for such small businesses. These initiatives would provide the

Authority with opportunities to diversify the base of businesses with which it contracts and seek contracts that will provide the best value to the Authority, in addition to providing certain traditionally disadvantaged businesses with greater opportunities.

Further, the Authority is advocating State legislation that will provide greater opportunities for small businesses and "M/WBEs". Among these efforts are (i) a proposal to provide greater flexibility in how construction contracts are awarded so that the Authority could consider a business's status as a M/WBE or a small business, and (ii) a proposal to establish a program pursuant to which certain selected construction contracts could be designated for small businesses.

No assurances can be provided by the Authority that the strategic initiatives discussed above will be implemented successfully, particularly to the extent that legislative action is required in order to achieve implementation.

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The Outstanding Indebtedness of the Authority

Table #31
DEBT SERVICE SCHEDULE*
as of
March 31, 2021

Bond Year Ending June 30	Principal	Interest	Total Debt Service
2021	$1,365,000	$ 725,195	$2,090,195
2022	2,076,649	1,520,338	3,596,987
2023	2,130,298	1,439,324	3,569,622
2024	2,178,948	1,354,903	3,533,851
2025	2,237,597	1,267,328	3,504,925
2026	2,296,231	1,175,765	3,471,996
2027	2,364,895	1,080,361	3,445,256
2028	2,418,544	981,121	3,399,665
2029	2,492,193	878,840	3,371,033
2030	2,560,842	772,543	3,333,385
2031	2,624,491	662,491	3,286,982
2032	4,704,704	549,178	5,253,882
2033	1,595,933	333,389	1,929,322
2034	1,468,565	256,843	1,725,408
2035	924,088	215,523	1,139,611
2036	1,644,618	168,218	1,812,836
2037	556,386	129,915	686,301
2038	565,035	117,727	682,762
2039	568,684	104,930	673,614
2040	582,333	92,933	675,266
2041	590,983	79,841	670,824
2042	599,632	66,534	666,166
2043	603,281	53,012	656,293
2044	1,211,930	39,491	1,251,421
2045	295,579	–	295,579
2046	299,228	–	299,228
2047	302,877	–	302,877
2048	306,526	–	306,526
2049	310,175	–	310,175
2050	313,825	–	313,825
2051	317,474	–	317,474
Total	$42,507,544	$14,065,741	$56,573,285

Note: * This debt service schedule does not reflect the Series 2021 Bonds.

See "FINANCIAL OPERATIONS OF THE AUTHORITY – Forecasted Capital Improvement Initiatives and Investments" and "—An Overview of the Participation of the Authority in the Clean Water State Revolving Fund Programs of the New York State Environmental Facilities Corporation" for a discussion of the anticipated incurrence by the Authority of indebtedness in 2022 through the EFC 2022 Financing.

No liability of the State of New York or the City of Buffalo with Respect to Debt Issued by the Authority.

The bonds, notes and other obligations of the Authority are neither a debt of the State of New York nor a debt of the City of Buffalo, and neither the State nor the City is liable thereon.

An Overview of Applicable Statutory Debt Limits

The Authority Act establishes a debt limit that is applicable to the bonds, notes and other obligations of the Authority. The original debt limit established pursuant to the terms of the Authority Act upon its original enactment and the statutory establishment of the Authority was $75,000,000. The Authority Act was amended in 1975 to increase the applicable debt limit to $125,000,000, and further amended in 2018 to increase the debt limit to current, applicable amount of $250,000,000.

Currently, due to the Authority's assessment of its projected capital financing needs, the Authority is seeking legislative action to further amend the Authority Act so as to further increase the current debt limit set forth therein to $500,000,000.

An Overview of the Participation of the Authority in the Clean Water State Revolving Fund Programs of the New York State Environmental Facilities Corporation

The New York State Environmental Facilities Corporation (the "EFC") is a public benefit corporation that provides financial and technical assistance to local government entities located throughout the State.

The Authority receives funding through the EFC's Clean Water State Revolving Fund (the "CWSRF"), which provides interest-free and low-interest rate financing for wastewater and water quality improvement projects to local government entities throughout the State. A variety of point source, non-point source, and national estuary projects are eligible for financing from the EFC through its CWSRF, including construction or restoration of sewers and wastewater treatment facilities, stormwater management, landfill closures, as well as habitat restoration and protection projects.

The USEPA annually provides a grant to the State to capitalize the EFC's CWSRF program. EFC uses this federal grant money, along with the required State match funds equal to 20% of the federal grant, to fund CWSRF-eligible projects for the purpose of preserving, protecting or improving water quality. As CWSRF borrowers repay their loans, repayments of principal and interest are recycled back into the CWSRF to finance new CWSRF-eligible projects and allow the CWSRF funds to "revolve" over time.

There are several different types of financings available to CWSRF applicants from the EFC. The EFC provides both short and long-term financings, at zero-interest or low-interest, to accommodate municipalities and other local governments of all population sizes with varying project and financial needs.

As a result of the participation of the Authority in the CWSRF programs of the EFC, $41,597,544 in aggregate principal amount of Authority long-term indebtedness to the EFC is outstanding as of May 1, 2021. Currently, there is no Authority short-term indebtedness to the EFC that is outstanding. However, during the first quarter of 2021, $8 million of then-outstanding Authority short-term indebtedness to the EFC

was converted to long-term indebtedness to the EFC, which conversion to long-term indebtedness is reflected in the aggregate principal amount of long-term indebtedness that is identified above.

All of the Authority's currently outstanding long-term indebtedness is an obligation of the Authority to the EFC through the CWSRF programs of the EFC, and represents seven (7) separate long-term loans that have been made by the EFC to the Authority during the period from 2003 through 2021. Such outstanding long-term indebtedness relates to various capital improvement projects of the Authority, including a grit collection system, various storm sewer improvement projects, primary digester cleaning and repair, improvements to the Hamburg drain flotables control facility, improvements to CSO Basin 029, and Willert Park green infrastructure improvements.

In addition, the Authority has several current projects (as indicated below) in design or preparation for construction that are listed on EFC's CWSRF Annual Utilization Plan and, therefore, financing for which through EFC is anticipated in the future. Such current projects include several interrelated initiatives to reduce CSS overflows into the Buffalo River at the base of Smith Street.

Table #32
Authority Projects in Design or Preparation for Construction
for Which EFC Financing is Anticipated

Project Description:	Project Number:	Project Cost:
Smith Street CSO No. 026	C9-6602-22-02	$3,931,000
Hamburg Drain CSO No. 017	C9-6602-23-00	$989,287
Hamburg Drain CSO No. 017	C9-6602-23-00	$4,217,713
Kensington Expressway CSO	C9-6602-26-00	$3,569,000
Bird Island WWTP STP IMP	C9-6602-28-00	$45,848,600

Five Year Pro Forma Projections, Including Assumptions and Disclaimers

In fiscal year 2022, the Authority intends to conduct a comprehensive rate review with the objective of increasing water equity and rate resilience by increasing the percentage of revenues from assessments (see Appendix A, Notes to Schedule A of the Environmental Impact Bond Engineering Report, attached hereto as Appendix C for details) and percentage of revenues from non-water use based sources, as detailed in the referenced narrative. These rate adjustments will increase revenues, respectively, by $3.3 million (9.8% increase) in fiscal year 2023, $6.9 million (20.4% increase) in fiscal year 2024 and $10.3 million (30.1% increase) in fiscal year 2025. These rate increases are not required to satisfy the Authority's debt service coverage covenant.

Table #33
Consulting Engineer's Projected Pro Formas
Five Fiscal Years

	Fiscal Year Ending (FYE)					
	6/30/2020 (actual)	**6/30/2021**	**6/30/2022**	**6/30/2023**	**6/30/2024**	**6/30/2025**
Operating Revenues (Note number in parenthesis)	$12,157,349	$12,100,000	$12,100,000	$15,004,000	$18,604,960	$21,953,853
(1) Assessed sewer rents	23,187,593	20,636,958	20,224,219	20,628,703	20,668,653	20,668,653
(2) Metered water use sewer rents	2,290,189	2,038,268	1,997,503	2,037,453	2,037,453	2,037,453
(2) Flat rate water use sewer rents	4,039,805	3,878,213	3,878,213	3,878,213	3,916,995	3,995,335
(3) Industrial Waste	8,576,622	19,505,811	13,220,000	13,220,000	13,220,000	13,220,000
(4) Outside district connections	1,852,243	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000
Miscellaneous revenues	400,000	6,000,000				
(5) State aid and Federal aid			1,114,000	1,650,000	1,652,000	1,653,000
O/S Districts Incremental Revenue						
(6) Total Operating Revenues	52,503,801	65,559,250	53,933,934	57,818,369	61,500,061	64,928,294
Nonoperating Revenues						
(7) Interest on Cash and Investments	2,070,426	355,000	500,000	750,000	900,000	1,200,000
(8) Interest on delinquent sewer rents	831,973	415,987	457,585	503,344	553,678	609,046
Total Revenues	$55,406,200	$66,330,236	$54,891,519	$59,071,712	$62,953,739	$66,737,340
(9) Operating Expenditures						
Salaries and wages	$13,268,719	$12,250,000	$12,495,000	$12,744,900	$12,999,798	$13,259,794
Other employee benefits	9,850,818	9,920,000	10,118,400	10,320,768	10,527,183	10,737,727
Professional services contracts	7,775,610	9,448,750	9,637,725	9,830,480	10,027,089	10,227,631
Supplies and materials	8,875,318	7,223,500	7,367,970	7,515,329	7,665,636	7,818,949
Other operating expenditures	1,397,932	1,475,000	1,504,500	1,534,590	1,565,282	1,596,587
Total Operating Expenditures	$41,168,397	$40,317,250	$41,123,595	$41,946,067	$42,784,988	$43,640,688
Net Revenues Available for Debt Service	$14,237,803	$26,012,986	$13,767,924	$17,125,645	$20,168,751	$23,096,652
Non-Operating Expenditures: Outstanding Debt Service						
Series J	$431,541	$426,435	$430,850	$419,407	$417,781	$415,467
Series K	297,265	295,141	292,681	289,876	281,725	278,535
Series L	547,319	540,332	532,991	530,196	521,963	513,424
Series M	502,410	498,764	499,484	499,560	494,093	493,332
Series N	1,661,750	1,646,474	1,629,332	1,615,284	1,599,340	1,581,570
Non-Operating Expenditures: Projected Debt Service						
2020 EFC			211,649	215,298	218,948	222,597
Proposed 2021 EIB			3,500,000	3,500,000	3,500,000	3,500,000
Proposed 2022 EFC $35M				1,785,674	1,785,674	1,785,674
Total Debt Service (Outstanding + Projected)	$3,440,285	$3,407,146	$7,096,987	$8,855,295	$8,819,524	$8,790,599
Debt Service Coverage	4.14x	7.63x	1.94x	1.93x	2.29x	2.63x
20% Debt Service Reserve	$688,057	$681,429	$1,419,397	$1,771,059	$1,763,905	$1,758,120
(10) Capital Contributions from Operations	$17,165,353	$13,275,656	$10,797,518	$22,605,840	$6,670,937	$8,270,350
Capital Contributions from Reserves		4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
Capital Contributions from 2020 EFC Bond	7,936,830					
Capital Contribution from American Rescue Plan Act		20,000,000				
Capital Contributions EIB debt proceeds		55,000,000				
Capital Contributions 2022 EFC Bond			35,000,000			
Total	$25,102,183	$92,275,656	$49,797,518	$26,605,840	$10,670,937	$12,270,350
(1) Assessed value sewer rents are liens on the property and subject to foreclosure, therefore revenue decreases are not expected.						
(2) The projected revenue from water use (metered and flat) sewer rents is -11% in FYE 2021, -2% in FYE 2022, 0% in FYE 2023.						
(3) The projected industrial waste revenue is -4% in FYE 2021, 0% in FYE 2022, 0% in FYE 2023, +1% in FYE 2024, and +2% in FYE 2025.						
(4) Five year average was applied to this relative stable revenue source.						
(5) Non-recurring revenue.						
(6) Above average revenues for FYE 2021 were due to a one-time event-late receipt of FYE 2020 revenues. See notes to Appendix A.						
(7) Interest on Investments -50% in 2021, +1% (FYE 2022 - 2025).						
(8) Due to COVID-19 Interest moratorium on all sewer rents from April 2020 through September 2020. Lower interest rates account for potential abatements and payment plans to rate payors.						
(9) Operating expenditures are projected to increase 2% per year.						
(10) Net cash from two years prior.						

SECONDARY MARKET DISCLOSURE AND REPORTS

In order to assist the Underwriter in complying with the provisions of paragraph (b)(5) of Rule 15c2-12 promulgated by the Securities and Exchange Commission (the "Rule"), the Authority will undertake, in a written agreement for the benefit of the holders and beneficial owners of the Series 2021 Bonds (the "Continuing Disclosure Agreement"), to provide to the Municipal Securities Rulemaking Board ("MSRB") as the sole nationally recognized securities repository through the MSRB's Electronic Municipal Market Access system ("EMMA") on an annual basis no later than 210 business days after the end of each respective fiscal year of the Authority, commencing with the fiscal year ending June 30, 2021, certain financial and operating data concerning the Authority of the type included in this Official Statement and as specified in the Continuing Disclosure Agreement. In addition, the Authority will undertake, for the benefit of the holders and beneficial owners of the Series 2021 Bonds, to provide notice to the MSRB through EMMA of certain events enumerated in the Rule, in a timely manner, but not more than 10 business days after the occurrence of such event. Any filing to be made under the Continuing Disclosure Agreement may be made solely by transmitting such filing to the MSRB through EMMA as provided at http://emma.msrb.org. See "APPENDIX G - FORM OF CONTINUING DISCLOSURE AGREEMENT" for additional information regarding secondary market disclosure.

LIMITED VOLUNTARY CONTINUING DISCLOSURE RELATED TO THE RAIN CHECK PROJECTS

The Authority has undertaken to provide certain voluntary continuing disclosure with respect to the Rain Check Projects in order to enable investors to evaluate certain characteristics and outcomes related to environmental and other goals of the Rain Check Projects. The Authority's current intent is to provide ongoing disclosure annually during construction and upon completion of construction, as summarized below and as described in the Project Technical Memo attached hereto as Appendix B. See "THE SERIES 2021 BONDS – Designation of the Series 2021 Bonds as 'Environmental Impact Bonds' and 'Green Bonds' - Environmental Impact Bond and Green Bond Reporting" herein. *The Authority's undertaking is strictly voluntary and may be modified, amended or discontinued at any time in the Authority's sole discretion without the consent of the holders of the Series 2021 Bonds.*

Annual Disclosure Regarding Use of Series 2021 Bonds Proceeds. The Authority's voluntary undertaking includes posting annually on the Authority's publicly accessible website, EMMA, and via other platforms such as a CDP and the NASDAQ Sustainable Bond Network, a report prepared by Arcadis regarding the use of proceeds of the Series 2021 Bonds for the Rain Check Projects, along with the development and construction progress made through completion of each Rain Check Project.

Project Completion Report. Following completion of the Rain Check Projects and receipt of the "Final Report" (as defined and described in the Project Technical Memo), the Authority intends to post on the Authority's publicly accessible website, EMMA, and via other platforms such as a CDP and the NASDAQ Sustainable Bond Network, a report prepared by Arcadis that will corroborate the construction and completion of the Rain Check Projects in accordance with their plans and specifications, and include in such report confirmation that the Authority has achieved its Outcome Threshold of at least 200 acres of impervious surface managed through the implementation of the Rain Check Projects**.**

See the Project Technical Memo, attached hereto as Appendix B, for additional information and detail concerning the methodology that will be employed by Arcadis for purposes of measuring and validating the Outcome Threshold and reporting thereon.

ENGINEERING REPORT

Attached here to as Appendix C is the Engineering Report of Greeley and Hansen, the Authority's consulting engineer (the "Consulting Engineer"), which Engineering Report sets forth the analysis of the Authority System by the Consulting Engineer and the opinions thereof, including, without limitation, the opinion thereof, as and to the extent set forth therein, that the Authority is in compliance with the Bond Resolution and the conditions precedent set forth therein with respect to the issuance of the Series 2021 Bonds.

PROJECT TECHNICAL MEMO

The Authority and Quantified Ventures have developed the Project Technical Memo, which details the methodology behind the pre-construction estimation and post-construction evaluation of the Primary Outcome Metric relating to the Rain Check Projects. See "THE SERIES 2021 BONDS" herein and Appendix B hereto, "Project Technical Memo."

MUNICIPAL ADVISOR

Capital Markets Advisors, LLC, Orchard Park, New York, has acted as registered Municipal Advisor to the Authority in connection with the offer and sale of the Series 2021 Bonds. In preparing the Official Statement, the Municipal Advisor has relied upon government officials and other sources, who have access to relevant data, to provide accurate information for the Official Statement, and the Municipal Advisor has not been engaged, nor has it undertaken, to independently verify the accuracy of such information. The Municipal Advisor is not a public accounting firm and has not been engaged by the Authority to compile, review, examine or audit any information in the Official Statement in accordance with accounting standards. The Municipal Advisor is an independent advisory firm and is not engaged in the business of underwriting, trading or distributing municipal securities or other public securities and, therefore, will not participate in the underwriting of the Series 2021 Bonds.

ABSENCE OF MATERIAL LITIGATION

There is no litigation or controversy now pending (i) concerning the issuance, sale or delivery of the Series 2021 Bonds, (ii) in any way contesting or affecting the validity of the Authority Act, the Series 2021 Bonds or the proceedings of the Authority taken with respect to the issuance and sale thereof, including, without limitation, the approval by the Authority of the Bond Resolution, or (iii) the pledge by the Authority of the revenues and other monies pursuant to the terms of the Bond Resolution.

LEGALITY FOR INVESTMENT

The Authority Act provides that all public officers and bodies of the State, and all municipalities and municipal subdivisions thereof, all insurance companies and associations, all savings banks and savings institutions, including savings and loan associations, administrators, guardians, executors, trustees and other fiduciaries in the State may properly and legally invest funds belonging to them or within their control in any bonds or notes, including, without limitation, the Series 2021 Bonds, issued pursuant to the Authority Act, and such bonds or notes shall be authorized security for any and all public deposits.

CERTAIN LEGAL MATTERS

Legal matters related to the authorization, issuance and delivery of the Series 2021 Bonds are subject to the receipt of the approving legal opinion of Barclay Damon LLP, Buffalo, New York, Bond Counsel to the Authority ("Bond Counsel"). The opinion of Bond Counsel will be delivered with the Series 2021 Bonds in substantially the form included in Appendix F to this Official Statement. Certain legal matters in connection with the Series 2021 Bonds and the Rain Check Projects may be passed upon by external counsel to the Authority and the City's Corporation Counsel.

TAX MATTERS

Opinion of Bond Counsel

In the opinion of Barclay Damon LLP, Bond Counsel to the Authority, under existing law and assuming compliance with certain covenants described herein, and the accuracy and completeness of certain representations, certifications of fact and statements of reasonable expectations made by the Authority, interest on the Series 2021 Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986, as amended (the "Code"). Bond Counsel is further of the opinion that interest on the Series 2021 Bonds is not an item of tax preference for purposes of the alternative minimum tax imposed under the Code. Bond Counsel is also of the opinion that, under existing statutes, interest on the Series 2021 Bonds is exempt from personal income taxes imposed by the State of New York or any political subdivision thereof (including The City of New York).

Bond Counsel expresses no opinion regarding any other federal, state or local tax consequences with respect to the Series 2021 Bonds. The opinion of Bond Counsel speaks as of its issue date and does not contain or provide any opinion or assurance regarding the future activities of the Authority or about the effect of future changes in the Code, the applicable regulations, rulings, judicial decisions, the interpretation thereof or the enforcement thereof by the Internal Revenue Service ("IRS"). In addition, Bond Counsel expresses no opinion on the effect of any action taken or not taken in reliance upon an opinion of other counsel regarding federal, state or local tax matters, including, without limitation, the exclusion of interest on the Series 2021 Bonds from gross income for federal income tax purposes. See "Appendix F – Form of Approving Opinion of Bond Counsel."

General

The Code imposes various requirements that must be met at and subsequent to the issuance and delivery of the Series 2021 Bonds in order that interest on the Series 2021 Bonds be and remain excluded from gross income for federal income tax purposes. Included among these requirements are restrictions on the use of

proceeds of the Series 2021 Bonds and the facilities financed by such proceeds, restrictions on the investment of such proceeds and other amounts, the rebate of certain earnings in respect of such investments to the United States, and required ownership by a governmental unit of the facilities financed by the Series 2021 Bonds. Failure to comply with such requirements may cause interest on the Series 2021 Bonds to be includable in gross income for federal income tax purposes retroactive to the date of their issuance irrespective of the date on which such noncompliance occurs. The Authority and others have made certain representations, certifications of fact, and statements of reasonable expectations and the Authority has given certain ongoing covenants to comply with applicable requirements of the Code to assure the exclusion of interest on the Series 2021 Bonds from gross income under Section 103 of the Code. The opinion of Bond Counsel assumes continuing compliance with such covenants as well as the accuracy and completeness of such representations, certifications of fact, and statements of reasonable expectations. In the event of the inaccuracy or incompleteness of any such representation, certifications of fact or statements of reasonable expectation, or of the failure by the Authority to comply with any such covenants, the interest on the Series 2021 Bonds could become includable in gross income for federal income tax purposes retroactive to the date of issuance and delivery of the Series 2021 Bonds, regardless of the date on which the event causing such inclusion occurs. Further, although the interest on the Series 2021 Bonds is excludable from gross income for federal income tax purposes, receipt or accrual of the interest may otherwise affect the tax liability of a Beneficial Owner of a Series 2021 Bond. The tax effect of receipt or accrual of the interest will depend upon the tax status of a Beneficial Owner of a Series 2021 Bond and such Beneficial Owner's other items of income, deduction or credit. Bond Counsel expresses no opinion regarding any other federal tax consequences arising with respect to the ownership or disposition of, or the accrual or receipt of interest on, the Series 2021 Bonds.

Certain Collateral Federal Income Tax Consequences

Prospective purchasers of the Series 2021 Bonds should be aware that ownership of, accrual or receipt of interest on, or disposition of the Series 2021 Bonds may have collateral federal income tax consequences for certain taxpayers, including financial corporations, insurance companies, Subchapter S corporations, certain foreign corporations, individual recipients of social security or railroad retirement benefits, individuals benefiting from the earned income credit and taxpayers who may be deemed to have incurred or continued indebtedness to purchase or carry such obligations. Prospective purchasers should consult their own tax advisors as to any possible collateral consequences of their ownership of, accrual or receipt of interest on, or disposition of the Series 2021 Bonds. Bond Counsel expresses no opinion regarding any such collateral federal income tax consequences.

Original Issue Discount

The excess of the principal amount of a maturity of a Series 2021 Bond over the issue price of such maturity of a Series 2021 Bond (a "Discount Bond") constitutes "original issue discount," the accrual of which, to the extent properly allocable to the Beneficial Owner thereof, constitutes "original issue discount" which is excluded from gross income for federal income tax purposes to the same extent as interest on such Discount Bond. For this purpose, the issue price of a maturity of Series 2021 Bonds is the first price at which a substantial amount of such maturity of Series 2021 Bonds is sold to the public. Further, such original issue discount accrues actuarially on a constant yield basis over the term of each Discount Bond and the basis of such Discount Bond acquired at such initial offering price by an initial purchaser of each Discount Bond will be increased by the amount of such accrued discount. Beneficial Owners of Discount Bonds should consult their own tax advisors with respect to the tax consequences of ownership of Discount Bonds.

The ____% (initial rate) Series 2021 Step Coupon Term Bonds maturing on June 15, ____ bear an interest rate that increases over time. Due to the fact that the interest rate of the Series 2021 Step Coupon Term Bonds increase over time, such Bonds may be deemed to have been issued with original issue discount. The

accrual of any original issue discount on the Series 2021 Step Coupon Term Bonds will be treated as interest that is excluded from gross income for federal income tax purposes. Beneficial Owners of the Series 2021 Step Coupon Term Bonds should consult their tax advisors regarding the amount, if any, of original issue discount on such Bonds and the treatment thereof for federal income tax purposes.

Bond Premium

The Series 2021 Bonds purchased, whether at original issuance or otherwise, at prices greater than the stated principal amount thereof are "Premium Bonds." Premium Bonds will be subject to requirements under the Code relating to tax cost reduction associated with the amortization of bond premium and, under certain circumstances, the Beneficial Owner of Premium Bonds may realize taxable gain upon disposition of such Premium Bonds even though sold or redeemed for an amount less than or equal to such owner's original cost of acquiring Premium Bonds. The amortization requirements may also result in the reduction of the amount of stated interest that a Beneficial Owner of Premium Bonds is treated as having received for federal tax purposes (and an adjustment to basis). Beneficial Owners of Premium Bonds are advised to consult with their own tax advisors with respect to the tax consequences of ownership of Premium Bonds.

Backup Withholding and Information Reporting

Interest paid on tax-exempt obligations is subject to information reporting to the IRS in a manner similar to interest paid on taxable obligations. Interest on the Series 2021 Bonds may be subject to backup withholding if such interest is paid to a registered owner who or which (i) fails to provide certain identifying information (such as the registered owner's taxpayer identification number) in the manner required by the IRS, or (ii) has been identified by the IRS as being subject to backup withholding. Amounts withheld under the backup withholding rules will be paid to the IRS as federal income tax withheld on behalf of the registered owner of the Series 2021 Bonds and would be allowed as a refund or credit against such owner's federal income tax liability (or the federal income tax liability of the beneficial owner of the Series 2021 Bonds, if other than the registered owner).

Legislation

Current and future legislative proposals, if enacted into law, administrative actions or court decisions, at either the federal or state level, may cause interest on the Series 2021 Bonds to be subject, directly or indirectly, to federal income taxation or to be subjected to state income taxation, or otherwise have an adverse impact on the potential benefits of the exclusion from gross income of the interest on the Series 2021 Bonds for federal or state income tax purposes. The introduction or enactment of any such legislative proposals, administrative actions or court decisions may also affect, perhaps significantly, the value or marketability of the Series 2021 Bonds. It is not possible to predict whether any legislative or administrative actions or court decisions having an adverse impact on the federal or state income tax treatment of Beneficial Owners of the Series 2021 Bonds may occur. Prospective purchasers of the Series 2021 Bonds should consult their own advisors regarding any pending or proposed federal or state tax legislation, regulations or litigation, and regarding the impact of future legislation, regulations or litigation, as to which Bond Counsel expresses no opinion. The opinion of Bond Counsel is based on current legal authority, covers certain matters not directly addressed by such authority and represents the judgment of Bond Counsel as to the proper treatment of the Series 2021 Bonds for federal income tax purposes. It is not binding on the IRS or the courts.

Post Issuance Events

Bond Counsel's engagement with respect to the Series 2021 Bonds ends with the issuance of the Series 2021 Bonds and, unless separately engaged, Bond Counsel is not obligated to defend the Authority or the

Beneficial Owners regarding the tax-exempt status of interest on the Series 2021 Bonds in the event of an audit examination by the IRS. Under current procedures, parties other than the Authority and its appointed counsel, including the Beneficial Owners, would have little, if any, right to participate in the audit examination process. Moreover, because achieving judicial review in connection with an audit examination of tax-exempt bonds is difficult, obtaining an independent review of IRS positions with which the Authority legitimately disagrees may not be practicable. Any action of the IRS, including but not limited to selection of the Series 2021 Bonds for audit, or the course or result of such audit, or an audit of bonds presenting similar tax issues may affect the market price for, or the marketability of, the Series 2021 Bonds, and may cause the Authority or the Beneficial Owners to incur significant expense.

Prospective purchasers of the Series 2021 Bonds should consult their own tax advisors regarding the foregoing matters.

RATING

S&P Global Ratings, a business unit of Standard & Poor's Financial Services LLC ("S&P"), has assigned a long-term debt rating of "A+" to the Series 2021 Bonds. This rating reflects only the view of S&P, and an explanation thereof may be obtained from S&P. Such rating is not a recommendation to buy, sell or hold the Series 2021 Bonds. There is no assurance that this rating will remain in effect for any given period of time or that it will not be revised downward or withdrawn entirely by S&P if, in its judgment, circumstances so warrant. Any such downward revision or withdrawal of the rating on the Series 2021 Bonds may have an adverse effect on the market price of such Series 2021 Bonds.

UNDERWRITING

The Series 2021 Bonds are being purchased by Morgan Stanley & Co. LLC (the "Underwriter"). The purchase contract for the Series 2021 Bonds (the "Bond Purchase Agreement") sets forth the obligation of the Underwriter to purchase the Series 2021 Bonds at a price equal to $_____ (which reflects the par amount of the Series 2021 Bonds plus/minus net original issue premium/discount of $_____and less an underwriting discount of $_____) and is subject to certain terms and conditions, including, without limitation, the approval of certain legal matters by counsel. The Bond Purchase Agreement provides that the Underwriter will purchase all of the Series 2021 Bonds if any are purchased. The Underwriter may offer and sell the Series 2021 Bonds to certain dealers (including dealers depositing the Series 2021 Bonds into investment trusts) and others at prices different from the public offering prices stated on the inside cover page of this Official Statement. The public offering prices may be changed from time to time at the discretion of the Underwriter.

The Underwriter and its respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage services. The Underwriter and its respective affiliates have, from time to time, performed, and may in the future perform, various financial advisory and investment banking services for the Authority, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the Underwriter and its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities, which may include credit default swaps) and financial instruments (including bank loans) for their own

account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve securities and instruments of the Authority.

The Underwriter and its respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such assets, securities or instruments and may at any time hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

Morgan Stanley & Co. LLC, Underwriter of the Series 2021 Bonds, has entered into a retail distribution arrangement with its affiliate Morgan Stanley Smith Barney LLC. As part of the distribution arrangement, Morgan Stanley & Co LLC may distribute municipal securities to retail investors through the financial advisor network of Morgan Stanley Smith Barney LLC. As part of this arrangement, Morgan Stanley & Co. LLC may compensate Morgan Stanley Smith Barney LLC for its selling efforts with respect to the Series 2021 Bonds.

AUDITED FINANCIAL STATEMENTS

The financial statements of the Authority for the fiscal year of the Authority ended June 30, 2020 (the "Audited Financial Statements"), included in Appendix A to this Official Statement, have been audited by Drescher & Maleckis LLP, independent certified public accountants that have been engaged by the Authority (the "Auditor"), as stated in their report appearing in Appendix A to this Official Statement.

MISCELLANEOUS

This Official Statement is distributed in connection with the sale and issuance of the Series 2021 Bonds, and may not be reproduced or used in whole or in part for any other purpose. This Official Statement has been duly authorized and approved by the Authority and duly executed and delivered on its behalf by the official signing below. Any statements in this Official Statement involving matters of opinion, projections or estimates, whether or not expressly so stated, are intended as such and not as representations of fact. No representation is made that any of such statements will be realized. The agreements of the Authority are fully set forth in the Bond Resolution in accordance with the Authority Act, and this Official Statement is not to be construed as a contract or agreement between the Authority and the purchasers or owners of any of the Series 2021 Bonds.

BUFFALO SEWER AUTHORITY

By: _____

DATED: _____, 2021

APPENDIX A

BUFFALO SEWER AUTHORITY

Basic Financial Statements, Required Supplementary Information, Supplementary Information and Federal Awards Information for the Year Ended June 30, 2020 and Independent Auditors' Reports

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Certified Public Accountants

INDEPENDENT AUDITORS' REPORT

The General Manager and Members
of the Buffalo Sewer Authority Board
Buffalo, New York

Report on the Financial Statements

We have audited the accompanying financial statements of the governmental activities, each major fund, and the aggregate remaining fund information of the Buffalo Sewer Authority, New York (the "Authority"), as of and for the year ended June 30, 2020, and the related notes to the financial statements, which collectively comprise the Authority's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

The Authority's management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements 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 entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, each major fund, and the aggregate remaining fund information of the Authority, as of June 30, 2020, and the respective changes in financial position thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis and other Required Supplementary Information, as listed in the table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquires of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the Authority's basic financial statements. The Supplementary Information, as listed in the table of contents, and the Schedule of Expenditures of Federal Awards, as required by the audit requirements of Title 2 U.S. Code of Federal Regulations ("CFR") Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* ("Uniform Guidance"), are presented for purposes of additional analysis and is not a required part of the basic financial statements.

The Supplementary Information, as listed in the table of contents, and the Schedule of Expenditures of Federal Awards are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Supplementary Information, as listed in the table of contents, and the Schedule of Expenditures of Federal Awards are fairly stated in all material respects in relation to the basic financial statements as a whole.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Governmental Auditing Standards,* we have also issued our report dated September 30, 2020 on our consideration of the Authority's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Authority's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Authority's internal control over financial reporting and compliance.

Drescher & Malecki LLP

September 30, 2020

As management of the Buffalo Sewer Authority (the "Authority"), we offer readers of the Authority's financial statements this narrative overview and analysis of the financial activities of the Authority for the year ended June 30, 2020. This document should be read in conjunction with additional information that we have furnished in the Authority's financial statements and notes to the financial statements, which follow this narrative.

Financial Highlights

- The assets and deferred outflows of resources of the Authority exceeded its liabilities and deferred inflows of resources as of June 30, 2020 by $285,292,674 (*net position*). This consists of $290,093,932 net investment in capital assets and unrestricted net position of $(4,801,258).

- The Authority's net position increased by $4,485,878 for the year ended June 30, 2020.

- At the close of the current fiscal year, the Authority's governmental funds reported combined ending fund balances of $76,302,567, a decrease of $8,629,255 in comparison with the prior year's fund balance of $84,931,822.

- At the end of the current fiscal year, *unassigned fund balance* for the General Fund was $10,000,000, or approximately 17.3 percent of total General Fund expenditures and transfers out. This total amount is *available for spending* at the Authority's discretion and constitutes approximately 31.5 percent of the General Fund's total fund balance of $31,727,749 at June 30, 2020.

- The Authority's total bonded indebtedness decreased by $1,770,000, as a result of scheduled principal payments.

Overview of the Financial Statements

The discussion and analysis provided here are intended to serve as an introduction to the Authority's basic financial statements. The Authority's basic financial statements comprise of three components: 1) government-wide financial statements, 2) fund financial statements, and 3) notes to the financial statements. This report also contains other supplementary information in addition to the basic financial statements themselves.

Government-wide financial statements—The *government-wide financial statements* are designed to provide readers with a broad overview of the Authority's finances, in a matter similar to private-sector business.

The *statement of net position* presents information on all of the Authority's assets, liabilities, and deferred inflows/outflows of resources, with the difference reported as *net position.* Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position of the Authority is improving or deteriorating.

The *statement of activities* presents information showing how the Authority's net position changed during the most recent fiscal year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, *regardless of the timing of related cash flows*. Thus, revenues and expenses are reported in the statement for some items that will only result in cash flows in future fiscal periods (e.g., uncollected charges and earned but unused vacation leave).

Both of the government-wide financial statements distinguish functions of the Authority that are principally supported by taxes and intergovernmental revenues (*governmental activities)* from other functions that are intended to recover all or a significant portion of their costs through user fees and charges (*business-type activities).* The governmental activities of the Authority include general administration, wastewater treatment facilities, industrial waste, engineering, sewer maintenance and interest and fiscal charges. The Authority does not engage in any business-type activities.

The government-wide financial statements can be found on pages 11-12 of this report.

Fund financial statements—A *fund* is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. The Authority, like other state and local governments, uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements. All of the funds of the Authority can be divided into two categories: governmental funds and fiduciary funds.

Governmental funds*—Governmental funds* are used to account for essentially the same functions reported as *governmental activities* in the government-wide financial statements. However, unlike the government-wide financial statements, governmental fund statements focus on *near-term inflows and outflows of spendable resources*, as well as on *balances of spendable resources* available at the end of the fiscal year. Such information may be useful in evaluating a government's near-term financing requirements.

Because the focus of governmental funds is narrower than that of the government-wide financial statements, it is useful to compare the information presented for *governmental funds* with similar information presented for *governmental activities* in the government-wide financial statements. By doing so, readers may better understand the long-term impact of the government's near-term financing decisions. Both the governmental fund balance sheet and the governmental fund statement of revenues, expenditures, and changes in fund balances provide a reconciliation to facilitate this comparison between *governmental funds* and *governmental activities.*

The Authority maintains three individual governmental funds. Information is presented separately in the governmental fund balance sheet and in the governmental fund statement of revenues, expenditures, and changes in fund balances for the General Fund, General Projects Fund, and Debt Service Fund, all of which are considered to be major funds.

The basic governmental fund financial statements can be found on pages 13-16 of this report.

***Fiduciary funds*—**Fiduciary funds are used to account for resources held for the benefit of parties outside the Authority. Fiduciary funds are *not* reflected in the government-wide financial statement because the resources of those funds are *not* available to support the Authority's own programs. The Authority is responsible for ensuring that the assets reported in these funds are used for their intended purpose. The Authority maintains one fiduciary fund, the Agency Fund.

The fiduciary fund statement can be found on page 17 of this report.

Notes to the financial statements—The notes provide additional information that is essential to a full understanding of the data provided in the government-wide and fund financial statements. The notes to the financial statements can be found on pages 18-45 of this report.

Other information—In addition to the basic financial statements and accompanying notes, this report also presents *Required Supplementary Information* concerning the Authority's net pension liability, the changes in the Authority's total other postemployment benefits ("OPEB") obligation, and the Authority's budgetary comparison for the General Fund. Required Supplementary Information can be found on pages 46-50 of this report.

The Schedule of Investments is presented immediately following the Required Supplementary Information in the Supplementary Information section of this report on page 51.

Finally, the Federal Award Information section presents the Authority's Schedule of Expenditures of Federal Awards. This section can be found on pages 52-59 of this report.

Government-wide Overall Financial Analysis

As noted earlier, net position over time, may serve as a useful indicator of a government's financial position. In the case of the Authority, assets and deferred outflows exceeded liabilities and deferred inflows by $285,292,674 at June 30, 2020 as compared to $280,806,796 at the close of the fiscal year ended June 30, 2019.

Table 1, shown below, presents a condensed statement of net position compared to the prior year.

Table 1—Condensed Statements of Net Position

	June 30,	
	2020	2019
Current assets	$ 97,434,415	$ 99,998,770
Capital assets	333,077,762	323,497,592
Total assets	430,512,177	423,496,362
Deferred outflows of resources	19,373,213	13,089,392
Current liabilities	22,438,080	16,300,057
Noncurrent liabilities	130,445,179	127,285,574
Total liabilities	152,883,259	143,585,631
Deferred inflows of resources	11,709,457	12,193,327
Net Position:		
Net investment in capital assets	290,093,932	285,382,764
Unrestricted	(4,801,258)	(4,575,968)
Total net position	$ 285,292,674	$ 280,806,796

The largest portion of the Authority's net position, $290,093,932, reflects its investment in capital assets (such as land, buildings, machinery and equipment, etc.), less any related outstanding debt used to acquire those assets. The Authority uses these capital assets to provide services to citizens. Accordingly, these assets are not available for future spending. Although the Authority's investment in capital assets is

assets are not available for future spending. Although the Authority's investment in capital assets is reported net of related debt, it should be noted that the resources needed to repay this debt must be provided from other sources, since the capital assets themselves cannot be used to liquidate these liabilities.

The remaining portion of the Authority's net position, $(4,801,258), is considered to be unrestricted. This deficit is the result of having long-term commitments, including bonds payable, compensated absences, net pension liability, and other postemployment benefit obligations that are greater than currently available resources. Payments for these liabilities will be budgeted in the year that actual payment will be made.

Table 2, as presented below, shows the changes in net position for the years ended June 30, 2020 and June 30, 2019.

Table 2—Condensed Statement of Changes in Net Position

	Year Ended June 30,	
	2020	2019
Program revenues:		
Charges for services	$ 51,083,531	$ 54,353,821
Capital grants and contributions	2,153,231	1,535,958
General revenues	2,169,438	2,378,267
Total revenues	55,406,200	58,268,046
Program expenses	50,920,322	48,827,418
Change in net position	4,485,878	9,440,628
Net position—beginning	280,806,796	271,366,168
Net position—ending	$ 285,292,674	$ 280,806,796

Overall revenues decreased 4.9 percent from the year ended June 30, 2019 due to a decrease in charges for services related to the billings from outside districts. Total expenses increased 4.3 percent from the year ended June 30, 2019, due to increases to wastewater treatment facilities related to increased maintenance expenditures.

A summary of sources of revenues for the years ended June 30, 2020 and June 30, 2019 is presented below in Table 3.

Table 3—Summary of Sources of Revenues

	Year Ended June 30,		Increase/(decrease)	
	2020	2019	Dollars	Percent
Charges for services	$ 51,083,531	$ 54,353,821	$ (3,270,290)	(6.0)
Capital grants and contributions	2,153,231	1,535,958	617,273	40.2
Unrestricted investment earnings	2,070,426	2,297,237	(226,811)	(9.9)
Miscellaneous	99,012	81,030	17,982	22.2
Total revenues	$ 55,406,200	$ 58,268,046	$ (2,861,846)	(4.9)

For the year ended June 30, 2020, the most significant source of revenues was charges for services, which accounted for $51,083,531, or 92.2 percent of total revenues. The next largest source of revenue was capital grants and contributions of $2,153,231, or 3.9 percent of total revenues. For the year ended June 30, 2019, the most significant source of revenues was charges for services, which accounted for $54,353,821, or 93.3 percent of total revenues. The next largest source of revenue was unrestricted investments earnings of $2,297,237, or 3.9 percent of total revenues.

A summary of program expenses for the years ended June 30, 2020 and June 30, 2019 is presented below in Table 4.

Table 4—Summary of Program Expenses

	Year Ended June 30,		Increase/(decrease)	
	2020	2019	Dollars	Percent
General administration	$ 2,809,113	$ 2,528,731	$ 280,382	11.1
Wastewater treatment facilities	39,206,343	37,505,923	1,700,420	4.5
Industrial waste	941,024	795,388	145,636	18.3
Engineering	1,638,798	1,483,986	154,812	10.4
Sewer maintenance	4,670,600	4,780,979	(110,379)	(2.3)
Interest and other fiscal charges	1,654,444	1,732,411	(77,967)	(4.5)
Total program expenses	$ 50,920,322	$ 48,827,418	$ 2,092,904	4.3

For the year ended June 30, 2020, the Authority's most significant expense items were wastewater treatment facilities of $39,206,343, or 77.0 percent of total expenses (primarily sewer, water, and sanitation services) and sewer maintenance costs of $4,670,600, or 9.2 percent of total expenses. For the year ended June 30, 2019, the Authority's most significant expense items were wastewater treatment facilities of $37,505,923, or 76.8 percent of total expenses (primarily sewer, water, and sanitation services) and sewer maintenance costs of $4,780,979, or 9.8 percent of total expenses.

Financial Analysis of the Authority's Funds

As noted earlier, the Authority uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements.

Governmental funds—The focus of the Authority's *governmental funds* is to provide information on near-term inflows, outflows, and balances of spendable resources. Such information is useful in assessing the Authority's financing requirements. In particular, *unassigned fund balance* may serve as a useful measure of a government's net resources available for discretionary use as they represent the portion of fund balance which has not yet been limited to use for a particular purpose by an external party, the Authority itself, or a group or individual that has been delegated authority to assign resources for particular purposes by the Board.

At June 30, 2020, the Authority's governmental funds reported combined ending fund balances of $76,302,567, a decrease of $8,629,255 from the prior year. Approximately 13.1 percent of this amount, $10,000,000, constitutes *unassigned fund balance*, which is available for spending at the Authority's discretion. The remainder of fund balance is either *nonspendable, restricted or committed* to indicate that it is 1) not in spendable form, $179,925, 2) restricted for particular purposes, $4,352,946 or 3) committed for particular purposes $61,769,696.

The General Fund is the chief operating fund of the Authority. At the end of the current fiscal year, unassigned fund balance of the General Fund was $10,000,000, while the total fund balance decreased by $2,948,449 to $31,727,749. As a measure of the General Fund's liquidity, it may be useful to compare both the unassigned fund balance and total fund balance to total General Fund expenditures and transfers out. Unassigned fund balance represents approximately 17.3 percent of total General Fund expenditures and transfers out, while total fund balance represents approximately 54.8 percent of that same amount.

As stated, the Authority's total fund balance in the General Fund decreased by $2,948,449 during the current year, which compares to an anticipated use of $6,254,871 of fund balance from funds re-appropriated by prior year's encumbrances. Normal operational efficiencies provided budgetary savings with regards to expenditures, these savings helped to fund additional transfers to the General Projects Fund.

The General Projects Fund has a total fund balance of $40,221,872 a decrease of $5,680,813 from the prior year. During the year ended June 30, 2020, the Authority's General Fund transferred $13,275,656 to the General Projects Fund to support ongoing capital projects. The Authority spent $19,426,726 from the General Projects Fund for capital outlay. The committed fund balance represents $40,221,872 to fund future capital projects.

Fund balance in the Debt Service Fund at June 30, 2020 is $4,352,946. All of the fund balance within the Debt Service Fund is restricted for future debt payments.

General Fund Budgetary Highlights

The Authority adopts an annual appropriated budget for the General Fund. The adopted budget is allowed to be amended upward (increase) for prior year's encumbrances since the funds were allocated under the previous year's budget, and the Authority has appropriately committed an equal amount of fund balance at year-end for this purpose. A budgetary comparison schedule within the Required Supplementary Information section of this report has been provided to demonstrate compliance with the budget.

A summary of the General Fund results of operations for the year ended June 30, 2020 is presented in Table 5 below:

Table 5—Summary of General Fund Results of Operations for the Year Ended June 30, 2020

	Budgeted Amounts		Budgetary	Variance with
	Original	Final	Actual	Final Budget
Revenues and other financing sources	$ 57,950,000	$ 57,959,551	$ 54,935,936	$ (3,023,615)
Expenditures and other financing uses	64,204,871	86,856,275	68,112,355	18,743,920
Excess (deficiency) of revenues and other financing sources over expenditures and other financing uses	$ (6,254,871)	$ (28,896,724)	$ (13,176,419)	$ 15,720,305

Original budget compared to final budget—During the fiscal year, budgeted appropriations increased through budget amendments by $22,767,805. Appropriations were increased primarily to increase transfers to the General Projects Fund, the amount for which was not known when the budget was adopted. These amendments were supported by the use of available fund balance.

Final budget compared to actual results—Actual expenditures during the year were significantly lower as a result of savings in wastewater treatment facilities largely related to utility efficiencies and savings realized within repairs and maintenance.

Capital Asset and Debt Administration

Capital Assets—The Authority's investment in capital assets for its governmental activities as of June 30, 2020, amounted to $333,077,762 (net of accumulated depreciation). This investment in capital assets includes land, construction in progress, buildings, building improvements, machinery and equipment, and sanitary and storm relief systems.

All depreciable capital assets were depreciated from acquisition date to the end of the current year as outlined in the Authority's capital asset policy.

Capital assets net of depreciation for the governmental activities at the years ended June 30, 2020 and 2019 are presented in Table 6 below.

Table 6—Summary of Capital Assets (Net of Depreciation)

	June 30,	
	2020	2019
Land	$ 10,586,171	$ 10,586,171
Construction in progress	43,509,061	66,198,771
Buildings	133,810,917	121,936,450
Building improvements	4,967,218	5,359,876
Machinery & equipment	2,851,542	2,780,527
Sanitary & storm relief systems	137,352,853	116,635,797
Total	$ 333,077,762	$ 323,497,592

Additional information on the Authority's capital assets can be found in Note 4 of this report.

Long-term liabilities—At June 30, 2020, the Authority had bonded debt outstanding of $35,015,713, as compared to $36,785,713 in the prior year.

A summary of the Authority's long-term liabilities at June 30, 2020 and June 30, 2019 is presented in Table 7 below.

Table 7—Summary of Long-Term Liabilities

	June 30,	
	2020	2019
Bonds payable	$ 35,015,713	$ 36,785,713
Compensated absences	1,104,464	1,080,487
OPEB obligation	81,502,059	85,015,555
Judgments and claims	1,566,127	1,570,979
Net pension liability	11,256,816	2,832,840
	$ 130,445,179	$ 127,285,574

Additional information on the Authority's long-term liabilities can be found in Note 10 of this report.

Economic Factors and Next Year's Budget and Rates

On January 31, 2020, the United States Secretary of Health and Human Services (HHS) declared a public health emergency related to the global spread of coronavirus COVID-19, and a pandemic was declared by the World Health Organization in February 2020. The extent of the impact of COVID-19 on the Authority's operational and financial performance will depend on further developments, including the duration and spread of the outbreak, impact on patients, employees and vendors all of which cannot be predicted.

Largely as a result of the pandemic the unemployment rate, not seasonally adjusted, for the region at June 30, 2020 was 13.7 percent. This compares to New York State's average unemployment rate of 15.7 percent. These factors are considered in preparing the Authority's budget.

Considering the condition of the General and General Projects Funds, respectively, the Authority's overall financial position decreased during the fiscal year ended June 30, 2020. Total appropriations within the 2020-2021 adopted budget are $59,750,000, an increase of 3.1 percent from the 2019-2020 adopted budget, and are projected to be funded solely by revenues. Consequently, the Authority is not required to designate any of the unassigned General Fund fund balance for spending in the subsequent year.

The Authority's five-year capital plan requires $387 million of future appropriations. Management anticipates financing the aforementioned plan through the current designation, future contributions from operations and/or debt financing.

The Authority's primary source of revenues is derived from sewer rents. There are two types of sewer rents. Sewer rents based on assessed valuation of real estate and the other based on the use of water. All real property, both developed and undeveloped, must pay the sewer rent based on assessed valuation.

The levy of Sewer Rents based on assessed value will be $12,050,000 for the 2020-2021 budget. This represents the amount of Sewer Rent that the Authority will collect from all real property in the City of Buffalo except those properties exempt by law. This amount, when spread over the total estimated assessment for sewer purposes from the Department of Assessment, will result in an annual sewer rent of $0.94552260 for each for each $1,000 of assessed valuation.

Sewer rents based on water use are billed as flat rate or metered accounts. Flat rate sewer rents continue to be charged based on property characteristics (i.e. number of stories, front footage, etc.). There will be no increases to those charges. The sewer rent meter charges will continue at the same rate of $11.09 per 1,000 cubic feet. All flat and meter accounts will continue to be assessed a capacity/drainage charge at a minimum of $6.00 per month

Contacting the Authority's Financial Management

This financial report is designed to provide citizens, ratepayers, customers, investors, and creditors with a general overview of the Authority's finances and to demonstrate the Authority's accountability. Questions concerning this report or requests for additional financial information should be directed toward the Buffalo Sewer Authority, General Manager, 1038 City Hall, Buffalo, New York 14202.

BASIC FINANCIAL STATEMENTS

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BUFFALO SEWER AUTHORITY
Statement of Net Position
June 30, 2020

	Primary Government
	Governmental Activities
ASSETS	
Cash, cash equivalents and investments	$ 26,200,169
Designated cash, cash equivalents and investments	54,902,669
Restricted cash, cash equivalents and investments	4,563,718
Receivables (net of allowance for uncollectibles)	11,587,764
Intergovernmental receivables	170
Prepaid items	179,925
Capital assets not being depreciated	54,095,232
Capital assets, net of accumulated depreciation	278,982,530
Total assets	430,512,177
DEFERRED OUTFLOWS OF RESOURCES	
Deferred outflows—relating to pension plans	7,326,860
Deferred outflows—relating to OPEB	12,046,353
Total deferred outflows of resources	19,373,213
LIABILITIES	
Accounts payable	7,036,697
Interest payable	343,046
Accrued liabilities	1,092,398
Intergovernmental payables	412,642
EFC note payable	12,321,063
Retainages payable	1,021,462
Unearned revenues	210,772
Noncurrent liabilities:	
Due within one year	1,943,529
Due within more than one year	128,501,650
Total liabilities	152,883,259
DEFERRED INFLOWS OF RESOURCES	
Deferred inflows—relating to pension plans	339,553
Deferred inflows—relating to OPEB	11,369,904
Total deferred inflows of resources	11,709,457
NET POSITION	
Net investment in capital assets	290,093,932
Unrestricted	(4,801,258)
Total net position	$ 285,292,674

The notes to the financial statements are an integral part of this statement.

BUFFALO SEWER AUTHORITY
Statement of Activities
Year Ended June 30, 2020

Functions/programs	Expenses	Program Revenues: Charges for Services	Program Revenues: Capital Grants and Contributions	Net (Expense) Revenue and Changes in Net Position: Primary Government: Governmental Activities
Governmental activities:				
General administration	$ 2,809,113	$ 2,912,754	$ -	$ 103,641
Wastewater treatment facilities	39,206,343	40,652,852	-	1,446,509
Industrial waste	941,024	975,743	-	34,719
Engineering	1,638,798	1,699,261	-	60,463
Sewer maintenance	4,670,600	4,842,921	2,153,231	2,325,552
Interest and fiscal charges	1,654,444	-	-	(1,654,444)
Total governmental activities	$ 50,920,322	$ 51,083,531	$ 2,153,231	2,316,440
General revenues:				
Unrestricted investment earnings				2,070,426
Miscellaneous				99,012
Total general revenues				2,169,438
Change in net position				4,485,878
Net position—beginning				280,806,796
Net position—ending				$ 285,292,674

The notes to the financial statements are an integral part of this statement.

BUFFALO SEWER AUTHORITY
Balance Sheet—Governmental Funds
June 30, 2020

	General	General Projects	Debt Service	Total Governmental Funds
ASSETS				
Cash, cash equivalents and investments	$ 26,200,169	$ -	$ -	$ 26,200,169
Designated cash, cash equivalents and investments	11,319,854	43,582,815	-	54,902,669
Restricted cash, cash equivalents and investments	210,772	-	4,352,946	4,563,718
Receivables (net of allowance for uncollectibles)	11,587,764	-	-	11,587,764
Due from other funds	8,209	13,275,656	-	13,283,865
Intergovernmental receivables	170	-	-	170
Prepaid items	179,925	-	-	179,925
Total assets	$ 49,506,863	$ 56,858,471	$ 4,352,946	$ 110,718,280
LIABILITIES				
Accounts payable	$ 2,787,646	$ 4,249,051	$ -	$ 7,036,697
Accrued liabilities	1,092,398	-	-	1,092,398
Due to other funds	13,275,656	8,209	-	13,283,865
Intergovernmental payables	412,642		-	412,642
EFC note payable	-	12,321,063	-	12,321,063
Retainages payable	-	58,276	-	58,276
Unearned revenue	210,772	-	-	210,772
Total liabilities	17,779,114	16,636,599	-	34,415,713
FUND BALANCES				
Nonspendable	179,925	-	-	179,925
Restricted	-	-	4,352,946	4,352,946
Committed	21,547,824	40,221,872	-	61,769,696
Unassigned	10,000,000	-	-	10,000,000
Total fund balances	31,727,749	40,221,872	4,352,946	76,302,567
Total liabilities and fund balances	$ 49,506,863	$ 56,858,471	$ 4,352,946	$ 110,718,280

The notes to the financial statements are an integral part of this statement.

BUFFALO SEWER AUTHORITY
Reconciliation of the Balance Sheet—Governmental Funds to the Government-wide Statement of Net Position
June 30, 2020

Amounts reported for governmental activities in the statement of net position (page 11) are different because:

Total fund balances—governmental funds (page 13)		$ 76,302,567
Capital assets used in governmental activities are not financial resources and, therefore, are not reported in the funds. The cost of these assets is $621,873,767 and the accumulated depreciation is $288,296,005.		333,077,762
Deferred outflows and inflows of resources related to pensions are applicable to future periods and, therefore, are not reported in the funds.		
Deferred outflows related to employer contributions	$ 411,059	
Deferred outflows related to experience, changes of assumptions, and changes in proportion of contributions	6,915,801	
Deferred inflows related to pension plans	(339,553)	6,987,307
Deferred outflows and inflows of resources related to OPEB are applicable to future periods and, therefore, are not reported in the fund statements:		
Deferred outflows related to experience, changes of assumptions or other inputs	$ 12,046,353	
Deferred outflows related to experience, changes of assumptions or other inputs	(11,369,904)	676,449
Net accrued interest expense for bonds, notes and special program bonds not reported in the funds.		(343,046)
Retainages payable are not a current liability and, therefore, are not reported in the funds.		(963,186)
Long-term liabilities are not due and payable in the current period and, therefore, are not reported in the funds. The effect of these items are:		
Bonds payable	$ (35,015,713)	
Compensated absences	(1,104,464)	
OPEB obligation	(81,502,059)	
Judgments and claims	(1,566,127)	
Net pension liability	(11,256,816)	(130,445,179)
Net position of governmental activities		$ 285,292,674

The notes to the financial statements are an integral part of this statement.

BUFFALO SEWER AUTHORITY
Statement of Revenues, Expenditures, and Changes in Fund Balances—Governmental Funds
Year Ended June 30, 2020

	General	General Projects	Debt Service	Total Governmental Funds
REVENUES				
Sewer rents—general consumers	$ 50,251,558	$ -	$ -	$ 50,251,558
Interest on delinquent sewer rents	831,973	-	-	831,973
Interest on cash and investments	1,961,380	-	109,046	2,070,426
Miscellaneous	1,781,986	70,257	-	1,852,243
Federal aid	-	400,000	-	400,000
Total revenues	54,826,897	470,257	109,046	55,406,200
EXPENDITURES				
Current:				
General administration	1,944,811	-	-	1,944,811
Wastewater treatment facilities	19,781,028	-	-	19,781,028
Industrial waste	651,492	-	-	651,492
Engineering	1,134,576	-	-	1,134,576
Sewer maintenance	3,778,964	-	-	3,778,964
Miscellaneous	4,026,708	-	-	4,026,708
Employee benefits	9,850,818	-	-	9,850,818
Debt service:				
Principal	-	-	1,770,000	1,770,000
Interest and fiscal charges	-	-	1,670,332	1,670,332
Capital outlay	-	19,426,726	-	19,426,726
Total expenditures	41,168,397	19,426,726	3,440,332	64,035,455
Excess (deficiency) of revenues over expenditures	13,658,500	(18,956,469)	(3,331,286)	(8,629,255)
OTHER FINANCING SOURCES (USES)				
Transfers in	109,039	13,275,656	3,440,332	16,825,027
Transfers out	(16,715,988)	-	(109,039)	(16,825,027)
Total other financing sources (uses)	(16,606,949)	13,275,656	3,331,293	-
Net change in fund balances	(2,948,449)	(5,680,813)	7	(8,629,255)
Fund balances—beginning	34,676,198	45,902,685	4,352,939	84,931,822
Fund balances—ending	$ 31,727,749	$ 40,221,872	$ 4,352,946	$ 76,302,567

The notes to the financial statements are an integral part of this statement.

BUFFALO SEWER AUTHORITY
Reconciliation of the Statement of Revenues, Expenditures, and Changes in Fund Balances—Governmental Funds to the Government-wide Statement of Activities
Year Ended June 30, 2020

Amounts reported for governmental activities in the statement of activities (page 12) are different because:

Net change in fund balances—total governmental funds (page 15)		$ (8,629,255)
Governmental funds report capital outlays as expenditures. However, in the statement of activities, the cost of these assets is allocated over their estimated useful lives and reported as depreciation expense. This is the amount by which net capital outlays exceeded loss on disposal of assets and depreciation expense in the current period.		
Capital asset additions, net	$ 20,319,504	
Loss on disposal of assets	(104,989)	
Depreciation expense	(10,634,345)	9,580,170
Net differences between pension contributions recognized on the fund financial statements and the government-wide financial statements are as follows:		
Direct pension contributions	$ 1,571,827	
Cost of benefits earned net of employee contributions	(3,915,941)	$ (2,344,114)
Deferred outflows and inflows of resources relating to OPEB result from actuarial changes in the census and changes in medical premiums that are different than expected healthcare cost trend rates and due to changes in assumptions and other inputs. These amounts are shown net of the current year's amortization.		687,829
In the statement of activities, interest expense is recognized as it accrues, regardless of when it is paid.		15,888
Governmental funds report retained percentages expenditures on construction contracts when such retained percentage is paid. However, in the statement of activities, retained percentages on construction contracts are reported as expenses as they accrue.		(89,011)
The issuance of long-term debt provides current financial resources to governmental funds, while the repayment of the principal of long-term debt consumes the current financial resources of governmental funds. Neither transaction, however, has any effect on net position. Additionally, in the statement of activities, certain operating expenses are measured by the amounts earned during the year. In the governmental funds, however, expenditures for these items are measured by the amount of financial resources used (essentially, the amounts actually paid). The net effect of these differences in the treatment of long-term debt and the related items is as follows:		
Repayment of bonds payable	$ 1,770,000	
Changes in compensated absences	(23,977)	
Changes in OPEB obligation	3,513,496	
Changes in judgments and claims	4,852	5,264,371
Change in net position of governmental activities		$ 4,485,878

The notes to the financial statements are an integral part of this statement.

BUFFALO SEWER AUTHORITY
Statement of Fiduciary Net Position—Agency Fund
June 30, 2020

	Agency Fund
ASSETS	
Restricted cash and cash equivalents	$ 5,746
Total assets	$ 5,746
LIABILITIES	
Bankruptcy funds held	$ 5,746
Total liabilities	$ 5,746

The notes to the financial statements are an integral part of this statement.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The basic financial statements of Buffalo Sewer Authority, New York (the "Authority") have been prepared in conformity with accounting principles generally accepted in the United States of America as applied to governmental units. The Governmental Accounting Standards Board ("GASB") is the accepted standard setting body for establishing governmental accounting and financial reporting principles. The more significant of the Authority's accounting policies are described below.

Description of Government-wide Financial Statements

The government-wide financial statements (i.e., statement of net position and the statement of activities) report information on all of the nonfiduciary activities of the Authority. All fiduciary activities are reported only in the fund financial statements. *Governmental activities*, which are normally supported by sewer rents and taxes, are reported separately from *business-type activities,* which rely to a significant extent on fees and charges to external customers for support. Likewise, the primary government is reported separately from certain legally separate *component units* for which the primary government is financially accountable. The Authority reports no business-type activities or component units.

Reporting Entity

The Authority, a public benefit corporation, was created in 1935, by an Act of the State Legislature. The Authority is managed by a five-member board appointed by the Mayor of the City of Buffalo, New York (the "City") subject to confirmation by the Common Council, and is regulated by the Public Authorities Law. It has such powers as to fix and collect rates, to borrow money and to issue negotiable bonds, to sue and be sued, and to acquire, hold and dispose of personal property for its corporate purpose. The bonds and other obligations of the Authority are not a debt of the City and are payable only from the funds of the Authority. The Authority is legally and financially independent of the City. There are no other entities covered in this report.

The Authority provides sewage collection, treatment and disposal services for the City and neighboring communities.

All activities and functions performed by the Authority are its direct responsibility. No other governmental organizations have been included or excluded from the reporting entity.

The budgetary and fiscal operations of the Authority are comparable to that of a governmental rather than a proprietary unit and, therefore, the Board has opted to record such activity in a governmental fund type (General Fund) rather than in a proprietary fund type (Enterprise Fund).

Basis of Presentation – Government-wide Financial Statements

While separate government-wide and fund financial statements are presented, they are interrelated. The governmental activities column incorporates data from governmental funds. Separate financial statements are provided for governmental funds and fiduciary funds even though the fiduciary funds are excluded from government-wide financial statements.

As a general rule, the effect of interfund activity has been eliminated from the government-wide financial statements. Exception to this general rule are chargeback for services, such as printing and computer services. Elimination of these charges would distort the direct costs and program revenues reported for the various functions concerned.

Basis of Presentation – Fund Financial Statements

The fund financial statements provide information about the Authority's funds. Separate statements for each fund category—governmental and fiduciary—are presented. The emphasis of fund financial statements is on major governmental funds, each displayed in a separate column.

The Authority reports the following major governmental funds:

- *General Fund*—The General Fund constitutes the primary operating fund of the Authority and includes all operations not required to be recorded in other funds. The principal source of revenues for the General Fund is sewer rents.

- *General Projects Fund*—The General Projects Fund accounts for the acquisition and construction of major capital facilities and capital assets financed primarily with proceeds of both long and short-term debt and transfers from the General Fund.

- *Debt Service Fund*—The Debt Service Fund is used to maintain a debt service reserve required under the sewer system bond resolutions and related amendments. The Debt Service Fund also accounts for payments made for principal and interest on long-term general obligation debt of governmental funds. Investment earnings are considered revenues of the General Fund.

Additionally, the Authority reports the following fund type:

Fiduciary Funds—These funds are used to account for assets held by the Authority in a trustee capacity or as an agent for individuals, private organizations and/or other governmental units. Fiduciary Funds include an *Agency Fund.*

- *Agency Fund*—The Agency Fund is used to account for assets held by the Authority as an agent for individuals and includes amounts held from bankruptcies.

During the course of operations the Authority has activity between funds for various purposes. Any residual balances outstanding at year-end are reported as due from/to other funds and advances to/from other funds. While these balances are reported in fund financial statements, certain eliminations are made in the preparation of the government-wide financial statements. Balances between the funds included in governmental activities are eliminated so that only the net amount is included as internal balances in the governmental activities column.

Further, certain activity occurs during the year involving transfers of resources between funds. In the fund financial statements these amounts are reported at gross amounts as transfers in/out. While reported in fund financial statements, certain eliminations are made in the preparation of government-wide financial statements. Transfers between the funds included in governmental activities are eliminated so that only the net amount is included as transfers in the governmental activities column.

Measurement Focus and Basis of Accounting

The accounting and financial reporting treatment is determined by the applicable measurement focus and basis of accounting. Measurement focus indicates the type of resources being measured such as *current financial resources* or *economic resources*. The basis of accounting indicates the timing of transactions or events for recognition in the financial statements.

The government-wide financial statements are reported using the *economic resources measurement focus* and the *accrual basis of accounting*. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flows. Grants and similar items are recognized as revenues as soon as all eligibility requirements imposed by the provider have been met.

The governmental fund financial statements are reported using the *current financial resources measurement focus* and the *modified accrual basis of accounting*. Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the Authority considers revenues to be available if they are collected within 60 days of the end of the current fiscal period. Expenditures generally are recorded when a liability is incurred, as under accrual accounting. However, debt service expenditures, as well as expenditures related to compensated absences and claims and judgment, are recorded only when payment is due. General capital asset acquisitions are reported as expenditures in governmental funds. Issuance of long-term debt and acquisitions under capital leases are reported as other financing sources.

Sewer rents and interest associated with the current fiscal period are all considered to be susceptible to accrual and have been recognized as revenues of the current fiscal period. Only the portion of special assessments receivable due within the current fiscal period is considered to be susceptible to accrual as revenue of the current period. All other revenue items are considered to be measurable and available only when cash is received by the Authority.

The Agency Fund has no measurement focus, but utilizes the *accrual basis of accounting* for measuring its assets and liabilities.

Assets, Liabilities, Deferred Outflows/Inflows of Resources, and Net Position/Fund Balances

Cash, Cash Equivalents and Investments—The Authority's cash and cash equivalents consist of cash on hand, demand deposits, and short-term highly liquid investments with original maturities of three months or less from date of acquisition. New York State law governs the Authority's investment policies. Permissible investments include obligations of the United States Treasury, United States Agencies, repurchase agreements and obligations of New York State or its localities. It is the Authority's policy to state investments at fair value when applicable. Temporary investments are carried at fair value and include Money Market Funds and Treasury Notes. Certain interest earned on investments in the Debt Service Fund is transferred to the General Fund in accordance with Authority policy.

Designated Cash, Cash Equivalents, and Investments—Designated cash, cash equivalents, and investments represents cash set aside by management for future capital projects and loss contingencies.

Restricted Cash, Cash Equivalents, and Investments—Restricted cash represents unearned revenues and amounts to support restricted fund balance and amounts held on behalf of others.

***Prepaid Items*—**Certain payments to vendors reflect costs applicable to future accounting periods and are recorded as prepaid items in both the government-wide and fund financial statements. The cost of prepaid items is recorded as expenditures/expenses when consumed rather than when purchased.

***Capital Assets*—**Capital assets, which include land, construction in progress, land improvements, buildings and improvements, machinery and equipment and sanitary and storm relief systems, are reported in the government-wide financial statements. The Authority's capitalization policy requires the Authority to record capital assets purchased or constructed having a useful life of two or more years and a cost in excess of $10,000. Capital assets are reported in the government-wide financial statements at cost (or estimated historical cost). Donated capital assets are recorded at acquisition cost of the item at the date of its donation. The cost of normal maintenance and repairs that do not add to the value of the asset or materially extend to an asset's useful life is not capitalized.

Land and construction in progress are not depreciated. The other property, plant, equipment, and infrastructure of the primary government are depreciated using the straight-line method over the estimated useful lives as shown below:

	Estimated Useful Life (Years)
Land	n/a
Land improvements	20
Buildings	40
Building improvements	20
Machinery & equipment	3-10
Sanitary & storm relief system	20-50

***Deferred Outflows/Inflows of Resources*—**In addition to assets, the statement of financial position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, *deferred outflows of resources*, represents a consumption of net position that applies to a future period(s) and so will *not* be recognized as an outflow of resources (expense/expenditure) until then. At June 30, 2020, the Authority has two items that qualify for reporting in this category. The first item, related to pension plans, is reported in the government-wide financial statements. This represents the effect of the net change in the Authority's proportion of the collective net pension liability, the difference during the measurement period between the Authority's contributions, its proportionate share of the total contribution to the pension system not include in the pension expense, and any contributions to the pension system made subsequent to the measurement date. The second item is related to OPEB reported in the government-wide financial statements and represents the effects of the change in the Authority's proportion of the collective net OPEB liability and the difference during the measurement period between certain of the employer's contributions and its proportionate share of the total of certain contributions from employers included in the collective net OPEB liability.

In addition to liabilities, the statement of net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, *deferred inflows of resource*s, represents an acquisition of net position that applies to a future period(s) and so will *not* be recognized as an inflow of resources (revenue) until that time. At June 30, 2020, the Authority reports two deferred inflows of resources on the government-wide financial statements related to pension plans and OPEB, respectively. The first item represents the effect of the net change in the Authority's proportion of the collective net pension liability and the difference during the measurement periods between the Authority's contributions, and its proportionate share of the total contributions to the pension systems not included in pension expense. The second item represents the effects of the change in the Authority's proportion of the collective net OPEB liability and difference during the measurement period between certain of the employer's contributions and its proportionate share of the total of certain contributions from employers included in the collective net OPEB liability.

***Net Position Flow Assumption*—**Sometimes the Authority will fund outlays for a particular purpose from both restricted (e.g., restricted bond or grant proceeds) and unrestricted resources. In order to calculate the amounts to report as restricted–net position and unrestricted–net position in the government-wide financial statements, a flow assumption must be made about the order in which the resources are considered to be applied. It is the Authority's policy to consider restricted–net position to have been depleted before unrestricted–net position is applied.

***Fund Balance Flow Assumptions*—**Sometimes the Authority will fund outlays for a particular purpose from both restricted and unrestricted resources (the total of committed, assigned, and unassigned fund balance). In order to calculate the amounts to report as restricted, committed, assigned and unassigned fund balance in the governmental fund financial statements, a flow assumption must be made about the order in which the resources are considered to be applied. It is the Authority's policy to consider restricted fund balance to have been depleted before using any of the components of unrestricted fund balance. Further, when the components of unrestricted fund balance can be used for the same purposes, committed fund balance is depleted first, followed by assigned fund balance. Unassigned fund balance is applied last.

***Fund Balance Policies*—**Fund balance of governmental funds is reported in various categories based on the nature of any limitations requiring the use of resources for specific purposes. The Authority itself can establish limitations on the use of resources through either a commitment (committed fund balance) or an assignment (assigned fund balance).

The committed fund balance classification includes amounts that can be used only for the specific purpose determined by a formal action of the Authority's highest level of decision-making authority. The Board is the highest level of decision-making authority for the government that can, by adoption of a resolution prior to the end of the fiscal year, commit fund balance. Once adopted, the limitation imposed by the resolution remains in place until a similar action is taken (the adoption of another resolution) to remove or revise the limitation.

Amounts in the assigned fund balance classification are intended to be used by the Authority for specific purposes but do not meet the criteria to be classified as committed. The Board has by resolution authorized the General Manager to assign fund balance. The Board may also assign fund balance as it does when appropriating fund balance to cover a gap between estimated revenue and appropriations in the subsequent year's appropriated budget. Unlike commitments, assignments generally only exist temporarily. In other words, an additional action does not normally have to be taken for the removal of an assignment. Conversely, as discussed above, an additional action is essential to either remove or revise a commitment.

Revenues and Expenses/Expenditures

Program Revenues—Amounts reported as *program revenues* include 1) charges to customers or applicants who purchase, use, or directly benefit from goods, services, or privileges provided and 2) grants and contributions that are restricted to meeting the operational or capital requirements of a particular function or segment. General revenues are those that cannot be associated directly with program activities.

The Authority raises revenues from sewer rents from a variety of sources including assessed valuation of real property, water use, industrial waste charges and sewer connection agreements with neighboring communities.

The City's Department of Assessment bills sewer rents based on assessed valuation for the Authority in the same manner as that used for billing of City taxes.

The Authority contracts with an outside agency to act as the managers of the City's Division of Water. The agency bills sewer rents based on water use for the Authority as a separate item on each water bill. Such sewer rents are based on water consumption for metered accounts or a percent of water billings for unmetered accounts.

Agreements between neighboring communities and the Authority provide for charges based on the actual cost of receiving and treating sewage discharged into the Authority's facilities or based upon the rated capacity of the respective connections as apportioned to the total capacity of the Sewage Treatment Plant.

Unearned Revenue—Certain revenues have not met the revenue recognition criteria for government-wide or fund financial purposes. At June 30, 2020, the Authority reported $210,772 of unearned revenues in the General Fund. The Authority has collected sewer rent money in advance, but has not performed the services and therefore recognizes a liability.

Compensated Absences—The Authority's two labor agreements provide for sick leave, vacations and miscellaneous other paid absences. Upon retirement certain eligible employees qualify for payment for unused vacation and fractional values of unused sick leave. Payment of compensated absences recorded in the government-wide financial statements is dependent upon many factors; therefore timing of future payment is not readily determinable. However, management believes that sufficient resources will be made available for the payment of compensated absences when such payments become due.

Pension Plans—The Authority is mandated by New York State law to participate in the New York State Local Employees' Retirement System ("ERS"). For purposes of measuring the net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions, and pension expense, information about the fiduciary net position of the defined benefit pension plan, and changes thereof, have been determined on the same basis as they are reported by the respective defined benefit pension plan. For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with benefit terms. Investments are reported at fair value. More information regarding pensions is included in Note 6.

Other Postemployment Benefits—In addition to providing pension benefits, the Authority provides health insurance coverage for certain retired employees, as disclosed in Note 7.

Other

Estimates—The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America, requires management to make estimates and assumptions that affect the reported amounts of revenues, expenditures, assets, liabilities, deferred outflows/inflows of resources, and disclosures of contingent assets and liabilities at the date of the financial statements during the reported period. Actual results could differ from those estimates.

Adoption of New Accounting Pronouncement—During the year ended June 30, 2020, the Authority implemented GASB Statements No. 90, *Majority Equity Interests—an amendment of GASB Statements No. 14 and No. 61* and GASB Statement No. 95, *Postponement of the Effective Dates of Certain Authoritative Guidance*. GASB Statement No. 95 provides temporary relief to governments and other stakeholders in light of the COVID-19 pandemic by postponing effective dates of certain provisions in Statements. The implementation of GASB Statements No. 90 and 95 did not have a material impact on the Authority's financial position or results from operations.

Future Impacts of Accounting Pronouncements—The Authority has not completed the process of evaluating the impact that will result from adopting GASB Statements No. 84, *Fiduciary Activities*; and No. 97, *Certain Component Unit Criteria, and Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans – an amendment of GASB Statements No. 14 and No. 84, and a supersession of GASB Statement No. 32*, effective for the year ending June 30, 2021, No. 87, *Leases*; No. 89, *Accounting for Interest Cost Incurred before the End of a Construction Period*, No. 92, *Omnibus 2020*; and No. 93, *Replacement of Interbank Offered Rates*, effective for the year ending June 30, 2022, No. 91, *Conduit Debt Obligations*, effective for the year ending June 30, 2023, and No. 94, *Public-Private and Public-Public Partnerships and Availability Payment Arrangements*; and No. 96, *Subscription-Based Information Technology Arrangements*, effective for the year ending June 30, 2024. The Authority is, therefore, unable to disclose the impact that adopting GASB Statements No. 84, 87, 89, 91, 92, 93, 94, 96, and 97 will have on its financial position and results of operations when such statements are adopted.

Stewardship, Compliance and Accountability

Legal Compliance—Budgets—The Authority follows these procedures in establishing most of the budgetary data reflected in the financial statements:

- In accordance with bond resolutions and related amendments, prior to the forty-fifth day before the beginning of the next fiscal year, the Authority files an adopted budget with the Trustee for the fiscal year to commence July 1. This budget includes appropriations, estimated revenues and amounts necessary for the payment of subordinated indebtedness incurred by the Authority.

- On or before July 1 of each fiscal year, the Authority adopts the annual budget for such fiscal year. The budget is adopted at the activity level.

- During the fiscal year, management can transfer appropriations within the activity level without the approval of the Authority Board. The Authority Board can legally amend the operating budget and is empowered to implement supplemental appropriations. Budget amendments beyond the activity level of control require Board approval.

- Formal annual budgetary accounts are employed as a management control device for the General Fund. This budget is adopted on a budgetary basis which takes into consideration encumbrances. The budgeted funds of the General Fund lapse at the end of the fiscal year. However, a five-year plan does exist for capital projects.

- The Authority's legal level of budgetary control is at the activity level. Total expenditures for each department may not legally exceed the total appropriations at the activity level. Encumbrances outstanding at year end are accounted for by a commitment of fund balance. All encumbered appropriations lapse and revert to fund balance at the end of the fiscal year.

2. CASH, CASH EQUIVALENTS, AND INVESTMENTS

The Authority has its own written investment policy in accordance with Title 7, Section 2925 of the Public Authorities Law. Monies in any fund held by a Trustee, or the Authority provide reasonable liquidity in the highest yield investment securities. Permissible investments include:

- Direct obligations of the United States of America and securities fully and unconditionally guaranteed as to the timely payment of principal and interest by the United States of America, provided, that the full faith and credit of the United States of America must be pledge to any such direct obligation or guarantee;

- Bonds, debentures, notes or other evidences of indebtedness issued by any of the following agencies: Export-Import Bank of the United States; Federal Home Loan Banks; Federal Home Loan Mortgage Corporation, Federal Housing Administration; Federal National Mortgage Association; General Services Administration; Government National Mortgage Association; Small Business Administration; Student Loan Marketing Association; U.S. Department of Housing of Urban Development; U.S. Maritime Administration; the Washington Metropolitan Area Transit Authority; or the Resolution Funding Corporation.

- Direct obligations of any State of the U.S. or any subdivision or agency thereof whose unsecured, uninsured, and unguaranteed general obligation debt is rated, at the time of purchase, "A" or better by Moody's Investors Service and "A" or better by Standard and Poor's Corporation, or any obligation fully and unconditionally guaranteed by any state, subdivision, or agency whose unsecured, uninsured, and unguaranteed general obligation debt is rated, at the time of purchase "A" or better by Moody's Investors Service and "A" or better by Standard & Poor's Corporation;

- Federal funds, unsecured certificates of deposit, time deposits or bankers acceptances (in each case having maturities of not more than 365 days) of any domestic bank including a branch office of a foreign bank which branch office is located in the United States, provided legal opinions are received to the effect that fully and timely payment of such deposit or similar obligation is enforceable against the principle office or any branch of such bank, which, at the time of purchase, has a short-term "Bank Deposit" rating of "P-1" by Moody's Investor Service and a "Short-Term CD" rating of "A-1" or better by Standard & Poor's Corporation;

- Deposits of any bank or savings and loan association which has combined capital, surplus and undivided profits of not less than $3 million, provided such deposits are continuously and fully insured by the Bank Insurance Fund or the Savings Association Insurance Fund of the Federal Deposit Insurance Corporation.

- Investments in money-market funds rated "AAAm" or "AAAM-G" by Standard & Poor's Corporation;

- Repurchase agreements collateralized by Direct Obligations, GNMAs, FNMAs or FHLMCs with any registered broker/dealer subject to the Securities Investors' Protection Corporation jurisdiction or any commercial bank insured by the FDIC, if such broker/dealer or bank has an uninsured, unsecured and unguaranteed obligation rated "P-1" or "A3" or better by Moody's Investors Service, and "A-1" or "A-" or better by Standard & Poor's Corporation, provided a master repurchase agreement or specific written repurchase agreement governs the transaction;

- Commerical paper (having original maturiries of not more than 270 days) rated, at the time of purchase, "P-1" by Moody's Investors Service and "A-1" or better by Standard and Poor's Corporation.

Collateral is required for demand deposits, time deposits and certificates of deposit at 100 percent of all deposits not covered by Federal deposit insurance. The Authority has entered into custodial agreements with the various banks which hold their deposits. These agreements authorize the obligations that may be pledged as collateral. Obligations that may be pledged as collateral are outlined in Chapter 623 of the laws of the State of New York. Cash, cash equivalents, and investments at June 30, 2020 are shown below.

	Governmental Funds	Fiduciary Fund	Total
Petty cash (uncollateralized)	$ 2,250	$ -	$ 2,250
Deposits	6,734,277	5,746	6,740,023
Other cash and cash equivalents	79,066	-	79,066
Investments	78,850,963	-	78,850,963
Total	$ 85,666,556	$ 5,746	$ 85,672,302

Deposits—All deposits are carried at fair value, and are classified by custodial credit risk at June 30, 2020 as follows:

	Bank Balance	Carrying Balance
FDIC insured	$ 500,000	$ 500,000
Uninsured:		
Collateral held by pledging bank's agent in the Authority's name	3,783,016	6,240,023
Total	$ 4,283,016	$ 6,740,023

Custodial Credit Risks—Deposits—Custodial credit risk is the risk that in the event of a bank failure, the Authority's deposits may not be returned to it. As noted above, by State statute all deposits in excess of FDIC insurance coverage must be collateralized. At June 30, 2020, the Authority's deposits were either FDIC insured or collateralized with securities held by the pledging bank's agent in the Authority's name.

Other Cash and Cash Equivalents—Other cash and cash equivalents are held as money market investments at their amortized cost of $79,066.

Restricted Cash, Cash Equivalents and Investments—At June 30, 2020, the Authority reported $210,772 of restricted cash and cash equivalents in the General Fund to support unearned revenues and $64,466 of restricted cash and cash equivalents and $4,288,480 of restricted investments in the Debt Service Fund to support restricted fund balance.

Designated Cash, Cash Equivalents, and Investments—The Authority reports amounts as designated cash, cash equivalents, and investments to support fund balances committed to capital projects and future loss contingencies. At June 30, 2020, the Authority reported $11,319,854 and $43,582,815 of designated cash, cash equivalents, and investments within the General Fund and General Projects Fund, respectively.

Restricted Investments—All investments are reported using a three-level hierarchy that prioritizes the inputs used to measure fair value. This hierarchy, established by GAAP, requires that entities maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The three levels of inputs used to measure fair value are as follows:

- Level 1. Quotes prices for identical assets or liabilities in active markets to which the Authority has access at the measurement date.

- Level 2. Inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly. Level 2 inputs include:

    - Quoted prices for similar assets or liabilities in active markets;

    - Quoted prices for identical or similar assets in markets that are not active;

    - Observable inputs other than quoted prices for the asset or liability (for example, interest rates and yield curves); and

    - Inputs derived principally from, or corroborated by, observable market data by correlation or by other means.

- Level 3. Unobservable inputs for the asset or liability. Unobservable inputs should be used to measure fair value to the extent that observable inputs are not available.

The Authority has invested in U.S. Treasury Notes of $4,288,480 at June 30, 2020, which are considered to be Level 1 investments. At June 30, 2020, the Authority reported $30,979,668 and $43,582,815 of commercial paper within the General Fund and General Projects Fund, respectively, which are considered to be Level 1 investments.

Credit Ratings—The aforementioned U.S. Treasury notes mature April 15, 2032, February 15, 2033, November 15, 2033, October 1, 2035 and May 1, 2044. All of these investments have an S&P credit rating of A-1+ and a Moody's credit rating of P-1.

Credit Risk–Investments—In compliance with State law, the Authority's investments are limited to obligations of the United States of America, obligations guaranteed by agencies of the United States of America where the payment of principal and interest are guaranteed by the United States of America, obligations of the State, time deposit accounts, and certificates of deposit issued by a bank or trust company located in, and authorized to do business in, the State, and certain joint ventures or cooperative investment programs.

Interest Rate Risk—In the case of investments, this is the risk that potential purchasers of debt securities will not agree to pay face value for those securities if interest rates subsequently increase. There is the prospect of a loss should those securities be sold prior to maturity. The Authority follows a policy to specifically identify the maturity for each individual investment and evaluate risk accordingly. There are no requirements limiting maturity of investments.

3. RECEIVABLES

Receivables—Primarily represents amounts due from customers and outside districts. A summary of receivables follows:

Flat rate receivables	$ 2,584,381	
Allowance: flat rate receivables	(2,246,048)	$ 338,333
Metered receivables	8,431,157	
Allowance: metered receivables	(4,697,761)	3,733,396
Industrial waste receivables	934,585	
Allowance: industrial waste receivables	(17,861)	916,724
Outside district receivables	6,286,950	
Allowance: outside district receivables	(1,139)	6,285,811
Other miscellaneous receivables		313,500
		$ 11,587,764

4. CAPITAL ASSETS

Capital asset activity for governmental activities for the year ended June 30, 2020 was as follows:

	Balance 7/1/2019	Increases	Decreases	Balance 6/30/2020
Capital assets, not being depreciated:				
Land	$ 10,586,171	$ -	$ -	$ 10,586,171
Construction in progress	66,198,771	19,325,115	(42,014,825)	43,509,061
Total capital assets, not being depreciated	76,784,942	19,325,115	(42,014,825)	54,095,232
Capital assets, being depreciated:				
Land improvements	455,703	-	-	455,703
Buildings	268,642,176	17,267,197	-	285,909,373
Building improvements	12,707,216	-	-	12,707,216
Machinery & equipment	31,770,527	785,351	(786,817)	31,769,061
Sanitary & storm relief systems	211,980,516	24,956,666	-	236,937,182
Total capital assets, being depreciated	525,556,138	43,009,214	(786,817)	567,778,535
Less accumulated depreciation for:				
Land improvements	(455,703)	-	-	(455,703)
Buildings	(146,705,726)	(5,392,730)	-	(152,098,456)
Building improvements	(7,347,340)	(392,658)	-	(7,739,998)
Machinery & equipment	(28,990,000)	(609,347)	681,828	(28,917,519)
Sanitary & storm relief systems	(95,344,719)	(4,239,610)	-	(99,584,329)
Total accumulated depreciation	(278,843,488)	(10,634,345)	681,828	(288,796,005)
Total capital assets, being depreciated, net	246,712,650	32,374,869	(104,989)	278,982,530
Governmental activities capital assets, net	$ 323,497,592	$ 51,699,984	$ (42,119,814)	$ 333,077,762

Significant construction in progress expenditures are incurred as the Authority continues to make an effort to improve its infrastructure. Depreciation expense totaling $10,634,345 is reported within the government-wide statements and has been allocated to wastewater treatment plant expenses of $9,952,517 and sewer maintenance expenses of $681,828.

5. ACCRUED LIABILITIES

Accrued liabilities reported by governmental funds at June 30, 2020, were as follows:

	General Fund
Salary and other employee benefits	$ 1,092,398
Total accrued liabilities	$ 1,092,398

6. PENSION PLANS

The Authority participates in the New York State and Local Employee's Retirement System ("ERS") and the Public Employee's Group Life Insurance Plan (the "System"). These cost-sharing multiple-employer public employee retirement systems compute contribution requirements based on the New York State Retirement and Social Security Law ("NYSRSSL").

Plan Description and Benefits Provided

Employees' Retirement System ("ERS")—ERS provides retirement benefits as well as death and disability benefits. The net position of ERS is held in the New York State Common Retirement Fund (the "Fund"), which was established to hold all net assets and record changes in plan net position allocated to ERS. The Comptroller of the State of New York serves as the trustee of the Fund and is the administrative head of ERS. ERS benefits are established under the provision of the New York State Retirement and Social Security Law ("RSSL"). Once a public employer elects to participate in ERS, the election is irrevocable. The New York State Constitution provides that pension membership is a contractual relationship and plan benefits cannot be diminished or impaired. Benefits can be changed for future members only by enactment of a State statute. The Authority also participates in the Public Employees' Group Life Insurance (the "System"), which provides death benefits in the form of life insurance. ERS is included in the State's financial report as a pension trust fund. The report, including information with regard to benefits provided, may be found at www.osc.state.ny.us/retire/publications/index.php or obtained by writing to the New York State and Local Retirement System, 110 State Street, Albany, NY 12244.

ERS is noncontributory, except for employees who joined after July 27, 1976 who contribute three percent (3%) of their salary for the first ten years of membership, and employees who joined on or after January 1, 2010 who generally contribute three (3.0%) to three and one half (3.5%) percent of their salary for their entire length of service. In addition, employee contribution rates under ERS tier VI vary based on a sliding salary scale. For ERS, the Comptroller annually certifies the actuarially determined rates expressly used in computing the employers' contributions based on salaries paid during the System's fiscal year ending March 31.

Pension Liability, Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions—The net pension liability was measured as of March 31, 2020 for ERS. The total pension liability used to calculate the net pension liability was determined by actuarial valuations as of April 1, 2019, with update procedures used to roll forward the total pension liability to the measurement date. The Authority's proportion of the net pension liability was based on a projection of the Authority's long-term share of contributions to the System relative to the projected contributions of all participating members, actuarially determined. This information was provided by the ERS System in a report provided to the Authority.

	ERS
Measurement date	March 31, 2020
Net pension liability	$ 11,256,816
Authority's portion of the Plan's total net pension liability	0.0425097%

As of the March 31, 2020 measurement date, the Authority's portion of the Plan's total net pension liability had increased 0.0025278% from their portion of the Plan's total net pension liability of 0.0399819% on the March 31, 2019 measurement date.

For the year ended June 30, 2020, the Authority recognized a pension expense of $3,915,942 for ERS. At June 30, 2020, the Authority reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experiences	$ 662,509	$ -
Change of assumptions	226,659	195,716
Net difference between projected and actual earnings on pension plan investments	5,770,791	-
Changes in proportion and differences between the Authority's contributions and proportionate share of contributions	255,842	143,837
Authority contributions subsequent to the measurement date	411,059	-
Total	$ 7,326,860	$ 339,553

Authority contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in the year ending June 30, 2021. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year Ending June 30,	
2021	$ 1,151,913
2022	1,665,232
2023	2,073,173
2024	1,685,930

***Actuarial Assumptions*—**The total pension liability as of the measurement date was determined by using an actuarial valuation as noted in the table below, with update procedures used to roll forward the total pension liability to the measurement date. The actuarial valuation used the following actuarial assumptions:

	ERS
Measurement date	March 31, 2020
Actuarial valuation date	April 1, 2019
Discount rate	6.80%
Salary scale	4.20%
Decrement tables	April 1, 2011-March 31, 2015
Inflation rate	2.5%
Cost-of-living adjustments	1.3%

Annuitant mortality rates are based on April 1, 2010 – March 31, 2015 System's experience with adjustments for mortality improvements based on Society of Actuaries' Scale MP-2014.

The actuarial assumptions used in the April 1, 2019 valuation are based on the results of an actuarial experience study for the period April 1, 2010 – March 31, 2015.

The long term rate of return on pension plan investments was determined using a building block method in which best estimate ranges of expected future real rates of return (expected returns net of investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long term expected rate of return by weighting the expected future real rates of return by each the target asset allocation percentage and by adding expected inflation. Best estimates of the arithmetic real rates of return for each major asset class included in the target asset allocation for ERS are summarized below:

	ERS	
Measurement date	March 31, 2020	
	Target Allocation	Long-Term Expected Real Rate of Return
Asset class:		
Domestic equities	36.0 %	4.1 %
International equities	14.0	6.2
Private equity	10.0	6.8
Real estate	10.0	5.0
Absolute return strategies	2.0	3.3
Opportunistic portfolio	3.0	4.7
Real assets	3.0	6.0
Bonds and mortgages	17.0	0.8
Cash	1.0	0.0
Inflation-indexed bonds	4.0	0.5
Total	100.0 %	

***Discount Rate*—**The discount rate used to calculate the total pension liability was 6.8%. The projection of cash flows used to determine the discount rate assumes that contributions from plan members will be made at the current contribution rates and that contributions from employers will be made at statutorily required rates, actuarially. Based upon the assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore the long term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

***Sensitivity of the Proportionate Share of the Net Pension Liability to the Discount Rate Assumption*—**The chart on the following page presents the Authority's proportionate share of the net pension liability calculated using the discount rate of 6.8% for ERS, as well as what the Authority's proportionate share of the net pension liability would be if it were calculated using a discount rate that is one percentage-point lower (5.8%) or one percentage-point higher (7.8%) than the current assumption.

ERS	1% Decrease (5.8%)	Current Assumption (6.8%)	1% Increase (7.8%)
Employer's proportionate share of the net pension liability/(asset)	$ 20,659,436	$ 11,256,816	$ (2,596,964)

***Pension Plan Fiduciary Net Position*—**The components of the current-year net pension liability/(asset) of all of the employers participating in the state-wide System as of the valuation date was as follows:

	(Dollars in Thousands) ERS
Valuation date	April 1, 2019
Employers' System total pension liability	$ 194,596,261
Plan fiduciary net position	168,115,682
Employers' System net pension liability	$ 26,480,579
System fiduciary net position as a percentage of total pension liability	86.4%

Payables to the Pension Plan—Employer contributions are paid annually based on the System's fiscal year which ends on March 31st. Accrued retirement contributions as of June 30, 2020 represent the projected employer contribution for the period of April 1, 2020 through June 30, 2020 based on paid ERS wages multiplied by the employer's contribution rate, by tier. Accrued retirement contributions as of June 30, 2020 amounted to $411,059.

7. OTHER POSTEMPLOYMENT BENEFITS ("OPEB")

Plan Description and Benefits Provided—In addition to pension benefits, the Authority provides health care benefits for retirees, spouses, and their covered dependents at no cost to the retirees under a single-employer postemployment benefit plan. There is no separate, audit GAAP-basis postemployment benefit plan report available for the plan. Such postemployment benefits are an included value in the exchange of salaries and benefits for services rendered. An employee's total compensation package includes not only the salaries and benefits received during service, but all compensation and benefits received for their services during postemployment. The Authority provides one traditional indemnity plan option for its retirees under 65. In addition, the Authority provides two Medicare Supplement plan options for their Medicare eligible retirees over 65. Retirees who have alternate insurance and desire to waive medical insurance through the Authority will receive an in-lieu payment from the Authority each year. These payments total $1,200, $1,800, and $2,400, to waive single coverage, two-person coverage, and family coverage, respectively. The General Fund of the Authority is typically used to liquidate the OPEB obligation.

Employees Covered by Benefit Terms—At June 30, 2020, the following employees were covered by the benefit terms:

Active not eligible to retire	105
Actives eligible to retire	49
Retired and surviving spouses	205
Retiree spouses covered	130
	489

Under GASB Statement No. 75, the total OPEB liability represents the sum of expected future benefit payments which may be attributed to past service (or "earned"), discounted to the end of the fiscal year using the current discount rate. The total OPEB liability is analogous to the Unfunded Actuarial Accrued Liability ("AAL") under GASB Statement No. 45.

Total OPEB Liability

The Authority's total OPEB liability of $81,502,059 was measured as of June 30, 2020, and was determined by an interim actuarial valuation as of that date.

Actuarial Methods and Assumptions—Calculations are based on the types of benefits provided under the terms of the substantive plan (the plan as understood by the employer and the plan members) at the time of the valuation and on the pattern of cost sharing between the employee and plan members. Calculations reflect a long-term perspective, so methods and assumptions used include techniques that are designed to reduce short-term volatility.

In the June 30, 2020 actuarial valuation, the entry age normal method, over a level percent of pay was used. The single discount rate changed from 3.44% for the year ending June 30, 2019 to 2.48% for the year ending June 30, 2020. The salary scale is 3.22% effective June 30, 2020. In order to estimate the change in the cost of healthcare, the actuaries initial healthcare cost trend rate used effective June 30, 2020 is 5.20%, while the ultimate healthcare cost trend rate is 4.18%. Mortality rates effective June 30, 2020 were based on the Pub-2010 Public Retirement Plans Mortality Tables, Headcount-weighted for General employees, without separate Contingent Survivor mortality, fully generational using scale MP-2019.

Changes in the Total OPEB Liability—The following table presents the changes to the total OPEB liability during the fiscal year, by source:

	Total OPEB Liability
Balance at June 30, 2019	$ 85,015,555
Changes for the year:	
Service cost	1,512,328
Interest	2,876,990
Differences between expected and actual experience	(18,829,962)
Changes of assumptions or other inputs	13,821,608
Benefit payments	(2,894,460)
Net changes	(3,513,496)
Balance at June 30, 2020	$ 81,502,059

Sensitivity of the Total OPEB Liability to the Change in the Discount Rate and Healthcare Cost Trend Rate—The discount rate assumption can have an impact on the net OPEB liability. The following table presents the effect of a 1% change in the discount rate assumption would have on the net OPEB liability:

	1% Decrease (1.48%)	Current Discount Rate (2.48%)	1% Increase (3.48%)
Net OPEB liability	$ 95,352,103	$ 81,502,059	$ 70,554,831

Additionally, healthcare costs can be subject to considerable volatility over time. The following table presents the effect on the OPEB liability of a 1% change in the initial (5.20%) and ultimate (4.18%) healthcare cost trend rates.

	1% Decrease (4.20%/3.18%)	Healthcare Cost Trend Rates (5.20%/4.18%)	1% Decrease (6.20%/5.18%)
Net OPEB liability	$ 69,508,941	$ 81,502,059	$ 96,701,045

Funding Policy—Authorization for the Authority to pay all of retiree health insurance premiums was enacted by resolution of the Authority Board or through union contracts, which are ratified by the Authority Board. For an employee to be eligible for the Authority's postemployment health plan they must have been employed by the Authority for a minimum of five consecutive years prior to retirement and qualify for retirement as a member of the New York State retirement system. All current retirees, receive full health care coverage with no contribution requirements for themselves, dependents, and spouses. Authority governmental activities contributed $2,894,460 for the fiscal year ended June 30, 2020. While for the year ended June 30, 2020, the Authority's governmental activities recognized OPEB expense of $1,413,869. The Authority's contributions to the OPEB plan are based on negotiated contracts with two bargaining units, as discussed in Note 14. Any amendments to the employer's contributions are subject to the collective bargaining agreements.

OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB—The Authority reports deferred outflows of resources and deferred inflows of resources due to differences during the measurement period between certain of the employer's contributions and its proportionate share of the total of certain contributions from employers included in the collective net OPEB liability are required to be determined. The table below presents the Authority's deferred outflows and deferred inflows at June 30, 2020.

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 4,777,644	$ 8,919,456
Changes of assumptions	6,547,077	2,450,448
Benefit payments subsequent to the measurement date	721,632	-
Total	$ 12,046,353	$ 11,369,904

The Authority's benefit payments subsequent to the measurement date will be recognized as a reduction of the total OPEB liability for the year ending June 30, 2021. The other amounts reported as deferred outflows of resources and deferred inflows of resource related to OPEB will be recognized in OPEB expense as follows:

Year ending June 30,	
2021	$ (1,804,770)
2022	567,609
2023	567,609
2024	567,609
2025	56,760
Thereafter	-

8. RISK MANAGEMENT

The Authority is exposed to various risks of losses related to torts; theft of, damage to, and destruction of assets; vehicle liability, injuries to employees; health insurance, unemployment insurance, and natural disasters. These risks are covered by commercial insurance purchased from independent third parties. The Authority purchases insurance for: commercial property coverage, commercial general liability coverage, commercial automotive coverage and commercial crime coverage. Property insurance is limited based on scheduled locations. The general liability insurance is limited to $7 million per occurrence. Real Property and Personal Property Coverage is limited to $500 million. Automobile insurance is limited to $4 million per accident. Crime coverage is limited to $1 million per occurrence with a $2 million annual aggregate limit. There were no settlements that exceeded insurance coverage in each of the past three fiscal years.

Workers' Compensation—The Authority participates in a self-insured plan for risks associated with employee workers' compensation claims through a third party. The Authority accounts for this activity in the General Fund.

Liabilities are reported when it is probable that a loss has occurred and the amount of the loss can be reasonably estimated. Liabilities include an amount for claims that have been incurred but not reported ("IBNR"). Claim liabilities are calculated with consideration of the effects of inflation, recent claim settlement trends including frequency and amount of payouts, and other benefit costs.

Claim activities for the current year and the prior year are:

Year Ended June 30,	Beginning Balance	Claims and Changes in Estimates	Payments and Changes in Estimates	Ending Balance
2020	$ 1,570,979	$ 764,622	$ (769,474)	$ 1,566,127
2019	1,683,693	616,846	(729,560)	1,570,979

At June 30, 2020, $3,000,000 of the General Fund fund balance was committed to loss contingencies for the purpose of funding the Authority's future claims liabilities.

9. SHORT TERM DEBT

Short term debt of the Authority represents a short term loan from the Environmental Facilities Corporation ("EFC"). This short-term loan is recorded as due to other governments. The Authority intends to exercise an option to convert this loan to long-term debt, however, it has not yet exercised such. The short-term debt for the fiscal year ended June 30, 2020 is shown below:

Description	Issue Date	Interest Rate	Principal Outstanding July 1, 2019	Additions	Reductions	Principal Outstanding June 30, 2020
EFC loan payable	various	0.0%	$ 8,702,196	$ 3,618,867	$ -	$12,321,063

10. LONG TERM LIABILITIES

In the government-wide financial statements, long-term debt and long-term obligations are reported as noncurrent liabilities in the statement of net position.

In the fund financial statements, governmental funds recognize bond premiums and discounts during the current period. The face amount of debt issued is reported as other financing sources. Premiums received on debt issuances are reported as other financing sources, while discounts on debt issuances are reported as other financing uses. Further, the unmatured principal of general long-term debt does not require current appropriation and expenditure of governmental fund financial resources.

The Authority's outstanding long-term liabilities include bonds payable, compensated absences, other postemployment benefits ("OPEB") obligation, judgments and claims and net pension liability. The bonds payable of the Authority are secured by its general credit and revenue raising powers, as per State statute.

A summary of changes in the Authority's long-term liabilities at June 30, 2020 follows:

	Balance 7/1/2019	Additions	Reductions	Balance 6/30/2020	Due Within One Year
Bonds payable	$ 36,785,713	$ -	$ (1,770,000)	$ 35,015,713	$ 1,810,000
Compensated absences	1,080,487	929,688	(905,711)	1,104,464	55,223
OPEB obligation	85,015,555	18,210,926	(21,724,422)	81,502,059	-
Judgments and claims	1,570,979	764,622	(769,474)	1,566,127	78,306
Net pension liability*	2,832,840	8,423,976	-	11,256,816	-
Total	$ 127,285,574	$ 28,329,212	$ (25,169,607)	$ 130,445,179	$ 1,943,529

(*additions to the net pension liability are shown net of reductions)

Bonds Payable

Series M—On July 2, 2014, the Authority refinanced short-term debt to a long-term note payable, Series M to support construction costs for a total amount of $17,581,310. Of this amount, the portion converted from short-term debt of $15,159,256, offset by a principal reduction in the form of grant revenue of $9,031,991 was recorded in the year ended June 30, 2014 as the Authority had taken the legal steps to refinance the short-term EFC loans payable to long-term debt at June 30, 2014. In the year ended June 30, 2015, the additional liability, not previously recorded as short-term debt, of $2,422,054 was recorded on the Authority's financial statements as a proceeds from issuance. Interest on the Series M bond ranges from 4.25-5.15 and the bonds mature on May 1, 2044.

Series N—On November 15, 2012, through EFC the Authority issued replacement bonds for the outstanding EFC Sewer System Revenue Bonds, Series H bonds with EFC Sewer System Revenue Bonds, Series N in the amount of $21,671,564. Prior to issuing the replacement note, the Authority paid $658,436 in Series H principal payments in the current year. Interest on the Series N bond ranges from 3.85%-4.90% and the bonds mature on April 15, 2032. As a result, $21,671,564 of Series H Bonds were considered defeased and the liability for those bonds has been removed from the Authority's financial statements. The replacement bonds were issued for the same amount outstanding on the Series H Sewer System Revenue bonds at the time of issuance. The refund resulted in an estimated net present benefit of $772,721.

Series J1—On July 2, 2014, through EFC the Authority issued replacement bonds for the outstanding EFC Sewer System Revenue Bonds, Series J bonds with EFC Sewer System Revenue Bonds, Series J1 in the amount of $5,353,126. Interest on the Series J1 bond ranges from 4.06%-4.63% and the bonds mature on November 15, 2033. As a result, $5,353,126 of Series J Bonds were considered defeased and the liability for those bonds has been removed from the Authority's financial statements. The replacement bonds were issued for the same amount outstanding on the Series J Sewer System Revenue bonds at the time of issuance. The refund resulted in an estimated net present benefit of $607,254.

Series K1—On July 2, 2014, through EFC the Authority issued replacement bonds for the outstanding EFC Sewer System Revenue Bonds, Series K bonds with EFC Sewer System Revenue Bonds, Series K1 in the amount of $3,614,143. Interest on the Series K1 bond ranges from 4.25%-5.15% and the bonds mature on February 15, 2033. As a result, $3,614,143 of Series K Bonds were considered defeased and the liability for those bonds has been removed from the Authority's financial statements. The replacement bonds were issued for the same amount outstanding on the Series K Sewer System Revenue bonds at the time of issuance. The refund resulted in an estimated net present benefit of $395,499.

Series L1—On August 20, 2015, through EFC the Authority issued replacement bonds for the outstanding EFC Sewer System Revenue Bonds, Series L bonds with EFC Sewer System Revenue Bonds, Series L1 in the amount of $7,094,679. Prior to issuing the replacement note, the Authority paid $430,321 in Series L principal payments in the current year. Interest on the Series L1 bond ranges from 4.17-4.86% and the bonds mature on October 1, 3025. As a result, $7,094,679 of Series L Bonds were considered defeased and the liability for those bonds has been removed from the Authority's financial statements. The replacement bonds were issued for the same amount outstanding on the Series L Sewer System Revenue bonds at the time of issuance. The refund resulted in an estimated net present benefit of $680,873.

Rate Covenant—The Authority has covenanted that from time to time and as often as it shall appear necessary, the rates, charges, rents, sewer rents, fees and assessments established for the Sewer System will be adjusted whenever necessary to cause the revenues collected in each fiscal year from the Sewer System to be at least equal to the Minimum Revenue Requirement, which shall be equal to the sum of (i) the amount estimated to be required in the current fiscal year to pay operating expenses and to meet the debt service reserve requirement and the Renewal and Extension Requirement, plus (ii) 115% of debt service for such fiscal year.

The Sewer System Revenue Bond transactions of the Authority for the year ended June 30, 2020 is presented below:

Description	Interest Rate	Year of Issue/ Maturity	Balance 7/1/2019	Additions	Payments	Balance 6/30/2020
Series M	4.25-5.15	2014/2044	$ 7,440,000	$ -	$ (235,000)	$ 7,205,000
Series N	3.85-4.90	2012/2031	16,076,564	-	(885,000)	15,191,564
Series J1	4.06-4.63	2014/2033	4,228,126	-	(240,000)	3,988,126
Series K1	4.25-5.15	2014/2033	2,914,142	-	(150,000)	2,764,142
Series L1	4.17-4.86	2015/2035	6,126,881	-	(260,000)	5,866,881
Total			$ 36,785,713	$ -	$ (1,770,000)	$ 35,015,713

Compensated Absences—The Authority records the value of compensated absences in the government wide financial statements. The liability for compensated absences consists of unpaid accumulated annual sick and vacation time. The liability has been calculated using the vesting method, in which leave amounts for both employees currently eligible to receive payments and other employees expected to become eligible in the future to receive such payments are included. The annual budgets of the operating funds provide for these benefits as they become due. At June 30, 2020, compensated absences amounted to $1,104,464, of which $55,223 is considered short-term.

OPEB Obligation—As explained in Note 7, the Authority provides health care benefits for retirees, spouses, and their covered dependents. Such postemployment benefits are an included value in the exchange of salaries and benefits for services rendered. An employee's total compensation package includes not only the salaries and benefits received during service, but all compensation and benefits received for their services during postemployment. The Authority's annual OPEB cost is measured as the portion of the present value of projected benefit payments to be provided to current active and inactive employees that is attributed to those employees' past periods of service (total OPEB liability), less the amount of the OPEB plan's fiduciary net position. The estimated long-term OPEB obligation is estimated to be $81,502,059 at June 30, 2020.

Judgments and Claims—As explained in Note 8, judgments and claims represents workers' compensation and general liability claims incurred. The value of the liability within the government-wide statements at June 30, 2020 is $1,566,127, with $78,306 representing the estimated amount due within one year.

Net Pension Liability—The Authority reported a liability, $11,256,816, for its proportionate share of the net pension liability for the Employee Retirement System. Refer to Note 6 for additional information related to the Authority's net pension liability.

The maturity schedule of the Authority's indebtedness is presented below:

Year Ending June 30,	Bonds Payable	Compensated Absences*	OPEB Obligation	Judgments and Claims*	Net Pension Liability	Total
2021	$ 1,810,000	$ 55,223	$ -	$ 78,306	$ -	$ 1,943,529
2022	1,865,000	-	-	-	-	1,865,000
2023	1,915,000	-	-	-	-	1,915,000
2024	1,960,000	-	-	-	-	1,960,000
2025	2,015,000	-	-	-	-	2,015,000
2026-2030	10,965,000	-	-	-	-	10,965,000
2031-2035	10,058,832	-	-	-	-	10,058,832
2036-2040	2,566,881	-	-	-	-	2,566,881
2041-2045	1,860,000	-	-	-	-	1,860,000
Various	-	1,049,241	81,502,059	1,487,821	11,256,816	95,295,937
	$ 35,015,713	$ 1,104,464	$ 81,502,059	$ 1,566,127	$ 11,256,816	$ 130,445,179

The General Fund typically has been used to liquidate the liability for compensated absences, OPEB obligation, judgments and claims, and net pension liability.

*Payment of compensated absences and judgments and claims are dependent upon many factors, therefore, timing of future payments is not readily determinable. However, management has estimated its current portion of such liabilities.

Interest requirements on serial bonds payable are as follows:

Year Ended June 30,	Interest
2021	$ 1,597,147
2022	1,520,339
2023	1,439,322
2024	1,354,904
2025	1,267,327
2026-2030	4,888,636
2031-2035	2,017,425
2036-2040	614,122
2041-2045	238,876
	$ 14,938,098

Defeased Debt—The Authority defeased certain bonds by placing the proceeds of new bonds in an irrevocable trust to provide for all future debt service payments on the old bonds. In each instance, the principal amount of the replacement bonds was equivalent to the amount outstanding of the old bonds at the time of issuance. Accordingly, the trust account assets and the liability for the defeased bonds are not included in the Authority's financial statements. Principal balances of bonds outstanding at June 30, 2020 that are considered defeased include:

Series H	$ 15,850,000
Series J	3,988,126
Series K	2,764,142
Series L	5,886,881
Total	$ 28,489,149

11. NET POSITION AND FUND BALANCE

The government-wide financial statements utilize a net position presentation. Net position is categorized as net investment in capital assets, restricted and unrestricted.

- ***Net Investment in Capital Assets***—This category groups all capital assets, including infrastructure, into one component of net position. Accumulated depreciation and the outstanding balances of debt that are attributable to the acquisition, construct or improvement of these assets reduce the balance in this category. The following presents a reconciliation of capital assets (net of accumulated depreciation), net of total bonded indebtedness to net investments in capital assets:

Capital assets, net of accumulated depreciation		$ 333,077,762
Less:	Outstanding bonds payable issued for capital acquisition	(35,015,713)
	EFC note payable	(12,321,063)
Add:	Remaining debt reserve from issuance not used for capital asset acquisition	4,352,946
Net investment in capital assets		$ 290,093,932

- ***Restricted Net Position***—This category represents external restrictions imposed by creditors, grantors, contributors, or laws and regulations of other governments and restrictions imposed by law through constitutional provisions or enabling legislation. The Authority does not report restricted net position.

- ***Unrestricted Net Position***—This category represents net position of the Authority not restricted for any project or other purpose.

In the fund financial statements, nonspendable amounts represent net current financial resources that cannot be spent because they are either not in spendable form or legally or contractually required to be maintained intact. Nonspendable fund balance maintained by Authority at June 30, 2020 includes:

- ***Prepaid Items***—Representing the portion of fund balance, $179,925 composed of prepaid expenditures. This balance is nonspendable as the balance does not represent an available resource.

In the fund financial statements, restricted fund balance are amounts constrainted to specific purposes (such as grants, bondholders, and higher levels of government) through constitutional provisions or by enabling legislation. Restricted fund balance amounts are approved by the Board that will be placed in legal reserves (and thereby restricted), but at the end of the fiscal year the dollar amount is unknown. As such, the General Manager is authorized by the Board to establish a funding plan with specific dollar amounts to be determined subsequent to the Authority's fiscal year end. The amounts must be approved by the majority vote of the Board prior to the release of the audited financial statements. Restrictions of the Authority at June 30, 2020 include:

- ***Restricted for Debt Service***—Represents resources, $4,352,946, that have been legally restricted for principal and interest payments that will be made in future periods.

In the fund financial statements, commitments are amounts that are subject to a purpose constraint imposed by a resolution of the Authority's Board, which is considered a formal action of the Authority's highest level of decision-making authority. Fund balances are committed by the Chair of the Board and approved by the Board; however, at the end of the fiscal year the dollar amount is unknown. As such, with the exception of committed to encumbrances, the amounts are to be determined by the General Manager based upon the amounts available, the planned projects and other financing sources. Commitments of the Authority at June 30, 2020 include:

- ***Committed to encumbrances***—Represents resources to cover the amount of outstanding purchase orders or encumbrances related to unperformed (executory) contracts for goods and services. At June 30, 2020, the Authority has $10,227,970 and $15,890,665 of fund balance committed to encumbrances within its General Fund and General Projects Fund, respectively.

- ***Committed to loss contingencies***—Representing funds, $3,000,000, accumulated for noninsured liability and casualty losses within the General Fund.

- ***Committed to capital projects***—Representing funds set aside for the centrifuge project, incinerator rehabilitation, sewer relining and various other improvements. The Authority's five-year capital plan requires future financing. Management anticipates financing the aforementioned plan through the current designation, future contributions from operations and/or debt financing. At June 30, 2020, the Authority has $8,319,854 and $24,331,207 of fund balance committed to capital projects within its General Fund and General Projects Fund, respectively.

In the fund financial statements, assignments are amounts that are subject to a purpose constraint that represents an intended use established by the Board, or by their designated body or official. The Board has authorized the General Manager to make a determination of the assigned amounts of fund balance. The purpose of the assignment must be narrower than the purpose of the General Fund, and in funds other than the General Fund, assigned fund balance represents the residual amount of fund balance. As of June 30, 2020, the Authority did not report any assigned fund balance.

Unassigned fund balance represents General Fund amounts that are available for any purpose. The Authority's target is to maintain an unassigned fund balance of not less than 15% of annual operating expenditures excluding transfers, for the fiscal year.

If the Authority must use funds for emergency expenditures the Board shall authorize the Chair of the Board to expend funds first from funds classified under GASB as nonspendable (if funds become available) then restricted funds. The use of committed and assigned funds as classified by GASB will occur after the exhaustion of available restricted funds. Finally, if no other fund balances are available, the Authority will use unassigned fund balance.

12. INTERFUND RECEIVABLES, PAYABLES AND TRANSFERS

Interfund receivables and payables are short-term in nature and exist because of temporary advances or payments made on behalf of other funds. The composition of interfund balances as of June 30, 2020 is as follows:

	Interfund	
	Receivable	Payable
Governmental funds:		
General Fund	$ 8,209	$ 13,275,656
General Projects Fund	13,275,656	8,209
Total governmental funds	$ 13,283,865	$ 13,283,865

These outstanding balances between funds result from payments made on behalf of other funds, interest accruals within certain funds that are payable to other funds, or temporary advances. All of these balances are expected to be collected/paid within the subsequent year.

	Transfers in:			
Fund	General Fund	General Projects Fund	Debt Service Fund	Total
Transfers out:				
General Fund	$ -	$ 13,275,656	$ 3,440,332	$ 16,715,988
Debt Service Fund	109,039	-	-	109,039
Total	$ 109,039	$ 13,275,656	$ 3,440,332	$ 16,825,027

Transfers are routine annual events for both the budget and accounting process and are necessary to present funds in their proper fund classification or to comply with debt covenants, the release of debt reserves, the payment of debt, and to fund capital projects.

13. AGENCY FUND

An agency fund exists to account for funds held from bankruptcies. The following is a summary of changes in assets and liabilities for the fiscal year ended June 30, 2020:

	Balance 7/1/2019	Increases	Decreases	Balance 6/30/2020
ASSETS				
Restricted cash and cash equivalents	$ 4,458	$ 3,197	$ 1,909	$ 5,746
Total assets	$ 4,458	$ 3,197	$ 1,909	$ 5,746
LIABILITIES				
Bankruptcy funds held	$ 4,458	$ 8,817	$ 7,529	$ 5,746
Total liabilities	$ 4,458	$ 8,817	$ 7,529	$ 5,746

14. LABOR RELATIONS

Authority employees are represented by two bargaining units. The CWA contract and the CSEA contract have been negotiated through June 30, 2022.

15. COMMITMENTS

***Encumbrances*—**Encumbrances are commitments related to unperformed (executory) contracts for goods or services (i.e., purchase orders, contracts, and commitments). Encumbrance accounting is utilized to the extent necessary to assure effective budgetary control and accountability and to facilitate effective cash planning and control. While all appropriations and encumbrances lapse at year end, valid outstanding encumbrances (those for which performance under the executory contract is expended in the next year) are re-appropriated and become part of the subsequent year's budget pursuant to state regulations.

The Authority considers encumbrances significant if they are in excess of $400,000. As of June 30, 2020, the Authority reported the following significant encumbrances:

General Fund:	
Utilities	$ 3,474,271
General Projects Fund:	
Streetwide improvements	$ 3,042,950
Sewer improvements	3,234,261
Sewer cleaning inspections	1,708,153
Utilities	1,749,829
Consulting services	1,109,424

16. CONTINGENCIES

Litigation—The Authority is involved in various litigation arising in the ordinary course of its operations. Based on consultation with its Law Department and Counsel, it is the opinion of the Authority that the settlement of such pending litigation, if any, is adequately provided for with amounts accumulated in the designation for loss contingencies.

Pollution Remediation Obligations—On March 18, 2014, the Authority's Long Term Control Plan to reduce the amount of sewage and storm-water run-off that flow from the City's combined sewer system was approved by the U.S. Environmental Protection Agency and the New York State Department of Environmental Conservation. The Authority has committed to investing $380 million on these projects over 20 years. The Authority plans to fund these projects with committed fund balance and long-term financing, therefore, will record a liability when such financing is obtained.

Grants—In the normal course of operations, the Authority receives grant funds from various Federal and State agencies. These grant programs are subject to audit by agents of the granting authority, the purpose of which is to ensure compliance with conditions precedent to the granting of funds. Any disallowed expenditures resulting from such audits could become a liability of the governmental funds. The amount of disallowance, if any, cannot be determined at this time, although the Authority expects any such amount to be immaterial.

17. SUBSEQUENT EVENTS

Management has evaluated subsequent events through September 30, 2020, which is the date the financial statements are available for issuance, and have determined that there are no subsequent events that require disclosure under generally accepted accounting principles.

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REQUIRED SUPPLEMENTARY INFORMATION

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BUFFALO SEWER AUTHORITY
Schedule of the Authority's Proportionate Share of the Net Pension Liability—Employees' Retirement System
Last Seven Fiscal Years*

	Year Ended June 30,						
	2020	2019	2018	2017	2016	2015	2014
Measurement date	March 31, 2020	March 31, 2019	March 31, 2018	March 31, 2017	March 31, 2016	March 31, 2015	March 31, 2014
Authority's proportion of the net pension liability	0.0425097%	0.0399819%	0.0410190%	0.0363879%	0.0352092%	0.0335492%	0.0335492%
Authority's proportionate share of the net pension liability	$ 11,256,816	$ 2,832,840	$ 1,323,865	$ 3,419,086	$ 5,651,170	$ 1,133,375	$ 1,516,043
Authority's covered payroll	12,306,995	11,621,785	11,083,532	11,382,495	10,139,681	9,405,983	9,457,414
Authority's proportionate share of the net pension liability as a percentage of its covered payroll	91.5%	24.4%	11.9%	30.0%	55.7%	12.0%	16.0%
Plan fiduciary net position as a percentage of the total net pension liability	86.4%	96.3%	98.2%	94.7%	90.7%	97.9%	97.2%

*Information prior to the year ended June 30, 2014 is not available

BUFFALO SEWER AUTHORITY
Schedule of Authority's Contributions—
Employees' Retirement System
Last Seven Fiscal Years*

	Year Ended June 30,						
	2020	2019	2018	2017	2016	2015	2014
Contractually required contribution	$ 1,571,827	$ 1,534,250	$ 1,607,903	$ 1,536,673	$ 1,589,974	$ 1,743,330	$ 1,926,571
Contributions in relation to the contractually required contribution	(1,571,827)	(1,534,250)	(1,607,903)	(1,536,673)	(1,589,974)	(1,743,330)	(1,926,571)
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Authority's covered payroll	$ 12,654,706	$ 11,734,497	$ 11,548,410	$ 11,255,586	$ 10,255,506	$ 6,857,982	$ 9,825,683
Contributions as a percentage of covered payroll	12.4%	13.1%	13.9%	13.7%	15.5%	25.4%	19.6%

*Information prior to the year ended June 30, 2014 is not available.

BUFFALO SEWER AUTHORITY
Schedule of Changes in the Authority's Total OPEB Liability and Related Ratios
Last Four Fiscal Years*

	Year Ended June 30,			
Total OPEB Liability	2020	2019	2018	2017
Service cost	$ 1,512,328	$ 1,473,888	$ 1,462,603	$ 1,390,270
Interest	2,876,990	3,236,846	3,205,497	2,640,860
Difference between expected and actual experience	(18,829,962)	(17,231,443)	1,170,482	9,438,760
Changes of assumptions	13,821,608	9,346,819	2,772,815	(4,841,128)
Benefit payments	(2,894,460)	(3,314,543)	(3,177,531)	(2,966,529)
Net changes in total OPEB liability	(3,513,496)	(6,488,433)	5,433,866	5,662,233
Total OPEB liability—beginning	85,015,555	91,503,988	86,070,122	80,407,889
Total OPEB liability—ending	$ 81,502,059	$ 85,015,555	$ 91,503,988	$ 86,070,122
Plan fiduciary net position				
Contributions—employer	$ 2,894,460	$ 3,314,543	$ 3,177,531	$ 2,966,529
Benefit payments	(2,894,460)	(3,314,543)	(3,177,531)	(2,966,529)
Net change in plan fiduciary net position	-	-	-	-
Plan fiduciary net position—beginning	-	-	-	-
Plan fiduciary net position—ending	$ -	$ -	$ -	$ -
Authority's net OPEB liability—ending	$ 81,502,059	$ 85,015,555	$ 91,503,988	$ 86,070,122
Plan's fiduciary net position as a percentage of the total OPEB liability	0.0%	0.0%	0.0%	0.0%
Covered-employee payroll	$ 12,403,132	$ 12,016,210	$ 7,681,522	$ 7,681,522
Authority's net OPEB liability as a percentage of covered employee payroll	657.11%	707.51%	1191.22%	1120.48%

*Information prior to the year ended June 30, 2017 is not available.

The notes to the Required Supplementary Information are an integral part of this schedule.

BUFFALO SEWER AUTHORITY
Schedule of Revenues, Expenditures, and Changes in Fund Balances—Budget and Actual (Non-GAAP Budgetary Basis)—General Fund
Year Ended June 30, 2020

	Budgeted Amounts		Budgetary	Variance with
	Original	Final	Actual	Final Budget
REVENUES				
Sewer rents—general consumers	$ 53,692,600	$ 53,692,600	$ 50,251,558	$ (3,441,042)
Interest on delinquent sewer rents	1,010,000	1,010,000	831,973	(178,027)
Interest on investments	1,966,918	1,966,918	1,961,380	(5,538)
Miscellaneous	1,247,400	1,247,400	1,781,986	534,586
Total revenues	57,916,918	57,916,918	54,826,897	(3,090,021)
EXPENDITURES				
Current:				
General administration	1,955,958	2,134,484	1,981,768	152,716
Wastewater treatment facilities	29,879,389	34,762,462	27,693,166	7,069,296
Industrial waste	750,696	936,819	861,544	75,275
Engineering	1,609,050	1,638,997	1,207,440	431,557
Sewer maintenance	5,042,080	5,307,707	4,225,991	1,081,716
Miscellaneous	7,407,254	7,444,374	4,027,846	3,416,528
Employee benefits	12,454,062	13,499,365	11,398,612	2,100,753
Total expenditures	59,098,489	65,724,208	51,396,367	14,327,841
Excess of revenues over expenditures	(1,181,571)	(7,807,290)	3,430,530	11,237,820
OTHER FINANCING SOURCES (USES)				
Transfers in	33,082	42,633	109,039	66,406
Transfers out	(5,106,382)	(21,132,067)	(16,715,988)	4,416,079
Total other financing sources (uses)	(5,073,300)	(21,089,434)	(16,606,949)	4,482,485
Net change in fund balances*	(6,254,871)	(28,896,724)	(13,176,419)	15,720,305
Fund balances—beginning	34,676,198	34,676,198	34,676,198	-
Fund balances—ending	$ 28,421,327	$ 5,779,474	$ 21,499,779	$ 15,720,305

* The net change in fund balance was included as a re-appropriation of prior year encumbrances.

The notes to the Required Supplementary Information are an integral part of this schedule.

1. OPEB LIABILITY

Changes of Assumptions—Changes of assumptions reflect the effects of changes in the long-term bond rate, the mortality rate, and the healthcare cost trend rate. The long-term bond rate is based on the Fidelity Municipal Go AA 20-Year Bond rate as of the measurement date with a rate of 2.48% for the year ended June 30, 2020, a change from 3.44% for the year ended June 30, 2019. Mortality rates effective June 30, 2020 were updated to rates based on the Pub-2010 Public Retirement Plans Mortality Tables, Headcount-weighted for General employees, without separate Contingent Survivor mortality, fully generational using scale MP-2019. Finally, the healthcare cost trend rate effective June 30, 2020 is 5.20%, while the ultimate healthcare cost trend rate is 4.18%.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Budgetary Basis of Accounting—An annual budget is adopted on a basis of consistent with generally accepted accounting principles for the General Fund. The General Projects Fund is appropriated on a project-length basis. No formal annual budget is adopted for the Debt Service Fund as it is maintained based on debt schedules.

The appropriated budget is prepared by fund, function, department, and object. The Authority's department heads may make transfers of appropriations within a department. Transfers of appropriations between departments require the approval of the Board. The legal level of budgetary control (i.e., the level at which expenditures may not legally exceed appropriations) is the department level.

Appropriations in all budgeted funds lapse at the end of the fiscal year even if they have related encumbrances. Encumbrances are commitments related to unperformed (executory) contracts for goods or services (i.e. purchase orders, contracts, and commitments). Encumbrance accounting utilized to the extent necessary to assure effective budgetary control and accountability and to facilitate effective cash planning and control. While all appropriations and encumbrances lapse at year end, valid outstanding encumbrances (those for which performance under the executory contract is expended in the next year) are re-appropriated and become part of the subsequent year's budget pursuant to state regulations. Under this method, encumbrances outstanding at year-end are reported as commitments of fund balances since they do not constitute expenditures or liabilities. A reconciliation of General Fund fund balance on the GAAP basis to the non-GAAP budgetary basis is shown below.

General Fund fund balance—GAAP basis	$ 31,727,749
Less: Encumbrances	(10,227,970)
General Fund fund balance—Non-GAAP budgetary basis	$ 21,499,779

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SUPPLEMENTARY INFORMATION

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BUFFALO SEWER AUTHORITY
Schedule of Investments
Year Ended June 30, 2020

Annual Investment Report - §2925(6) of Public Authorities Law of the State of New York requires that each public authority must annually prepare an investment report which shall include (a) investment guidelines, (b) amendments to such guidelines since the last investment report, (c) an explanation of the investment guidelines and amendments, (d) results of the annual independent audit, (e) the investment income record of the corporation, and (f) a list of the total fees, commissions or other charges paid to each investment banker, broker, dealer and adviser rendering investment associated services to the Authority since the last investment report.

a. Investment guidelines—The Authority's investment policies are governed by State statutes. All investments are maintained in bank deposit accounts which are federally insured. The Authority's deposits are held at quality institutions.

b. Amendments to guidelines—None.

c. Explanation of guidelines and investments—These guidelines restrict investment of the Authority's funds to deposits in federally insured banks. The Authority has not made any amendments to its investment policy.

d. Results of the annual independent audit—The independent auditors have issued an unmodified opinion on the Authority's financial statements for the year ended June 30, 2020.

e. Investment income record—Investment income for the year ended June 30, 2020 consisted of:

General Fund:	
Interest earnings	$ 1,961,380
Total General Fund income	1,961,380
General Projects Fund:	
Unrealized (loss)	(205,080)
Total General Projects Fund income	(205,080)
Debt Service Fund:	
Interest earnings	109,046
Total Debt Service Fund income	109,046
Total cash and investments income	$ 1,865,346

f. List of the total fees, commissions or other charges paid to each investment banker, broker, dealer and adviser rendering investment associated services to the Agency since the last investment report—Trustee fees totaling $7,500 were paid to M&T Bank during the year ended June 30, 2020.

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FEDERAL AWARDS INFORMATION

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BUFFALO SEWER AUTHORITY
Schedule of Expenditures of Federal Awards
Year Ended June 30, 2020

Federal Grantor/Pass-Through Grantor/Program Cluster Title (1a)	Federal CFDA Number (1b)	Pass-Through Entity's Identifying Number (1c)	Passed Through to Sub-Recipients	Total Federal Expenditures (1d)
U.S. ENVIRONMENTAL PROTECTION AGENCY:				
Passed through NYS Environmental Facilities Corporation:				
Capitalization Grant/Loans for Clean Water State Revolving Funds	66.458	CWSRF 36000115	$ -	$ 3,015,723
Great Lakes Program	66.469	N/A	-	400,000
TOTAL U.S. ENVIRONMENTAL PROTECTION AGENCY			-	3,415,723
TOTAL EXPENDITURES OF FEDERAL AWARDS (1e)			$ -	$ 3,415,723

The notes to the schedule of expenditures of federal awards are an integral part of this schedule.

BUFFALO SEWER AUTHORITY
Notes to the Schedule of Expenditures of Federal Awards
Year Ended June 30, 2019

1. BASIS OF PRESENTATION

The accompanying schedule of expenditures of federal awards (the "Schedule") includes the federal grant activity of the Buffalo Sewer Authority (the "Authority") under programs of the federal government for the year ended June 30, 2020. The information in this Schedule is presented in accordance with the requirements of Title 2 U.S. Code of Federal Regulations ("CFR") Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* ("Uniform Guidance"). Because the Schedule presents only a selected portion of the operations of the Authority, it is not intended to and does not present the financial position or changes in net position of the Authority. The following notes were identified on the schedule of expenditures of federal awards:

(a) Includes all federal award programs of the Buffalo Sewer Authority.

(b) Source: Catalog of Federal Domestic Assistance.

(c) Pass-through entity identifying numbers are presented where available.

(d) Prepared under accounting principles generally accepted in the United States of America and includes all federal award programs.

(e) A reconciliation to the financial statements is available.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Expenditures reported on the Schedule are reported on the modified accrual basis of accounting. Such expenditures are recognized following the cost principles contained in the Uniform Guidance, wherein certain types of expenditures are not allowable or limited as to reimbursement. Pass-through entity identifying numbers are presented where available. The Authority has not elected to use the 10 percent de minimus indirect cost rate, as allowed under the Uniform Guidance.

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Certified Public Accountants

INDEPENDENT AUDITORS' REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH *GOVERNMENT AUDITING STANDARDS*

To the General Manager and Members
of the Buffalo Sewer Authority Board
Buffalo, New York

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards,* issued by the Comptroller General of the United States, the financial statements of the governmental activities, each major fund, and the aggregate remaining fund information of the Buffalo Sewer Authority, (the "Authority") as of and for the year ended June 30, 2020, and the related notes to the financial statements, which collectively comprise the Authority's basic financial statements, and have issued our report thereon dated September 30, 2020.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the Authority's internal control over financial reporting ("internal control") to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control. Accordingly, we do not express an opinion on the effectiveness of the Authority's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

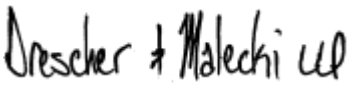
Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Authority's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards.*

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.



September 30, 2020

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Certified Public Accountants

INDEPENDENT AUDITORS' REPORT ON COMPLIANCE FOR EACH MAJOR FEDERAL PROGRAM AND REPORT ON INTERNAL CONTROL OVER COMPLIANCE IN ACCORDANCE WITH THE UNIFORM GUIDANCE

To the General Manager and Members
of the Buffalo Sewer Authority Board
Buffalo, New York

Report on Compliance for Each Major Federal Program

We have audited the Buffalo Sewer Authority's (the "Authority") compliance with the types of compliance requirements described in the Office of Management and Budget ("OMB") *Compliance Supplement* that could have a direct and material effect on each of the Authority's major federal programs for the year ended June 30, 2020. The Authority's major federal programs are identified in the summary of auditors' results section of the accompanying schedule of findings and questioned costs.

Management's Responsibility

The Authority's management is responsible for compliance with federal statutes, regulations, and the terms and conditions of its federal awards applicable to its federal programs.

Auditors' Responsibility

Our responsibility is to express an opinion on compliance for each of the Authority's major federal programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. Code of Federal Regulations (CFR) Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* ("Uniform Guidance"). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the Authority's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the Authority's compliance.

Opinion on Each Major Federal Program

In our opinion, the Authority complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended June 30, 2020.

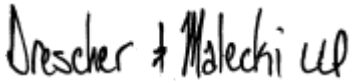
Report on Internal Control Over Compliance

Management of the Authority is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the Authority's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the Authority's internal control over compliance.

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that were not identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.



September 30, 2020

BUFFALO SEWER AUTHORITY
Schedule of Findings and Questioned Costs
Year Ended June 30, 2020

Section I. SUMMARY OF AUDITORS' RESULTS

Financial Statements:

Type of report the auditor issued:		Unmodified
Internal control over financial reporting:		
Material weakness(es) identified?	____ Yes	✓ No
Significant deficiency(ies) identified?	____ Yes	✓ None reported
Noncompliance material to the financial statements noted?	____ Yes	✓ No

Federal Awards:

Internal control over major federal programs:		
Material weakness(es) identified?	____ Yes	✓ No
Significant deficiency(ies) identified?	____ Yes	✓ None reported
Type of auditors' report issued on compliance for major federal programs:		Unmodified
Any audit findings disclosed that are required to be reported in accordance with 2 CFR 200.516(a)?	____ Yes	✓ No

Identification of major federal programs:

CFDA Number	Name of Federal Program or Cluster
66.458	Capitalization Grant/Loans for Clean Water State Revolving Funds

Dollar threshold used to distinguish between Type A and Type B programs?		$ 750,000
Auditee qualified as low-risk auditee?	✓ Yes	____ No

Section II. FINANCIAL STATEMENT FINDINGS

No findings noted.

Section III. FEDERAL AWARD FINDINGS AND QUESTIONED COSTS

No findings noted.

BUFFALO SEWER AUTHORITY
Summary Schedule of Prior Year Audit Findings
Year Ended June 30, 2020
(Follow-up on June 30, 2019 Findings)

No findings noted.

Buffalo Sewer Authority

Environmental Impact Bond (EIB)
Technical Memorandum

Date: May 25, 2021

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Definitions

The following definitions are used in this Technical Memorandum:

- "Acres of Impervious Surface Managed": The number of acres of impervious surface that are managed by the Authority through installation of Green Infrastructure, as measured pursuant to Section 4 of the NYSDEC Conservation Stormwater Design Manual. Note that, as a measurement of capacity, "Acres of Impervious Surface Managed" represents a proxy measurement of the *Rain Check* Projects' contribution to the Authority's improved resilience profile rather than a prediction of the cumulative amount of water infiltrated in and captured by the implemented Green Infrastructure projects in any given year.
- "Annual Report": A report delivered by a third party licensed engineering firm to the Authority at the end of each year that contains the aggregated measurement of the Primary Outcome Metric for each Green Infrastructure project.
- "Authority": The Buffalo Sewer Authority.
- "Bond Resolution": the "Amended and Restated Sewer System Revenue Bond Resolution" of the Authority, duly adopted by the Authority on May 26, 2021 (the "General Bond Resolution"), as supplemented by the "Supplemental Sewer System Revenue Bond Resolution, Series 2021," duly adopted by the Authority on May 26, 2021 (the "Supplemental Resolution)."
- "Buffalo Sewer EIB": The Authority's Sewer System Environmental Impact Revenue Bonds, Series 2021A (Green Bonds).
- "Contractor": A firm engaged by the Authority to construct a Green Infrastructure project pursuant to the Authority's *Rain Check* Project Initiative.
- "Environmental Impact Bond" or "EIB": A debt instrument characterized by an evaluation and disclosure of project outcomes, as well as, in some cases, performance payments, or other rate or term adjustments contingent on the measured outcomes being above or below predetermined thresholds.
- "Environmental, Social, and Corporate Governance" or "ESG": Non-financial characteristics of an organization or its projects, issuance, or security that may inform financial or investment decisions based on an issuer's transparency and environmental and social impact. Examples include contributions to climate change adaptation or mitigation or addressing social or economic injustice.
- "Evaluation Period": The period of time during which the Validator will conduct its measurement and analysis of the Primary Outcome Metric for all Green Infrastructure projects undertaken as part of the *Rain Check* Project.
- "Final Report": A report delivered by the Validator to the Authority at the end of the Evaluation Period that contains the aggregated measurement and analysis of the Primary Outcome Metric for all completed Green Infrastructure projects undertaken as part of the *Rain Check* Project.
- "Green infrastructure": Practices that remove stormwater from the sewer system by storing, diverting, or infiltrating it on site. Green infrastructure practices include vegetated practices, such as bio-swales and tree plantings; non-vegetated practices, such as cisterns and permeable pavement; and impervious surface removal.

- "International Capital Market Association Green Bond Principles (ICMA GBP)" or "Green Bond Principles": Voluntary guidelines promulgated by the International Capital Market Association to promote standardization, transparency, and integrity in the issuance of green bond.
- "Investor(s)": Investor(s), Lender(s), or Institution(s) who purchase the Buffalo Sewer EIB from the Authority.
- "NYSDEC Stormwater Design Manual:" A manual published by the New York State Department of Environmental Conservation (NYSDEC) that specifies design requirements for stormwater management.
- "Outcomes": The various anticipated impacts of the *Rain Check* Projects, such as stormwater management through Green Infrastructure. The Outcomes are discussed in more detail in Section 4 hereof.
- "Outcome Threshold" or "Threshold": The specific value of the Primary Outcome Metric that triggers the outcomes-based mechanism of an EIB, if included.
- "Primary Outcome Metric": The project outcome chosen for measurement as part of the EIB transaction. In the case of the Buffalo Sewer EIB, the Primary Outcome Metric is Acres of Impervious Surface Managed, aggregated across all *Rain Check* Projects.
- *"Rain Check 2.0"*: a City-wide initiative led by the Authority to install Green Infrastructure in order to manage the flow of excess stormwater and sewer runoff. *Rain Check 2.0* is the most recent iteration (initiated in 2019) of the original *Rain Check* initiative *Rain Check 1.0*, which was the Authority's first generation of Green Infrastructure investments, active from 2014 to 2018.
- "*Rain Check* Projects": Green Infrastructure projects implemented pursuant to the *Rain Check* initiative with proceeds of the Buffalo Sewer EIB, including public projects implemented in the right of way by the Authority.
- "United Nations Sustainable Development Goals" or "UN SDGs": A set of 17 goals articulated by the United Nations that address shared global challenges and form "the blueprint to achieve a better and more sustainable future for all."
- "Validator": Third-party independent entity that will inspect each Green Infrastructure project site and perform spot check measurements to determine the achievement of the Primary Outcome Metric. The Authority has selected the firm Arcadis as the Validator.

1. Introduction

1.1 Purpose of this Technical Memorandum

The purpose of this document is to describe the *Rain Check* Projects financed with proceeds of the Buffalo Sewer EIB, their goals and anticipated outcomes, the methodology behind pre-construction estimation and post-construction evaluation of the Primary Outcome Metric, and associated disclosure.

1.2 Environmental Impact Bond Overview

EIBs take the form of a municipal bond issuance in which purchasers receive principal and interest as is the case with a traditional municipal bond issuance. However, an EIB is also characterized by three key features:

1. *Use of proceeds for environmentally and socially beneficial projects:* Projects chosen to be financed through EIBs must have environmental and social benefits that can be articulated and quantified. The projects are often consistent with well-known "green bond" guidelines such as the "Green Bond Principles" promulgated by the International Capital Market Association ("ICMA") in June 2018.[1] The *Rain Check* Projects to be financed with proceeds of the Buffalo Sewer EIB are nature-based climate change adaptation Green Infrastructure projects intended to provide stormwater management, water quality improvement, and combined sewer overflow ("CSO") reduction.

2. *Outcome evaluation and disclosure*: Each EIB offering specifies one or more measurable outcomes from financed projects that will be quantified and disclosed to investors. In the case of the Buffalo Sewer EIB, the measured outcome(s) have a link to the *Rain Check* Projects' overall environmental and/or social goals. For the Buffalo Sewer EIB, the Primary Outcome Metric is the number of Acres of Impervious Surface Managed through Green Infrastructure, with individual metrics of number of acres managed through vegetated versus non-vegetated stormwater practices. While other EIBs have focused on measuring volume capture or storage capacity, the metric of Acres of Impervious Surface Managed aligns with the Authority's goals as described in its Long Term Control Plan (LTCP), and is linked to the projects' ability to manage stormwater and reduce CSO events.

3. *Outcomes-based mechanism*: The outcomes-based feature of an EIB, such as an additional performance payment, coupon rate step-down/step-up, or call option, if included, is triggered when project outcomes are measured above or below, as the case may be, pre-determined thresholds. The approach used in this Buffalo Sewer EIB includes an option for the Authority to call at par, and refinance or retire, the Buffalo Sewer EIB in Year 7 or later, should the Authority meet its specified Outcome Threshold (or call at a higher price in Years 7-10 if the Outcome Threshold is not met per the schedule outlined in the Official Statement).[2] This metric will be verified by the Validator through as-built surveys, and thus investors are paid interest on the Buffalo Sewer EIB at predetermined rates based on the results of the Validator's measurement and analysis.

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[1] https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Green-Bonds-Principles-June-2018-270520.pdf

[2] Note that if the Primary Outcome Metric has not been satisfied at the time the Authority may still exercise its option to redeem the Series 2021 Bonds, at a premium.

1.3 Buffalo Sewer EIB Structure

In support of the Authority's *Rain Check 2.0* initiative, proceeds of the Buffalo Sewer EIB will finance the construction of *Rain Check* Projects that shall consist of Green Infrastructure projects that are designed to capture stormwater, reduce combined sewer overflows, and create resilience and community benefits for the City of Buffalo. The Authority is interested in the Acres of Impervious Surface Managed as well as community enhancement and other climate resilience benefits that these *Rain Check* Projects are designed and projected to achieve. Achievement of these objectives will demonstrate the Authority's progress toward stormwater management goals, articulate their vision around building a greener and more equitable City, and aid in future planning and funding efforts to achieve that vision. Demonstrating this progress also provides greater transparency to the Authority's ratepayers, enabling them to track impact and ensure accountability. The Buffalo Sewer EIB will feature an Outcome Threshold that enables the Authority to call the bond at par in the event that the Authority meets or exceeds its goals for Acres of Impervious Surface Managed through the *Rain Check* Projects. A portion of the Buffalo Sewer EIB will be issued as a step coupon bond, with specified fixed rates that increase over time. These rate increases can be avoided by exercising the outcomes-based call option, with the successful achievement of the Outcome Threshold enabling the Authority to redeem the EIB at par prior to these increases in coupon rates. The Official Statement includes more detail on the overall structure and optional redemption. The Authority will be the first issuer in the U.S. to use an outcomes-based call feature, connecting its ability to call the Buffalo Sewer EIB at par with its performance on the Outcome Threshold. These goals and the outcomes-based call structure are discussed in greater detail in Sections 5 and 8 of this document.

2. Description of *Rain Check 2.0*

2.1 Background

Mitigating combined sewer overflows (CSOs) is a central goal of the Authority's *Rain Check 2.0* program. Combined sewers were designed to convey both sewage and stormwater through the same sewer collection system. In dry weather, sewage can successfully flow through the combined sewer collection system and be treated by a wastewater treatment plant before release into the Niagara River.

However, during moderate or severe precipitation events, both stormwater and sewage flow through sewer pipes, which are designed to overflow through outfalls along the Niagara River and Lake Erie, as well as other local water bodies. Construction of Green Infrastructure – which relies on nature-based and permeable materials to capture and store stormwater on-site – enables the Authority to capture more stormwater before it enters the combined sewer collection system. These nature-based solutions are complementary to gray infrastructure, such as added capacity at the treatment facility or additional interceptors to manage stormwater by storing and conveying such stormwater to the treatment facility prior to its release into the rivers and lakes that surround Buffalo. Both green and gray solutions together will increase Buffalo's capacity to reduce the flow of stormwater that enters its combined sewer collection pipes and minimize the frequency and severity of combined sewer overflow events into local waterways. The Authority's

Long-Term Control Plan (2014) (the "LTCP") describes the specific steps the Authority will take to comply with federal Clean Water Act requirements and includes a substantial Green Infrastructure component as part of a holistic plan to manage stormwater. *Rain Check 2.0* is a material part of the Authority's effort to build on that success by increasing the pace of implementing the Green Infrastructure requirements of the Authority's LTCP, which will frontload the environmental benefits of Green Infrastructure in removing sewage, suspended solids, nitrogen, and phosphorus from the runoff entering Buffalo's waterways.

While stormwater management is an immediate concern due to the combined design of the Authority's sewer system, the Authority anticipates challenges with respect to stormwater to grow into the future due to the changing climatic conditions that are projected. Projected additional precipitation, with up to four more inches on average annually projected by mid-century and up to seven inches on average annually projected by the end of the century, will likely increase the risk of flooding and put additional strain on the Authority's current stormwater infrastructure.[3] Green infrastructure can mitigate the impacts of heavy rainfall events while providing other resilience benefits, such as mitigation of urban heat island effects – heat stress and high temperatures caused by built environments absorbing and re-emitting more heat than natural components of the landscape, like vegetation.[4] In the future, the Authority expects Green Infrastructure to be critical to helping the City of Buffalo adjust to the rapidly changing climate that is projected. Dealing effectively with these multifaceted water management challenges will require adaptation, impactful investment, community engagement, and strategic partnerships.

2.2 *Rain Check 2.0*

Rain Check 2.0 is a City-wide initiative led by the Authority that commenced in 2019 with the objective of installing Green Infrastructure within the City in order to manage the flow of excess stormwater runoff. In addition, the initiative is intended to improve sewer function, build climate change resilience in the City, and enhance the quality of life for the City's residents.

Rain Check 2.0 includes goals to install Green Infrastructure on public properties. These projects may include rain gardens and tree planting practices, as well as impervious surface removal. *Rain Check 2.0* is a continuation of the original *Rain Check* initiative (*Rain Check 1.0)*, which was the Authority's first generation of Green Infrastructure investments that was active from 2014 through 2018. Projects undertaken on public properties as part of the *Rain Check 1.0* initiative generally were pilot Green Infrastructure projects that focused on streets, parking lots, and roofs – the parts of the built environment that create the most runoff from stormwater – and included removal of impervious surface

[3] *Buffalo Climate Vulnerability Assessment*, anticipated for release Spring 2021
[4] https://www.epa.gov/heatislands#:~:text=Heat%20islands%20are%20urbanized%20areas,as%20forests%20and%20water%20bodies.

area as well as other public projects. *Rain Check 2.0* introduces the strategy, which remains in development, of managing stormwater on private property through stormwater requirements for developers and the encouragement of private property owners to install Green Infrastructure and manage impervious surface runoff on their property. The ambitious acreage targets of *Rain Check 2.0* will also require significantly increasing the pace and scale of Green Infrastructure projects on public lands and in rights of way, particularly in the six CSO basins identified as a priority by *Rain Check 2.0*. Increasing this pace will accelerate removal of pollutants from waterways, because the projects will be designed in accordance with the NYSDEC Stormwater Design Manual[5] that requires 80% removal of total suspended solids and 40% total phosphorus removal. Managing impervious surface area helps the Authority achieve the stormwater management obligations outlined in its LTCP, in addition to providing community benefits. *Rain Check 2.0* aligns with other City-wide and regional initiatives, including revitalizing Buffalo's waterfront, reinvesting in commercial corridors, enhancing the transportation network, promoting environmental sustainability, strengthening City neighborhoods, and boosting the regional economy.

Rain Check 2.0 is also focused on acknowledging and addressing the realities of inequities by race, ethnicity, and neighborhood in Buffalo. For example, the Equity Analysis in the *Rain Check 2.0 Opportunity Report* reflects a focus on "vulnerable communities that have historic or contemporary barriers to economic and social opportunities and a health environment as a central concern of green infrastructure planning." This analysis was used to create both city-wide and CSO basin-specific equity profiles, which the Authority plans to use to track implementation of projects in areas with higher inequity (see Section 5.4 for more information). The analyses use various indicators of equity, including demographics, workforce, public health, land use, and climate resiliency. These analyses, and the commitment to use them in decision-making, reflect the Authority's commitment to social equity considerations in placement, design, and impact of Green Infrastructure.

2.3 Public Projects

Using the proceeds from the Buffalo Sewer EIB, the Authority will engage engineering, urban planning, and landscape architecture firms to design and implement Green Infrastructure within street rights of way and on other public lands to manage 200 acres of impervious area, especially throughout the six priority CSO basins, in ways that are consistent with the framework plan outlined in the *Rain Check 2.0 Opportunity Report*. This effort contributes directly towards the Authority's LTCP commitment and increases the speed of Green Infrastructure implementation within public spaces. Since 2014, commencing with the *Rain Check 1.0* initiative, the Authority has implemented Green Infrastructure to manage approximately 66 acres of impervious area in street rights of way. The *Rain Check* Projects are intended by the Authority to increase the pace of Green

[5] https://www.dec.ny.gov/chemical/29072.html

Infrastructure implementation for public space projects so as to accelerate stormwater management, pollutant removal, and the realization of community benefits, all in furtherance of the objectives of the Authority's LTCP. The Authority's primary goal in financing its R*ain Check* Projects with proceeds of its Buffalo Sewer EIB is to manage at least 200 acres of additional impervious area with Green Infrastructure, with most of such acreage located within the six priority CSO basins described herein and a small percentage thereof relating to the City of Buffalo Major Projects described in this section.

Scope of Work of the Rain Check Projects

Rain Check Projects include construction as well as engineering and design (both initial engineering and design and ongoing support throughout the construction phase). The scope of engineering and design work for the *Rain Check* Projects will include mapping, geotechnical investigation, data collection and analysis, public outreach and engagement, detailed design, and construction support services. All Green Infrastructure designs will be consistent with the most recent version of the NYSDEC Stormwater Management Design Manual. *Rain Check* Project designs will involve public participation in design decision making. *Rain Check* Projects will be investigated, identified, and prioritized based on the anticipated impact on both stormwater management cost-effectiveness, as well as community impact and preference, as revealed though the Authority's public outreach and engagement initiatives. Beyond the primary goal of managing impervious area with Green Infrastructure and the addition of new green space, the Authority seeks to leverage its investment in stormwater management to revitalize neighborhoods (through aesthetic improvements and enhanced streetscapes) and build community resilience to climate change (by reducing urban heat and local flooding and increasing alternative transportation infrastructure) through the use of vegetated practices. In addition, the Authority has established goals to include participation from a local and diverse workforce as well as minority, and women-owned business enterprises (MWBEs) in undertaking the *Rain Check* Projects. A total of 22 firms were selected by the Authority as "pre-qualified" to work on the *Rain Check* Projects. All *Rain Check* Project construction work will be subject to competitive bidding.

Rain Check Project Area Descriptions and Design Approach

CSO Basin 53 is the largest priority CSO basin (approximately 3,969 acres in total) and discharges to the Scajaquada Creek. The predominance of large street corridors in this Basin allows for the organization of Green Infrastructure into a larger networked system, increasing the overall community impact by distributing green amenities throughout this Basin. With a wide range of land uses and landscape conditions found in this Basin, Green Infrastructure designs will involve a tailored approach to address the needs and preferences of the immediately surrounding neighborhood, with continued public participation throughout the design process. In some places, major commercial street corridors, such as Bailey Ave., will be completely re-designed as complete streets, an

approach that prioritizes safety, comfort, and access for all people who use the streets[6]. In other areas, residential streets will be retrofitted with smaller scale interventions, such as tree planters, rain gardens, use of permeable pavement, and underground infiltration that can be integrated into the existing street condition without redesigning the entire streetscape. These smaller practices can improve existing drainage conditions and increase tree canopy cover. Approximately 34% (or approximately 980 acres) of this Basin's impervious acres are within street rights of way.

CSO Basins 26, 27, and 33 all discharge to the Buffalo River, a waterway listed as an "Area of Concern" under the U.S.-Canada Great Lakes Water Quality Agreement. Limited walkability and the presence of larger road corridors in these areas necessitate a focus on complete streets and corridor improvements to improve walkability and access to parks and green space. The presence of wide roads, highways, and large lots can make the area seem somewhat geographically isolated, limit walkability, and pose safety issues for pedestrians and transit users. Furthermore, CSO Basin 27 has the lowest tree canopy cover of the six targeted CSO basins (approximately 7% compared to City-wide canopy cover of over 14%). Green Infrastructure, with a focus on complete streets and rights of way improvements, will be used to create buffer zones between roads and sidewalks and enhance walkability and public safety, especially around crosswalks and transit stops. Planting vegetation as a part of Green Infrastructure designs will also help absorb air pollution from high-traffic streets and increase the urban tree canopy, contributing not only to stormwater runoff reduction but also urban heat island mitigation. Green Infrastructure along public rights of way, at crosswalks, and transit stops will support active commuting and improve surface road conditions for the large number of residents who rely on walking and transit to commute to work and other destinations. Green Infrastructure along major corridors in these basins will also provide greater access to green space in underserved neighborhoods that currently lack access.

Investment in Green Infrastructure in these basins will support a number of broader planning efforts, including the Local Waterfront Revitalization Program, which includes the Buffalo River, as well as the Buffalo River Corridor Brownfield Opportunity Area.

These basins vary in size. CSO Basin 26 includes approximately 1,901 acres, with approximately 299 acres in rights of way (17% of impervious acres in the Basin). CSO Basin 27 spans approximately 931 acres, with approximately 132 acres within rights of way (22% of impervious acres). CSO Basin 33 consists of approximately 1,268 acres in total, approximately 310 acres of which are within rights of way (33% of impervious acres).

CSO Basins 14 and 28 are located the downtown Central Business District and South Buffalo, respectively. CSO Basin 14 discharges to the Erie Basin Marina, a recreational

[6] https://smartgrowthamerica.org/program/national-complete-streets-coalition/publications/what-are-complete-streets/

center on Buffalo's waterfront, and CSO Basin 28 discharges to the Buffalo River, a waterway listed as an Area of Concern under the U.S.-Canada Great Lakes Water Quality Agreement. Green Infrastructure in these CSO areas, for example along roads and sidewalks to and from the many parks and open spaces located there, is expected to improve the quality of public life, and encourage more biking and walking among residents living in the area. CSO Basin 14 is approximately 153 acres in total, with 43 acres within street rights of way (28% of impervious acres in the Basin). CSO Basin 28 is about 616 acres in total, with roughly 134 acres within street rights of way (30% of impervious acres).

City of Buffalo Major Projects

The balance of the *Rain Check* Projects will be implemented outside of the six priority CSO basins and will consist of various green infrastructure initiatives collectively referred to by the Authority as the "City of Buffalo Major Projects."

2.4 *Rain Check 2.0* Incentives on Private Property

The Authority also anticipates the development and implementation of incentives for the development of Green Infrastructure on private property and is currently in the process of determining the most appropriate and effective method for doing so. Any such projects will not be funded with proceeds of the Buffalo Sewer EIB, and any acres managed through these projects on private property will not contribute to the Authority's target Outcome Threshold of managing at least 200 acres of impervious surface area through Green Infrastructure. This Outcome Threshold is further described in Sections 5.3 and 8 of this document.

3. Allocation of EIB Proceeds

3.1 Use of Buffalo Sewer EIB Proceeds for *Rain Check* Projects

The Buffalo Sewer EIB will finance costs (including construction as well as design and engineering costs) of the *Rain Check* Projects in public rights of way, and costs of evaluation and reporting. The table on the following page notes the anticipated allocation, subject to change, of Buffalo Sewer EIB proceeds for each portion of the *Rain Check* Projects (including construction, design, and engineering costs).

Project	Allocation of Project Funds (estimated dollars)
CSO Basins 14 and 28	$5,000,000
CSO Basins 26, 27, 33	$23,000,000
CSO Basin 53	$19,000,000
City of Buffalo Major Projects	$5,000,000
Third-Party Evaluation and Reporting	$1,000,000
Total	**$53,000,000**

3.2 Management of Buffalo Sewer EIB Proceeds

The net proceeds of the Series 2021 Bonds remaining after payment of issuance costs and the deposit to the Series Debt Reserve Fund will be used by the Authority to pay the costs of the planning, design, construction, and monitoring of the Rain Check Projects. Such amounts will be tracked and disbursed for such purposes and, pending disbursement, will be invested in accordance with the terms of the Bond Resolution.

4. Discussion of Program Objectives

4.1 Primary Program Objectives and Description of Impacts

The Authority's objective through these *Rain Check* Projects is to manage as many acres of impervious surface as possible. This Green Infrastructure implementation through the *Rain Check* Projects furthers the Authority's longer-term Green Infrastructure objectives included in its LTCP to reduce CSO events in satisfaction of an administrative order from the U.S. Environmental Protection Agency (EPA). While the administrative order required the Authority to submit an LTCP, the Authority elected to create an ambitious but reasonable Green Infrastructure strategy as part of the LTCP. Incorporating Green Infrastructure as a CSO reduction strategy will increase the visibility of the City's stormwater management challenges and opportunities to maximize co-benefits associated with Green Infrastructure for the community. These impacts are discussed in further detail in Section 5.3 and in Appendix A.1.

4.2 Alignment with other ESG and Environmental Frameworks

4.2.1 Alignment with International Capital Market Association Green Bond Principles

The Buffalo Sewer EIB and the *Rain Check* Projects it finances are aligned with standards for issuing green bonds under the International Capital Market Association's Green Bond

Principles ("ICMA GBP"). The *Rain Check* Projects' impacts are consistent with the ICMA GBP's Sustainable Water Management Projects project impact classifications.[7]

ICMA GBP Sector: Sustainable Water & Wastewater Management	Core Indicator	Metric in EIB Projects
Sustainable land and water resources management (SLM) systems in place	Area covered by sustainable land and water resources management	Number of impervious acres managed

Further, the Buffalo Sewer EIB fulfills the four core components of the ICMA GBP: Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds, and Reporting.[8]

ICMA GBP core component	Indicator	EIB Technical Memo section(s)
1. Use of Proceeds	- Categorization of green project with clear environmental benefits	"Section 2: Description of *Rain Check 2.0*" "Section 4.2: Alignment with other ESG and Environmental Frameworks"
2. Process for Project Evaluation and Selection	- Clear communication of environmental sustainability objectives - Process by which issuer determines project fit under green project categories above - Context within the issuer's overarching objectives, strategy, policy and/or processes relating to environmental sustainability	"Section 2: Description of *Rain Check 2.0*" "Section 4.1: Primary Program Objectives and Description of Impacts"
3. Management of Proceeds	- Net proceeds credited to sub-account or otherwise tracked in an appropriate manner - Formal internal tracking process, including periodically	"Section 3.2: Management of Buffalo Sewer EIB Proceeds"

[7] https://www.icmagroup.org/green-social-and-sustainability-bonds/impact-reporting/
[8] https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/

ICMA GBP core component	Indicator	EIB Technical Memo section(s)
	adjusting balance of tracked net proceeds	
4. Reporting	- Annual reporting of use of proceeds until full allocation	"Section 7: Tracking, Reporting, and Disclosures to Buffalo Sewer EIB Investors"

4.2.2 Alignment with United Nations Sustainable Development Goals

Impacts from the *Rain Check* Projects are aligned with several United Nations Sustainable Development Goals (UN SDGs), as described in the ICMA "Green and Social Bonds: A High-Level Mapping to the Sustainable Development Goals" (June 2019). The *Rain Check* Projects address several UN SDGs, either directly through the Primary Outcome Metric, or indirectly through the overall program objective or through Secondary Outcome Metrics, which will be tracked but will not define coupon rates. UN SDGs addressed through the *Rain Check* Projects include Goals 1 (No Poverty), 3 (Good Health and Well-being), 6 (Clean Water and Sanitation), 8 (Decent Work and Economic Growth), 10 (Reduced Inequalities), and 13 (Climate Action).[9] In connection with the target UN SDGs, the following *Rain Check* Project goals and Primary or Secondary Outcome Metrics will be tracked and reported (see Section 7 for more information on reporting):

UN SDG	Indicator	Metric/Goal in EIB Projects
3. Good Health and Well-being	3.3 – Amount of wastewater treated, reused or avoided before and after the project	**Program Objective:** *Rain Check* Projects will help the Authority achieve its Green Infrastructure goals outlined in its Long Term Control Plan, ultimately reducing the frequency and/or severity of CSO events
6. Clean Water and Sanitation	6.6 – Area covered by sustainable land and water resources management practices	**Primary Metric:** Number of impervious acres managed through the *Rain Check* Projects
13. Climate Action	13.1 – Water storage capacity	**Primary Metric:** Number of impervious acres managed through the *Rain Check* Projects

[9] https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/June-2019/Mapping-SDGs-to-Green-Social-and-Sustainability-Bonds06-2019-100619.pdf

4.2.3 Comparison to Other Existing Performance Incentive Structures

Rather than hedging against the performance risk of Green Infrastructure in its ability to capture stormwater, as has been the motivation for other EIB structures, the Authority focused on the risk associated with increasing the pace of Green Infrastructure installation and resulting impervious surface area managed to achieve its goals. To incentivize its own performance, the Authority evaluated pay-for-success models that could reward the Authority in the event that it achieved or exceeded its goals for acres of impervious surface managed through *Rain Check* Projects.

Many of the models that were evaluated have been utilized for term loans and revolving credit facilities, particularly in the European market. They have not yet been utilized by U.S. cities and municipal authorities and did not align well with the Authority's performance objectives. ***The Authority will be the first municipal issuer in the United States to link a positive incentive to performance, through an outcomes-based call feature.***

5. Outcome Metrics and Thresholds

5.1 Primary Outcome Metric: Acres of Impervious Surface Managed

The Primary Outcome Metric for this Buffalo Sewer EIB will be Acres of Impervious Surface Managed through the *Rain Check* Projects. This metric was chosen for the following reasons:

- **Directly relevant to *Rain Check 2.0* Program goals**: The Authority's LTCP charts its path to water quality compliance and, to this end, includes a goal of 1,315 acres of impervious surface to be managed using Green Infrastructure. With 628 acres approximately remaining toward this goal, the Authority can use the Buffalo Sewer EIB to accelerate the pace and scale of Green Infrastructure implementation in Buffalo, increasing the Authority's ability to meet its LTCP obligations.
- **Tied to uncertainty**: This metric reflects the key uncertainty in the *Rain Check 2.0* – namely, the Authority's ability to increase the pace of Green Infrastructure implementation.
- **Cost-effective to quantify**: Acres managed can be tracked and verified through as-built surveys, a relatively simple and inexpensive way to evaluate Green Infrastructure (See Section 6 for details on evaluation).

5.2 Benchmark Threshold Analysis

The Buffalo Sewer EIB connects the Authority's ability to call the bond at par with the Authority meeting or exceeding the Threshold for the Primary Outcome Metric, Acres of Impervious Surface Managed. In determining how to set its Outcome Threshold, the Authority considered its own pace needed to accomplish the goals set out in its LTCP and examined several other Green Infrastructure programs to consider benchmarks for implementation rates, proportionate to Buffalo's area of impervious surface. The table below describes these benchmark programs, and each city's goals or accomplishments in terms of an "acres per year" average pace. In reality, progress may vary from year to year, especially early in the program as designs are being finalized before construction

begins. This "acres per year" figure was also translated to represent a percent of the total impervious acres in the city (per year), to enable comparisons to Buffalo. Figures below include projects constructed on public property and in rights of way; they do not include goals or accomplishments around incentivizing Green Infrastructure installations on private property.

City	Acres per year as % of total acres city-wide	Notes (with source)
Buffalo (future)	0.11%	Goal: manage 200 acres (see Section 5.3)
NYC	0.06%	Managed 1,079 greened acres through ROW (1,003) and public property projects (76) between 2010-2018[10]
Detroit	0.05%	Managed 50.1 acres in FY2019-2021[11]
Buffalo (past)	0.04%	Managed 66 acres through projects in the public right of way (2014-2020)
Philadelphia	0.04%	Managed 266 acres over 7 years[12]

While these other programs provide some benchmark for the Authority's consideration, they do not take into account the impacts of the recent COVID-19 pandemic on the Authority's ability to implement Green Infrastructure. For example, the Authority may need to adjust construction schedules to limit the number of people on-site at one time. To account for this and other impacts from the pandemic, the Authority considered the number of requests for construction permits during the pandemic, as compared with the number of requests during the same months in previous years. From March 14 through August 30, 2020, the City of Buffalo saw a 27% decrease in construction permit requests as compared to the same period the previous year. As recovery efforts continue and work on *Rain Check* Projects ramps up, it is imperative that the Authority select a goal that is ambitious but reasonable in that it reflects the realities of starting work during a pandemic. Both the timeframe (seven years) and the Threshold (200 acres) for the outcomes-based call option were selected with these challenges in mind.

[10] https://www1.nyc.gov/assets/dep/downloads/pdf/water/stormwater/green-infrastructure/gi-annual-report-2019-presentation.pdf
[11] https://detroitmi.gov/sites/detroitmi.localhost/files/2020-06/FY2019.FY2020%20DWSD%20GSI%20Annual%20Report%202020.04.01%20New%20Version%202020%2003%2031.pdf
[12] https://pecpa.org/wp-content/uploads/GCCW-Adv-Committee-Mtg-May-2018-GCCW-Update.pdf

5.3 Outcome Threshold for Call Option

The Authority has selected 200 acres of impervious surface managed over seven years as the Threshold for the call option (at par) in the Buffalo Sewer EIB. This Threshold reflects an ambitious increase in implementation pace, progress towards climate resilience, and reduced risk to the Authority on several fronts.

This target reflects an increase in the pace of implementation to date. Since starting work on its LTCP commitment for Green Infrastructure from its Green Infrastructure Master Plan (approved in 2014), the Authority has managed over 687 acres of impervious surface area of these acres managed to date, most have been demolitions. The Authority has implemented Green Infrastructure in street rights of way to manage about 66 acres of impervious area over a seven-year period (2014-2020), which represents an average implementation of less than 10 acres per year. Building demolitions and the associated removal of impervious area have occurred at a pace of over 88 acres per year. These demolitions, however, provide limited benefits to the surrounding community, as compared to projects in the public right of way that create more direct environmental, social, and economic impacts upon the communities where they are implemented. Additionally, the rate of acres managed from demolitions is expected to stabilize or decline as the number of demolitions stabilizes or declines due to property availability. To dramatically increase the implementation of Green Infrastructure projects that provide public benefits, the Authority seeks to implement Green Infrastructure to manage over 200 acres through projects on public property, including street rights of way, over the next seven years, which translates to an average pace of over 28 acres per year. This ambitious goal will accelerate the speed of implementation for public projects and bring immediate and long-lasting benefit to vulnerable and marginalized communities throughout the six priority CSO basins outlined in the *Rain Check 2.0 Opportunity Report*. Further, incorporation of Green Infrastructure in public rights of way, as part of larger initiatives around investing in public infrastructure and place-making, is an important strategy for economic revitalization and development[13].

Meeting this Threshold would also demonstrate progress towards climate resilience, as Green Infrastructure will increase the City's capacity to adapt to a changing climate. According to the *Buffalo Climate Vulnerability Report* (anticipated for release in Spring 2021), precipitation in Buffalo is anticipated to increase, with annual increases up to four inches on average by mid-century, and up to seven inches on average annually by end of the century. Precipitation events greater than 1 inch are expected to increase up to two days by 2050 and by two to four days by 2100.

Given these precipitation trends, and without effective adaptation, combined sewer overflows and other stormwater challenges are expected to increase in the future. The acceleration of Green Infrastructure implementation through the *Rain Check* Projects,

[13] https://regionalcouncils.ny.gov/sites/default/files/2019-11/2019WesternNYProgressReport.pdf

built to the specifications in the NYSDEC Stormwater Design Manual to manage the first inch of rainfall from these events, will be meaningful in Buffalo's efforts to manage this additional precipitation, reducing combined sewer overflows as well as localized flooding, depending on the location and type of practices installed.

The achievement of the Threshold may also be expected to improve the Authority's credit for future issuances in several ways.

First, an increase in Green Infrastructure designed to NYSDEC Stormwater Design Manual specifications will reduce exposure to environmental litigation. Because the *Rain Check* Projects will be designed in accordance with the NYSDEC Stormwater Design Manual, the *Rain Check* Projects will be capable of 80% removal of total suspended solids and 40% total phosphorus removal, in addition to managing CSOs and providing other stormwater management functions. Achieving the Threshold represents the Authority's increased capacity to put Green Infrastructure practices in place. This achievement will advance the Authority's ability to meet the goals outlined in the LTCP around managing CSOs and improving water quality. By achieving progress toward their current or future LTCP, the Authority reduces its risk of exposure to environmental litigation should it not fulfill these goals.

Second, the achievement of the 200-acre Threshold and the corresponding call option with respect to the Buffalo Sewer EIB would enable the Buffalo Sewer EIB to be refinanced earlier and at par, as opposed to the premium paid by the Authority for early redemption in Years 7-10 if the Outcome Threshold is not met. This provides the Authority the opportunity to achieve greater debt service savings if it successfully meets the Outcome Threshold for financed projects, especially on the portion of the Buffalo Sewer EIB issued as step coupon bonds, where fixed rates are scheduled to increase during each rate period, as specified in the Official Statement. These savings could then be available to fund other capital projects for the Authority to address CSOs and achieve greater water quality. The Authority's current LTCP includes a capital cost of $380 million (2012) over a 20-year period (2014-2034)[14]. By meeting the Threshold for the *Rain Check* Projects financed through the Buffalo Sewer EIB, the Authority would greatly demonstrate its ability to meet stated goals and cost-effectiveness, which could positively impact future credit ratings.

Finally, the success of the *Rain Check 2.0* would demonstrate the Authority's ability to address and adapt to climate change impacts such as increased precipitation and ensuing water quality and flooding impacts from stormwater. As credit ratings agencies

[14] As stated in the Preliminary Official Statement (POS) accompanying this transaction, on January 7, 2021, the Authority provided information to USEPA and NYSDEC to support a request for an extension of the implementation schedule from March 18, 2034 because of projections of future impacts on rates of service. The Authority has stated that it is not able to predict the response of either the USEPA or the NYSDEC to this request.

are increasingly incorporating assessments of climate vulnerabilities in their ratings decisions on municipal bonds and other issuances, achieving the ambitious amount of impervious area management represented by the Threshold should demonstrate its ability to mitigate climate vulnerabilities and benefit positively in future ratings decisions.

5.4 Secondary Outcome Metrics: Co-Benefits of Green Infrastructure

In addition to the Primary Outcome Metric of Acres of Impervious Surface Managed, the Authority plans to track a number of Green Infrastructure co-benefits related to underserved populations, workforce development, health, and climate change. These secondary metrics will trace the *Rain Check* Projects' intersection with these systemic issues in Buffalo, including its high unemployment rate, high amounts of impervious space and opportunity for climate change resilience. These Secondary Outcome Metrics may include measurement around workforce development and local hiring, women and minority business inclusion, potential greenhouse gas benefits, air quality benefits, property value benefits, wildlife benefits, and other relevant items as requested by the Authority. Specifically, the Authority plans to track, through its Contractors, and report publicly via its website:

- Women and minority representation in both the percent of hours worked to design and construct Green Infrastructure projects, as well as in the ownership of businesses that participate in *Rain Check* Projects.
- Employment of Buffalo residents through design, engineering, construction, and maintenance of the *Rain Check* Projects.
- Implementation of Green Infrastructure projects in Environmental Justice areas as defined by NYSDEC, which includes U.S. Census block groups that meet or exceed at least one of the following criteria[15]:
    1. At least 51.1% of the population in an urban area reported themselves to be members of minority groups; or
    2. At least 33.8% of the population in a rural area reported themselves to be members of minority groups; or
    3. At least 23.6% of the population in an urban or rural area had household incomes below the federal poverty level.

[15] https://www.dec.ny.gov/public/911.html

6. *Rain Check* Projects Impact Evaluation, Post-Implementation

The *Rain Check* Projects will be subject to the independent verification of the Acres of Impervious Surface Managed through these Green Infrastructure projects as undertaken by the Authority.

6.1 Approach to Third-Party Validated Outcome Evaluation

The realized final project implementation and post-construction Acres of Impervious Surface Managed achieved through the *Rain Check* Projects may be different than originally designed due to a number of factors, including variability in demand, cost of materials and labor, variability in Contractor bid prices, unforeseen utility lines, COVID-related shutdowns in construction activity, and available easements, as well as traditional *force majeure* events. The evaluation of the impact of the *Rain Check* Projects is intended to provide independent verification of implemented Green Infrastructure.

6.2 Qualifications of Third-Party Validator

A project team led by Arcadis will put together annual reports as well as a final report when the Authority meets its Outcome Threshold of 200 acres of impervious surface managed, anticipated in Year 7. These reports will cover all Green Infrastructure projects undertaken by the Authority with proceeds of the Buffalo Sewer EIB. Arcadis will follow the standard methods included in the NYSDEC Stormwater Design Manual for calculating Acres of Impervious Surface Managed and engineering principles of Green Infrastructure and, therefore, shall be responsible for validating that the *Rain Check* Projects were constructed as designed and that the *Rain Check* Projects achieved the intended Acres of Impervious Surface Managed. Arcadis has an existing relationship with the Authority regarding modeling CSO events and in the measurement of the removal of stormwater from the Authority's combined sewer system via each of the Authority's LTCP compliance initiatives (including *Rain Check* Projects). However, Arcadis is not involved in the design and implementation in the *Rain Check* Projects. *Pentagram* (Paula Scher) will lead the creation of high-end visualization and graphic design for the annual and final reports, while Prospect Hill Consulting will support Arcadis with data input necessary for the reports.

6.3 Outcome Evaluation Methodology

The measurement of Acres of Impervious Surface Managed through the *Rain Check* Projects will be evaluated in two steps.

First, the professional engineer or engineering firm that designed each *Rain Check* Project will provide electronic topographic mapping and survey as necessary to delineate the drainage area of the completed *Rain Check* Project and any impervious surface area removed from the pre-existing condition. The mapping will clearly delineate the impervious surfaces. The individual or firm will also provide record drawings of the *Rain Check* Project documenting that the system was constructed as designed and approved, in accordance with the NYSDEC Stormwater Design Manual. The individual or firm will provide a concise report to the Authority documenting the methods and results of analysis and certifying the results as accurate.

Second, the project team led by Arcadis will review reports from each *Rain Check* Project and verify the Acres of Impervious Surface Managed as a result of each project in accordance with the NYSDEC Stormwater Design Manual. The Arcadis team will also prepare an annual report documenting all *Rain Check* Projects certified within the year and total *Rain Check* Projects and acres managed since inception.

Finally, the team will prepare a final report that describes summary results of all *Rain Check* Project work complete to date, including the total Acres of Impervious Surface Managed by Green Infrastructure. A "single source of truth" (SSOT) database will be created and managed by the project team throughout *Rain Check* Project implementation and a web-based platform will host and communicate the data to the general public on an annual basis. Validated *Rain Check* Project metrics, including the Primary Outcome Metric of Acres of Impervious Surface Managed by Green Infrastructure, will be reported with the annual and final reports as well as on the Authority's publicly accessible website and through other platforms such as EMMA, CDP, and NASDAQ Sustainable Bond Network.

6.4 Timeline and Frequency of Monitoring and Evaluation

Stage	Actor	Assessment
1. Post-construction (no later than one month after completion of a project)	Licensed professional engineer, architect, landscape architect or engineering firm that designed the project	Produce initial as-built survey Verify "Acres of Impervious Surface Managed" based on standards in NYSDEC Stormwater Design Manual, Section 4 Calculation of deviation, if any, between actual acres managed and pre-construction estimated acres managed, relative to Project Designs (via as-built survey)
2. Annual Report	Arcadis team (as third-party Validator)	Produce Annual Report which includes: *Current Year Projects* • Compilation and review of post-construction reports from design firms to confirm the report results • Site visits and photographic documentation of completed projects

Stage	Actor	Assessment
		• Calculation of deviation, if any, between actual acres managed and pre-construction estimated acres managed, relative to Project Designs (via as-built survey) • Evaluation of secondary metrics *Program to Date Projects* • Compilation of total acres managed
3. Final Report	Arcadis team (as third-party Validator)	Produce Final Report which includes: • Total projects completed to date • Compilation and review of post-construction reports from design firms to confirm the report results • Site visits and photographic documentation of completed projects • Compilation of total acres managed • Secondary metrics

Note: Verified annual reports will cease once the Threshold is met, but the Authority anticipates continuing disclosure through its own tracking and reporting system.

7. Tracking, Reporting, and Disclosures to Buffalo Sewer EIB Investors

The Authority expects to voluntarily report annually on its continuing disclosures in connection with the Buffalo Sewer EIB on the expenditures of the proceeds of the Buffalo Sewer EIB and the progress of the *Rain Check* Projects. The annual report will also identify the *Rain Check* Projects' alignment with the ICMA GBP. Following the Buffalo Sewer EIB issuance, the subsequent annual disclosure will include the verified outcome metrics described above and will be shared on the Authority's publicly accessible website and through other platforms such as EMMA, CDP, and NASDAQ Sustainable Bond Network. Specifically, in addition to the annual Arcadis reports, a report will be made available on EMMA prior to May 10, 2028 to comply with the 30 day redemption notice in advance of the June 15, 2028 optional redemption with quarterly reports thereafter.

Through the Validator, the Authority plans to collect and report information described in Section 5.4 of this memorandum. These metrics have no bearing on the Authority's

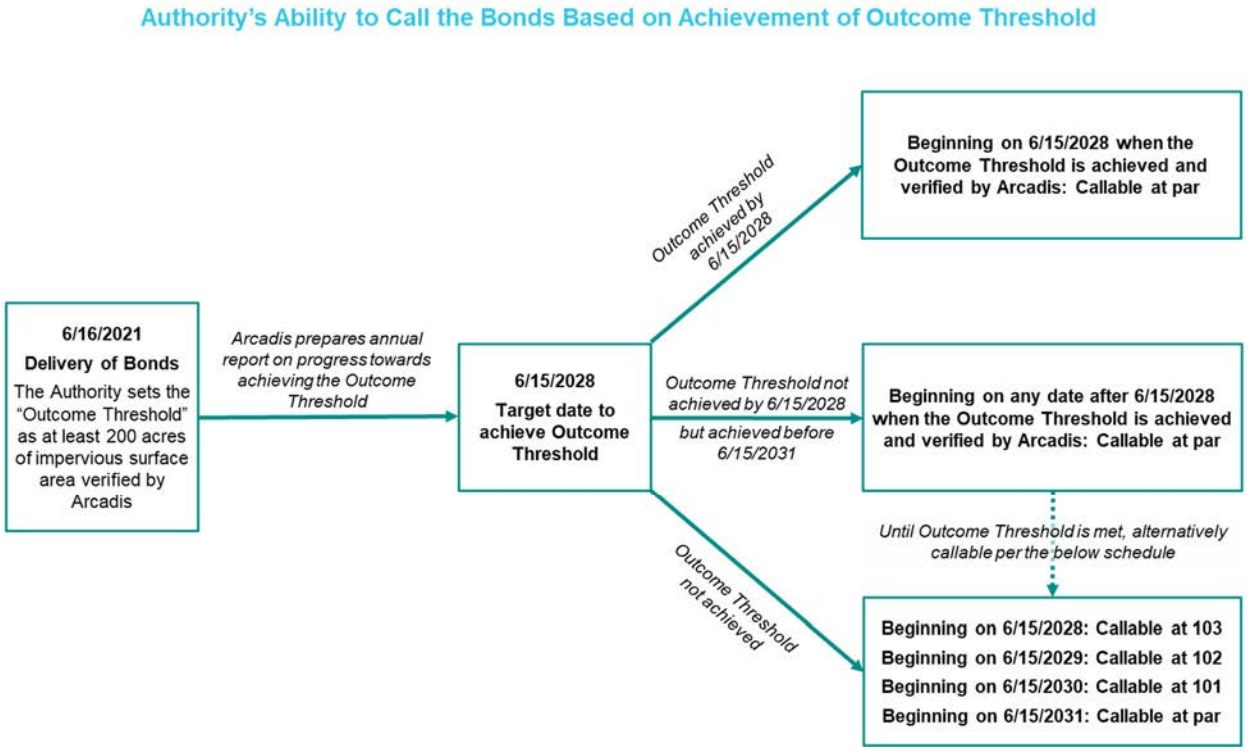
financial obligations but provide a more complete picture of the socioeconomic impacts of these *Rain Check* Projects.

8. Determination of Outcomes-Based Terms

The proposed structure for the Buffalo Sewer EIB will cover only two possible outcomes scenarios – meeting or not meeting the Outcome Threshold – as defined by total Acres of Impervious Surface Managed through the *Rain Check* Projects. Based on the analysis described in Section 5, the Authority chose a Threshold of at least 200 Acres of Impervious Surface Managed. Any progress below 200 acres will be considered as not meeting the selected Threshold.

The entirety of the proceeds of the Buffalo Sewer EIB will feature a call option shaped by the Authority meeting the Threshold. Once the Outcome Threshold is met, the Authority has an opportunity to call the bond at any future date. The Authority maintains a call option if the Outcome Threshold is not met, at a premium declining to par.

The figure below describes the various scenarios possible regarding meeting the Outcome Threshold and calling the bond.



The interest rate on this Buffalo Sewer EIB will be determined first and foremost on benchmark municipal market rates, the credit rating of the Authority, the revenue stream for repayment, and the maturity of the Buffalo Sewer EIB.

Performance Pricing Terms are described in the following table.

Estimated Project Fund	$53 million
Term	30 years
Call Option Year	Beginning in Year 7
Performance Threshold (Acres of Impervious Surface Managed)	200 Acres of Impervious Surface Managed
Coupon Rate	See pricing wire

Appendix: Analysis of Benefits for *Rain Check* Projects

The Authority's implementation of Green Infrastructure includes a vision to transform Buffalo by leveraging all of the benefits that Green Infrastructure has to offer. In addition to stormwater management, Green Infrastructure can enhance air quality, provide green employment opportunities, and beautify neighborhoods. These benefits accrue to stakeholders across the City, from homeowners and residents to City agencies. This analysis explains the accounting of some of these social, environmental, and economic benefits across all stakeholders.

Air Quality

This analysis also sought to capture some of the benefits that vegetated practices, such as bioswales and tree planters, offer in addition to stormwater management. For modeling purposes, the analysis assumed that 75% of the impervious acres managed through the *Rain Check* Projects would be managed through vegetated practices. The NYSDEC Stormwater Design Manual was used to find the minimum vegetated area to manage one acre of impervious surface. This 1:5 proportion was applied to acres managed to estimate a minimum vegetated area and determine resulting benefits, such as carbon sequestration[16] and other air quality benefits.[17] This analysis used removal rates cited in the *Rain Check 2.0 Opportunity Report* and calculated out the 25-year lifetime value of these practices using a discount rate of 4.0% and an inflation rate of 2.5%. Because of the location of these projects in public rights-of-way, the analysis assumed that for every 1,000 square feet of vegetation, 75% of that area would include tree cover. These calculations were conservative in that they focus on the minimum vegetated area (practices could be larger than the minimum specified in the NYSDEC Stormwater Design Manual).

[16] This analysis used a per unit value for carbon dioxide of $55.13, as referenced in a proposal from the New York State Independent Systems Operator (https://www.nyiso.com/documents/20142/2244202/IPPTF-Carbon-Pricing-Proposal.pdf/60889852-2eaf-6157-796f-0b73333847e8?t=1547044924178).

[17] Unit values for ozone, particulate matter, nitrogen dioxide, sulfur dioxide, and carbon monoxide were taken from Nowak, David J., et al. "Air Pollution Removal by Urban Trees and Shrubs in the United States." Urban Forestry & Urban Greening, vol. 4, no. 3–4, Apr. 2006, pp. 115–123, 10.1016/j.ufug.2006.01.007. Accessed 18 Nov. 2020.

Prevailing Wage

The *Rain Check 2.0 Opportunity Report* includes a full economic analysis of a hypothetical Green Infrastructure project, including jobs created. While this analysis for the *Rain Check* Projects did not estimate jobs created, it did consider the social benefit of a higher prevailing wage generally for Green Infrastructure and specifically for a program managed by the Authority. Green Infrastructure jobs earn a higher median wage than the regional median wage. In fact, the Authority requires an even higher prevailing wage for all of its programs and contracts. To estimate that social benefit in a city with a growing green economy, this analysis used the prevailing wage for "Heavy/Highway Laborer" at $31.06/hour, which is the lowest of the relevant categories of labor for Green Infrastructure. This hourly wage was compared to the New York State Department of Labor median wage for a comparable labor category. These additional wage earnings are broken out into (1) construction, and (2) operations and maintenance, based on the different costs to complete each of these stages. The analysis assumed a 10-year period for operations and maintenance.

Property Values

Literature consistently cites an increase in residential home value between 2-5% as a result of Green Infrastructure implemented within the neighborhood. Green infrastructure's impact on commercial property values is less studied and depends heavily on both the type of Green Infrastructure and type of commercial property (apartment buildings, retail, etc.). Therefore, this analysis focused on the increase to residential home value as a result of Green Infrastructure implemented in the vicinity and used a 2.5% increase in property value as a conservative estimate. Following the methodology in Philadelphia's 2009 Triple Bottom Line analysis[18], this analysis applied the percent Low Impact Development (LID) coverage from each CSO basin to the total properties in each CSO basin to find the number of homes that would experience an increase in value, assuming that this number would be directly proportional to the relative LID coverage within each CSO basin. The analysis used data from the Authority regarding impervious acres within each CSO basin, as well as data from Open Data Buffalo to understand the median home value and relative increase for properties within each CSO basin.

The table on the following page summarizes these benefits based on the Authority's achievement of the 200-acre Threshold included in this technical memorandum. Calculations were based on expected *Rain Check* Project completion timelines provided by the Authority and use a discount rate of 4.0% and an inflation rate of 2.5%. It should be noted that some benefits, like cost savings, will accrue once or over a finite maintenance period, while others, such as air quality benefits and property tax revenues, will continue to benefit Buffalo in future years. In many cases, these future benefits have been accounted for, with proper discounting and inflation.

[18] https://www.epa.gov/sites/production/files/2015-10/documents/gi_philadelphia_bottomline.pdf

Benefits of 200 Acres Managed with Green Infrastructure through *Rain Check* Projects

Benefit	Value
Air Quality	
Carbon (30-year lifetime value)	$504,353
Other Air Quality Benefits 30-year lifetime value)	$164,010
Prevailing Wage	
Construction (over 5 years)	$2,927,500
Operations and Maintenance (over 30 years)	$9,304,913
Additional Property Tax Revenues	$320,115
TOTAL	**$13,220,891**

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BUFFALO SEWER AUTHORITY

Buffalo Sewer Authority
Environmental Impact Bond Engineering Report

Environmental Impact Bond Engineering Report

May 2021

GREELEY AND HANSEN

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List of Abbreviations

Abbreviation	Definition
AO	Administrative Order
AWWA	American Water Works Association
BMP	Best Management Practice
BSA	Buffalo Sewer Authority
CAFR	Comprehensive Annual Financial Report
CCT	Chlorine Contact Tank
CCTV	Closed Circuit Television
CIP	Capital Improvement Program
CSO	Combined Sewer Overflow
CSS	Combined Sewer System
CWA	Clean Water Act
DAF	Dissolved Air Floatation Thickener
DO	Dissolved Oxygen
EIB	Environmental Impact Bond
ERAP	Emergency Rental Assistance Program
ERC	Emergency Repair Crew
FCA	Financial Capability Assessment
FCI	Financial Capability Indicator
FE	Final Effluent
FST	Final Settling Tank
FY	Fiscal Year
FYE	Fiscal Year Ending
GI	Green Infrastructure
HHS	Department of Health and Human Services
HP	Horsepower
I/I	Infiltration/Inflow
IMA	Intermunicipal Agreement
ILS	In-Line Storage
KPI	Key Performance Indicator
LOPA	Level of Protection Analysis
LTCP	Long Term Control Plan
MGD	Million Gallons per Day
MS4	Municipal Separate Storm Sewer System
NFA	No Feasible Alternatives
M/WBE	Minority or Woman-Owned Business
NMC	Nine Minimum Controls
NYSDEC	New York State Department of Environment and Conservation
O&M	Operations and Maintenance
POS	Preliminary Official Statement
PS	Primary Sludge
RAS	Return Activated Sludge
RI	Residential Indicator
RPM	Rotation per Minute

RTC	Real-Time Control
RTC-CS	Real-Time Control Coordination System
RWWPS	Raw Wastewater Pump Station
SCRS	Sludge Cake Receiving Station
SOR	Surface Overflow Rate
SPDES	State Pollutant Discharge Elimination System
SPP	Sewer Patrol Point
SDVOB	Service-Disabled Veteran-Owned Business
SRF	State Revolving Fund
SWPPP	Stormwater Pollution Prevention Plan
SWWPS	Settled Wastewater Pumping Station
TEFC	Totally Enclosed Fan Cooled
US	United States
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compound
WAS	Waste Activated Sludge
WW	Wastewater
WWT	Wastewater Treatment
WWTF	Wastewater Treatment Facility

Section 1 Introduction

1.1 Purpose of EIB Engineering Report

This Engineering Report has been prepared in connection with the proposed Environmental Impact Bonds (EIB) financing of capital projects by Buffalo Sewer Authority (BSA). The purpose of this report is to summarize the condition of the facilities now owned and operated by BSA and present an engineering opinion regarding the ability of the BSA sewer system to provide ongoing safe and adequate sewer infrastructure and wastewater treatment to customers. The assessment will include findings regarding: i.) the physical inspection of BSA facilities; ii.) discussions with key personnel; iii.) compliance with regulatory requirements; iv.) rate review; v.) system suitability certification; vi.) adequacy of finances (including debt capacity); and vii.) review of BSA's Five-Year Capital Plan. This report satisfies certain requirements set forth in BSA's Environmental Impact Bond resolution, in support of the proposed issuance of the EIB in 2021.

1.2 BSA Background

As the City of Buffalo (the City) developed and expanded, a sewer system was built to service the City and carry combined sewage to the Buffalo River, Scajaquada Creek, Black Rock Canal, and the Niagara River. BSA was created in 1935 to address the increase in sewage from City's growth threatening the health of the receiving water bodies, downstream communities, and the surrounding environment. Currently, BSA's collection system is approximately 850 miles of sewer lines with 93% as combined sewer systems, conveying both sanitary and storm water flows. The collection system includes 52 combined sewer overflow (CSO) outfall relief points to prevent public and private infrastructure damage during wet weather events exceeding the capacity of the combined sewer collection and treatment system (see **Appendix C**). BSA has been investing major financial resources for several years to reduce the annual volume and occurrences of CSO discharge into the nearby water bodies. BSA's collection system utilizes pump stations to collect and convey wastewater to the Bird Island Wastewater Treatment Facility (WWTF) providing secondary treatment located on Bird Island in the Niagara River.

In addition to providing wastewater service within the City of Buffalo, BSA also conveys and treats wastewater from tributary outside separate sewer communities as shown in **Figure 1-1.** BSA has wholesale agreements with the outside communities and does not own, operate, or maintain the wastewater collection systems within these communities. Each of these outside communities are charged by BSA for their share of costs allocable to the treatment of their flows to the WWTF, applicable operations and maintenance costs, and number of industrial user permittees.

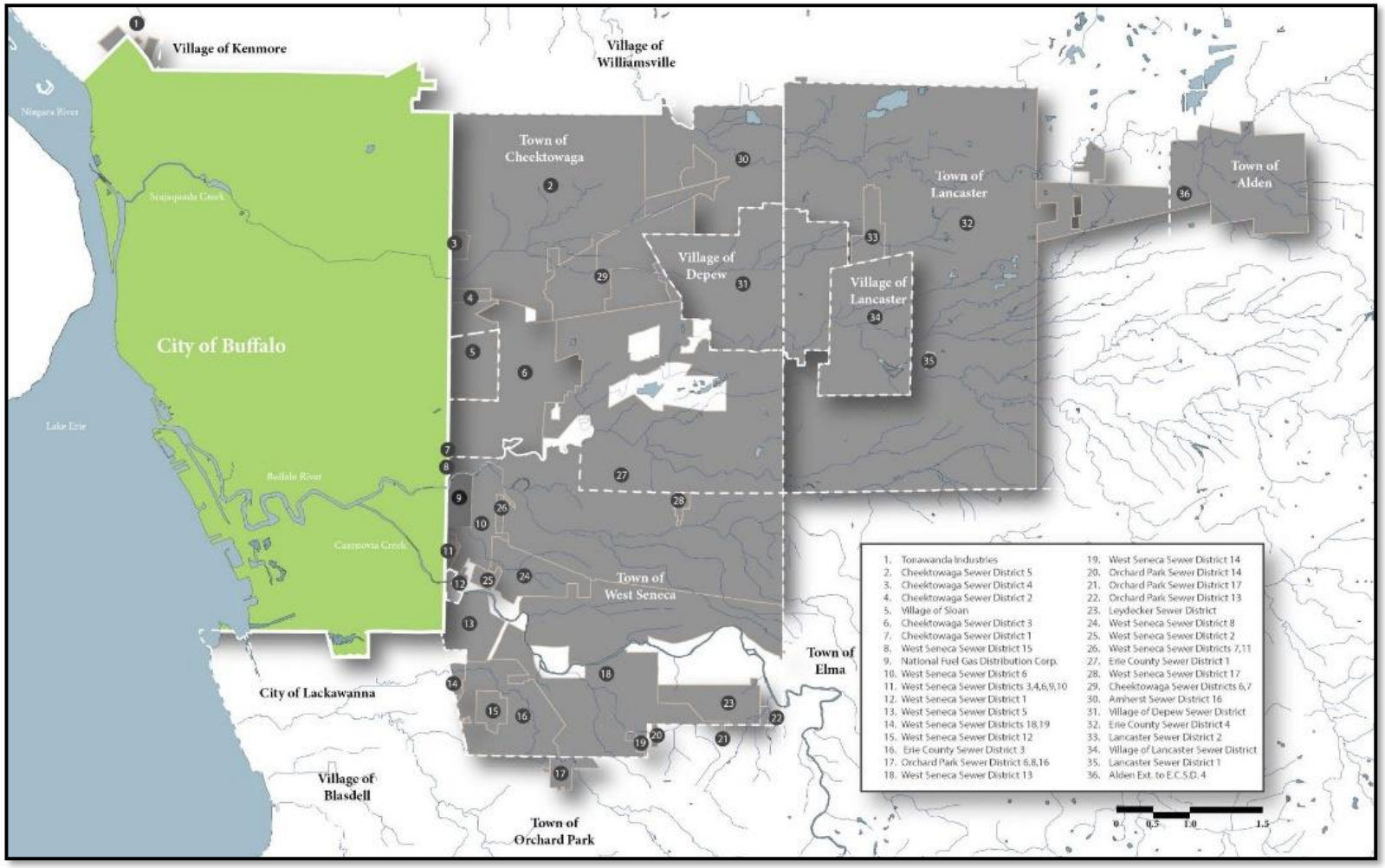


Figure 1-1: BSA Service Area

Section 2 Organization, Management, and Staffing

As the owner of one of the largest wastewater treatment facilities in New York State and a collection system that includes components dating back to the 1800's, a diverse staff of laborers, operators, chemists, maintenance personnel, supervisors and management are required to work collectively to maintain and operate the entire BSA collection and treatment system to ensure the protection of public health and the environment. Staffing plans indicate 209 employees in 2020, an increase from 199 and 197 in 2019 and 2018, respectively. Factoring in some natural attrition, BSA's ten-year goal is to maintain a minimum of 205 employees, with growth up to 220 total. BSA has been working to proactively address impending retirements through the hiring and training of entry level personnel to help to backfill positions. In 2020, BSA filled all vacant Wastewater Treatment Facility Operator I positions. As specific needs in other departments are similarly identified, BSA plans to fill other vacant entry level positions as well as filling other positions through a mix of promotion from within and recruiting of new personnel from outside. This section summarizes the BSA organizational structure and how personnel work together to achieve BSA's objectives.

2.1 Management

BSA is governed by a board of directors consisting of five members that are appointed by the Mayor of Buffalo, subject to confirmation by the City Council. There are currently two vacancies on the board of directors. Each member of the Buffalo Sewer Authority Board is also required to be a resident of the City of Buffalo. The three current members are:

- Herbert L. Bellamy, Chairman
- Christopher Roosevelt, Vice Chairperson
- Eleanor Petrucci, Secretary

An organizational chart depicting the BSA hierarchy is provided in **Figure 2-1** on the following page.

As shown in the organization chart, Oluwole A. McFoy, PE currently serves as the Chief Executive Officer and General Manager for BSA. The General Manager is responsible for the general supervision and direction of the business affairs of BSA. The following positions support the General Manager and the organization as a whole:

- The Secretary to the General Manager and Chief of Staff oversees BSA's business and external affairs and reviews operation procedures, directs strategic initiatives, and supports interdepartmental functions.

- The Executive Secretary and Chief Financial Officer for BSA is responsible for overall financial management and policies, including accounting operations, procurement, budgeting, investment and debt management, and financial risk analysis.

- The Director of Employee Relations' responsibilities include direct management of human resource systems including labor relations, employee services, environmental health and safety, and performance management.

- The Corporation Counsel of the City of Buffalo provides advice and counsel on legal and policy issues pertaining to BSA's contracts and language on bids, insurance, and overall business matters in the City of Buffalo. BSA utilizes an internal counsel for minor legal matters. BSA has also maintained a long-standing relationship with the firm Barclay Damon LLP for Outside Counsel. BSA utilizes Barclay Damon LLP as a resource for matters related to bonds, enabling legislation, lawsuits, legal opinions, eminent domain, and legal matters outside of City-related contract matters. BSA primarily uses the resources of Barclay Damon LLP more than those of the Corporation Counsel. The aforementioned resources collectively serve as BSA's General Counsel. Thus, BSA is positioned to handle all legal matters.

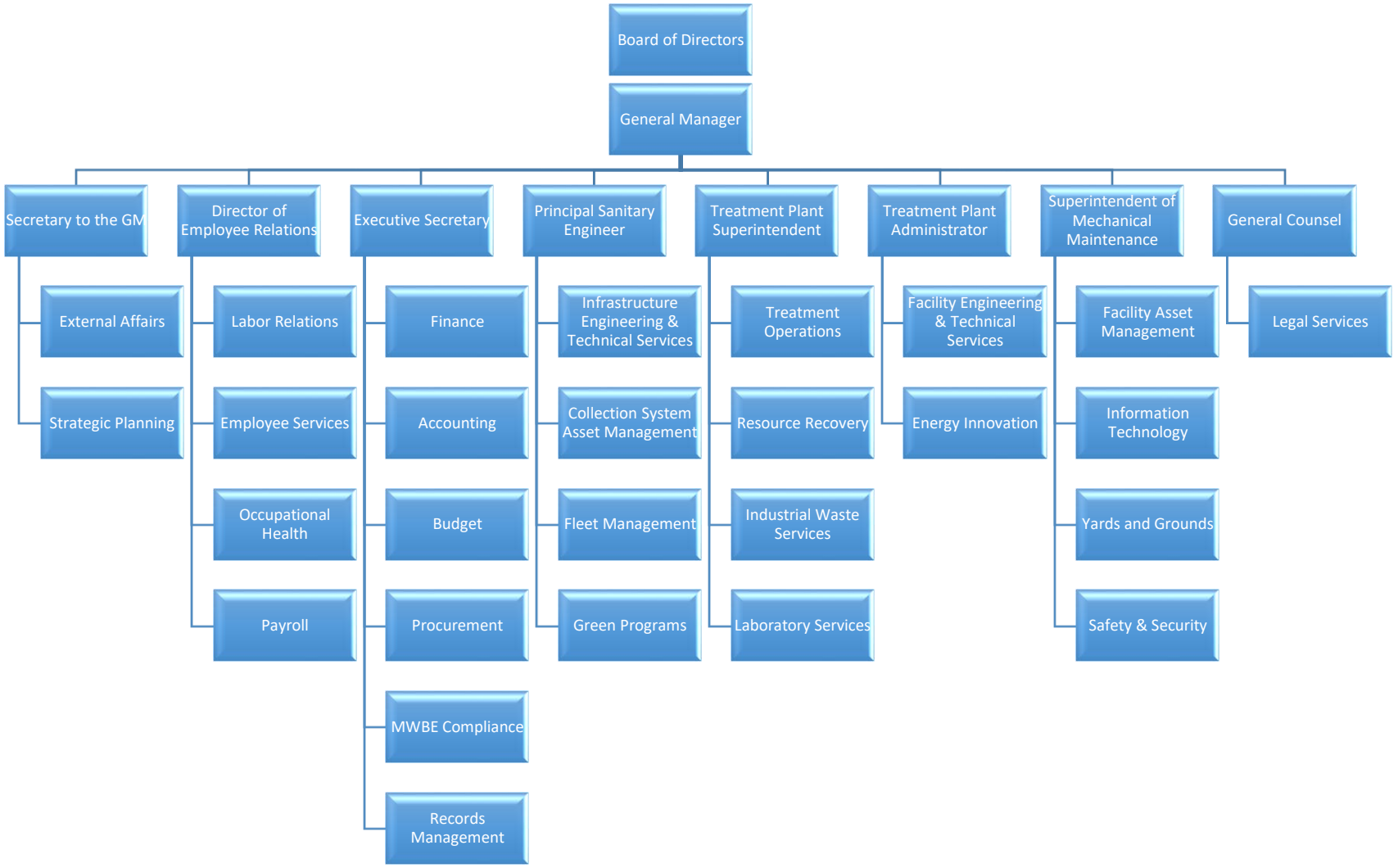


Figure 2-1: BSA Organizational Chart

2.2 Engineering Department

The Principal Sanitary Engineer, reporting directly to the General Manager, oversees the Infrastructure Engineering, Collection System Maintenance, Fleet Management and Green Programs groups. Historically the Principal Sanitary Engineer is also responsible for the daily operation of the Infrastructure Engineering and Green Program groups, which primarily operate out of the 10th floor of City Hall, but also includes the Sewer Construction Inspectors.

The Principal Sanitary Engineer serves as the lead engineer for the collection system's Capital Improvement Program and is responsible for planning, design, and construction of the system's components. The Principal Sanitary Engineer also oversees the permit review program and green infrastructure design and construction initiatives. Additionally, this position oversees collection system asset management and has worked with the Director of Sewer Maintenance to carry out such activities.

It should be noted that the Principal Sanitary Engineer position is currently vacant and the duties are being assumed by the General Manager with assistance from other BSA staff.

The Infrastructure Engineering and Technical Services Group is generally responsible for:

- Capital improvement program / construction project implementation.
- Plan reviews for new development.
- Stormwater Pollution Prevention Plan (SWPPP) reviews and inspection.
- Sewer Patrol Point inspection and record keeping.
- Municipal Separate Storm Sewer System (MS4) program implementation and reporting.
- Plan room maintenance and assistance with record drawing requests.
- Management of utility locate requests.
- Green infrastructure program development.

2.3 Sewer Maintenance Department

The Director of Sewer Maintenance, with support from the Assistant Maintenance Superintendent, supervises department employees in the construction or repair work of sewer, manholes, and receivers. Additionally, they plan and direct the preventative maintenance operations for the department, including sewer televising and cleaning, and respond to any complaints received via the Mayor's 311 hotline. On a typical workday, the Sewer Maintenance Department currently staff the following crews and vehicles:

- Emergency Repair Crews (ERCs), each comprised of 5 employees.
- Combination Cleaners
- Closed Circuit Television (CCTV) Inspection Vehicles (2)
- Receiver Cleaning Trucks

The Sewer Maintenance Building is located on Bird Island. The building houses all collection system crews, vehicles, equipment and materials, as well as the motor equipment repair shop operated by Fleet Management and a warehouse. All supervisors, administrative staff, and field personnel work out of this building. The Director of Sewer Maintenance is also supported by the Principal Sanitary Engineer and Secretary to the General Manager, both located in City Hall.

2.4 Treatment Facility Management

The Bird Island Wastewater Treatment Facility is led by the Treatment Facility Administrator and Treatment Facility Superintendent, who both report directly to the General Manager and work collectively to ensure the facility is meeting its NYSDEC State Discharge Pollutant Elimination System (SPDES) permit and complying with additional regulatory requirements.

The Treatment Facility Administrator as Chief Water Resource Recovery Facility Engineer serves as the lead engineer for the Water Resource Recovery Facility's Capital Improvement Program and is responsible for facility planning, design, and construction at the Bird Island Wastewater Treatment Facility, in addition to Energy Innovation.

The Treatment Facility Superintendent oversees daily operations and personnel at the WWTF and is responsible for ensuring the facility is meeting permitting requirements. This position requires a licensed Class IV operator who is responsible for Treatment Facility Operations, Resource Recovery, Laboratory Services, and Industrial Waste Services, which manages BSA's EPA-approved industrial pretreatment program. The Industrial Waste Section administers local, state and federal regulations that affect what businesses and industries are allowed to discharge into BSA's wastewater treatment system.

2.5 Mechanical Operations

The Superintendent of Mechanical Maintenance is responsible for Facility Asset Management of the WWTF and all associated outlying pumping stations and is responsible for overseeing all Safety & Security, Yards & Grounds, Green Infrastructure Maintenance, general WWTF operation and maintenance issues, and IT departments.

Section 3 Sewer System and Wastewater Infrastructure

3.1 Service Area

As discussed in Section 1.2 and shown in **Figure 1-1**, BSA's wastewater service area covers approximately 110 square miles including the City of Buffalo and parts of the towns of Alden, Cheektowaga, Elma, Lancaster, Tonawanda, and West Seneca and the Villages of Depew, Lancaster and Sloan, as well as Erie County Sewer District Numbers 1 and 4. Overall, the collection system serves a population of approximately 550,000 residents in 11 Western New York municipalities.

There are seven (7) satellite systems connected to BSA's collection system. The satellite systems are inspected and maintained as outlined in their respective intermunicipal agreements. These satellite systems include:

- Erie County Sewer District #1
- Erie County Sewer District #4
- Town of Cheektowaga
- Village of Sloan
- West Seneca Town Sewer Districts #1, 2, 3, 4, 9 and 10
- West Seneca Town Sewer Districts #5, 13, and 14
- West Seneca Town Sewer District #15

As of 2020, there are approximately 107,689 residential connections as well as 1,177 commercial, industrial, and governmental connections to BSA's collection system.

3.2 Collection System

BSA's collection system is comprised of both combined and separate sewers and appurtenances, including manholes, drop inlets, siphons and sewer patrol points (SPPs); outlying stations, including real-time control structures, pumping stations, gates, and additional facilities; and green infrastructure. Descriptions of each component of the collection system are provided in the sections below.

3.2.1 Gray Infrastructure

Ninety-three (93) percent of the collection system owned by BSA is a combined sanitary and stormwater system, but the City has separate sanitary and storm sewers as well. The collection system includes approximately 850 miles of gravity sewers, of which 790 miles are combined, and 52 combined sewer overflows (CSOs). There are approximately 21,300 manholes and more than 240 regulators or SPPs within the collection system. The SPPs were designed as part of the original combined sewer system and typically consist of a two-tiered chamber separated by a regulating weir. During dry weather conditions, the SPP conveys flow along one invert to the Bird Island WWTF; however, in wet weather, the weir is overtopped, and excess flow is diverted through a secondary invert to either under-capacity parts of the collection system or directly to receiving water bodies to prevent basement flooding and protect the WWTF.

Table 3-1: Pipe Material, Age, and Length

Pipe Material	Length of Pipe Installed (LF)									Percentage of Collection System
	1841-1860	1861-1880	1881-1900	1901-1920	1921-1940	1941-1980	1981-2018	Unknown Year	TOTAL	
Brick	73,416	93,253	378,367	63,786	32,268	14,989	1,021	83,833	**740,933**	16.0%
Segmented Block			857	16,288	35,208	174	751	1,848	**55,128**	1.2%
Vitrified Tile (VTP)	779	37,628	1,111,373	620,669	537,000	115,424	14,900	194,440	**2,632,213**	56.9%
Asbestos Cement (AC)		33			429	25,905	8,313	2,341	**37,020**	0.8%
Concrete		25	2,980	1,223	69,122	24,710	74	11,166	**109,299**	2.4%
Precast Concrete Pipe			205		104,341	18,236	1,628	15,770	**140,180**	3.0%
Reinforced Concrete (RCP)	351	1,692	4,608	2,672	120,905	282,633	91,190	79,573	**583,624**	12.6%
Polyvinyl Chloride (PVC)	31	623	1,202	103	663	3,325	133,047	35,418	**174,411**	3.8%
Cast Iron (CI)	32		4,838	1,526	528	2,902	41	2,590	**12,457**	0.3%
Ductile Iron (DI)		544	129			2,003	1,714	5,346	**9,736**	0.2%
Corrugated Metal (CMP)					910	2,998	1,254	1,072	**6,233**	0.1%
Gunite Rehabilitation	411	2,399	3,589	1,586	2,395	38	2,349	167	**12,934**	0.3%
High-Density Polyethylene (HDPE)							8,194	12	**8,206**	0.2%
Other / Unknown	154	5,708	8,195	7,647	10,133	12,585	17,749	41,666	**103,837**	2.2%
TOTAL	**75,175**	**141,904**	**1,516,344**	**715,500**	**913,902**	**505,922**	**282,225**	**475,241**	**4,626,212**	100%
Percentage of Collection System	1.6%	3.1%	32.8%	15.5%	19.8%	10.9%	6.1%	10.3%	100%	
Source: Buffalo Sewer GIS Data (GIS Main Length tabulated to determine totals)										

Gravity sewers and drains range in size from 6-inch to 33-feet in diameter. **Table 3-1** provides a listing of the pipe material by age and length used to construct the BSA collection system. As noted in this table, the construction of BSA's collection system began in the 1840s and the system expanded as the service area grew between the 1840s and 1910, when approximately sixty percent of the current system was installed. Approximately seventeen percent of the pipe within the collection system was installed since 1941, which further underscores the agedness of BSA's buried infrastructure.

Flow is conveyed through the collection system network to the Bird Island WWTF for treatment via two reinforced concrete intercepting sewers built in the 1930s: the North Interceptor and the South Interceptor. Major trunk sewers that are tributary to the North Interceptor are the Hertel Avenue sewers, Bird Avenue sewer, and the Scajaquada Tunnel Interceptor. The Babcock Street sewer, Swan Trunk sewer, Hamburg Street Pump Station, South Buffalo Pump Station, and the Kelly Island Pump Stations are all tributary to the South Interceptor (see Section 3.2.3 for additional information on BSA's pumping stations).

As reported in BSA's 2020 Annual Report, the average annual number of CSO events in its collection system is 518. The average annual CSO volume discharged is 2,681 million gallons (MG).[1] All CSO flow volumes and event frequencies[2] reported to the NYSDEC represent the predicted combined sewer

[1] Buffalo Sewer Authority SPDES Permit # NY0028410 Submission of Annual Report, January 30, 2020.
[2] A CSO event is the direct discharge of untreated combined stormwater and sanitary sewage to a receiving waterbody from the collection system when the collection system and facility capacity for treatment and storage is exceeded.

overflows only (excluding stormwater and stream inflows) utilizing the combined system model from BSA's approved Long-Term Control Plan (LTCP).

3.2.2 Real-Time Control Structures

Recommendations in BSA's LTCP report include using green infrastructure, optimizing SPPs, and in-line storage (ILS) utilizing Real-Time Control (RTC) as methods to potentially reduce CSOs from the BSA combined sewer system. It is estimated that approximately 97% of wet weather flows will be captured upon completion of the LTCP.

As RTCs are a part of the LTCP strategy, BSA intends to construct up to 16 RTC sites throughout their collection system. In simple terms, an ILS RTC site consists of two gates in parallel, located within a structure in an existing sewer, and flow sensors positioned in manholes both upstream and downstream of the gates. When wet weather occurs and the flow level begins to rise, the gates are closed so that flow can be stored within the upstream sewer segment. Once the wet weather event has ended and the flow level begins to subside, the gates are slowly opened so that flow can be directed to the WWTF, rather than overflowing through a CSO. The ILS sites are typically located within large sewers with minimal slope that are selected to maximize the storage volume available upstream of the ILS without creating potential issues upstream, such as basement backups and flooding in low areas. In addition to the ILS sites, BSA has also implemented one RTC (Smith Street) that functions to divert wet weather flow, using off-line valves, to an adjacent trunk sewer with available capacity in wet weather. As of the date of this report, the following RTCs have been constructed and are operational:

1. Bird Avenue
2. Lang Avenue
3. Smith Street (CSO No. 026)
4. Hazelwood Avenue
5. North Bailey
6. Hertel at Deer

The Babcock Pump Station RTC is nearing completion and construction has started on the Smith at Eagle RTC; Broadway at Oak and the Mill Race RTCs are in various stages of design.

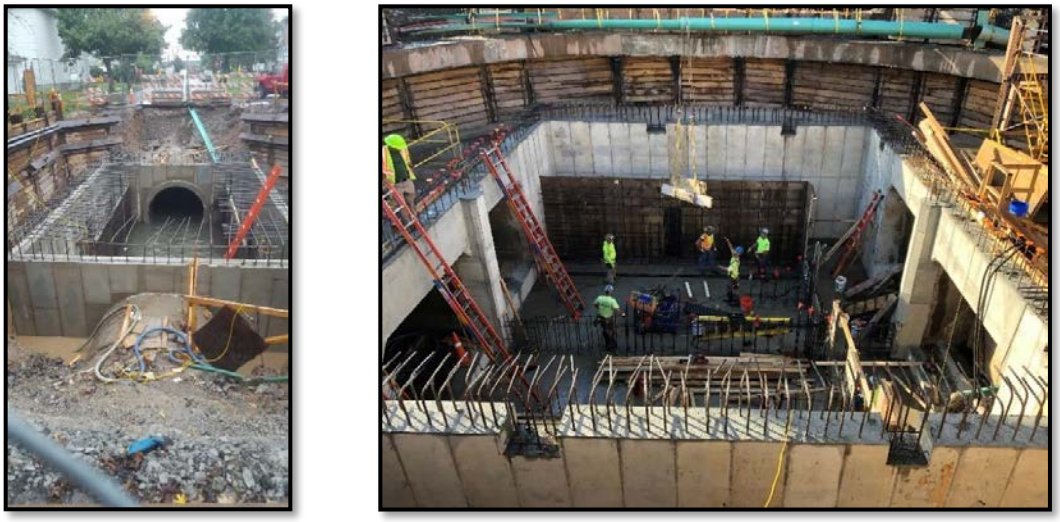


Figure 3-1: RTC Construction Sites

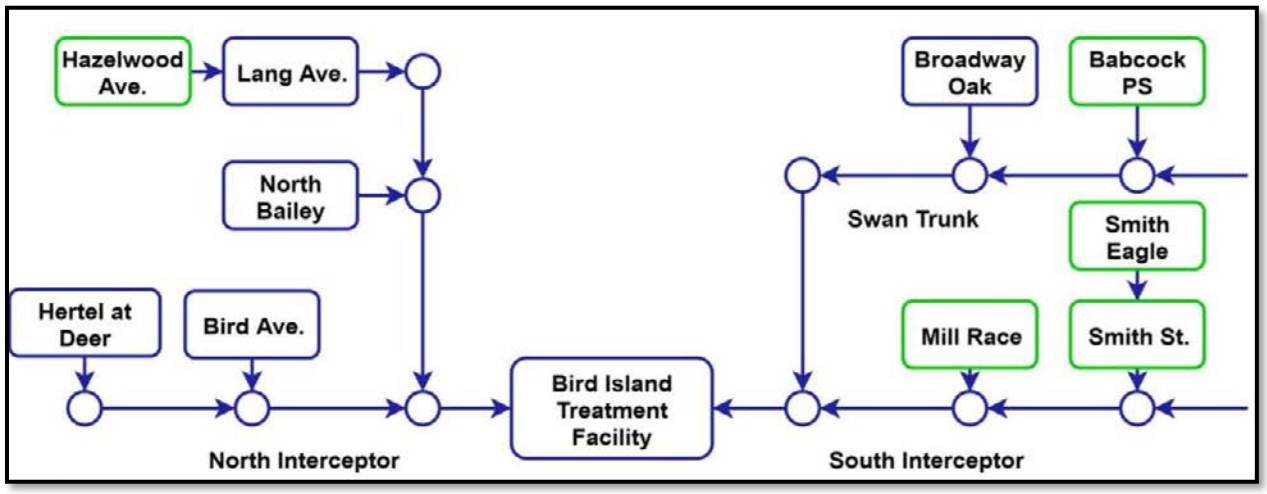


Figure 3-2: RTC Site Flow Diagram
(source: EmNet)

BSA is currently implementing ongoing RTC optimization and oversight. Additionally, to extract the maximum value of storage, conveyance, and treatment assets, a globally coordinated Real-Time Control Coordination System (RTC-CS) is required. BSA is currently executing a system-wide RTC-CS to aid in providing a comprehensive understanding of system behavior and operation characteristics, provide recommendations to inform proactive maintenance, and generate information that empowers informed decisions and globally coordinated RTC automation. A flow diagram that depicts how the currently identified RTC sites will ultimately interact with each other is provided in **Figure 3-2**.

3.2.3 Pumping Stations, Gates, and Additional Outlying Stations

The BSA collection system contains the following pumping stations to assist in conveying flow through the sewer network to the WWTF:

- South Buffalo Pump Station
- Hamburg Pump Station
- East Amherst St Pump Station / Amherst Quarry
- Babcock Pump Station
- Walden Heights
- Waterfront Village
- Tifft Farms
- Kelly Island Pump Stations
    - Ohio-Ganson Pump Station KX
    - Fuhrmann Pump Station KF
    - Skyway Pump Station KS

In addition to the pumping stations, BSA also has various additional outlying stations that were constructed to provide a specific function within the collection system. These facilities are described below.

- The Hamburg Drain Screening Facility was constructed to address the aesthetic concerns of the Hamburg Drain CSO outlet at the terminus of the Erie Canal. Utilizing automatic bar screens, the facility captures floatables from the Drain prior to its outlet at Canalside.

- The Amherst Quarry is a retention tank used during rain events. The pumps used to empty the tank (East Amherst Street Pumping Station) are on a ten-hour timer that will allow the tank to be pumped down to a safe zone once wet weather has subsided.

- The Niagara Street Metering Station, once used to monitor flows along the Scajaquada Tunnel, has not been operational for decades. BSA has discussed potentially rehabilitating or repurposing this facility in the future.

BSA's collection system was also designed with several different types of in-line gates. There are up to 25 backwater gates installed within the combined sewer that are critical to preventing flow from adjacent waterbodies from entering the sewer network. There are also up to 30 geisel gates (air-release flap type gates) that were installed along the Scajaquada Tunnel for air pressure relief, and approximately 12 gate valves are located along the Scajaquada Tunnel with one within in the area of West Delevan and Elmwood Avenues.

In addition, there are two slide gates, known as the Harbor Gates, located across the canal from the WWTF Fine Screen Building. There is one gate located on each influent line to the plant that can be used to isolate the sewer, if needed, for inspection or maintenance. The Harbor Gates chamber contains channels for stop log installation, as well.

3.2.4 Green Infrastructure

As noted previously, green infrastructure is also a critical part of the LTCP solution to minimize CSOs from BSA's combined sewer system. Since 2014, BSA has implemented various green infrastructure practices to manage approximately 66 acres of impervious area within the street right-of-way, and in 2015 BSA officially launched its green infrastructure program known as *Rain Check*. The first phase of the program, *Rain Check 1.0*, focused primarily on green streets, green parking lots, demolitions and vacant lot restoration, and rain barrels and downspout disconnection. As part of this phase, over 2,000 rain barrels were installed and maintained by BSA. The results and lessons learned from the *Rain Check 1.0* green infrastructure work was documented in a report issued in Spring 2018.

The second phase of work, *Rain Check 2.0*, outlined a plan for the how Buffalo can move forward with green infrastructure work to achieve the LTCP goals, building on the lessons learned during the first generation of green infrastructure projects undertaken. The recommendations of *Rain Check 2.0* include focusing on the following three areas:

1. New developments must meet strict stormwater requirements,
2. New investments in the public sector should consider green infrastructure, and
3. Targeted privately-owned properties should be encouraged to add green infrastructure.

Over the next five to seven years, BSA will engage with engineering, urban planning, and landscape architecture firms, to design and implement green infrastructure to manage at least 200 acres of impervious area within the street right-of-way and on public land, predominantly throughout the 6 Priority CSO Basins in ways that are consistent with the framework plan outlined in the *Rain Check 2.0* Opportunity Report. This works directly towards BSA's LTCP commitment and increases the speed of green infrastructure implementation within public spaces.

A summary of the green infrastructure projects completed by BSA to date is provided in **Table 3-2**.

Table 3-2: Green Infrastructure Projects Completed to Date in the City of Buffalo
(source: www.raincheckbuffalo.org)

Location	Project Type	Project Timeframe
Windsor Avenue	Green Streets; Rain Gardens	2011-2012
William Street	Green Streets; Rain Gardens	2017-2018
Water Worx Stormwater Education Program	Educational	2017
Traditional Demolitions	Demolition; de-paving	2001-2017
Downspout Disconnect and Rain Barrel Installation Program	Downspout disconnections; rain barrels	2015-2017
Pratt Willert Community Center	Green Parking Lots; Rain Gardens	2017
Pearl Street	Green Streets	2015-2016
Parkdale Avenue	Green Streets; Rain Gardens	2011-2012
Ohio Street	Green Streets	2013-2014
North Buffalo Ice Rick	Green Parking Lots	2010
Kenmore Avenue	Green Streets	2016
JFK Community Center	Green Parking Lots; Rain Gardens	2017
Green Post-Demolition Initiative	Demolition; de-paving; green treatment	2015-2017
Genesee Street	Green Streets; Rain Gardens	2016-2017
Clarendon Place	Green Streets	2011-2012
Claremont Avenue	Green Streets	2011-2012
Broderick Park	Green Parking Lots	2013-2014
Ardmore Place	Green Streets	2013
1401 Fillmore Avenue	Green Parking Lots	2012-2013
1384 Fillmore Avenue	Green Parking Lots	2012-2013
Richardson Olmsted Campus	Rain Gardens	2013
Buffalo Niagara Medical Campus	Green Parking Lots; Rain Gardens	2014
McKinley High School	Green Roofs; Rain Gardens	2011-2012
Elmwood Avenue	Green Streets; Rain Gardens	2011-2012
Carlton Street	Green Streets	2013-2014
Northland Avenue	Green Streets; Rain Gardens	2017-2018
Niagara Street	Green Streets; Rain Gardens	2014-2020

There are *Rain Check 2.0* projects proposed to be financed by BSA's Environmental Impact Bonds (EIB). EIBs take the form of a municipal bond issuance in which purchasers receive principal and interest as is the case with a traditional bond issuance. However, EIBs also include unique features, such as use of proceeds for environmentally beneficial projects, outcome evaluation and disclosure, and an outcomes-based mechanism. Using the proceeds from the EIB, Buffalo Sewer Authority's primary goal will be to manage at least 200 acres of impervious area with green infrastructure or new green space, predominantly within the six priority CSO basins by the end of Year 7. This effort contributes directly towards BSA's LTCP commitment and increases the speed of green infrastructure implementation within public spaces.

The BSA EIB will not only finance costs of the *Rain Check 2.0* projects in public rights of way, but also evaluation and reporting. The following table notes the allocation of EIB proceeds for each project (including construction as well as design and engineering costs).

Table 3-3: Use of EIB Proceeds by CSO Basin

Project	Estimated Allocation of Bond Proceeds ($)
CSO Basins 14 and 28	$5,000,000
CSO Basins 26, 27, 33	$23,000,000
CSO Basin 53	$19,000,000
City of Buffalo Major Projects	$5,000,000
Third-Party Evaluation and Reporting	$1,000,000
Total	**$53,000,000**

The net proceeds of the Series 2021 Bonds remaining after payment of issuance costs and the deposit to the Series Debt Reserve Fund will be used by the Authority to pay the costs of the planning, design, construction, and monitoring of the Rain Check projects. Such amounts will be tracked and disbursed for such purposes and, pending disbursement, will be invested in accordance with the terms of the Bond Resolution.

3.3 Bird Island Wastewater Treatment Facility

3.3.1 Hydraulic Capacity and Limitations

The Bird Island WWTF was originally placed into service in 1938 as a primary treatment facility with secondary treatment facilities constructed during the late 1970s in response to the Clean Water Act and placed into service in 1981. The WWTF, which provides primary and secondary treatment, disinfection and solids handling was designed and is permitted for a 12-month rolling average flow of 180 MGD. Currently, the plant treats an annual average of 130 MGD.

The facility was designed such that normally, all flow conveyed to the WWTF receives primary and secondary treatment and then is disinfected and discharged through Outfall 002. However, the treatment capacity of the primary treatment process is less than the capacity of the secondary treatment process (160 MGD versus 320 MGD) and once the capacity of the primary treatment process is exceeded, the plant enters “primary bypass mode”.

In primary bypass mode, flows which exceed the capacity of the primary system (160 MGD) bypass the primary clarifiers and are sent directly to the secondary process. All plant flows up to 320 MGD receive secondary treatment and are disinfected and discharged through Outfall 002. When wet weather influent flows exceed the capacity of the secondary treatment process (320 MGD), the plant operates in “partial treatment mode”.

In partial treatment mode, all flow receives preliminary treatment, and the majority of the plant influent flow is conveyed directly to secondary treatment, disinfected, and discharged through Outfall 002. Plant flow in excess of the secondary treatment capacity is conveyed to the primary clarifiers operating “in

flow in excess of the secondary treatment capacity is conveyed to the primary clarifiers operating "in parallel" to secondary treatment. This excess flow undergoes primary settling and disinfection and is discharged through Outfall 001. In this mode, the primary clarifiers also function as chlorine contact tanks for flows not receiving secondary treatment. Partial treatment mode was designed to maximize treatment of wet weather flows at the WWTF.

The WWTF's theoretical flow capacity of 520 MGD receives only primary treatment. Due to an existing hydraulic restriction, BSA historically has not been able to maintain flows greater than approximately 250 – 280 MGD to the secondary system, with the remainder of wet weather flows up to 410 – 440 MGD going through primary treatment and disinfection. Influent flows in excess of 520 MGD active overflows at Outfall 01A located upstream of the plant headworks. Ongoing WWTF improvement efforts will restore the hydraulic capacity of the secondary system to 360 MGD for a total plant peak flow capacity of 520 MGD. The addition of two clarifiers and modifications to existing ones are expected to increase BSA's theoretical flow capacity to 560 MGD.

The LTCP includes a No Feasible Alternatives (NFA) analysis for the WWTF upgrades, per the request of regulatory agencies. The NFA analysis incorporates significant treatment plant upgrades to expand BSA's WWTF capacity. It ensures that "Ten State Standards" are met for flows that are only given primary treatment and disinfection during wet weather, addressing the regulatory agencies' previous comment that the WWTF was not providing adequate primary treatment for flows exceeding 160 MGD while in partial treatment mode.

BSA's 2020 Financial Capability Assessment (FCA) Update identifies the Bird Island WWTF project costs to achieve the primary and secondary treatment capacities to be approximately $145M ($60M for primary treatment upgrades and $95M for secondary treatment upgrades). BSA has awarded design capital contracts both for the primary treatment renovation and preparation work in advance of the secondary treatment improvements. Construction for both projects are projected to commence in 2023 and 2022, respectively.

3.3.2 General Description of Major Processes – Liquid Stream

As noted previously, the WWTF receives combined sewer flow from the City of Buffalo, as well as all or part of nine tributary communities; these tributary communities are sanitary systems, albeit with significant infiltration/inflow (I/I) issues. Discharge from the WWTF is sent to the Niagara River through the main WWTF outfall from the secondary system (Outfall 002) and primary treatment outfall (Outfall 001) only under wet weather flow conditions. Additionally, the WWTF is equipped with Outfall 01A upstream of the plant headworks designed and operated as an emergency bypass to protect the treatment facility and collection system during extreme flow exceeding the plant capacity and/or equipment or process failure.

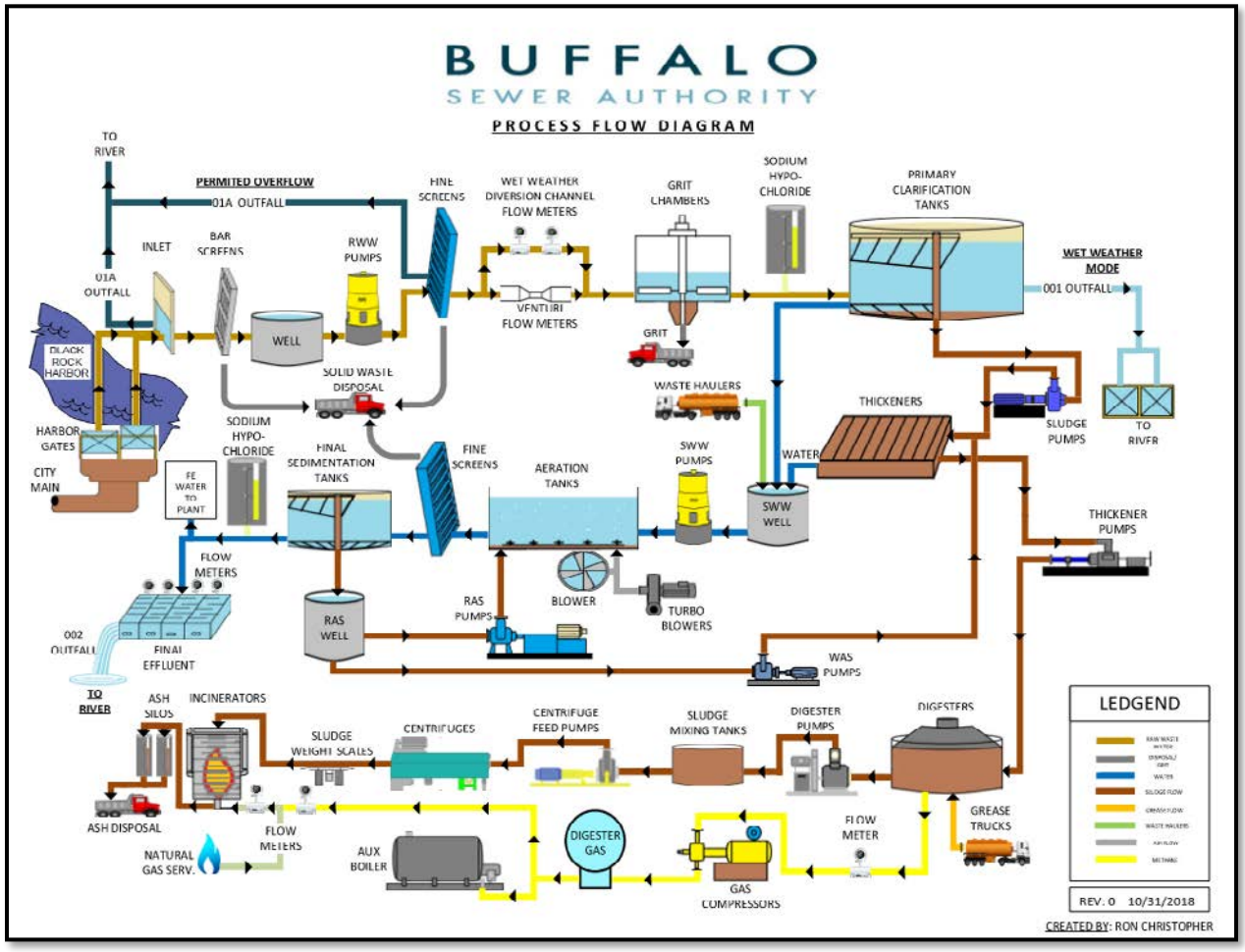


Figure 3-3: Bird Island WWTF Process Flow Diagram

3.3.2.1 Liquid Stream Process Components

- Two motor operated sluice gates (on the far side of the canal)
- Three motor operated sluice gates (on the plant side of the canal)
- Two manually cleaned coarse bar racks
- Raw Wastewater Pump Station (RWWPS) containing six pumps to lift the raw influent to the plant headworks.
- Six mechanically-cleaned fine bar screens for continuous removal of coarse solids from the influent wastewater.
- Eight vortex grit tanks for removal of inorganic matter such as sand, cinders, and other small debris.
- Four primary settling tanks to remove organic and inorganic settleable solids.
- Sodium hypochlorite system for primary effluent disinfection under partial treatment mode.
- Settled Wastewater Pumping Station (SWWPS) containing five pumps to lift the primary effluent to the activated sludge system.
- Ferric chloride addition to secondary influent for phosphorus removal.

- Activated sludge system consisting of sixteen four-pass aeration tanks (also can be operated as eight, eight pass tanks).
- Five dual-core turbo blowers and two single-stage centrifugal blowers
- Sixteen final clarifiers
- Four chlorine contact tanks
- Sodium hypochlorite facilities for disinfection of plant final effluent.

3.3.2.2 Liquid Stream Process Description

3.3.2.2.1 Preliminary and Primary Treatment

Raw wastewater enters the Bird Island WWTF east and west wet wells where it undergoes coarse screening prior to discharge into the raw wastewater pump station (RWWPS). The RWWPS consists of six (6) wastewater pumps that pull from two wet wells: three pumps per well. Two of the 120 MGD pumps are constant speed (550 HP each), two are variable speed (600 HP each), and two are dual-speed (374 HP each) with a maximum rated capacity of 120 MGD at full speed (180 RPM) and 60 MGD at reduced speed (157 RPM). The pumps were designed to pump the entire 563 MGD capacity of the two siphons into the plant. The pumps are controlled via liquid level in the two wet wells.

The RWW pumps lift raw sewage up to the fine screen influent channel where it flows by gravity through the fine screens, grit removal chamber, and to the primary influent chamber. There are six fine screens in total, one has been completely rehabbed, one is currently being refurbished, and the remaining four are in sound working condition. There are four conveyor belts in the Fine Screen Room which convey screenings to one of two screw press hoppers, where the screenings are ultimately discharged into a truck and hauled off to a landfill.

The screened influent is routed around the Administration Building via two bypass lines, each a 9-foot by 9-foot concrete channel, into one of eight vortex grit removal chambers. Typical operation requires two vortex grit units in operation at a time. Each vortex grit unit has two associated grit pumps which pump grit into classifiers and concentrator before ultimately being discharged into a lugger and hauled off to a landfill.

Downstream from grit removal, the primary influent enters the primary bypass structure. In dry weather conditions, flow is directed through the primary clarifiers. The basis of design for the primary clarifiers assumed a surface overflow rate (SOR) of 3,000 gallons per day per square foot which was industry standard at the time. This SOR translates to a maximum flow of 240 MGD to the primary clarifiers or 60 MGD per clarifier. However, the guidelines were later modified, reducing the recommended maximum SOR for primary clarifiers to 2,000 gallons per day per square foot. This SOR is equivalent to a hydraulic flow of 160 MGD or 40 MGD per clarifier, which represents a decrease of 33 percent in the overall primary treatment process capacity. The primary effluent (i.e., settled wastewater) enters the lower level effluent channels, pass through sluice gate 18 and enter the settled wastewater pumping station (SWWPS) for conveyance to the secondary treatment process.

Five settled wastewater pumps convey flow from the SWWPS up to the activated sludge process. If operating in primary bypass mode, both primary effluent and flow that bypasses the primary clarifiers feed into the SWWPS. Four of the settled wastewater pumps are variable speed and one is constant speed. The SWWPS was designed for future installation of a sixth pump should the need arise. Each SWW

pump has a capacity of 120 MGD at 88% speed. With four pumps in operation, theoretically 480 MGD can be conveyed to the secondary treatment process. With four pumps operating at 100% speed, the estimated theoretical capacity is 560 MGD.

The WWTF has a Waste Hauler Receiving Station where it accepts leachate and septage, as well as sludge from offsite haulers. The leachate and septage is discharged into the SWWPS, where is it combined with the primary effluent prior to treatment in the activated sludge system. The sludge is discharged into the anaerobic digesters, where is it combined with the co-thickened waste activated and primary sludges as described below.

3.3.2.2.1 Secondary Treatment

Settled wastewater is discharged from the SWWPS into the aeration tank influent channel where is it diverted into either Battery A or Battery B. The influent channel starts at the influent control structure and run east to Battery A and west to Battery B before turning north where they flow north along the east and west halves of the aeration tanks.

The batteries are mirror images of each other. Flow travels along the inner perimeter of the aeration tank in a 14-ft wide influent trough conveying settled wastewater to each battery. Each battery consists of eight (8) 4-pass aeration tanks, resulting in 32 equal sized passes per battery. Through a series of gates between tanks 1 and 2, 3 and 4, 5 and 6, 7 and 8, the aeration tanks can either be operated individually (4 passes total) or with two in series (8 passes total). One 4-pass aeration tank is typically used for conventional plug flow treatment. Two 4-pass aeration tanks in series are typically used for step feed treatment.

Settled wastewater is conveyed from the influent trough to Pass 1 of each aeration tank primarily via a 42-in closed conduit. This pipe has a horizontal opening at the floor of the influent trough, bends 90° and enters the aeration tank near the invert on the vertical face of Pass 1. Tanks 1 and 2 have a second inflow pipe to Pass 3 with the same pipe configuration as to Pass 1. Tanks 3 through 8 have a secondary pipe that allows for flow to both Pass 1 and Pass 3; however, in discussions with BSA, this pipe has never been utilized.

Return Activated Sludge (RAS) is mixed with the settled wastewater within the aeration tanks. Each Pass 1 has a 24-in pipe used to introduce RAS. Several of the tanks also have an additional 14-in RAS pipe, however, in discussions with BSA, these have never been utilized. For the purpose of this report, the combined RAS and SWW will be referred to as mixed liquor.

At the end of Pass 4 (or Pass 8 in step feed mode), the mixed liquor is conveyed to the aeration tank effluent channel along the outer perimeter of the aeration tank. This flow is conveyed via three 42-in effluent pipes, each with a 42-in butterfly valve for control. Tank 1 of both Battery A and B only have two 42-in effluent pipes. Within the aeration tank effluent trough, the mixed liquor from tanks 1 through 8 within a single battery is combined.

BSA has had historic maintenance issues with their secondary treatment system including grit deposition in the bottom of the aeration tanks, inoperable isolation valves, and aging piping and appurtenances beyond their useful life. Further, as described above, the secondary system has been unable to handle the wet weather flows it was originally designed for, namely 360 MGD. As such, the entire system will

undergo extensive rehabilitation as part of the upcoming Secondary Treatment Improvements Project with an estimated construction timeframe of 2021 – 2025.

3.3.2.2.2 Final Settling Tanks

Each side of the WWTF currently houses eight (8) FSTs, for a total of 16 tanks. The plant was designed such that two additional FSTs (future 9 A and B and 10 A and B) could be readily added adjacent to the existing tanks 3 & 4 on each side, should the need arise.

The mixed liquor within the aeration tank effluent trough is divided between three final settling tank (FST) influent channels on each side. These influent channels are open channels that convey the mixed liquor to the Final Settling Tank Control Buildings. The influent channels are equally spaced apart along the length of the aeration tank effluent trough. The southern channel directs flow to FSTs 1 & 2 and is 5-ft wide, the middle channel directs flow to FSTs 3 & 4 (and future 9 & 10, if ever constructed) and the northern channel directs flow to FSTs 5, 6, 7, & 8.

There are three Final Settling Tank Control Buildings on each side of the plant. The buildings are used to direct flow to the various FSTs as well as control the RAS flow between the FSTs and the aeration tanks. The mixed liquor flow enters the building and is divided between 48-in influent pipes to each FST. The entrances to these pipes are controlled by sluice gates. Each influent pipe has an inline 36-in butterfly valve used to modulate flow to the various FSTs in an effort to provide an even distribution of flow.

The FSTs are 130-ft in diameter with a peripheral feeding trough. The trough is sloped such that the lowest end is at the influent location and the highest end is directly across the tank. The mixed liquor level in the influent trough is controlled by submerged orifices through the floor of the influent trough. There are 62 orifices in each tank ranging in size with the largest diameter openings at the shallowest portion of the trough and the smallest diameter openings at the deepest portion of the trough. The distribution of sizes is to provide equal flow distribution around the periphery of the tank.

Mixed liquor solids settle to the bottom of the tank and are pumped back to the aeration tanks via the RAS wet well in the final tank control buildings and the RAS pumps.

The FST effluent is controlled by a series of finger weirs along the periphery of the tank, interior to the influent trough. There are a total of 80 fingers weirs with 2” deep, 90° v-notch weirs controlling the outflow of final effluent (FE) from the tank. The FE enters a trough around the tank that leads to a single 72-in x 36-in effluent box that connects to a 48-in effluent pipe. Each of the FST 48-in effluent discharge pipes combine into a series of box channels of increasing size and decreasing elevation. These channels convey both the A and B side FE flow to the upstream end of the CCT.

3.3.2.2.3 Chlorine Contact Tank

The two FE channels combine at the CCT mixer area. The WWTF uses sodium hypochlorite for disinfection purposes. The sodium hypochlorite system for FE disinfection includes three 4,500 gallon bulk storage tanks that are inspected every five years and remain in sound working order. Each bulk storage tank is equipped with a peristaltic metering pump to dose chlorine at the head of the CCTs, in the CCT mixer area.

The combined and disinfected FE flow enters the CCT influent channel. The channel is 18-ft wide and extends across the entire southern end of the CCT. There are four separate tanks within the CCT. The entrance to each tank is controlled by two 6-ft x 6-ft port openings with sluice gates. Each tank has six passes that are 75-ft long and 20-ft wide for a total travel length of 450-ft.

The CCT effluent is controlled by a 40-ft long weir at the end of each tank. The effluent then enters the CCT effluent trough that runs perpendicular to the CCT tanks at the northern end of the tank.

3.3.2.2.4 Primary Outfall 002

The effluent trough directs flow to the 108-in outfall pipe, with an invert of -15.17 at the west end of the tank, leading to the Niagara River. In the event this pipe is unable to pass the entire discharge, a secondary outfall is located adjacent to the primary outfall. This secondary outfall is a 90-in equivalent diameter elliptical pipe with an invert of -8.00. The secondary outfall is separated from the primary outfall by a weir along the northern edge of the CCT effluent channel. This weir is set 0.35-ft lower than the CCT effluent weir. Additionally, the total length of the weir is 286-ft, significantly longer than the combined CCT effluent weirs, in order to minimize the impact to the efficacy of the CCT effluent weir if activated. The downstream inverts of both outfall pipes are fully submerged within the Niagara River.

3.3.3 General Description of Major Processes – Solid Stream

As described above, the Bird Island WWTF is a conventional activated sludge system with primary and secondary treatment. As such, both waste activated sludge (WAS) and return activated sludge (RAS) are generated as part of the treatment process. The solids handling originally consisted of belt filter presses but were upgraded to high rate centrifuges in the early 2000s. The thickened, digested, and dewatered sludge is incinerated in one of two active incinerators on site before the ash that is generated is ultimately discharged to a nearby landfill.

3.3.3.1 Solid Stream Process Components

- Four waste activated sludge (WAS) pumps
- Seven A-side dissolved air flotation thickeners (DAFs) – not currently in use
- Seven B-side DAFs rated for 40,000 lbs per day each
- Thickening polymer feed system for enhanced thickening performance of WAS and PS upstream of DAFs including two polyblend units, one bulk storage tank, and two day tanks each with an associated chemical metering pump
- Dewatering polymer feed system for enhanced dewatering performance of co-thickened, digested WAS and PS upstream of centrifuges including one bulk storage tank, two poly blend units, and two day tanks each with an associated chemical metering pump
- Eight anaerobic digesters; four are rated for 1.9 million gallons (MG) and four are rated for 1.10 MG – two are out of service
- Two sludge mix tanks; one equipped with coarse bubble diffusers for mixing and the other is equipped with a jet mix system but is currently not in use
- Three centrifuges, each rated for 60 dry tons per day – one duty and two stand-by
- Three incinerators each rated for 60 dry tons per day; one duty, one stand-by and one is out of service

- Sludge Cake Receiving Station (SCRS) which use two piston-pumps to convey sludge cake from neighboring municipalities to the third floor of the Mega Structure where the centrifuges are housed
- Two scrubbers for incinerators #2 and #3 to meet current air regulations
- Ash handling system including two ash storage silos

3.3.3.2 Solid Stream Process Description

3.3.3.2.1 Return Activated Sludge (RAS) Processing

The RAS pumps recycle settled activated sludge from the activated sludge wet wells back to the aeration tanks. The activated sludge flows via gravity from the FST sludge chambers to the activated sludge wet wells. There are two activated sludge wet wells, one per aeration tank battery, located in their respective aeration tank pipe galleries. The WWTF currently uses one of three RAS pumps to maintain target mixed liquor concentrations in the activated sludge system.

There are three RAS pumps per sludge wet well that can return activated sludge to any combination of eight aeration tanks in their corresponding gallery. Under current aeration tank operation, RAS is delivered to the first pass of each of the 16 tanks in step-feed mode at a rate of 40% of secondary influent flow. Each of the six RAS pumps are designed for 40 MGD at 26 feet of TDH and are equipped with variable frequency, variable speed drives. The pumps are end-suction, centrifugal, solids handling type operating at a speed of 440 RPM. Each pump has a 30-inch diameter suction and discharge and is powered by a direct-coupled, 300 HP, totally enclosed, fan cooled (TEFC) motor.

3.3.3.2.2 Waste Activated Sludge (WAS) Processing

The WAS pumps are installed for each aeration tank battery to convey waste sludge from each of the two sludge wet wells to the DAFs. The 16-inch WAS discharge pipes from the WAS pumps in each battery run to the middle gallery where they merge into a common 18-inch common pipe. The combined pipe then continues south to the main equipment building that houses the DAFs. In the main equipment building, the WAS pipe merges with the primary sludge pipe from the primary clarifiers. The sludge piping can distribute sludge to any one of the seven operational DAFs with provisions to deliver to the seven out of service DAFs as well should the need arise in the future.

There are two WAS pumps per aeration tank battery located next to the RAS pumps in their respective aeration tank pipe gallery. One WAS pump is typically operated 24 hours per day at a rate of 700 GPM. The pumping rates vary from 0.4 to 0.8 MGD per pump with a typical flow rate of 0.5 MGD for each pump. The pumps are equipped with variable frequency, variable speed drives.

Upstream of the DAFs, the WAS-PS blend is dosed with a manic-type polymer for enhanced thickening. The thickening polymer system includes one bulk storage tank, two polyblend units, and two day tanks each with an associated chemical metering pump.

3.3.3.2.3 Primary Sludge (PS) Processing

There are a total of six PS pumps available to pump primary sludge to the WAS piping as described above. Two of the PS pumps are progressing cavity and four are centrifugal vortex-style pumps. Typically, no more than four pumps are in operation at one time. Each pump is designed to deliver up to 200 GPM of sludge and is equipped with a variable speed drive to vary the primary sludge flow rate as needed.

BSA has had historic maintenance issues with the PS pumping operation. As such, the entire system will undergo extensive rehabilitation as part of the upcoming Primary Treatment Improvements Project currently in the preliminary stages of design as noted in later sections.

3.3.3.2.4 Dissolved Air Flotation (DAF) Thickeners

In the main equipment building, WAS piping merges with the PS pipe from the primary clarifiers. The combined WAS and PS streams are then mixed with a thickening aid polymer solution upstream of the DAFs. There are 14 DAFs in total, 7 for each battery. However, the A side DAFs have been out of service for several years and would require significant upgrades should they be used again. Conversely, the B side DAFs have been maintained and remain in service.

3.3.3.2.5 Anaerobic Digesters and Biogas Generation

The co-thickened WAS and PS flow is then sent to the anaerobic digesters for sludge stabilization. There are eight digesters in total: 4 “new” digesters and 4 “old” digesters. Of the eight digesters, six are in service and two are out of service. Two of the operable digesters have a maximum volume of 1.83 MG each. The remaining four digesters have a maximum volume of up to 2.75 MG each.

Methane gas generated in the digestion process is stored in a 43.5-foot diameter sphere with a working pressure of 55 psi. The biogas is used to fuel three multiple hearth incinerators used for the disposal of dewatered sludge and three auxiliary boilers that provide heat for the digesters and various buildings on the Bird Island WWTF site. Excess gas not otherwise consumed is sent to one of two flares located on the gas compressor building. The waste gas flares combust the excess biogas to control emissions of volatile organic compounds (VOCs).

3.3.3.2.6 Sludge Dewatering and Incineration

Digested sludge is conveyed up to the third floor of the Mega Structure where it is injected with polymer prior to being dewatered in one of three centrifuges. Each centrifuge is rated for 60 dry tons per day. The current average loading is 35 dry tons per day requiring only one duty centrifuge with two on standby. The WWTF currently uses an emulsion type polymer for dewatering. The dewatering polymer system includes one bulk storage tank, two polyblend units, and two day tanks each with an associated chemical metering pump.

Dewatered sludge is sent to one of three incinerators via a series of conveyors. Each incinerator is rated for 60 dry tons per day. However, the maximum capacity of each incinerator is determined by the feed rate of dewatered sludge during an annual performance test. According to BSA, the current permitted limit for the two operation incinerators is just below 55 dry tons per day. Due to air quality control issues

only two of the three incinerators are in operation. The third will need to undergo rehabilitation and extensive stack testing prior to being put back in service.

Ash produced during the incineration process is conveyed to a load-out system where it is ultimately stored prior to disposal in a landfill. The bottom outlet of each incinerator is equipped with a clinker roller crusher. Crushed incinerator clinkers and ash are dropped into ash hoppers located beneath the base of each incinerators. The bottom of each hopper is connected to an 8 inch diameter ash vacuum line which pneumatically conveys the ash up 108 feet to the top of one of two silos. The ash is then separated from the air through cyclonic action after passing through a primary receiver and secondary receiver, then dumped into the silo for interim storage. Air that is displaced while filling the silo passes through a baghouse prior to discharging to the ambient air. To control particulate emissions prior to exhaustion, the air stream that exits the secondary receiver passes through a venturi air washer and wash tank at ground level.

The ash load-out system removes ash by gravity from the silo into the rear of a 40-yard dump truck. To prevent dust formation as ash is transferred from the silo to the dump truck, water is added and mixed into the ash prior to load-out.

Section 4 Regulatory Compliance and LTCP

4.1 Regulatory Compliance

4.1.1 1994 USEPA CSO Control Policy

The United States Environmental Protection Agency (USEPA) issued a national Combined Sewer Overflow (CSO) Control Policy in 1994, requiring municipalities that have combined sewer systems (CSS) with CSOs to:

- Characterize their sewer systems,
- Demonstrate implementation of the Nine Minimum Controls (NMCs), and
- Develop Long Term Control Plans (LTCPs) that will comply with the requirements of the Clean Water Act (CWA).

As BSA owns and operates a CSS with 52 permitted CSOs located throughout the collection system to relieve the CSS during wet weather events, BSA needed to develop a system-wide LTCP for CSO abatement per the 1994 USEPA CSO Control Policy.

4.1.2 State Pollutant Discharge Elimination System (SPDES) Permit

Pursuant to the 1994 USEPA CSO Control Policy, BSA was required by its State Pollutant Discharge Elimination System (SPDES) permit (Permit No. 9-1402-00154/00002), effective July 2009, to develop a CSO Abatement Plan in accordance with New York State Department of Environmental Conservation (NYSDEC) requirements. The SPDES Permit also requires the implementation of Best Management Practices (BMPs) for CSOs when developing the CSO Abatement Plan, which are equivalent to the NMCs required under the 1994 USEPA CSO Control Policy. BMPs are designed to optimize the use of operation and maintenance (O&M) procedures, utilize the existing treatment facility and collection system to the maximum extent possible, and improve sewer design, replacement, and drainage planning to maximize pollutant capture and minimize water quality impacts from CSOs.

4.1.3 Permit, Licenses, and Approvals

BSA possesses the permit required to own and operate three multiple hearth sewage sludge incinerators at the Bird Island Wastewater Treatment Facility, pursuant to New York State Title V Permit ID# 9-1402-00154/0007 (Air Title V Facility Permit).

BSA possesses the permit required to own and operate the WWTF and the CSS within the City, pursuant to its State Pollutant Discharge Elimination System (SPDES) Permit Number NY0028410. This current permit was issued via letter to BSA in 2014 with an expiration date of June 20, 2019. Filings were completed by BSA on December 6, 2018 for the purpose of renewing this permit. In accordance with the State Administrative Procedures Act, the current permit remains in effect until the NYSDEC makes a final determination on the renewal application.

The 60 miles of separate storm sewers that BSA operates within the City are regulated pursuant to State and federal municipal separate storm sewer system (MS4) regulations. In New York State, these regulations are enforced under a general permit (GP-0-15-003). BSA holds SPDES ID Number NYR20A461 pursuant to this permit.

4.2 2004 and 2014 LTCPs

BSA worked closely with USEPA and NYSDEC (collectively the Agencies) to develop and submit a LTCP. Per the 1994 USEPA CSO Control Policy, the resulting LTCPs addressed:

- Characterization, monitoring, and modeling of the CSS through collecting rainfall data, CSO and flow data, and CSS modeling,
- Public participation,
- Consideration of sensitive areas,
- Evaluation of alternatives,
- Considerations of cost and performance,
- Operational plan,
- Maximization of wet weather flow conveyed to the existing WWTF,
- Implementation schedule, and
- Post-construction compliance monitoring program.

BSA developed and submitted the LTCP in July 2004. On March 15, 2012, USEPA issued an Administrative Order (AO) to BSA that required, in part, that BSA submit an updated version of their 2004 LTCP to the Agencies, resulting in the 2014 LTCP (enacted March 18, 2014). The resulting document built upon the 2004 LTCP, by presenting additional evaluation performed and recommended CSO Abatement Plan for BSA, as well as includes a Green Infrastructure Master Plan and an update to the No Feasible Alternative (NFA) Analysis.

4.2.1 Administrative Order Requirements for 2014 LTCP

The AO required the development of an updated LTCP. The 2004 LTCP was revised to abide by 1994 USEPA CSO Control Policy and applicable New York State law and regulation. The updated 2014 LTCP detailed the construction and implementation of all improvements within the WWTF, sewer system, and other infrastructures essential to ensure that CSO discharges from all CSO discharge outfalls comply with applicable requirements and regulations, and bypasses at the WWTF are in compliance with regulated bypass conditions and remaining bypasses have no feasible alternatives. Per the AO, the 2014 LTCP evaluated the technical feasibility, applicability, and cost-performance analysis of potential system-wide alternatives to controlling overflows to sensitive areas in accordance to USEPA's 1997 *Combined Sewer Overflows Guidance for Long Term Control Plan* (the Guidance). The 2014 LTCP included a financial capability analysis that complies with the Guidance. The AO specifically mentioned that the potential system-wide alternatives should include the use of green infrastructure (GI) wherever feasible, resulting in the implementation of GI to reduce CSO volumes in the updated LTCP.

The AO also required the submittals of a Post-Construction Monitoring Plan, Final Post-Construction Monitoring Report, Semi-Annual Status Reports, and Annual Post-Construction Monitoring Report. These submissions are to update the Agencies of the progress of the work completed and in general, aid in determining, as stated previously, whether the measures implemented by the updated LTCP meet the performance criteria specified in the LTCP, whether BSA's CSOs comply with requirements stated by the CWA, CSO Control Policy, and all applicable federal and state laws and regulations, and whether all remaining bypasses are per regulatory compliance and that there are no feasible alternatives to the remaining bypasses.

The updated LTCP also included the development of a Green Infrastructure Master Plan and update of the NFA analysis for the WWTF per the Agencies' comments. The GI Master Plan provided additional information on BSA's GI program such as details on the Phase 1 GI projects to be implemented over the first five-year period when the previous LTCP excluded the use of GI unless a specific alternative was implemented. The recommended alternative stated in the NFA analysis expands BSA's WWTF and ensures that "Ten State Standards" are met for flows that are only given primary treatment and disinfection during wet weather, addressing the Agencies' previous comment that the WWTF was not providing adequate primary treatment for flows exceeding 160 MD while in partial treatment mode.

4.2.2 Implementation of BMPs

The 2014 LTCP implemented the following 15 BMPs to satisfy BSA's 2009 SPDES permit, which required BSA to implement a list of CSO-specific BMPs in the CSO Abatement Plan, and to go beyond the NMCs required by the 1994 USEPA CSO Control Policy. **Appendix F** contains excerpts of BSA's CSO Annual Report for 2020, as required under the SPDES Permit No. 002 8410.

4.2.2.1 CSO Maintenance and Inspection

The SPDES permit requires that BSA develop a written maintenance and inspection program for all of its permitted CSO regulators tributary to the CSOs. The objective of the program is to detect and prevent dry weather discharges and ensure that the maximum amount of wet weather flow is conveyed to the Bird Island WWTF for proper treatment. BSA has implemented a schedule for routine maintenance and inspection where BSA continuously inspects between 17 and 33 regulators a day, over a period of 11 days. The CSO maintenance and inspection protocols call for each sewer regulator to be inspected at least twice per month. If deficiencies are observed, an emergency repair crew is to make appropriate repairs or modifications. A report outlining the results of each inspection is to be submitted to the NYSDEC.

4.2.2.2 Maximize Use of Collection System for Storage

This CSO BMP requires optimizing of the collection system by maximizing the in-system storage capacity and flow conveyed to the WWTF without service backups or street flooding while minimizing CSO discharges. Compliance with this BMP can be achieved through methods such as evaluating the hydraulic capacity of the system, adjusting weirs and regulators, implementing a continuous flushing/cleaning program to minimize solid deposition, and applying Real-Time Control (RTC) technologies to maximize in-system storage.

BSA's 2014 LTCP performed a hydraulic capacity evaluation of the collection system and an evaluation of maximizing storage through regulator and weir adjustments, and incorporated recommendations from two RTC consultants into the alternatives for CSO control. At the time of preparing the 2014 LTCP, BSA was also in the process of designing two RTC demonstration projects in the Bird Avenue and Lang Avenue areas. In addition, BSA has an ongoing flushing program to minimize the deposition of solids.

4.2.2.3 Industrial Pretreatment

To meet the requirements for this CSO BMP, BSA:

- Is to submit a copy of every new significant industrial user permit to the NYSDEC Division of Water for review and approval before it is issued to the industry
- Does not allow batch discharges during a wet weather event, to the extent possible

- Informed all BSA permitted industrial users that non-contact cooling water is not part of that industry's process discharge
- Informed all BSA permitted industrial users that require a SPDES permit to contact the NYSDEC Division of Water for further instruction

4.2.2.4 Maximize Flow to Publicly-Owned Treatment Works

BSA designed the modification of the primary bypass chamber at Bird Island WWTF to allow additional wet weather flow to pass to the secondary treatment process train, allowing the WWTF to be able to convey flow to the rate of 360 MGD during the partial treatment mode of operation. In addition, the 2014 LTCP's wet weather operating plan has procedures to implement for flow maximization through the secondary treatment process train during wet weather.

4.2.2.5 Wet Weather Operating Plan

The BSA wet weather operating plan was drafted and submitted to NYSDEC in June 2000 and revised in 2007 due to the completion of the grit removal system modifications.

4.2.2.6 Minimization of Dry Weather Overflow

Instances of dry weather overflow is inspected as part of the ongoing routine CSO maintenance and inspection program (see Section 4.2.2.1). Dry weather overflow occurrences are to be addressed in compliance with the SPDES permit where the occurrence is to be promptly abated and reported to NYSDEC within 24 hours and a written report submitted within 14 days of the time the Permittee is notified of the incident.

4.2.2.7 Control of Floatable and Settleable Solids

This CSO BMP requires that the discharge of floating solids, oil and grease, or solids of sewage origin which can cause deposition in the receiving water to be minimized. CSO BMP activities listed in the 2014 LTCP such as CSO maintenance and inspection, and maximizing use of the collection system for storage address the requirement to control floatable and settleable solids.

BSA also currently implements routine catch basin and receiver cleaning as part of the operations and maintenance program to their collection system. In addition, the Hamburg Drain Floatables Control Facility will remove large solids from the waters before reaching the Hamburg Drain outlet at the Inner Harbor area of the Buffalo River. Routine street sweeping by the City of Buffalo Department of Public Works also aids in minimizing solids entering the CSS.

4.2.2.8 Combined Sewer System Replacement

This CSO BMP states that combined sewer replacements shall not be designed or constructed without NYSDEC approval. If a replacement is necessary, separate sanitary and storm sewers should be considered as an alternative installation instead of a combined sewer.

When applicable, BSA will consider separate sanitary and storm sewers. However, since full manhole-to-manhole replacements are rare and conflicts with other utilities and lack of downstream storm sewers are

often impractical, most replacements are in-kind. In addition, in new developments, separate storm and sanitary lines are required.

4.2.2.9 Combined Sewer Extension

This CSO BMP states that when combined sewer extensions are allowed, separate sanitary sewers should be considered as an alternative instead as no new sources of stormwater should be connected to any separate sanitary sewer in the collection system. The Permittee is to demonstrate that the existing collection system and treatment facility can sufficiently convey and treat dry weather flows due to the combined sewer extension.

As BSA does not build combined sewer extensions, this CSO BMP is not applicable. If any sewer extensions are needed, those new sewer extensions are required to be separated from storm lines.

4.2.2.10 Basement Backups

BSA is required to notify NYSDEC by letter if there are documented, recurring instances of sewage backups in houses or of raw sewage discharges to the ground surface due to surcharging manholes. BSA is also required to prohibit further connections to the system that would worsen the problem and has been implementing sewer separation projects to alleviate the backups.

4.2.2.11 Septage and Hauled Waste

BSA does not discharge or release septage or hauled waste upstream of a discharging CSO; septage and hauled waste are required to be discharged directly to be treated at the Bird Island WWTF, which has a dedicated receiving area for septage and hauled wastes. BSA has the ability to accept septage during wet weather events since the received septage and hauled waste, and all other waste streams influent to the Settled Wastewater Pumping Station receive full secondary treatment, even during high flows.

4.2.2.12 Control of Run-Off

BSA follows the procedures in NYSDEC's *NYS Stormwater Management Design Manual* to reduce runoff in new developments.

4.2.2.13 Public Notification

Signs have been posted at all CSO outfall sites owned and operated by BSA in accordance with the SPDES permit.

4.2.2.14 Characterization and Monitoring

This CSO BMP requires the characterization of the CSS as well as the monitoring of the frequencies and impacts of CSOs. The LTCP further expands upon this BMP.

4.2.2.15 Annual Report

A report summarizing the implementation of each BMP is submitted to the NYSDEC by January 31 of every year. See **Appendix F** for excerpts of the most recent annual report submitted.

4.3 2020 FCA Update

In December 2020, BSA submitted a Financial Capability Assessment (FCA) Report Update to USEPA and NYSDEC to demonstrate a financing plan and implementation schedule to the extent practicable with the economic realities of ratepayers and current and potential effects of the COVID-19 pandemic, of how to fund LTCP projects on schedule and without the need to request any future modifications to the LTCP. The updated FCA will support ongoing financial and capital planning associated with capital investments, both LTCP and non-LTCP as well as maintenance and operations. Financial and capital planning will be supported with updating the LTCP costs, with the capital cost updates being initiated primarily due to BSA's awareness of increased capital costs realized for the Bird Island WWTF facility renovations and green infrastructure. The updated FCA will further support ongoing financial and capital/operations & maintenance (O&M) planning with projections for future LTCP and non-LTCP projects and O&M requirements. This is further explained in Section 5.2.

Section 5 Financial Assessment

5.1 BSA's Revenues

Due to the COVID-19 pandemic resulting in late sewer rent payments during FYE 2020 and relief BSA received from the American Rescue Plan Act, total revenues for fiscal year (FY) ending in June 30, 2021 (FYE 2021[1]) are **expected to be** higher than normal. As a result of the higher numbers from the previous FY, BSA is projecting a 17.3% drop in revenue for FYE 2022 but is anticipating a range of 6.0% to 7.6% annual increases in future revenues for the other years within the projection period. **Table 5-1** shows past BSA revenues taken from BSA's Comprehensive Annual Financial Report (CAFR) for FYE 2011 through 2020. **Tables 5-2** and **5-3** show projected total and net revenues, respectively, for FYE 2021 through 2025.

Table 5-1: Actual Revenues from FYE 2011 to 2020

Actual Total Revenues				
FYE	$1,000s		FYE	$1,000s
2011	54,057		2016	56,872
2012	55,816		2017	61,949
2013	55,881		2018	62,817
2014	54,172		2019	58,268
2015	61,830		2020	55,406[2]

Table 5-2: Estimated Total Revenues from FYE 2021 to 2025

Estimated Total Revenues				
FYE	$1,000s		FYE	$1,000s
2021	66,330		2024	62,954
2022	54,892		2025	66,737
2023	59,072			

[1] BSA's fiscal year starts July 1 and ends June 30 of the following year. This report will refer to the fiscal year as, for example, fiscal year ending, or FYE 2021, for the fiscal year starting on July 1, 2020 and ending on June 30, 2021.

[2] CAFR FY Ending in 2020 (FYE 2020) shows the total revenue as $55,406 but BSA considers the actual total revenue to be higher as there were late sewer rent payments due to the COVID-19 pandemic to account for. The increase in estimated total revenue for FYE 2021 in **Table 5-2** ($66,330) reflects the deferral of those revenues into this fiscal year. The $66,330 also includes the $6M BSA received from the American Rescue Plan Act for lost revenue as the result of the COVID-19 pandemic, as noted in Section 5.4.3.1.

Table 5-3: Estimated Net Revenues from FYE 2021 to 2025

Estimated Net Revenues				
FYE	$1,000s		FYE	$1,000s
2021	26,013		2024	20,169
2022	13,768		2025	23,097
2023	17,126			

The estimate and actual revenues are shown in **Appendix A** and **Appendix B**, respectively. **Appendix B** shows the actual revenues for FYE 2011 through 2020, as well as the actual debt service coverage. Schedule A of **Appendix A** shows estimates of total and net revenues, and debt service coverage for each FYE 2021 through 2025.

5.2 2020 Financial Capability Assessment Update

BSA prepared and submitted their original Financial Capability Assessment (FCA) as part of the Draft Long Term Control Plan (LTCP) to the U.S. Environmental Protection Agency (USEPA) and New York State Department of Environment and Conservation (NYSDEC) (collectively the Agencies) in 2004. The 2004 Draft LTCP was then updated and replaced by the 2014 LTCP, correspondingly replacing the 2004 FCA with an updated 2012 FCA. The updated FCA demonstrated that should BSA implement the "Preferred System-Wide Alternative" detailed in the 2004 LTCP, BSA ratepayers would face a "High" economic burden, per the USEPA's 1997 *Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development* (the Guidance). As the previous FCA was prepared in 2012, BSA needed to revise the FCA.

The 2020 FCA Update was developed in accordance with the USEPA's 1997 *Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development*. The FCA Update used updated financial indicators as a basis for discussions with regulators on the ability to fund and schedule for completion of BSA's LTCP, without the need to request any future modifications to the LTCP and its schedule. Since the FCA was previously updated in 2012 along with the LTCP, changes in the scope of work, significant increases to the estimated CSO control project costs, and unforeseen schedule delays warranted a re-evaluation for consideration of flexibility with the current LTCP implementation schedule. The updated FCA also supported ongoing financial and capital planning associated with capital investments, both LTCP and non-LTCP as well as maintenance and operations. In addition, the 2020 FCA Update recognized other unique local financial challenges such as the rates of population and household decline in the City, and rising unemployment rates due to the COVID-19 pandemic, as reflective of BSA ratepayers' ability to fund LTCP projects on schedule.

The FCA Update utilized the two-phase approach outlined in the Guidance. The first phase determines the financial impact wastewater and CSO controls would have on individual households by calculating the Residential Indicator (RI). The FCA Update determined that the RI was "High" for the City, meaning that ratepayers would shoulder a high burden as a result of the change of LTCP costs. The second phase develops an overall Financial Capability Indicator (FCI) to show the overall financial health of the City, using factors such as the City's unemployment rate and median household income. The FCA Update determined that the City's FCI was "Weak." The RI and FCI resulting from these phases are combined in a Financial Capability Matrix and used to give an overall assessment of the Permittee's financial

capability. The matrix, shown in the following table: Financial Capability Matrix, shows the overall level of burden associated with funding CSO controls on the Permittee and its residents.

Table 5-4: Financial Capability Matrix

Financial Capability Indicator	Residential Indicator (Cost Per Household as a % of MHI)		
	Low (1.0% and Below)	Mid-Range (1.0% to 2.0%)	High (2.0% and Above)
Weak (1.5 and Below)	Medium Burden	High Burden	High Burden
Mid-Range (1.5 to 2.5)	Low Burden	Medium Burden	High Burden
Strong (2.5 and Above)	Low Burden	Low Burden	Medium Burden

As shown in the table below, the Guidance's Financial Capability Matrix gave the City of Buffalo ratepayers a score of "High Burden" as the result of the current anticipated LTCP cost to complete of $537M (2019$). The score did not change from the 2012 FCA's evaluation which stated that BSA ratepayers would face a "High Burden" if BSA implemented the "Preferred System-Wide Alternative," as stated earlier.

Table 5-5: FCA Update Overall Financial Capability Matrix

Description	2019 Basis City of Buffalo	Line No.
1. Residential Indicator Score (Line 205)		
a. Actual Value	2.63%	1001
b. Financial Impact	High	
2. Financial Capability Indictors Score (Line 907)		
a. Actual Value	1	1002
b. Financial Indicator	Weak	
3. Financial Capability Matrix Category	High Burden	1003

The current anticipated LTCP cost to complete within 20 years is $537M (2019$) with a projected required debt limit of $510M in 2019$ to achieve the current implementation schedule or $636M (2034$) using a 2.8% construction inflationary factor applied to project costs per year to coincide with the current completion requirement of 2034. The current LTCP implementation schedule anticipates exceeding the current NYS-approved debt limit of $250M by 2025 and requiring a debt limit of more than double by 2032. The current LTCP implementation schedule has a lowest quintile residential indicator rising to 4.3% and exceeding the 2% high financial impact threshold in 2024. BSA's debt limit (YTD outstanding $42M) was increased by NYS legislature on March 1, 2018 to $250M from $125M. BSA is currently seeking an additional legislative increase to $500M due to the recent FCA analysis conducted on projected financing needs. Based on discussions to date, BSA has the support of the NYS Assembly for this debt limit increase.

The 2020 FCA Update evaluated an alternative to the current LTCP schedule to lessen the financial burden on BSA's ratepayers. The recommended alternative asks for a 20-year extension to the current LTCP schedule where the new schedule of completion would be 2054. The recommended LTCP implementation schedule with updated LTCP cost to complete of $482M (2019$) would require a debt limit of $321M in 2019$ to achieve the recommended implementation schedule or $690M (2054$) using a 2.8% construction inflationary factor applied to project costs per year to coincide with the recommended schedule completion in 2054. The recommended LTCP implementation schedule has a lowest quintile residential indicator rising to 3.7% exceeding the 2% high financial impact threshold in 2027. The recommended implementation schedule anticipates exceeding the current debt limit of $250M in 2030 and requiring an indexed debt limit of nearly tripling by 2054. Revising the debt limit would require New York State legislative and executive action. If increasing BSA's debt limits is not feasible, then it is estimated approximately 50% of the LTCP will need to be funded using cash reserves and even more significant rate increases to generate adequate revenues will be required. However, as noted in the previous paragraph, BSA has the support of the NYS Assembly for its debt limit increase to $500M and negotiations are ongoing.

5.3 COVID-19

The COVID-19 pandemic has financially distressed federal, state, and local governments at all levels with states and local governments furloughing employees to address financial shortfalls. If economic recovery from the COVID-19 pandemic is of an extended duration, governmental agencies at all levels will undoubtedly be required to make budget adjustments to focus on critical services and incur budget deficits which will impact their ability to provide services for the foreseeable future. Due to the deferral of revenues to FYE 2021 and relief from the American Rescue Plan Act during that FY, BSA is projecting a 17.3% decrease in revenue for FYE 2022, but is anticipating a range of 6.0% to 7.6% annual increases in future revenues for the other years within the projection period; however the actual impact is yet to be determined.

5.3.1 Legislative Developments

The Federal 2021 Appropriations and COVID-19 Relief bill that was signed into law on December 27, 2020, provided for $638M to create a Low-Income Household Drinking Water and Wastewater Emergency Assistance Program. The funds will be disbursed by the U.S. Department of Health and Human Services (HHS) to states, which will then distribute the funds to public water and wastewater utilities to assist low-income ratepayers. To date, HHS and New York State have not announced how the funds will be distributed and it is unknown how much BSA will receive to assist low-income ratepayers, and what conditions may apply to this funding. The Federal 2021 Appropriations and COVID-19 Relief bill also included $25B in funds for an Emergency Rental Assistance Program (ERAP) to assist households unable to pay rent and utilities as a result of COVID-19. This funding is being disbursed to states through the U.S. Treasury Department, and the states will be distributing the funds directly to households and landlords. The program has not yet been finalized in New York State and its effect on customer arrearages for BSA is not yet known.

On March 11, 2021, a new COVID-19 economic relief package was signed into law by the federal government. This law provides an additional $500M in assistance for water and wastewater ratepayers. It also provides that water and sewer infrastructure projects across the country may be eligible to access a portion of the $350B provided in the bill for state and local fiscal recovery from revenue losses due to COVID-19. From that portion, the City of Buffalo was specifically allocated $350M in funding to address

lost revenue, city expenses, direct assistance to residents, support of cultural and tourist institutions, and infrastructure, which explicitly includes water, sewer, and broadband. At a minimum, approximately $6M will be allocated to BSA for lost revenue and $20M in funding allocated for sewer infrastructure (in particular, green infrastructure).

5.4 Environmental Impact Bond

The following sections document the assumptions and analysis underlying the projections provided in **Appendix A**. Prior to addressing the specific notes in **Appendix A**, overview comments regarding the bond issue, BSA's proposed 5-year CIP, recent rate developments, the affordability of sewer rates and a comparison of BSA's rates to other jurisdictions is provided. A discussion of other factors pertinent to the achievability of the forecast is presented.

5.4.1 Bond Issuance

The proposed bond issue will be BSA's first and only Environmental Impact Bond (EIB) to date. The objective of this bond issue is to increase the amount of green infrastructure in the BSA service area. The measure of success will be acres of impervious surface managed. A reduction in impervious area is expected to lower Long-Term Control Plan (LTCP) costs. The firm Arcadis will serve the role of Validator in determining project success. In performing the forecasted debt service coverage calculations, project success was assumed.

5.4.2 Other Bond Issue During the Forecast Period

During the forecast period, BSA will add a new bond issue in addition to the EIB:

- EFC 2022 issue - $35,000,000

The EFC 2022 issue proceeds are targeted for the Bird Island Wastewater Treatment Facility (WWTF) which services the City of Buffalo and several surrounding municipalities. This project will rehabilitate the existing secondary system to maximize flows through the aeration system of the WWTF in furtherance on the No Feasible Alternative of the LTCP in accordance with Administrative Order No. CWA-02-2014-3033 SPDES Permit No. NY0028410.

5.4.3 Capital Improvement Program (CIP) During the Forecast Period

BSA's 5-year Capital Improvement Program (CIP) is currently $386,690,000 and is summarized in **Table 5-6**. The projected five-year amount available to fund this CIP is approximately $200,000,000 as detailed below:

- EIB and EFC bond issues - $90,000,000
- Capital available from reserves ($4,000,000 per year FYE 2021 – 2025) - $20,000,000.
- Capital contributions available from operations - $61,620,302. For the forecast period capital contributions available are gross revenues minus all cash outlays (operations, debt service etc.) from 2 years prior.

The 5-year CIP funding gap is $215,759,000:

Table 5-6: BSA CIP FYE 2021 to 2025 Funding ($000)

FYE	2021	2022	2023	2024	2025	Total
LTCP Costs	$ 55,367	$ 15,949	$ 41,252	$ 29,840	$ 98,957	$ 241,365
Non-LTCP Costs	$ 18,250	$ 26,150	$ 24,700	$ 40,725	$ 35,500	$ 145,325
Total Capital Needs	$ 73,617	$ 42,099	$ 65,952	$ 70,565	$ 134,457	$ 386,690
Available Capital (Schedule A)	$ 72,276	$ 49,798	$ 26,606	$ 10,671	$ 12,270	$ 171,620
Gap in Funding	$ 1,341	($ 7,699)	$ 39,346	$ 59,894	$ 122,187	$ 215,070

With the recent announcement of COVID-19 relief funding allocated to BSA (see Section 5.4.3.1), the gap is reduced to $195,070,000 with $20,000,000 in infrastructure funding as presented in Table 5-7 below:

Table 5-7: BSA CIP FYE 2021 to 2025 Funding with COVID-19 Relief ($000)

FYE	2021	2022	2023	2024	2025	Total
Total Capital Needs	$ 73,617	$ 42,099	$ 65,952	$ 70,565	$ 134,457	$ 386,690
Available Capital (Schedule A)	$ 72,276	$ 49,798	$ 26,606	$ 10,671	$ 12,270	$ 171,620
COVID-19 Relief	$ 20,000					$ 20,000
Gap in Funding	($ 18,659)	($ 7,699)	$ 39,346	$ 59,894	$ 122,187	$ 195,070

With a one-year schedule stretch out to FYE 2026, the capital needs gap is further reduced by $30.6M from $195,070,000 to $164,426,000.

Table 5-8: BSA CIP FYE 2021 to 2025 Funding with COVID-19 Relief ($000)

FYE 2021 – 2025	Total
Total Capital Needs	$ 386,690
Available Capital (Schedule A)	$ 171,620
COVID-19 Relief	$ 20,000
One Year Stretch Out: Additional Available Capital for FYE 2021 – 2025	$ 30,644
Gap in Funding	$ 164,426

5.4.3.1 Options for Managing Gaps in CIP Funding

BSA has several options available to manage possible gaps in funding the CIP:

- Obtain an extension of the LTCP schedule (see Section 5.4.3.1.1) as this would adequately stretch out annual capital needs.
- Increasing capital contributions from reserves and reducing the time period for making capital contributions from operations available to one year.
- Capital funding gaps could be partially addressed by schedule stretch outs for non-LTCP projects.
- As needed, BSA could issue additional bonds. Additional bonds would most likely be a combination of EFC and publicly held bonds. Because of their more favorable terms, BSA will maximize the amount of EFC bonds, some of which will require no interest payments.

- Federal legislation of the American Jobs Plan funding, with rollout expected in Summer 2021.
- BSA will increase rates and other charges to support overall LTCP projects and receiving additional revenue from sewer rate restructuring tied to home property valuations. Assessment rates, based upon the $12M cost valuation, have declined because of increases in property values. Buffalo real estate appreciated 55.05% in the past decade putting it in the top 10% nationally. In 2021, assessment rates moved to .95 per $1,000 from 1.64 per $1,000 to keep the total cost valuation at $12M. If having kept the previous 1.64/$1,000, BSA would have realized an additional $8.8M in assessed sewer rents over the past year. BSA plans to update the existing rate structure (effective FYE 2023 at the earliest) that is more revenue resilient. Over three to five years, this could lead to an increase in $10M-$12M of annual revenue. See Section 5.4.3.1.4 and Section 5.4.6.1 for further details on rate increases and multiple revenue sources, respectively.

5.4.3.1.1 Extension of LTCP Schedule

BSA is seeking an extension of the schedule for implementing the LTCP (issued under USEPA/NYSDEC administrative order) which would lower the amount of the CIP, LTCP, and non-LTCP costs required during the forecast period. The basis for this extension is inflationary adjustments for Real Time Control (RTC) project costs which affect GI/CSO projects, innovative financing, and maintaining rate affordability for the City Buffalo's underserved population. The specific mechanism for modifying LTCP schedules is known as Integrated Planning for Municipal Stormwater and Wastewater. A 15-to-20 year schedule extension utilizing Integrated Planning was discussed in the 2020 FCA Update performed for BSA and described in the EIB Preliminary Official Statement (POS). USEPA's inventory of Municipal Integrated Plans as of March 2021, lists 27 plans, including Atlanta, another system that utilized an EIB. Some of these Integrated Plans include schedule extensions (an e-mail regarding Baltimore's Integrated Plan indicated that portions of their plan were extended more than 15 years). Although not listed in the USEPA inventory, DC Water's Integrated Plan received a 5-year extension. DC Water also utilized an EIB. USEPA has granted such extensions to other agencies. If a 15-to-20-year extension is granted, the 5-year CIP would be significantly reduced. The benefits of an Integrated Planning extension for this project will:

- Provide immediate CIP funding relief to a more realizable goal.
- Reduce and stretch out non LTCP projects beyond the forecast period.
- Mitigate and reduce the amount of ratepayer increases throughout the forecasted period
- Reduce the amount of LTCP financing requirements.

5.4.3.1.2 Benefits of Successful EIB Infrastructure

- Successful EIB projects would reduce the size of the 5-year CIP (the projection incorporates highest possible debt service, the result of project success) and projects under the ongoing LTCP.
- Successful EIB projects would reduce O&M costs within BSA infrastructure due to reduced intake flow from runoffs.
- Successful EIB projects will result in minimal long-term CIP maintenance cost for more than 30 years consistent with the project life of the proposed projects. Most of these costs will be the responsibility of partners (local governments, other community groups, stakeholders, large business institutions).

5.4.3.1.3 Grants and Federal Appropriations

- Over the past six (6) years BSA has received nearly $20,000,000 in capital grants and contributions and continues to pursue such opportunities, including but not limited to NYSEFC funding. One near term opportunity for such funds comes from COVID-19 relief:
- An additional near-term opportunity for such funds comes from COVID-19 relief legislation. As noted in Section 5.3.1:
    - The Federal 2021 Appropriations and COVID-19 Relief bill that was signed into law on December 27, 2020, providing for $638M to create a Low-Income Household Drinking Water and Wastewater Emergency Assistance Program. To date, HHS and New York State have not announced how the funds will be distributed and it is unknown how much BSA will receive to assist low-income ratepayers, and what conditions may apply to this funding. The Federal 2021 Appropriations and COVID-19 Relief bill also included $25B in funds for an Emergency Rental Assistance Program (ERAP) to assist households unable to pay rent and utilities as a result of COVID-19. The program has not yet been finalized in New York State and its effect on customer arrearages for BSA is not yet known.
    - On March 11, 2021, a new COVID-19 economic relief package was signed into law to provide an additional $500M in assistance for water and wastewater ratepayers. It also provides that water and sewer infrastructure projects across the country may be eligible to access a portion of the $350B provided in the bill for state and local fiscal recovery from revenue losses due to COVID-19. Under this legislation, the City of Buffalo expects to receive approximately $350M. At a minimum, approximately $6M has been allocated to BSA for lost revenue and $20M in funding allocated for sewer infrastructure (in particular, green infrastructure).

5.4.3.1.4 Increase in BSA's Current Rate Structure

- The rate structure offers significant opportunities for additional and more reliable operating revenues which would increase the amount of capital contributions available from operations. Currently, three quarters of operating revenues are usage based (metered and flat rate water use rents, outside city connections and industrial waste) with less than one quarter coming from assessments on property. In Buffalo, 63.6% of the housing stock is renter occupied (City of Buffalo 2020 – 2024 Consolidated Plan, 2020 Action Plan) and 22.7% of all households are severely cost burdened. BSA plans to have a rate structure study in in the coming year to update the existing rate structure to one that is more revenue resilient and provides for water equity. This could be achieved through a significant increase in revenues from assessed sewer rents. Fortunately, the robust real estate market in Buffalo should make this easy to achieve. Norada Real Estate Investments notes that Buffalo real estate appreciated 55.05% in the past decade putting it in the top 10% nationally.
- Other areas for additional rate revenues include outside district connections and miscellaneous fees and charges.
- Increase in revenues by accepting more biosolids from surrounding municipalities due to rising landfill costs

- BSA is seeking to address rate increases as a tertiary measure after exhausting all other potential alternatives to minimize the financial impact on its ratepayers.

5.4.3.1.5 Issuance of More Bonds

- This EIB represents BSA's second largest bond issuance since 1993. Subsequent financing was obtained through the NYS Environmental Facilities Corporation. Since 2003, this State Revolving Fund (SRF) has provided over $67M in low-cost funding with favorable terms and conditions to BSA.
- BSA is well positioned to continue with exploring these and other low-cost funding alternatives to address it financing needs.
- BSA's projections contemplate one or more public bond issues beginning in FYE 2026.
- BSA's debt limit (YTD outstanding debt is $42M) was increased by the NYS legislature on 3/1/2018 to $250M from $125M. BSA is currently seeking an additional legislative increase to $500M due to a recent FCA analysis conducted on projected financing needs.

5.4.3.2 CIP Impact in Operating Expenditures

BSA Management does not expect this CIP to require an increase in O&M expenditures above forecasted amounts for the following reasons:

- Green infrastructure projects are designed to reduce flows to the treatment plant and therefore should reduce plant O&M.
- BSA has already staffed up for other green infrastructure projects.
- Some plant projects are efficiency driven and will lower operating costs.
- No new capacity is being added by the CIP.

5.4.4 Recent Rate Developments

BSA regularly performs rate reviews and formal rate studies to verify the accuracy and appropriateness of rates. BSA's last rate increase occurred July 1, 2005. BSA has nine revenue sources. The following is a description with the 2020 – 2021 schedule of charge, as seen in **Appendix E**.

5.4.4.1 Assessed Sewer Rents in City

An amount (currently $12,050,000) shall be collected from all real property in the City of Buffalo (the "City") by apportioning the said amount upon such property within the City as the same is set down on the last completed annual assessment roll of the City, except that no ad valorem sewer rent shall be assessed against real property exempt from real property taxes.

5.4.4.2 Metered Water Use Sewer Rents

If a customer is a user of water supplied by the Buffalo Water Board or from any other source, and the quantity of water used is measured by a water meter acceptable to BSA, then in each such case, the quantity of water used, as measured by said meter, shall be used to determine the sewer charge or rental, and the charge for such use shall be as follows:

1. $48.30 for 0 to 4,000 cubic feet of water used per quarter year, if the meter is read quarterly, and any water used in excess thereof shall bear a sewer charge or rental of $11.09 per thousand cubic feet ($.0111 per cubic foot).
2. $16.10 for 0 to 1,333 cubic feet of water used per month, if the meter is read monthly, and any water used in excess thereof shall bear a sewer charge or rental of $11.09 per thousand cubic feet ($.0111 per cubic foot).

5.4.4.3 Assessed Sewer Rents Outside City

An annual service charge for the privilege of connecting with the facilities of BSA shall be due for any premises situated outside the limits of the City for each $1,000 of assessed valuation as determined on the last completed annual assessment. The 2020 – 2021 rate is $2.71239 per $1,000 of assessed valuation.

5.4.4.4 Metered Sewer Rents Outside City

If an outside City customer is a user of water supplied by the Buffalo Water Board or from any other source, and the quantity of water used is measured by a water meter acceptable to BSA, then in each such case, the quantity of water used, as measured by said meter, shall be used to determine the sewer charge or rental, and the charge for such use shall be as follows:

1. $48.30 for 0 to 4,000 cubic feet of water used per quarter year, if the meter is read quarterly, and any water used in excess thereof shall bear a sewer charge or rental of $11.09 per thousand cubic feet ($.0111 per cubic foot).
2. $16.10 for 0 to 1,333 cubic feet of water used per month, if the meter is read monthly, and any water used in excess thereof shall bear a sewer charge or rental of $11.09 per thousand cubic feet ($.0111 per cubic foot).

5.4.4.5 Flat Rate Water Use Rents

If a customer is a user of water supplied by the Buffalo Water Board, and the quantity of water used is not measured by a water meter acceptable to BSA, then the sewer charge or rental for all such accounts shall be determined through a table of descriptors (building height, fixtures, etc.).

5.4.4.6 Industrial Waste

As a condition of a Buffalo Discharge Elimination System Permit (BPDES), a user may be required to pay an industrial waste surcharge for discharging sewage or waste exhibiting a strength of sewage or waste greater than normal domestic sewage.

5.4.4.7 Outside City Districts

BSA currently has seven service contracts with municipalities and sewer districts outside the city limits. These districts are billed for their share of costs allocable to the treatment of their flow to the treatment plant. Allocable costs include portions of administrative expenses, Treatment Plant expenses, Industrial Waste expenses, the costs to maintain trunk sewers, and debt service costs. The municipality or district is billed twice annually for services. The municipality or district is billed, not individual property owners. Intermunicipal agreements (IMAs) with each Outside City District covers flow measurement. Under the IMAs, each District is responsible for installing and maintaining meters at BSA city lines. BSA has rights to challenge accuracy of meters including installing test meters.

- Erie County Sewer District #1 connects to the Buffalo Sewer System through a 36" main on Mineral Springs Road at the City/Town line. Flows from this district are measured through a metering station located just to the east of the I-90 highway overpass of Mineral Springs Road.
- Erie County Sewer District #4 connects into the Buffalo Sewer Interceptor System through a 66" main at Bailey and Seneca Streets. There is one upstream Buffalo Sewer connection to this line at Cable Street and the Buffalo River through a 10" combined sewer. The flows from Erie County Sewer District #4 are measured at a Metering Station located at 75 South Pierce Street.
- The Town of Cheektowaga discharges to the Buffalo Sewer System through a 48" sewer connection the Scajaquada Tunnel in Schiller Park at the City/Town line. Flows are measured through a metering station at the point of interconnection.
- The Village of Sloan connects to the Buffalo Sewer System through three distinct connections: an 18" sanitary sewer connection to a 20" combined sewer on Vanderbilt Street at the City Line; an 8" sanitary sewer connection to the 15" combined sewer at the intersection of Richard and Cambria; and a 12" sanitary sewer connection to a 15" combined sewer at Richard Drive and the City line. The Village of Sloan is required to operate and maintain flow metering devices and provide records upon request for the first two connections and for the last charges are based on water usage.
- West Seneca Sewer Districts 1, 2, and 10 connect to the Buffalo Sewer System through a 20" sanitary sewer that discharges to a 20" combined sewer at Wildwood Avenue and Beyer Place. West Seneca Sewer District 3 discharges through a 10" sanitary sewer connection to the 10" combined sewer at Edson Street at the City line. West Seneca Sewer District 4 discharges to the Buffalo Sewer System through a 10" combined sewer connection at Duerstein and the City line. West Seneca Sewer District 9 discharges to the Buffalo Sewer System through a 12" sanitary sewer connection to a 12" combined sewer at Burch Street at the City line. The Town of West Seneca is required to operate and maintain flow metering devices for all of these points of interconnection.
- West Seneca Town Sewer Districts 5, 13, and 14 discharge to Buffalo Sewer through a 36" sanitary sewer which connects into the Buffalo Sewer System at its intersection with a 42" main in Cazenovia Park approximately 300 feet southeast of Cazenovia Parkway. The Town of West Seneca is required to operate and maintain flow metering devices this point of interconnection.
- West Seneca Sewer District connects to Buffalo's Sewer System through a 10" sanitary connection at Pierce and Casimir Streets. The Town of West Seneca is required to operate and maintain a flow metering device at this point of interconnection.

Debt service costs are allocated to outside City Districts based on historic flows to the treatment plant.

5.4.4.8 Miscellaneous Fees and Charges

Miscellaneous fees and charges include drainage connection service charges, waste hauler charges, interest charges on overdue bills and other fees and charges typical of a wastewater utility.

5.4.5 Rate Comparison and Affordability

Rates for the City of Buffalo and other municipalities within New York State are regularly compared by BSA as part of the rate process. For purposes of comparison, residential user charges are based upon information provided by the identified cities and standardized assumptions regarding water consumption, namely 12,000 cubic feet or the equivalent of 89,760 gallons. Annual water use at this volume figure is used consistently for comparative purposes, recognizing that the typical customer in each class in each city may use different volumes of sewer. Finally, average assessed value in each community was considered. The chart below for FYE 2020 presents this comparison.

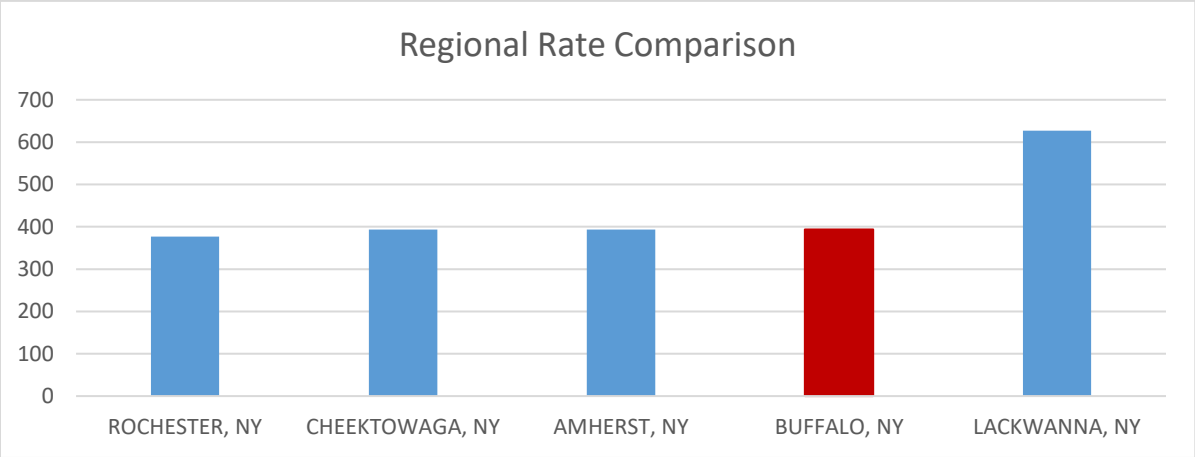


Figure 5-1: Comparison of Rates for the City of Buffalo vs. Other Municipalities

Buffalo Sewer Authority's rates have historically been low compared to other wastewater utilities in the United States:

- Most BSA customers pay a quarterly bill of $66.30 for up to 4,000 cubic feet (CF) or $22.10 per month for up to 1,333 CF. In the American Water Works Association (AWWA) 2019 survey, the 41 Group B systems (wastewater utilities serving between 100,000 and 900,000 customers) had an average monthly bill for 1,000 CF of $52.90 and a median bill for 1,000 CF of $48.94. Since most utilities do not have the ability to charge assessments the appropriate BSA monthly bill, for comparison purposes should be $32.80, the average bill used in the regional comparison.
- The 2019 QualServe Benchmarking median average monthly bill for 7,500 gallons per month was $52.20.
- In city affordability (average bill divided by median household income) is better (lower) than the average and median affordability of similarly sized utilities in the 2019 AWWA survey.

5.4.6 Other Pertinent Factors

BSA's ability to afford additional debt is based on several factors:

- It has multiple sources of revenue.
- The last rate increase was in 2005.

- Plans to increase rate revenues from non-usage based rates.
- It does not need approval to raise assessment rates.
- 10-year trends in its revenue sources are all positive.
- Diverse customer base – only one customer represents more than 1% of revenues.
- It enters this period of debt issuance with high debt service coverage levels.
- Demonstrated ability to manage debt.
- Ample plant capacity.

5.4.6.1 Multiple Revenue Sources

Approximately 76% of revenues are usage based, i.e., based on volume (and strength for industrial customers). The remainder of revenue is based on assessments, a fixed revenue source. Since about two thirds of BSA's residential customers are tenants, increasing revenues from non-usage based rates (assessments) would increase revenue resiliency and water equity by reducing the reliance on revenues from consumption based rate payers.

BSA collects revenues from:

- Metered and flat rate water use rents (revenue driver is volume of wastewater treated).

The volume of wastewater that BSA treats is increasing, as seen in **Figure 5-2**:

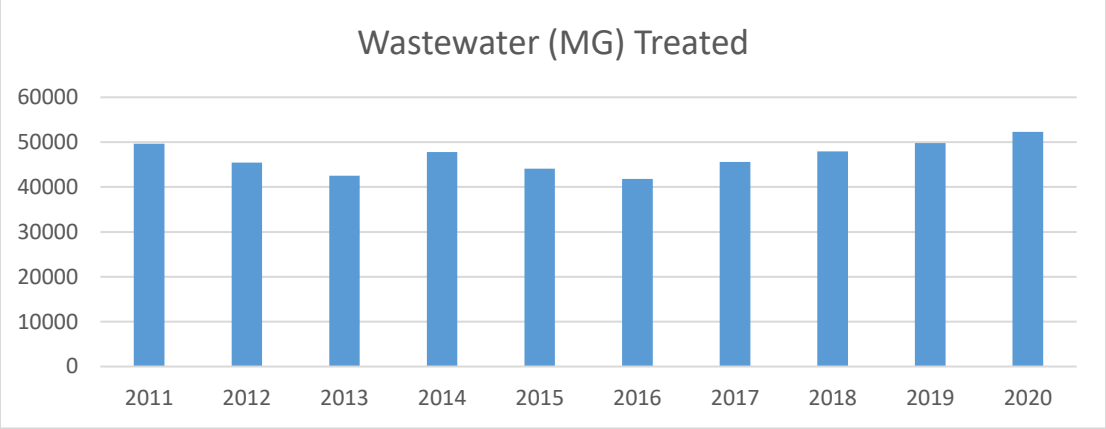


Figure 5-2: BSA Volume of Treated Wastewater (FYE 2011 to 2020)

The number of connections, both residential and commercial, are increasing as seen in **Figures 5-3** and **5-4**, respectively:

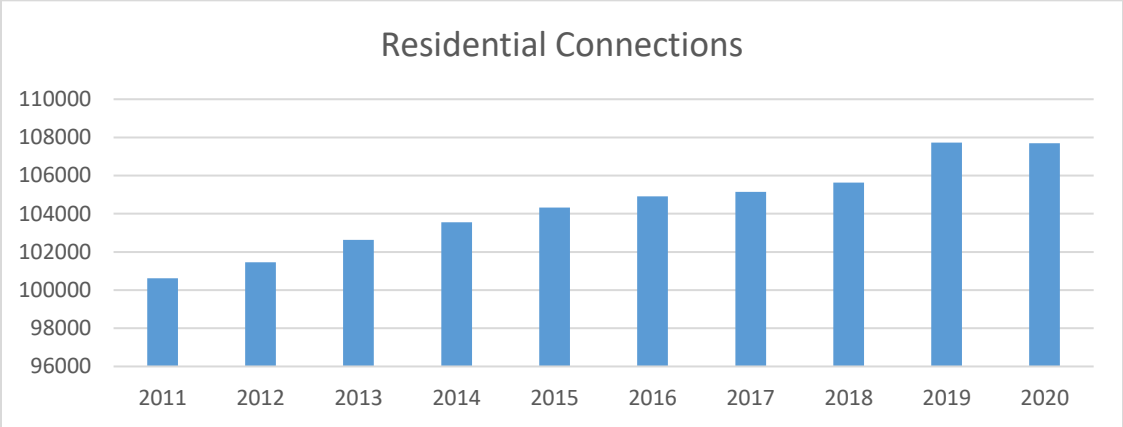


Figure 5-3: BSA Residential Connections (FYE 2011 to 2020)

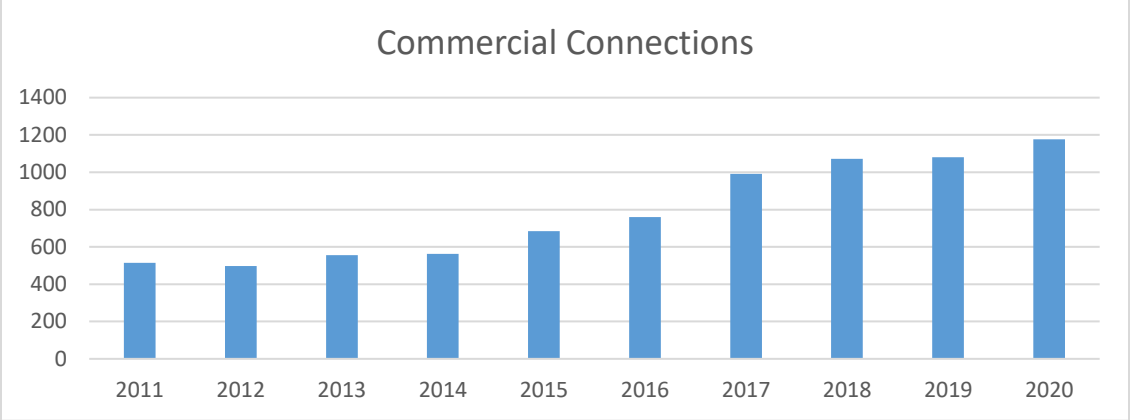


Figure 5-4: BSA Commercial Connections (FYE 2011 to 2020)

- Out of City jurisdictions who are charged based on percentage of flows to the treatment plant.
- Assessed sewer rents (revenue driver is assessment rate and valuation). Assessment rates, based upon the $12M cost valuation have declined because of increases in property values, as seen in **Figure 5-5**. In 2021, assessment rates moved to .95 per $1,000 from 1.64 per $1,000 to keep the total cost valuation at $12M. Notwithstanding, BSA would have realized an additional $8.8M in assessed sewer rents. It is BSA's Board's position not to raise rates until the completion of an FCA and comprehensive rate assessment. BSA does not need approval to adjust assessment rates. Substantial additional revenues are available just by a return to assessment rates of 2015:

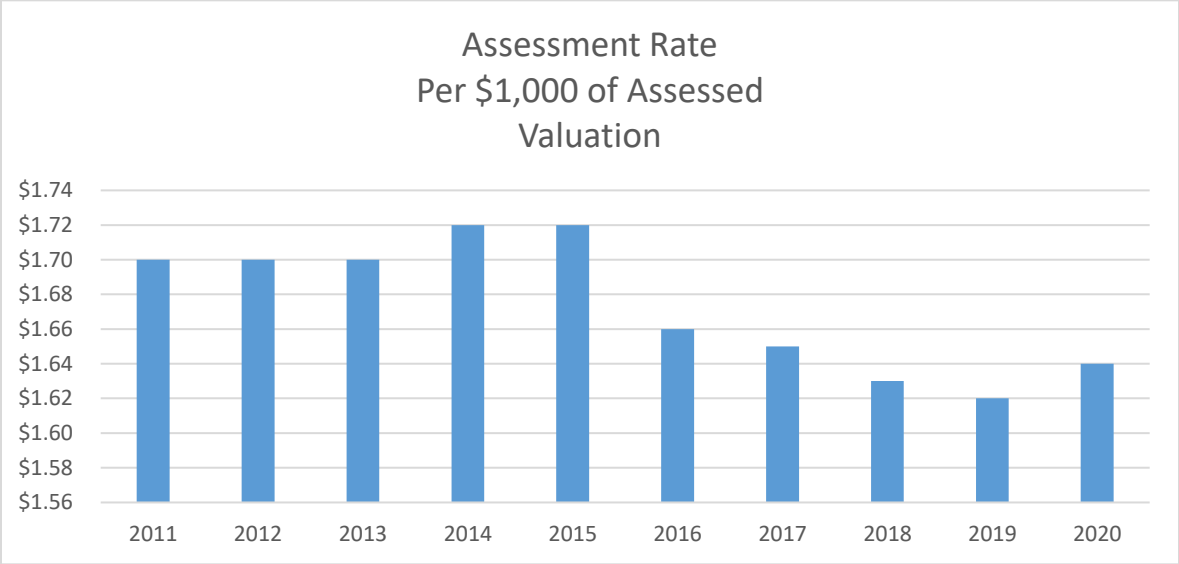


Figure 5-5: BSA Assessment Rate (FYE 2011 to 2020)

- Industrial waste (revenue driver is number of customers and volume treated).

5.4.6.2 Demonstrated Ability to Manage Debt

A Rate Covenant debt service coverage of 1.15 is currently required. It is expected to be increased to 1.2. Historically, BSA has been above the current and expected debt service minimum, as seen in **Figure 5-6.** These debt service coverage values are also noted in **Appendix B**.

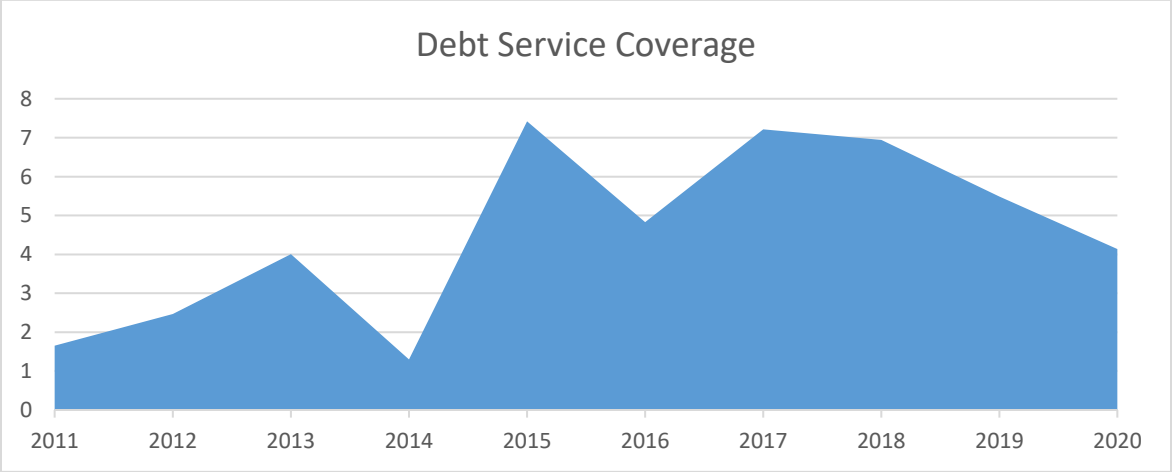


Figure 5-6: BSA Debt Service Coverage (FYE 2011 to 2020)

5.4.6.3 Ample Plant Capacity

Ample plant capacity means that capital expenditures will be utilized for renewal and replacement and regulatory compliance, not for capacity additions.

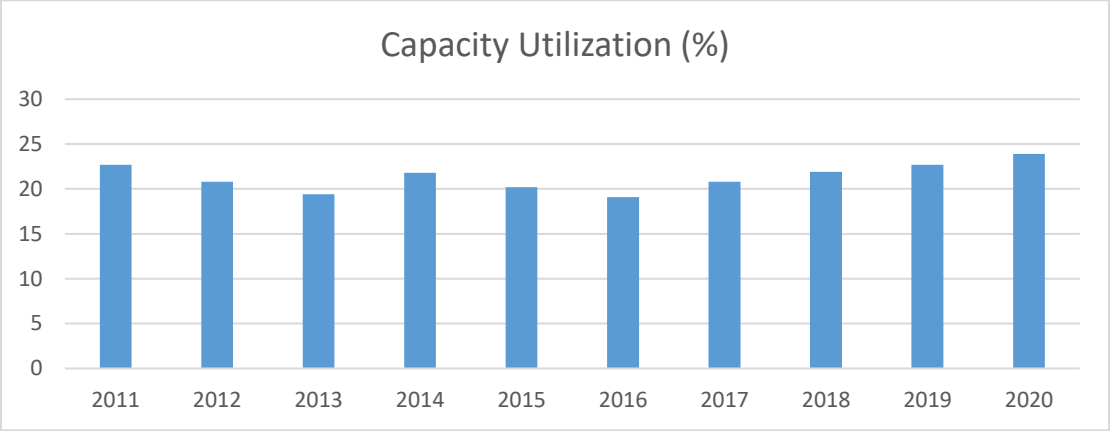


Figure 5-7: BSA Capital Utilization (FYE 2011 to 2020)

5.4.7 Risk Management and Compliance with Bond Resolution

As noted in the Comprehensive Annual Financial Report (CAFR) for the fiscal year ending June 30, 2020 (FYE 2020):

BSA is exposed to various risks of losses related to torts; theft of, damage to, and destruction of assets; vehicle liability, injuries to employees; health insurance, unemployment insurance, and natural disasters. These risks are covered by commercial insurance purchased from independent third parties. BSA purchases insurance for: commercial property coverage, commercial general liability coverage, commercial automotive coverage and commercial crime coverage. Property insurance is limited based on scheduled locations. There were no settlements that exceeded insurance coverage in each of the past three fiscal years.

As noted in the EIB POS, BSA has a self-insurance fund to cover property insurance, automobile insurance, comprehensive liability insurance, and workers' compensation claims.

Additionally, BSA's Financial Advisor has determined that all proposed bond issues during the forecast period satisfy the additional bonds test.

5.5 Strategic Initiatives

BSA's initiatives related to its LTCP and Green Infrastructure Master Plan are discussed elsewhere in this document. Additionally, BSA is actively seeking operational and legislative developments to improve opportunities for minority-owned businesses, women-owned businesses, service-disabled veteran owned business, and small businesses to work with BSA.

In September 2020, BSA's board approved revised purchasing guidelines which, in accordance with state law, provide that BSA may use a best value determination when awarding purchase and service contracts. As part of this, bids from businesses that are certified as minority or woman-owned businesses (M/WBEs) and/or are certified as service-disabled veteran-owned business (SDVOBs) will be treated as if the bid price were 10-20% lower than it is. BSA focused on M/WBEs and SDVOBs because there are existing state and county certification processes for these businesses. However, BSA is also considering implementing specific criteria for a business to qualify as a small business and establishing a price preference for such businesses. These changes provide BSA with opportunities to diversify the base of businesses it deals with and seek contracts that will provide the best value to BSA, in addition to providing certain traditionally disadvantaged businesses with greater opportunities.

Further, BSA is seeking state legislative changes that would provide greater opportunities for small businesses and M/WBEs. Among these are proposals to provide greater flexibility in how construction contracts are awarded so that BSA could consider a business's status as a M/WBE or small business, and a proposal to establish a program where chosen construction contracts could be designated for small businesses.

Section 6 Condition Assessment

Physical condition ratings of Good, Fair, or Poor were issued to major components of the BSA infrastructure system. Detailed engineering analyses were not performed, but the facilities were assessed by visual inspection of assets/infrastructure and interviews with BSA staff (on staffing, maintenance, repair, and replacement plans) to determine their ability to adequately meet the SPDES permit requirements and to provide continuing services in the future with implementation of BSA's Capital Plan and LTCP. The three ratings are given below:

- Good: The system component is in good condition to provide reliable operation in accordance with the design parameters. This rating has been given to a system component that does not require any upgrades or repair and is in need of routine maintenance only.
- Fair: The system component is operating at or near design parameters. This rating has been given to a system component that needs rehabilitation, upgrades, and repairs to assure its continued operation.
- Poor: The system component cannot be operated at the design parameters. To make the system operable, major rehabilitation and repairs are needed.

The properties of the BSA infrastructure are in fair to good condition. Overall, the sewer system and treatment infrastructure condition is sufficient and can meet current and future demands provided continued occurrence of ongoing maintenance and the implementation of BSA's Capital Plan, LTCP projects, and NFA projects. The following is a summary of the major system components and the relative condition of each.

6.1 Collection System

6.1.1 Gray Infrastructure

BSA's collection system was built to support a much larger population than current levels, and although the population in the City of Buffalo has declined, the collection system size has remained the same and requires maintenance that would typically be associated with a larger metropolitan area, as depicted in **Figure 6-1**.

BSA's Sewer Maintenance Department has historically been focused on reactive maintenance, responding to complaints received via the Mayor's 311 hotline and work orders generated based on infrastructure failure or observed conditions. Common issues encountered by the BSA crews in the field include excessive roots, sewer line breaks, and disconnected taps. As noted in Section 2.3, BSA's in-house crews are responsible for sewer cleaning and repairs. At current staffing levels, Sewer Maintenance is able to

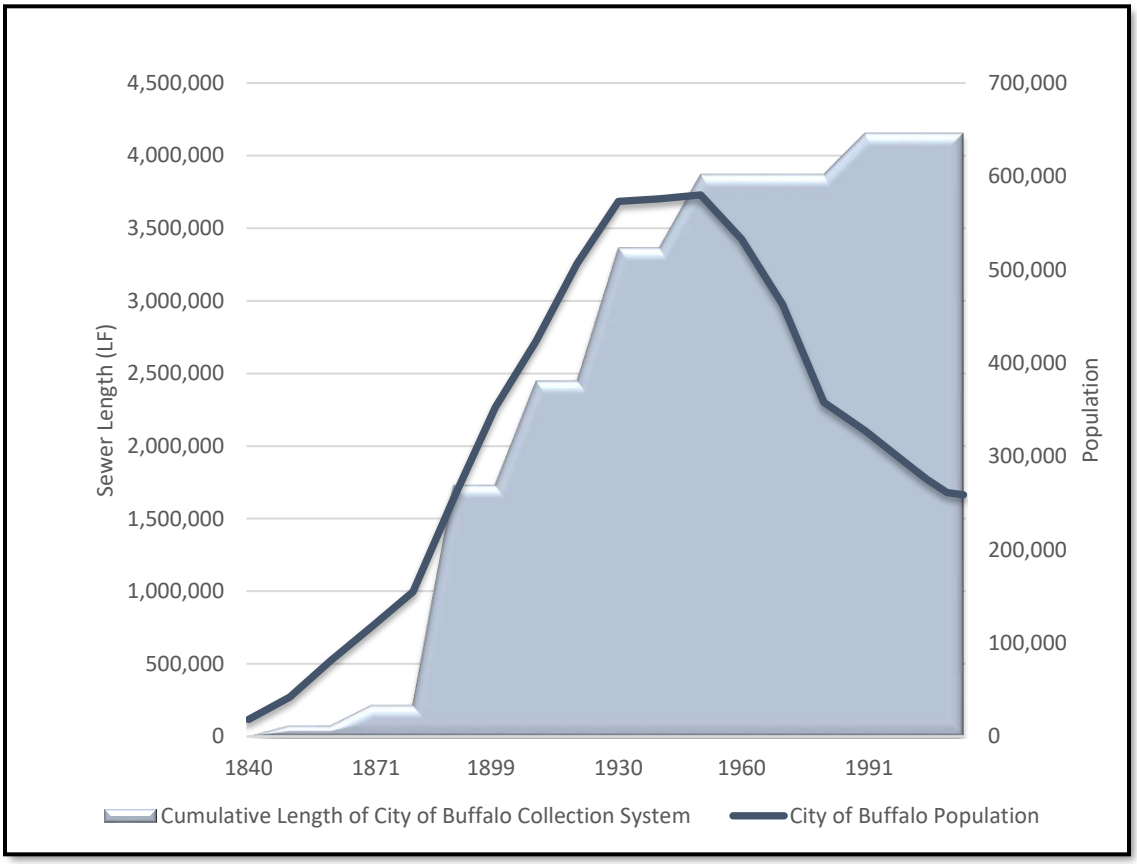


Figure 6-1: Size of BSA's Collection System Compared to Population Served

send out four (4) ERC crews, four (4) receiver crews, three (3) combination cleaners, and two (2) CCTV trucks on a daily basis. The receiver crews work in each "corner" of the City (north, south, east and west) and are also dispatched to proactively clean receivers in low lying areas (e.g., beneath viaducts) when wet weather is pending. The ERC crews are each comprised of 5 members and generally will complete repair work on sewer sections less than 15 feet in length or no more that 12 to 15 feet deep. The CCTV trucks support both the ERC crews and combination cleaners as needed.

For sewer cleaning and repairs above and beyond in-house capabilities, BSA maintains three terms agreements with private contractors. The repair contracts are for 1) cleaning and televising, 2) general repairs, and 3) emergency repairs, including specialized work. BSA also has engineering term agreements that can be utilized for design of collection system projects, as needed, and completes one to two capital improvement projects in the collection system each year.

Recently BSA has been moving to more proactive management of its collection system assets. A Preventative Maintenance Coordinator has been added to the Sewer Maintenance Department that manages department work orders within BSA's asset management system, Maximo. Currently the Sewer Maintenance Department has reduced their number of active work orders to under 100, and less than 50 of those are construction related. The department aims to close out work orders within 30 days. In addition, receiver maps are being developed to ensure receiver cleaning is evenly distributed and

managed, a hot spot cleaning list has been developed by Sewer Maintenance representatives based upon their knowledge of historical capacity-related issues within the collection system, and CSO regulator weirs are monitored every two weeks by a Construction Inspector.

Figure 6-2: Sewer Inspection and Cleaning

As discussed in Section 3.2.1, the majority of pipe within the BSA collection system is beyond its useful life. While collection system capital projects have not been a priority in recent years, BSA is actively working to improve the maintenance of this critical infrastructure. The current condition of the collection system as a whole is sufficient to ensure the transport of sewer flow to the WWTF and is considered to be in fair condition.

6.1.2 Real-Time Control Structures

The six operational RTC sites discussed in Section 3.2.2 have all been installed within the last ten years. The Bird and Lang RTC demonstration projects, which were the first two RTC sites implemented by BSA, were designed in 2012-2013, and construction was completed in 2014. Smith Street was constructed in 2016-2017, Hazelwood and North Bailey in 2018, and Hertel at Deer in 2019. The Babcock Pump Station and Smith at Eagle RTCs are both scheduled to be completed in 2021.

BSA's Engineering, Operations, and Mechanical Maintenance groups have coordinated efforts to ensure that both routine and reactive maintenance is being completed for the RTCs that have been placed into service to date. Mechanical Maintenance has incorporated periodic visits to the sites into their routine maintenance program, typically visiting each RTC twice a year. Additionally, Engineering and Operations communicate alarms, as obtained from SCADA, or maintenance recommendations received from consulting partners to the Mechanical Maintenance group to be addressed.

BSA is continuing with an ongoing review of the operational metrics of the RTCs constructed to date. Monthly reports are created for each site to track the Key Performance Indicators (KPIs). These reports are used to identify opportunities for continuous improvement. For a majority of the RTCs, the number and volume of SPP activations that have occurred and that have been prevented are tabulated, as well as

any unused storage during an SPP activation. Specific to the Smith St RTC, the total volume captured and sent to the South Interceptor is recorded.

Given that the existing structures are relatively new and being well maintained by BSA staff, the RTC structures are considered to be in good condition.

6.1.3 Pumping Stations, Additional Outlying Stations, and Gates

Similar to the RTC sites, routine and reactive maintenance for the pumping stations, additional outlying facilities, and gates is performed by BSA's Mechanical Maintenance group. Some facilities are visited twice annually, where others, such as the Fuhrmann Pump Station KF, require more frequent maintenance. A summary of the improvements that have been made at these facilities, along with the overall upgrades that are required, is provided in **Table 6-1**.

In general, the in-line gates have largely been left unattended since the 1980's. Of all the gates in the collection system, the backwater gates have been the most maintained, as they are the most critical to the proper operation of the sewer system. These gates, however, are old and worn, and typically do not seat/seal properly, so they are prone to leakage. Also, only about 50% of the existing giesel gates, which were installed in the 1970's, are currently operational, but BSA is actively working to restore their functionality. Similarly, the Harbor Gates are not currently operational, but BSA has developed an RFP to upgrade these gates. There also was a building over top of the Harbor Gates that was removed in the late 1990's due to poor condition, which has left the gate stems exposed to the elements.

Figure 6-3: Harbor Gates

Overall, BSA recognizes that the pumping stations, additional outlying stations, and gates are critical infrastructure and has begun an effort to provide better maintenance and upgrades to these facilities. While improvements are needed, the current condition of these assets as a whole is sufficient for the functionality of the collection system and has mostly been in fair condition.

Table 6-1: Summary of Pumping Stations and Additional Outlying Facilities Improvements and Needs

Facility	Recent Improvements	Needed Upgrades
Pumping Stations		
South Buffalo	• Pumps, motors, and discharge valves replaced in 2012	• Bar screen trash racks • HVAC • Flow meters • Possibly add waste receiving station
Hamburg Street	• One pump rebuilt in last 2-3 years	• Two pumps date to 1980's • Valves • Controls/communication • Bar screen trash racks
East Amherst Street / Amherst Quarry	• *None known*	• Pumps • Fencing • Controls/communication/automation
Babcock	• Complete upgrade to function as RTC site; construction to be completed 2021	• *None*
Walden Heights	• Controls/communication	• Pumps • Generator
Waterfront Village	• *None known*	• Electrical • Additional capacity may be needed to accommodate development • Historical issues with plugging check valves, flooding and I/I
Tifft Farms	• *None known*	• Compressor
Ohio-Ganson Pump Station KX (Kelly Island)	• Valves	• Pumps rebuilt 7 years ago, but older • Electric • Manlift • Lighting
Fuhrmann Pump Station KF (Kelly Island)	• *None known*	• Complete station upgrade needed; wet well pumped manually, often weekly; station has had flooding issues

Facility	Recent Improvements	Needed Upgrades
Skyway Pump Station KS (Kelly Island)	• Pumps • Valves	• Manlift • Controls/communication • Odor control
Additional Outlying Stations		
Hamburg Drain Screening Facility	• Construction completed in 2016	• Controls/communication
Amherst Quarry	**see East Amherst Street / Amherst Quarry above**	
Niagara Street Metering Station	• Has heat / HVAC	• Upgrade for future use

6.1.4 Green Infrastructure

As discussed in Section 3.2.4, BSA's green infrastructure program began in 2014, so the facilities that have been installed are still relatively new. Green infrastructure, however, is maintenance intensive by nature. Recognizing this, BSA established a Green Infrastructure Maintenance Department in 2019 to ensure these critical assets continue to function as designed. This department currently has 4 full-time staff members and one seasonal employee, in addition to hand tools, landscape maintenance equipment, and pickup trucks. The existing 66 acres of green infrastructure has been assigned a priority level for maintenance (1, 2, or 3), which the Maintenance Department uses to schedule their daily work. BSA intends to increase this department workforce to 16 full-time employees to properly maintain all 66 acres of green infrastructure on an annual basis, with additional capacity expected to be supported by 50-70 individuals for efforts in maintaining the projected 200 acres of green infrastructure recommended in the Rain Check 2.0 Opportunity Report. To assist in the growth of the Green Infrastructure Maintenance Department, BSA has also begun implementing a workforce development program, which is currently in the initial stages.

As the existing green infrastructure sites are relatively new and being well maintained by BSA staff, they are currently in good condition.

6.2 Bird Island WWTF

BSA utilizes their operations and maintenance budgets to the extent feasible to reinvest in the aging infrastructure at the Bird Island WWTF. Operationally, improvements have been made to critical instrumentation and communication systems throughout the plant, providing for a more streamlined and efficient way to operate and control the individual process components. On the maintenance end, facility personnel work within their means to address as many issues as possible that arise in-house versus having to contract with outside forces. The type of work BSA self-performs varies from major pump rehabilitations to instrumentation upgrades.

Besides rehabilitating the existing four primary clarifiers to meet modern codes and installing a high-rate disinfection facility to the primary treatment process, future work on the WWTF include upgrading the primary treatment system which includes replacing the existing sludge and scum collection systems and primary sludge pumps, restoring the primary sludge building and ancillary systems, and upgrading these

systems to meet modern codes. In addition, an odor control system for the primary treatment tanks will be installed, old ferrous chloride piping will be removed and replaced by new chemical dosing piping, existing sodium hypochlorite feed system and equipment will be removed and disposed of, and foundation and soil conditions of the existing primary tanks will be evaluated and rectified if any foundational issues were identified.

Figure 6-4: Bird Island WWTF – Primary Treatment System

Overall, the Bird Island WWTF is considered to be in fair condition, while acknowledging recent capital projects which have occurred and are planned to occur as noted in Sections 6.2.1 and 6.2.2, respectively.

6.2.1 Past Projects

The following is a partial list of O&M related projects that have been successfully implemented at the WWTF:

- Installation of new high efficiency turbo blowers including an automated dissolved oxygen (DO) control system to vary the speed of the blowers based on actual oxygen demands
- Installation of new ultra-fine bubble diffused aeration system in Tanks 3B and 4B
- New actuators on primary bypass structure gates including nos. 18, 19, 15 and 16
- Industrial Waste Station improvements to facilitate better flow of truck traffic
- Installation of new bar racks upstream of the RWWPS
- Installation of new mixed liquor screens in the north effluent channel of the aeration tank
- Rehabilitation of one fine screen with a second currently being refurbished
- Replacement of 60” magnetic flow meters which measure plant influent flow
- Rehabilitation of two SWW pumps, #1 and #2 including upgraded controls for the SWWPS
- Upgrades to the RAS and WAS pumping stations in 2002

- Rehabilitation of incinerators #1 and #2 including enhanced air scrubbers to comply with current Clean Air Act regulations
- Rehabilitation of five of eight anaerobic digesters, with the fifth digester having been rehabbed in within the last five years
- Ongoing repairs to the DAFs
- Installation of a new Sludge Cake Receiving Station including improvements to the south mix tank
- Improvements to the incinerator process including an upgraded dust mitigation system
- Plant-wide instrumentation and controls upgrades including an integrated SCADA system
- Major controls upgrade to the SWW pumps to standardize across all pumps

6.2.2 Current and Future Projects

Due to an increase in retirements, the facility finds itself occasionally short staffed. As such, current facility personnel are often limited to performing reactive O&M tasks versus having the luxury of implementing a proactive maintenance strategy. However, BSA administrators have prioritized workforce development not only at the treatment facility but throughout the collection system, with the ultimate goal of having a robust, skilled workforce that is able to implement a preventative maintenance approach. BSA has mitigated this attrition over the past year, as there have been a significant number of wastewater treatment operator trainees hired. BSA continues to grow its operator workforce for long-term stability.

Overall, with consideration for the limited budget and staffing, the WWTF infrastructure is generally in fair to good operating condition. Under typical flow and loading conditions, the WWTF is able to meet the effluent quality limits set forth in their SPDES permit. As effluent limits become more stringent, large capital investment will be necessary. In the meantime, BSA will continue directing their capital funding into the critical upgrades required per the LTCP including the construction of a high-rate disinfection facility, and expansion of the secondary treatment process.

The following is a partial list of capital related projects that will be implemented at the WWTF:

- Ongoing grit removal system upgrades to address the excessive grit issue throughout the facility

- In preliminary design stages of improvements to the two canal-side inlet gates and three island-side inlet gates

- Nearing completion of the design of comprehensive upgrades to the activated sludge system including cleaning out 30 of 32 aeration tanks, installation of new fine bubble diffusers, installation of slide gates to permit isolation of individual aeration tanks, replacement of process control valves and actuators, replacement of failing RAS piping, and other critical infrastructure improvements
- BSA is currently under contract with a Consulting Engineer for detailed design services to replace, restore and/or upgrade the primary treatment system including the primary clarifiers, isolation gates and primary pumping station as well as to construct a high-rate disinfection facility to provide enhanced disinfection capability during wet weather flows in accordance with the approved No Feasible Alternative of the Combined Sewer Overflow Long Term Control Plan (LTCP).

- BSA is also undertaking comprehensive geotechnical and hydrological testing of Bird Island to assess the stability of the island and determine the risk of failure associated with process related structures and flooding.

- Future LTCP projects may include the addition to two additional final settling tanks, adding additional orifices to the existing final settling tank influent troughs, and further expanding disinfection capabilities to accommodate a maximum sustained flow of 400 MGD through the secondaries which would require an additional CCT at a minimum.

- Ongoing investigations into potential for additional waste stream receiving given the incinerator capacity.

- Ongoing digester improvements with the goal of increasing the quantity of methane biogas generated and beneficially reused throughout the WWTF.

- Ongoing level of protection analysis (LOPA) to assess level of redundancy throughout the solids complex.

Figure 6-5: Bird Island WWTF – Digester Tanks

Figure 6-6: Bird Island WWTF – Secondary Treatment Aeration Tanks

6.3 Summary of Condition Assessment

Overall, the properties of the BSA infrastructure are in fair to good condition. The sewer system and treatment infrastructure condition is sufficient and can meet current and future demands provided continued occurrence of ongoing maintenance and the implementation of BSA's Capital Plan, LTCP projects, and NFA projects.

Table 6-2: Summary of Condition Assessments

Facility	Assessment
Collection System	
Gray Infrastructure	Fair
Real-Time Control Structures	Good
Pumping Stations, Additional Outlying Stations, and Gates	
South Buffalo PS	Fair
Hamburg Street PS	Fair
East Amherst Street / Amherst Quarry PS	Fair
Babcock PS	*Under Construction*
Walden Heights PS	Fair
Waterfront Village PS	Fair
Tifft Farms PS	Fair
Ohio-Ganson PS KX	Fair
Fuhrmann PS KF	Poor[1]
Skyway PS KS	Fair
Hamburg Drain Screening Facility	Fair
Amherst Quarry	Fair
Niagara Street Metering Station	Fair
Green Infrastructure	Good
Bird Island WWTF	Fair

[1] BSA plans to continue weekly manual pumping down of the wet well short-term, as this has been an adequate intermediate solution based on records of weekly incoming flows. The complete upgrade of the Fuhrmann KF Pumping Station is a capital improvement project to occur in the future.

Section 7 Operations and Maintenance Expenses Review

7.1 System Budget

BSA prepares an Annual Budget which identifies and details the budgeted expenditures and revenues for the following fiscal year; a section of the Annual Budget identifying appropriations is shown as follows in **Figure 7-1**. The Annual Budget includes the budgeted revenues and expenditures for BSA to operate, maintain, and complete capital projects. BSA's Annual Budget for the FYE 2015 to 2020 has ranged from $53.04M to $57.95M with actual revenues ranging from $55.41M to $62.82M.

Due to COVID-19 and its impact on BSA's operational and financial performance and on the New York State unemployment rate, BSA's overall financial position decreased during the FYE 2020. As noted in **Figure 7-1**, total appropriations within the FYE 2021 adopted budget are $59.75M, which is a 3.1% increase from the FYE 2020 adopted budget of $57.95M.

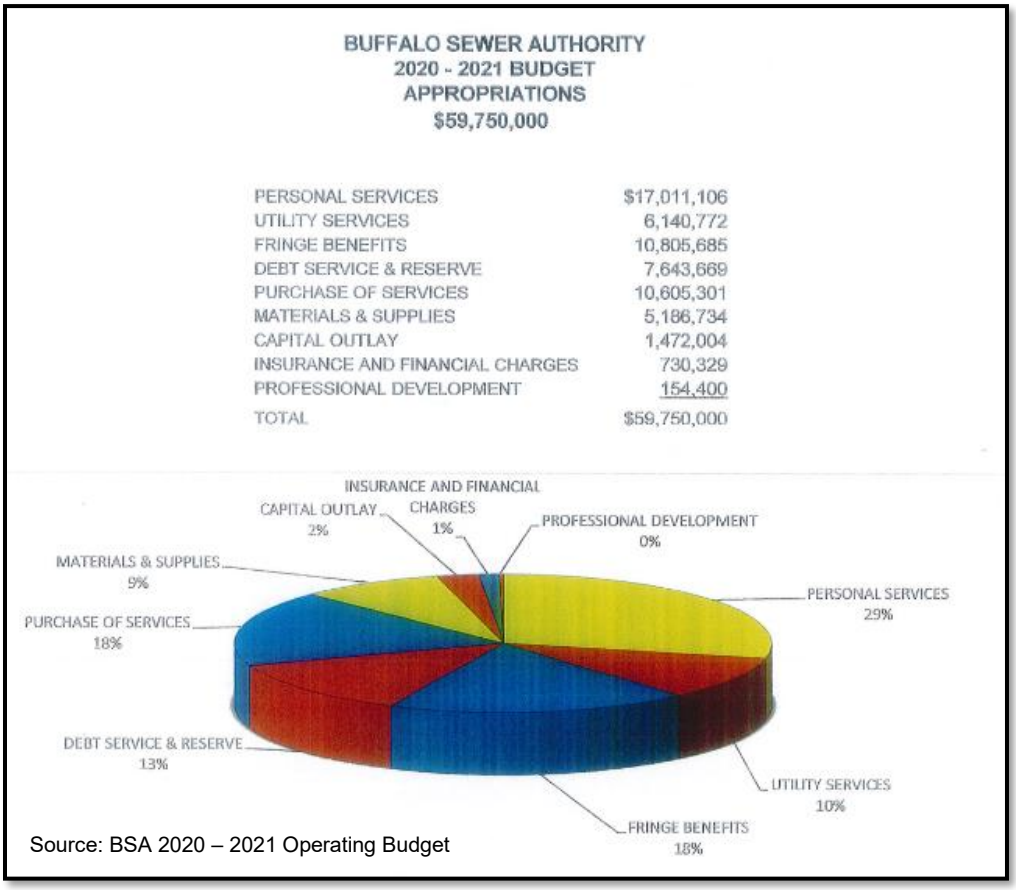


Figure 7-1: Annual Budget FYE 2021

7.2 Current O&M Expenses

Per BSA's CAFR, current O&M costs are identified as General Fund expenditures excluding debt service and capital reserve expenditures; this reflects the general cost to operate and maintain BSA associated with the fiscal year. **Table 7-1** shows the audited direct operating expenditures (excluding debt service and capital) for the most recent years of audited BSA financial records for FYE 2011 through 2020. Actual direct operating expenditures for the FYE 2011 through 2020 is also noted in **Appendix B**.

Table 7-1: Operating Expenditures from FYE 2011 to 2020

Direct Operating Expenditures (excludes debt service and capital)				
FYE	$1,000s		FYE	$1,000s
2011	34,887		2016	36,355
2012	34,699		2017	36,654
2013	34,026		2018	38,638
2014	37,782		2019	39,227
2015	35,503		2020	41,168

7.3 Projected O&M Expenses

The future expenses of operation and maintenance, including O&M of LTCP and non-LTCP capital projects, are projected to increase 2% annually following a slight decline in FYE 2021, as summarized in **Table 7-2.** Projected O&M for the forecast period is also noted in Schedule A in **Appendix A**.

Table 7-2: Total Estimated Annual O&M from FYE 2021 to 2025

Total Estimated Annual Expenses Operation and Maintenance				
FYE	$1,000s		FYE	$1,000s
2021	40,317		2024	42,785
2022	41,124		2025	43,641
2023	41,946			

BSA does not expect its Capital Improvement Program (CIP) to result an increase in O&M expenditures above forecasted amounts.

Section 8 Capital Improvement Program

8.1 2020 – 2025 Five Year Capital Program

In accordance with the May 1993 Bond Resolution, BSA annually establishes a Five-Year Capital Plan to fund major projects. The most current 2020 – 2025 (FYE 2021 through 2025) Capital Plan identified $386.69M in capital investments, consisting of both LTCP and non-LTCP projects, as shown in **Figure 8-1** and **Appendix C**.

BUFFALO SEWER AUTHORITY
FIVE YEAR CAPITAL PLAN
2020-2021 TO 2024-2025

ITEM	PROJECT TITLE:	BUDGET 2020-21	2021-22	2022-23	2023-24	2024-25
27	COMBINED HEAT AND POWER				9,000,000	9,000,000
28	GAS COMPRESSORS				1,000,000	
29	CLEAN/REPAIR FINAL EFFLUENT CONTACT TANKS					700,000
30	DIGAS FLEET VEHICLES AND FILLING STATION					5,000,000
31	SECONDARY CLARIFIER WEIR REFURBISHMENT					200,000
32	AERATION/FC SCUM EJECTOR REHABILITATION					150,000
33	MEGA-STRUCTURE AND TUNNELS FLOOR REPAIR					550,000
34	SWW #4 PUMP AND MOTOR INSTALLATION					2,000,000
35	EXTENSION OF NEW FINAL EFFLUENT LINE					350,000
36	INCINERATOR #1 UPGRADE					7,000,000
37	CENTRIFUGE #4 INSTALLATION					2,500,000
	COLLECTION SYSTEM:					
38	SEWER CLEANING, INSPECTION, AND ANALYSIS - PREVENTATIVE	1,500,000			1,500,000	
39	SEWER CLEANING, INSPECTION, AND ANALYSIS - CORRECTIVE	3,000,000			3,000,000	
40	SEWER REPAIR & REPLACEMENT	3,250,000			3,250,000	
41	NO-DIG SEWER REHABILITATIONS			1,500,000		
42	ENGINEERING TERM CONTRACTS				1,000,000	
43	PRIVATE PROPERTY GI GRANT PROGRAM	1,800,000	3,600,000	3,600,000	3,600,000	3,600,000
44	GI PROJECTS	2,700,000	2,700,000	12,000,000	12,000,000	12,000,000
45	NORTH DISTRICT RTC	246,000	3,850,000		132,000	2,054,000
46	SCAJAQUADA DISTRICT RTC		1,904,000	131,000	2,213,000	2,703,000
47	SOUTH CENTRAL DISTRICT RTC	121,000	1,895,000	121,000	1,895,000	
48	NORTH RELIEF INTERCEPTOR			5,400,000		48,600,000
49	CSO 013 STORAGE PROJECT	15,000,000				
		73,617,000	**42,099,000**	**65,952,000**	**70,565,000**	**134,457,000**
		386,690,000				

Figure 8-1: BSA Capital Plan 2020 – 2025

8.1.1 LTCP Costs

LTCP project costs go towards funding the Foundation projects, Green and Gray projects, and NFA WWTF projects listed in the current LTCP. These costs include upgrades and regular maintenance of BSA's wastewater and collection system.

8.1.1.1 Foundation Projects

Foundation projects are so named due to their inclusion in the original LTCP. The remaining projects in the current LTCP are largely comprised of Real-Time Controls (RTC) projects optimizing the capacity of the collection system as in-line storage to reduce CSOs. Ongoing Foundation projects detailed in the 2021 – 2025 Capital Program are the North District RTC, South Central RTC, and Scajaquada RTC. Both North District RTC and South Central RTC are to be funded by bonds while the Scajaquada RTC is to be funded by a mix of capital reserves and bonds.

8.1.1.2 Green Projects

Green infrastructure (GI) controls completed to date are generally comprised of demolition/vacant lot restoration, green streetscape projects, green parking lots, downspout disconnection, and other green controls. The current LTCP indicates BSA is to complete GI control in 4 phases with a minimum target control of 1,315 acres. BSA has approximately 685 acres of the 1,315 acres remaining of GI control remaining for completion as of FYE 2020. BSA is in the planning phase of the Private Property GI Retrofit Program to construct GI on private property and anticipates a few acres enrolled in the program per year to begin. Following the acres completed in the Private Property GI Retrofit Program, BSA anticipates the remainder of GI Control acres will be completed with Green Streets projects. The GI projects detailed in the 2021 – 2025 Capital Program are to be funded by bonds.

8.1.1.3 WWTF Projects (NFA)

The Bird Island WWTF projects' goal is to achieve new primary and secondary treatment capacities. The scope to achieve the WWTF capacity identified in the No Feasible Alternatives (NFA) has changed from the previous LTCP's scope due to pre-requisite improvements to achieve the hydraulic capacity in the secondary treatment system and to upgrade the primary system to modern standards. The NFA WWTF projects detailed in the 2021 – 2025 Capital Program are the rehabilitation of primary/secondary treatment and Gates 15 through 20 and are to be funded by bonds.

8.1.1.4 Gray Projects

LTCP Gray projects are for satellite/off-line storage CSO control projects. The Gray projects detailed in the 2021 – 2025 Capital Program are North Relief Interceptor and CSO 013 Storage project and are to be funded by bonds.

8.1.2 Non-LTCP Costs

Non-LTCP project costs go towards the upgrades and regular maintenance of BSA's wastewater and collection systems. These projects are to be funded by both bonds and capital reserves.

8.2 Capital Improvement Program Costs

A more detailed description of the 2021 – 2025 capital improvement program (CIP) costs is as follows:

Table 8-1: 2021 – 2025 Capital Improvement Program Costs

Capital Program Element	Estimated Cost (2021 – 2025)
LTCP	$ 241,365,000
Foundation Projects	$ 17,265,000
Green Projects	$ 57,600,000
WWTF (NFA) Projects	$ 97,500,000
Gray Projects	$ 69,000,000
Non-LTCP	$ 145,325,000
Total – Capital Improvement Program	$ 386,690,000

The CIP is funded via bonds, lease/purchase, and a cash reserve fund designated for capital projects. During the forecast period, BSA will add a new bond in addition to the EIB to fund the CIP: EFC 2022.

BSA's 5-year CIP is currently approximately $386,690,000. The projected amount available to fund this CIP is approximately $200,000,000 as detailed below:

Table 8-2: Sources of Funding for CIP

Funding Source	Projected Amount
EIB and EFC	$ 90,000,000
Capital from Reserves ($4M per year FYE 2021 to 2025)	$ 20,000,000
Capital from Operations	$ 61,620,302
Total Projected Amount Available for CIP	$ 171,620,302
Total CIP Amount Remaining	$ 215,069,698

As noted in Section 5.4, BSA has a number of options available to manage this gap in funding the CIP, such as:

- Extending the LTCP schedule to stretch out annual capital needs.
- Increasing capital contributions from reserves.
- Scheduling stretch outs for non-LTCP projects.
- Issuing additional bonds.
- Receiving federal funding from COVID-19 relief grants.
- Receiving additional federal funding from the American Jobs Plan, with rollout expected in Summer 2021.
- Increasing rates and charges above those currently forecasted.
- Receiving yields from rate structure review, tied to property valuations.

Section 9 Conclusions

Utilizing our knowledge and understanding of the Buffalo Sewer Authority's conveyance and treatment system, BSA's anticipated future system requirements and plans, information collected, and our expertise as consultants to the wastewater industry, we conclude the following:

- Based upon the assumptions made in this report, we find the estimated revenues and debt service coverage, as presented in **Appendix A**, to be generated by the existing and anticipated rates, fees and charges will be sufficient in order (1) to meet current expenses, and (2) to meet estimated debt service requirements on BSA's existing bonds and the proposed EIB Bond. Extension of the current 20-year LTCP, as recommended by the 2020 Financial Capability Assessment Update Report and pending comments from USEPA/NYSDEC, will create further flexibility for BSA and maintain affordability for rate payers.

- Assuming that the green infrastructure is maintained, the useful life of the EIB assets is consistent with (or exceeds) the term of the EIB debt.

- Based upon our knowledge of BSA's facilities, interviews with BSA staff, and visual inspection of assets and infrastructure conducted in March 2021, we find Buffalo Sewer Authority's sewer conveyance system and wastewater treatment infrastructure to be in fair to good operating condition and that adequate maintenance is being provided to keep the system in good operating condition. From an asset lifecycle standpoint, this also is noteworthy considering the age of BSA's sewer conveyance system (a majority over 100 years old) and wastewater treatment facility (constructed in 1935 with a major expansion in the 1970s). It is acknowledged that BSA has several large capital projects either ongoing or planned in the near future to meet the NFA requirements of the LTCP. BSA also continues to manage its green infrastructure and CSO needs through the ongoing *Rain Check* program.

- Based on the assumptions contained in this report, BSA is in compliance with the requirements of Articles II of the BSA Sewer System Bond Revenue Resolution, to be adopted in 2021, which describes the conditions that must be met prior to the issuance of the Environmental Impact Bonds.

Section 10 References

Buffalo Sewer Authority, 2015, *Comprehensive Annual Financial Report for Fiscal Year Ended June 30, 2015*, Drescher & Malecki LLP, September 2015.

Buffalo Sewer Authority, 2016, *Comprehensive Annual Financial Report for Fiscal Year Ended June 30, 2016*, Drescher & Malecki LLP, September 2016.

Buffalo Sewer Authority, 2017, *Comprehensive Annual Financial Report for Fiscal Year Ended June 30, 2017*, Drescher & Malecki LLP, September 2017.

Buffalo Sewer Authority, 2018, *Comprehensive Annual Financial Report for Fiscal Year Ended June 30, 2018*, Drescher & Malecki LLP, September 2018.

Buffalo Sewer Authority, 2019, *Comprehensive Annual Financial Report for Fiscal Year Ended June 30, 2019*, Drescher & Malecki LLP, September 2019.

Buffalo Sewer Authority, 2020, *2020 – 2021 Operating Budget*, Buffalo Sewer Authority Administrative Department, April 2020.

Buffalo Sewer Authority, 2020, *Comprehensive Annual Financial Report for Fiscal Year Ended June 30, 2020*, Drescher & Malecki LLP, September 2020.

Buffalo Sewer Authority, 2020, *Engineering Certificate − Sewer System Revenue Bonds*, GHD, June 2020.

Buffalo Sewer Authority, 2020, *Financial Capability Assessment Update*, Greeley and Hansen, December 2020.

Buffalo Sewer Authority, 2012, *Long Term Control Plan – Final*, Malcolm Pirnie and GHD, January 2014.

Appendix A:
Projected Debt Service Coverage

Buffalo Sewer Authority						
Schedule A - Projected Debt Service Coverage						
	Fiscal Year Ending (FYE)					
	6/30/2020 (actual)	**6/30/2021**	**6/30/2022**	**6/30/2023**	**6/30/2024**	**6/30/2025**
Operating Revenues (Note number in parenthesis)						
(1) Assessed sewer rents	12,157,349	12,100,000	12,100,000	15,004,000	18,604,960	21,953,853
(2) Metered water use sewer rents	23,187,593	20,636,958	20,224,219	20,628,703	20,668,653	20,668,653
(2) Flat rate water use sewer rents	2,290,189	2,038,268	1,997,503	2,037,453	2,037,453	2,037,453
(3) Industrial Waste	4,039,805	3,878,213	3,878,213	3,878,213	3,916,995	3,995,335
(4) Outside district connections	8,576,622	19,505,811	13,220,000	13,220,000	13,220,000	13,220,000
Miscellaneous revenues	1,852,243	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000
(5) State aid and Federal aid	400,000	6,000,000				
O/S Districts Incremental Revenue			1,114,000	1,650,000	1,652,000	1,653,000
(6) Total Operating Revenues	52,503,801	65,559,250	53,933,934	57,818,369	61,500,061	64,928,294
Nonoperating Revenues						
(7) Interest on Cash and Investments	2,070,426	355,000	500,000	750,000	900,000	1,200,000
(8) Interest on delinquent sewer rents	831,973	415,987	457,585	503,344	553,678	609,046
Total Revenues	55,406,200	66,330,236	54,891,519	59,071,712	62,953,739	66,737,340
(9) Operating Expenditures						
Salaries and wages	13,268,719	12,250,000	12,495,000	12,744,900	12,999,798	13,259,794
Other employee benefits	9,850,818	9,920,000	10,118,400	10,320,768	10,527,183	10,737,727
Professional services contracts	7,775,610	9,448,750	9,637,725	9,830,480	10,027,089	10,227,631
Supplies and materials	8,875,318	7,223,500	7,367,970	7,515,329	7,665,636	7,818,949
Other operating expenditures	1,397,932	1,475,000	1,504,500	1,534,590	1,565,282	1,596,587
Total Operating Expenditures	41,168,397	40,317,250	41,123,595	41,946,067	42,784,988	43,640,688
Net Revenues Available for Debt Service	14,237,803	26,012,986	13,767,924	17,125,645	20,168,751	23,096,652
Non-Operating Expenditures: Outstanding Debt Service						
Series J	431,541	426,435	430,850	419,407	417,781	415,467
Series K	297,265	295,141	292,681	289,876	281,725	278,535
Series L	547,319	540,332	532,991	530,196	521,963	513,424
Series M	502,410	498,764	499,484	499,560	494,093	493,332
Series N	1,661,750	1,646,474	1,629,332	1,615,284	1,599,340	1,581,570
Non-Operating Expenditures: Projected Debt Service						
2020 EFC			211,649	215,298	218,948	222,597
Proposed 2021 EIB			3,500,000	3,500,000	3,500,000	3,500,000
Proposed 2022 EFC $35M				1,785,674	1,785,674	1,785,674
Total Debt Service (Outstanding + Projected)	3,440,285	3,407,146	7,096,987	8,855,295	8,819,524	8,790,599
Debt Service Coverage	4.14x	7.63x	1.94x	1.93x	2.29x	2.63x
20% Debt Service Reserve	688,057	681,429	1,419,397	1,771,059	1,763,905	1,758,120
(10) Capital Contributions from Operations	17,165,353	13,275,656	10,797,518	22,605,840	6,670,937	8,270,350
Capital Contributions from Reserves		4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
Capital Contributions from 2020 EFC Bond	7,936,830					
Capital Contribution from American Rescue Plan Act		20,000,000				
Capital Contributions EIB debt proceeds		55,000,000				
Capital Contributions 2022 EFC Bond			35,000,000			
Total	25,102,183	92,275,656	49,797,518	26,605,840	10,670,937	12,270,350
(1) Assessed value sewer rents are liens on the property and subject to foreclosure, therefore revenue decreases are not expected.						
(2) The projected revenue from water use (metered and flat) sewer rents is -11% in FYE 2021, -2% in FYE 2022, 0% in FYE 2023.						
(3) The projected industrial waste revenue is -4% in FYE 2021, 0% in FYE 2022, 0% in FYE 2023, +1% in FYE 2024, and +2% in FYE 2025.						
(4) Five year average was applied to this relative stable revenue source.						
(5) Non-recurring revenue.						
(6) Above average revenues for FYE 2021 were due to a one time event-late receipt of FYE 2020 revenues. See notes to Appendix A.						
(7) Interest on Investments -50% in 2021, +1% (FYE 2022 - 2025).						
(8) Due to COVID-19 Interest moratorium on all sewer rents from April 2020 through September 2020. Lower interest rates account for potential abatements and payment plans to rate payors.						
(9) Operating expenditures are projected to increase 2% per year.						
(10) Net cash from two years prior.						

Notes to Schedule A

Notes:

- Due to COVID-19 related billing delays, payments from out of City jurisdictions were not received until mid-August and were not included as revenue in the FYE 2020 CAFR, resulting in a significantly lower value for this revenue source. This late payment amount shows up as a receivable of $6,285,811 on page 35 of the CAFR. Recognition of this amount in the FYE 2021 CAFR will result in an unusually high value for this revenue source. This anomaly is mitigated with a five-year average amount of $13.2M within the FYE 2022 to 2025 projected amounts for outside district connections and are considered to be conservative.
- As noted in the introduction, BSA has nine revenue sources. One of those revenue sources – capital grants and contributions – has been received. BSA received approximately $6M for lost revenue and $20M for sewer infrastructure from the American Rescue Plan Act in FYE 2021. However since these are one off events, no other capital grants and contributions are forecasted.
- BSA has adopted a schedule of sewer rates based upon the assessed valuation of real estate and based upon usage. Additionally, BSA provides for assigning sanitary sewer construction costs to benefiting property owners as a condition precedent to granting a permit to connect such facilities. Outlying communities who utilize the services of the facilities pay their share of debt service costs under a separate agreement with each of the municipalities.

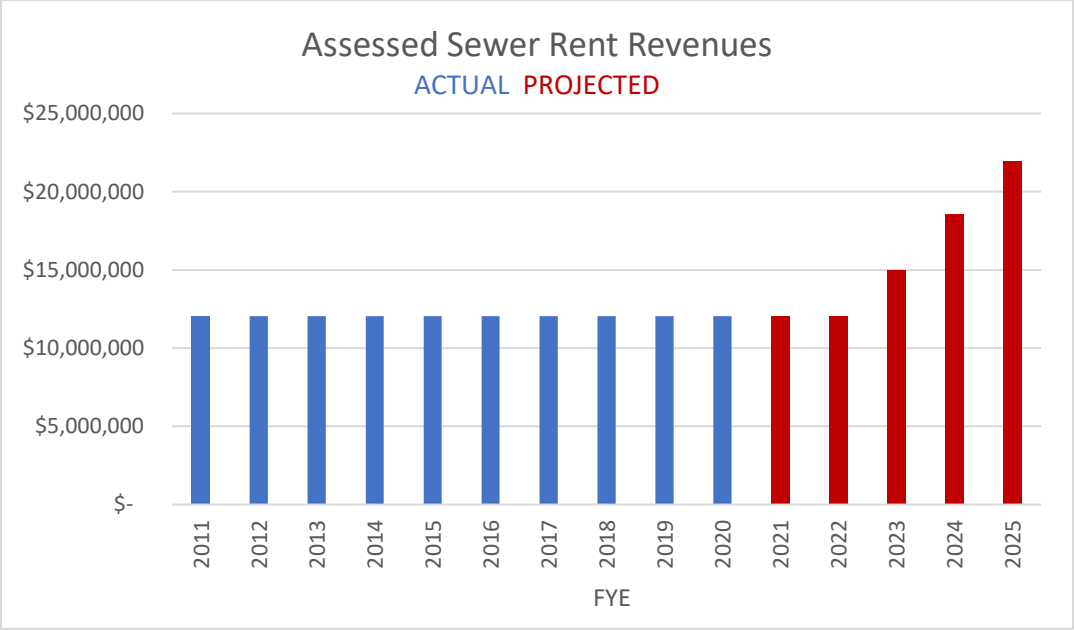
BSA has adopted a schedule of sewer rates based upon the assessed valuation of real estate and upon usage. Additionally, BSA provides for assigning sanitary sewer construction costs to benefiting property owners as a condition precedent to granting a permit to connect such facilities. Outlying communities who utilize the services of the facilities pay their share of debt service costs under a separate agreement with each of the municipalities.

1. Assessed Sewer Rents

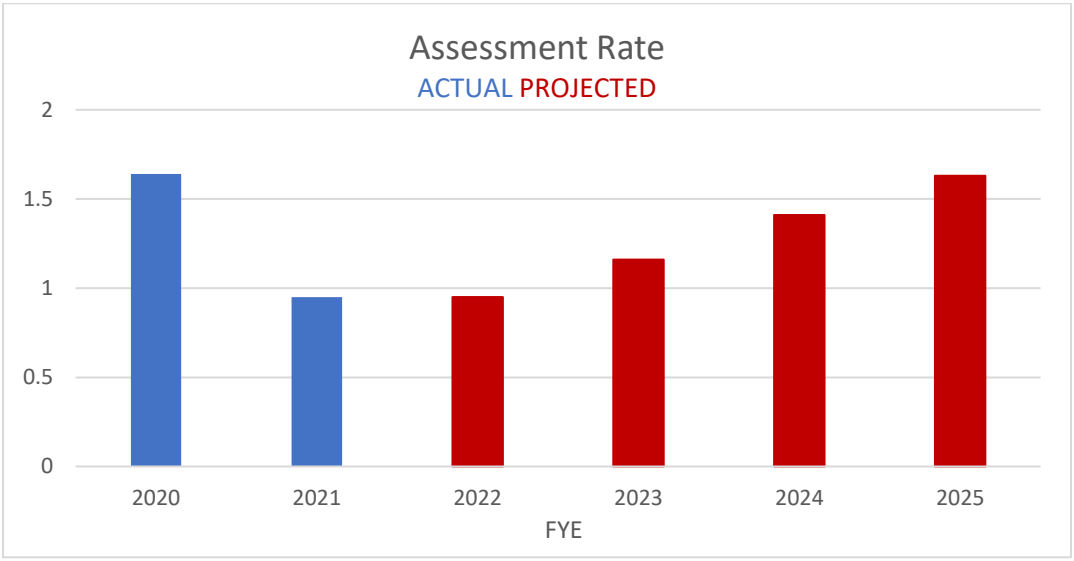
BSA charges a sewer rent based upon the assessed valuation of all real property in the City (except as exempted by law). Assessed value sewer rents are liens on the property and subject to foreclosure. Because of foreclosure actions BSA does not anticipate decreases in revenue. The total assessment sewer rent is budgeted at $12,050,000 for FYE 2021 which is consistent with the prior year, although the estimated assessed value of chargeable property for FYE 2021, has increased, resulting in a lower assessment rate. Sewer rents will increase or decrease by $.00026927 for each $1M change in assessed value in order to maintain the levy.

Since assessment revenues were held constant from FYE 2011 to 2020, assessment rates were reduced by 4% over that 10 year period ($1.70 in FYE 2011 to $1.64 in FYE 2020).

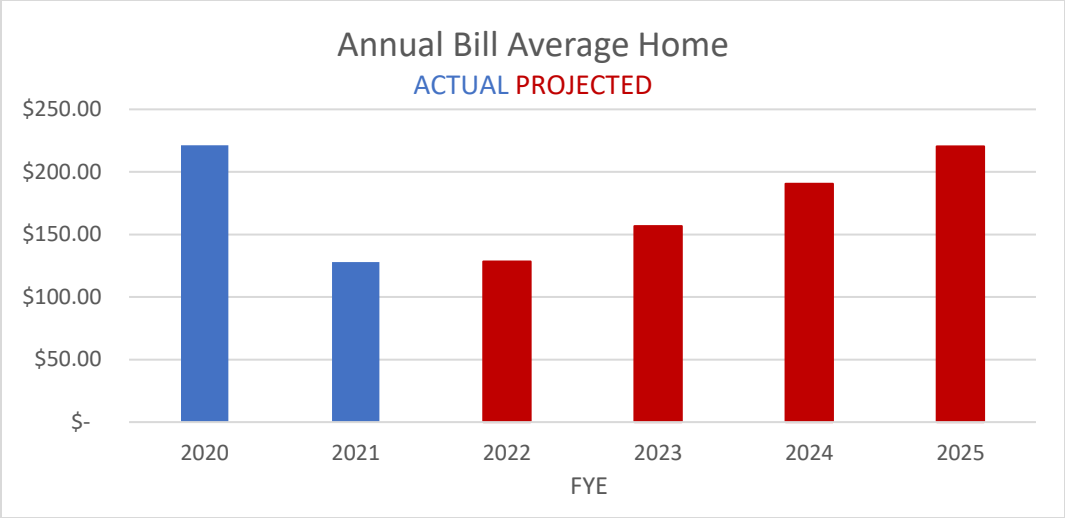
The chart below presents assessed sewer rent revenues for FYE 2011 to 2020 (actual) and projected assessed sewer rents for the forecast period. BSA's goal is to double the revenues from this revenue source to achieve revenue resilience and water equity. The projection assumes increases of 24% (FYE 2023), 24% (FYE 2024), and 18% (FYE 2025). The actual assessment rate increase will vary depending on the total value of assessable properties in the City. The City has stated its intent to increase the frequency of assessment reviews. It is important to note that BSA does not need approval to raise assessment rates; however BSA intends to move its current rate of .95 per $1,000 to 1.63 per $1,000 over the projected period. The projected assessment rate in FYE 2025 will be 4% lower than the actual assessment rate in FYE 2011 at 1.70 per $1,000 and 5% lower than the assessment rate in FYE 2014 and 2015.



Because of the nature of the assessment process, assessment rates in FYE 2025 are expected to be below the assessment rate in FYE 2020 and 4% lower than the rate in FYE 2011.

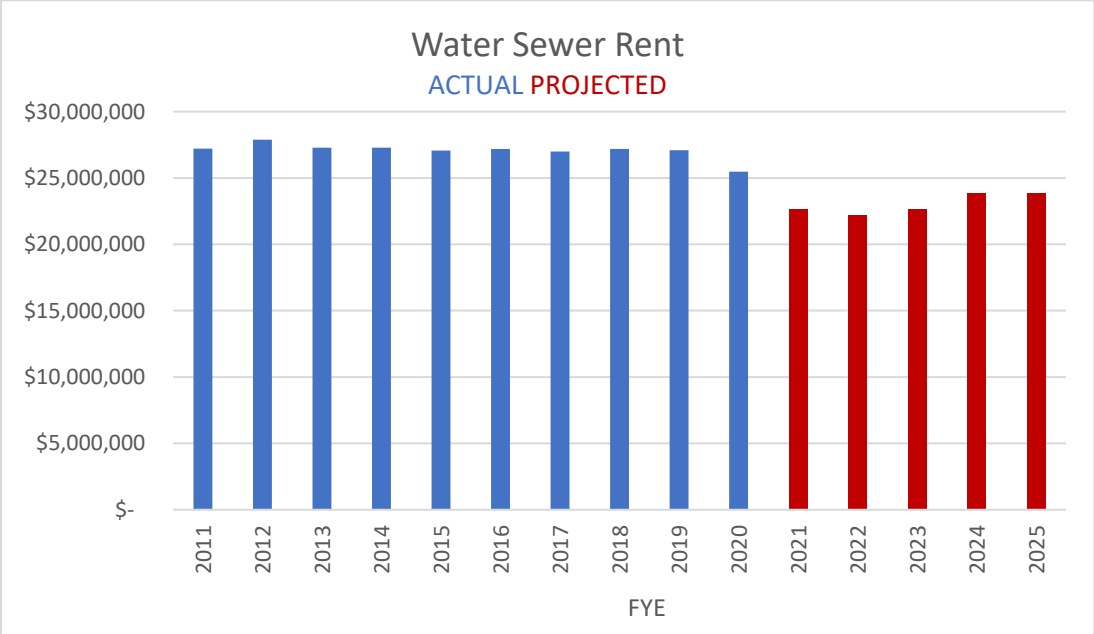


Similarly, the annual assessed sewer rent bill on the current average property value will be lower in FYE 2025 than it was in FYE 2020:



2. Sewer Service Charges

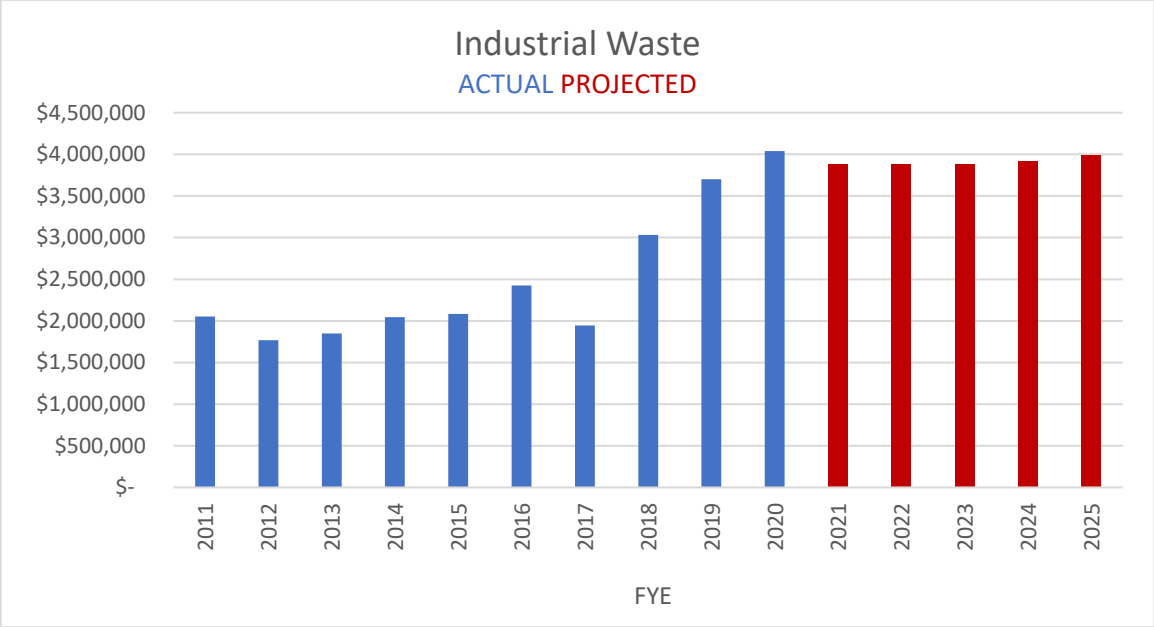
Over the 10-year period, water sewer rents (based on consumption) were relatively stable until the COVID influenced decline in 2020. The water sewer rent revenue projection assumes a continued decline seen in FYE 2020 followed by modest increases reflecting one projected rate increases of +2% in FYE 2023. BSA's soft position of modest increases in consumption based sewer rents reflects its sensitivity to their customer composition of cost burden rate payors, as shown below:



3. Industrial Waste Revenues

Industrial waste revenue accounts for less than 2.5% of BSA revenues. This category mainly includes charges for hauling and surcharges relating to industrial type waste from commercial users of the system. Actual industrial waste revenues for FYE 2020 were $4,039,805.

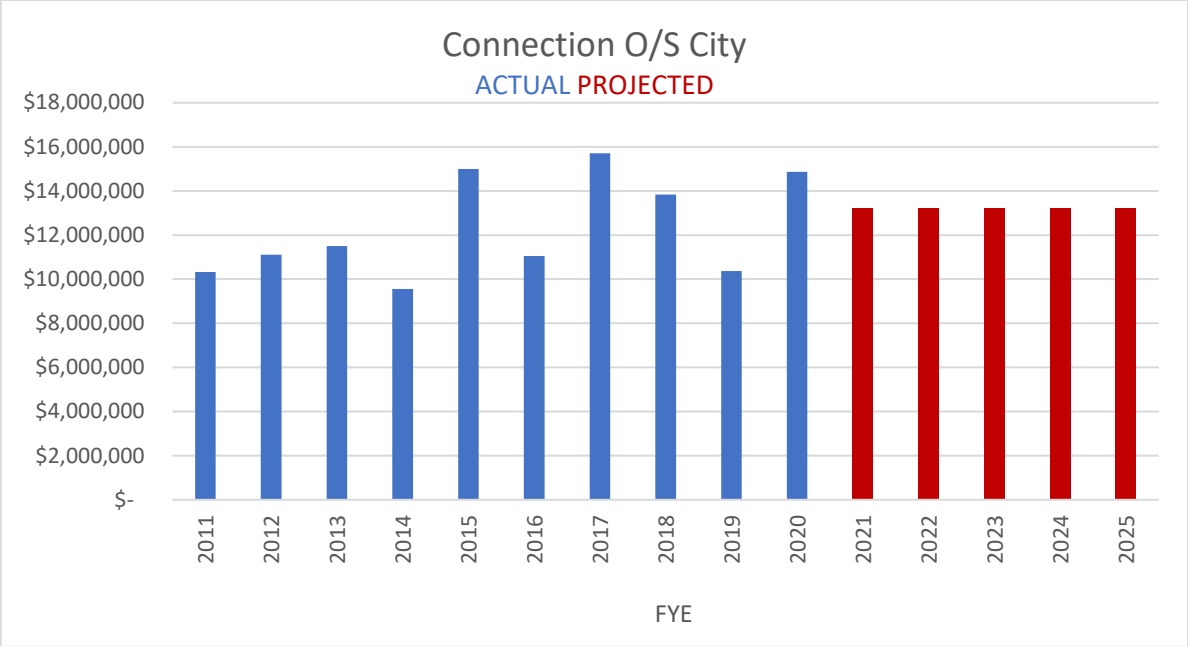
As the 10-year chart below indicates, long term trends for this actual revenue source are up increasing about 100% over that period. For the projected period we have assumed 1% per year revenue increases beginning in FYE 2024.



4. Outside City Contracts

There are currently eight service contracts involving communities outside the corporate limits of the city from which BSA receives and treats sanitary sewage.

The contract areas are billed in accordance with an agreement using actual measured flows that are discharged into BSA's facilities in relation to total flow received at the Treatment Plant. Actual operating and maintenance costs and capital costs of the facilities used are applied to each billing. The charge for the ensuing fiscal year is in an amount representing the actual capital and operating costs to BSA over the most recently completed fiscal year of treating the estimated flow from the district. The chart below reflects the billing delays noted earlier. The projected revenues reflect long run average amounts seen since FYE 2015.



5. Debt Allocable to Outside City Communities

As described above, the service contracts allocate capital costs based on flow ratios. For this forecast, new debt service is allocated to these entities at the long run average of 30% based on flow ratios to the treatment plant.

6. Rate increase(s) for flat and metered water use

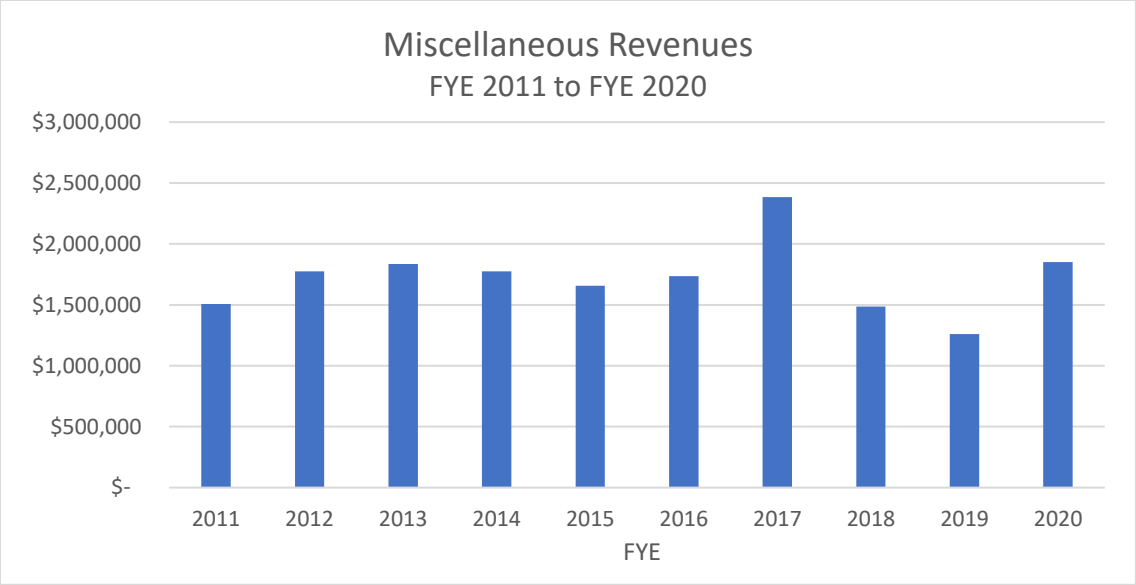
For this forecast we have assumed one rate increase of 2% in FYE 2023 consistent with BSA's sensitivity to its cost burden rate payors.

7. Interest on Investments

Interest income includes interest on investments from both the operating and debt service funds and is higher than in prior years as the result of a more prudent investment strategy that seeks to match funding requirements with cash/investment liquidity with historical returns approximating on average 2.29%. Excess funds are reinvested real-time and measured against upcoming cash flow needs. Another result of the ongoing pandemic is the decline in interest rates. Rates are currently averaging .50-.75%. Accordingly, interest income is trending $2.2M below budget as projected through FYE 2021. Interest income for FYE 2020 was $1,961,380.

Miscellaneous Income

Miscellaneous revenue includes user fees for specific services provided. Such as drainage connection service charges, waste hauler charges, interest charges on overdue bills and other fees and charges typical of a wastewater utility. Actual miscellaneous revenues for FYE 2020 were $1,781,986. The ten year average for this revenue source is $1,727,039. The projections reflect a static amount of $1,400,000. The ten year trend is shown below:

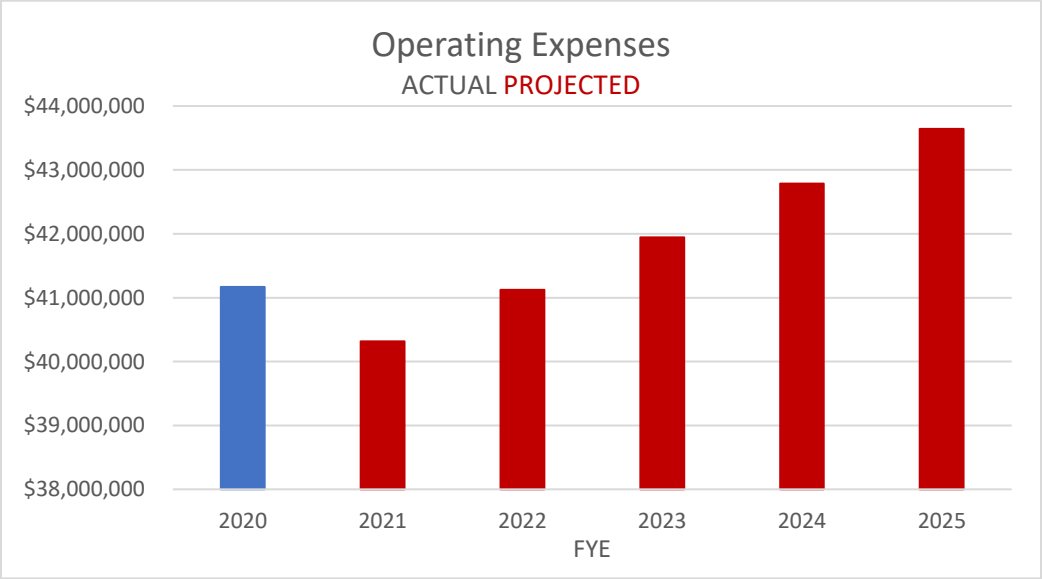


8. Interest on delinquent assessed sewer rent and on delinquent water use sewer rent

Due to COVID-19, an interest moratorium was applied to all sewer rents from April 2020 through September 2020. Lower interest rates (and revenues) account for potential abatements and payment plans to rate payors.

9. Operating Expenses

Operating expenses consist of general administrative expenses, personnel costs and other operating costs (supplies, materials, utilities etc.) Following a slight decline in FYE 2021, operating expenses are forecasted to increase by 2% per year:



For the forecast period operating expenses are assumed to increase by 2% per year. Operating expenses are reported on a functional basis as described below:

General Administration
The management of the business and fiscal affairs of BSA is the responsibility of the Administrative Department. In general, these affairs include all fiscal operations such as preparation and control of operating and construction budgets, keeping of accounts and books of records, billings and collections, purchasing, maintaining an insurance program against fire, theft and public liability, preparation of all matters relating to bond sales, preparation of payrolls and payroll records, handling investments of funds, and other related matters.

Wastewater Treatment Facilities
The Sewage Treatment Department is responsible for operation, maintenance, and repair of the various facilities at the Bird Island Treatment Plant and at the outlying pumping station included in the sewerage system. All units of the plant have been maintained to insure continuous pumping, disinfection and treatment of domestic and industrial wastes in fulfillment of BSA's basic requirements.

The Bird Island laboratory is an important plant adjunct. Personnel are continually trained to be abreast of all technological advances in the field of sanitary science.

Industrial Waste
The Industrial Waste Section operates an industrial waste control program, which was developed and initiated on January 1, 1976. This control program was instituted to enable the Buffalo Sewer Authority (BSA) to comply with its State Pollution Discharge Elimination System (SPDES) permit and with United States Environment Protection Agency (USEPA) requirements associated with the acceptance of federal aid by BSA to upgrade existing facilities and to construct secondary treatment facilities. This control program has been updated and expanded to comply with the requirements of the USEPA General Pretreatment Regulations.

Sewer System Engineering
The Engineering Department handles engineering studies, surveys, preparation of plans and specifications, contract preparation, the construction budget and construction supervision and inspection. It continues to be actively engaged in design, and the preparation of contract drawings and specifications for needed storm water relief sewers and for sewer extension for local area development, and in other work pertinent to BSA's operations.

Sewer Maintenance Department
Routine inspection is made of all sewers and of appurtenances of the system such as intercepting and overflow chambers and inverted siphons. Sewers, street inlets and catch basins are cleaned both on a routine preventative maintenance basis and in response to flooding complaints. Sewer repairs are made as necessary and are usually of an emergency nature.

Employee Benefits
Employee benefits include the disbursements for the fringe benefits provided to BSA employees including hospital, dental and life insurance, social security, pension, unemployment insurance and worker's compensation. The Buffalo Sewer Authorities labor agreement with CSEA Local 815, which is the white-collar union of BSA was settled and runs through June 30, 2022. The labor agreement with the Communications Workers of America (CWA), the blue-collar union was also settled and runs through June 30, 2022. Both agreements addressed issues surrounding wages increases, health insurance, and compensated absences.

City of Buffalo Services
Services provided by the City of Buffalo include Division of Water billings for sewer rent, treasury functions, assessment of properties, and billing of sewer rent based on assessed value.

Miscellaneous and Contingencies
Miscellaneous disbursements include a contingency provision for judgments and claims, a sewer rent adjustment and a contingency for unanticipated expenditures not otherwise covered in the budget.

10. Capital Contributions From Operations

Computed as net cash from two years prior.

Appendix B:
Actual Debt Service Coverage

Source: BSA CAFR for FY Ended 6/30/2020

BUFFALO SEWER AUTHORITY
Table XIV—Sewer Revenue Bond Coverage
Last Ten Fiscal Years
(Unaudited)

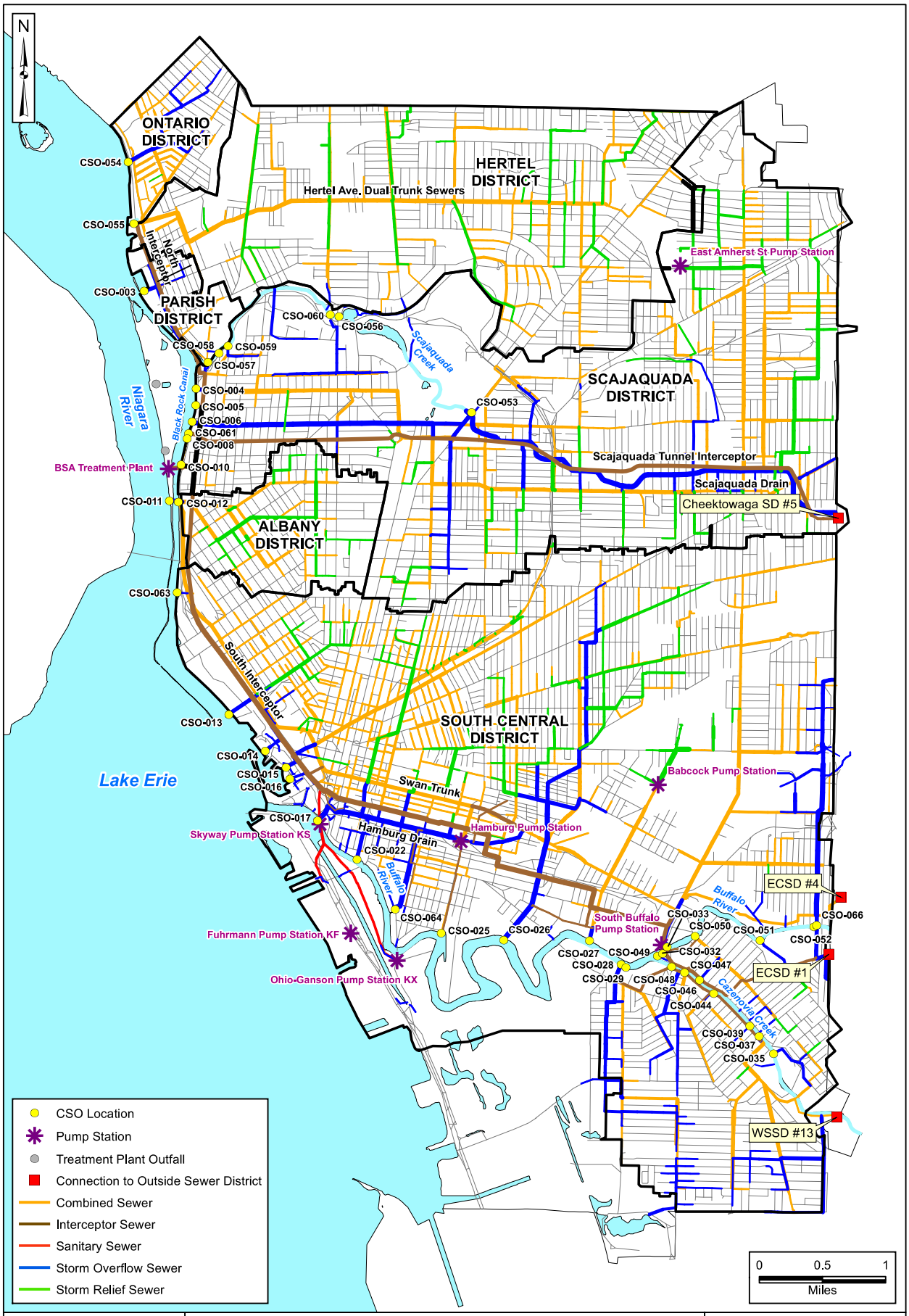
Year Ended June 30,	Total Revenues	Direct Operating Expenditures[1]	Net Revenue Available for Debt Service	Debt Service Requirements			
				Principal	Interest	Total	Coverage
2011	$ 54,057,097	$ 34,887,375	$ 19,169,722	$ 8,945,000	$ 2,680,650	$ 11,625,650	1.65
2012	55,815,828	34,698,617	21,117,211	6,270,000	2,265,947	8,535,947	2.47
2013	55,880,539	34,026,088	21,854,451	3,488,436	1,957,709	5,446,145	4.01
2014[2]	54,171,562	37,782,350	16,389,212	10,769,723	1,800,298	12,570,021	1.30
2015	61,830,298	35,502,632	26,327,666	1,580,000	1,966,969	3,546,969	7.42
2016	56,872,087	36,354,716	20,517,371	2,032,438	2,212,115	4,244,553	4.83
2017	61,948,969	36,654,052	25,294,917	1,640,000	1,867,989	3,507,989	7.21
2018	62,816,780	38,637,683	24,179,097	1,680,000	1,805,638	3,485,638	6.94
2019	58,268,046	39,241,304	19,026,742	1,725,000	1,739,476	3,464,476	5.49
2020	55,406,200	41,168,397	14,237,803	1,770,000	1,670,332	3,440,332	4.14

Note: [1] Direct operating expenditures exclude all debt service requirements, capital outlay and other financing uses.

Note: [2] During the year ended June 30, 2014 the Authority recognized $9,031,991 of Federal Aid that was used to retire principal of the same amount.

Source: Buffalo Sewer Authority Annual Financial Statements

Appendix C:
BSA Interceptors and CSOs



MALCOLM PIRNIE | ARCADIS
The Water Division of ARCADIS

2012 1777-122

BUFFALO SEWER AUTHORITY
Long Term Control Plan Update

FIGURE 1-2

BSA INTERCEPTORS AND CSOs

Appendix D:
Projected Capital Improvement Program Costs

Source: BSA 2020 - 2021 Operating Budget

	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	
LTCP PROJECT COSTS						
Treatment Plant						
Primary/Secondary Treatment Rehabilitation	34,000,000	2,000,000	20,000,000	10,000,000	30,000,000	
Gate 15 through 20 Rehabilitation	1,500,000					
Collection System						
Private Property GI Grant Program	1,800,000	3,600,000	3,600,000	3,600,000	3,600,000	
GI Projects	2,700,000	2,700,000	12,000,000	12,000,000	12,000,000	
North District RTC	246,000	3,850,000		132,000	2,054,000	
Scajaquada District RTC		1,904,000	131,000	2,213,000	2,703,000	
South Central District RTC	121,000	1,895,000	121,000	1,895,000		
North Relief Interceptor			5,400,000		48,600,000	
CSO 013 Storage Project	15,000,000					
TOTAL LTCP COSTS	**55,367,000**	**15,949,000**	**41,252,000**	**29,840,000**	**98,957,000**	
NON-LTCP PROJECT COSTS						
Treatment Plant						
Grit System Upgrade	2,000,000					
Facility Controls/Fiber Optic/SR IO/RWW IO (Ovation Upgrade)	750,000					
Harbor Gates/Inlet Gates (3) Rehabilitation	1,250,000					
Power System Survey and Implementation	5,000,000	15,000,000	15,000,000	10,000,000		
Structural Rehabilitation of Facilities	1,500,000	1,000,000	1,000,000	1,000,000	1,000,000	
IWS Wastehauler Onsite Facilities		2,500,000				
Facility Controls/Fiber Optic/SR IO/RWW IO		1,500,000	700,000	700,000		
Replace AHU's 7-14		1,400,000	1,000,000	1,000,000	1,000,000	
Final Clarifier Buildings Rehab		3,500,000				
Interior Improvements throughout Plant		750,000	750,000	750,000	750,000	
Plant Wide Pipe Evaluation and Repair		500,000	500,000	500,000	500,000	
RWW/SWW Pump and Motor Rehab/Discharge Valve			1,500,000			
High Strength Food Waste			2,000,000			
Electrical Sub-Metering and Distribution Modifications			750,000			
Engineering Term Contracts				1,500,000		
Waste Heat Recovery Boilers				800,000		
Auxiliary Boiler #2 Upgrade				475,000		
Digester and Mixing Improvement				1,200,000	1,800,000	
Inc Duct Work Expans and Demo of Old Aux Boiler APC System				200,000		
Structural Rehabilitation of Process Tanks				1,000,000	1,000,000	
Secondary System Control Valve/Magmeter Replacement				2,000,000	2,000,000	
Exhaust Fan for Amherst Receiving Station				200,000		
Ferrous Chloride and Hypo Tank Replacement				300,000		
Rehab Chemical Handling/Dewatering Poly Delivery Area				350,000		
Combined Heat and Power				9,000,000	9,000,000	
Gas Compressors				1,000,000		
Clean/Repair Final Effluent Contact Tanks					700,000	
Digas Fleet Vehicles and Filling Station					5,000,000	
Secondary Clarifier Weir Refurbishment					200,000	
Aeration/FC Scum Ejector Rehabilitation					150,000	
Mega-structure and Tunnels Floor Repair					550,000	
SWW #4 Pump and Motor Installation					2,000,000	
Extension of New Final Effluent Line					350,000	
Incinerator #1 Upgrade					7,000,000	
Centrifuge #4 Installation					2,500,000	
Collection System						
Sewer Cleaning, Inspection, and Analysis - Preventative	1,500,000			1,500,000		
Sewer Cleaning, Inspection, and Analysis - Corrective	3,000,000			3,000,000		
Sewer Repair and Replacement	3,250,000			3,250,000		
No-dig Sewer Rehabilitations			1,500,000			
Engineering Term Contracts				1,000,000		
TOTAL NON-LTCP COSTS	**18,250,000**	**26,150,000**	**24,700,000**	**40,725,000**	**35,500,000**	
TOTAL	**73,617,000**	**42,099,000**	**65,952,000**	**70,565,000**	**134,457,000**	**386,690,000**

Appendix E:
Final Schedule of Sewer Rents and Other Charges for 2020 – 2021

ATTACHMENT A

FINAL SCHEDULE OF SEWER RENTS

AND OTHER CHARGES

FOR 2020-2021

TO PROVIDE FUNDS FOR THE FIXED CHARGES AND FOR THE OPERATION AND MAINTENANCE OF THE ENTIRE SEWER SYSTEM IN THE CITY OF BUFFALO AND ALL OF THE BUFFALO SEWER AUTHORITY FACILITIES FOR THE CONVEYANCE, TREATMENT AND DISPOSAL OF SEWAGE AND STORM WATER OPERATED BY THE BUFFALO SEWER AUTHORITY.

I. SEWER RENTS FOR PREMISES SITUATED WITHIN THE LIMITS OF THE CITY OF BUFFALO

(a) $12,050,000 shall be collected from all real property in the City of Buffalo (the "City") by apportioning the said amount upon such property within the City as the same is set down on the last completed annual assessment roll of the City, except that no *ad valorem* sewer rent shall be assessed against real property exempt from real property taxes pursuant to subdivision one of section four hundred, sections four hundred four, four hundred six, four hundred twelve, four hundred eighteen, subdivision one section four hundred twenty, section four hundred forty-six, four hundred fifty-two, four hundred sixty-two and four hundred seventy-seven of the New York Real Property Tax Law.

(b) In the event a person, lot, parcel of land, building or premises, other than a City department, situated within the limits of the City, discharging sewage, water or other liquids into the Buffalo Sewer Authority (the "Authority") sewer system, either directly or indirectly, is a user of water supplied by the Buffalo Water Board or from any other source, and the quantity of water used is measured by a water meter acceptable to the Authority, then in each such case, the quantity of water used, as measured by said meter, shall be used to determine the sewer charge or rental, and the charge for such use shall be as follows:

1. $48.30 for 0 to 4,000 cubic feet of water used per quarter year, if the meter is read quarterly, and any water used in excess thereof shall bear a sewer charge or rental of $11.09 per thousand cubic feet ($.0111 per cubic foot).

2. $16.10 for 0 to 1,333 cubic feet of water used per month, if the meter is read monthly, and any water used in excess thereof shall bear a sewer charge or rental of $11.09 per thousand cubic feet ($.0111 per cubic foot).

II. SEWER RENTS FOR PREMISES SITUATED OUTSIDE THE LIMITS OF THE CITY OF BUFFALO

(a) An annual service charge for the privilege of connecting with the facilities of the Authority shall be due for any premises situated outside the limits of the City for each $1,000 of assessed valuation as determined on the last completed annual assessment, the same rate of $2.71239 per $1,000 of assessed valuation for 2020-2021.

(b) In the event a person, lot, parcel of land, building or premises, other than a City department, situated outside the limits of the City, discharging sewage, water or other liquids into the Authority sewer system, either directly or indirectly, is a user of water supplied by the Buffalo Water Board or from any other source, and the quantity of water used is measured by a water meter acceptable to the Authority, then in each such case, the quantity of water used, as measured by said meter, shall be used to determine the sewer charge or rental, and the charge for such use shall be as follows:

1. $48.30 for 0 to 4,000 cubic feet of water used per quarter year, if the meter is read quarterly, and any water used in excess thereof shall bear a sewer charge or rental of $11.09 per thousand cubic feet ($.0111 per cubic foot).

2. $16.10 for 0 to 1,333 cubic feet of water used per month, if the meter is read monthly, and any water used in excess thereof shall bear a sewer charge or rental of $11.09 per thousand cubic feet ($.0111 per cubic foot).

III. GENERAL PROVISIONS

(a) In the event a person, lot, parcel of land, building or premises discharging sewage, water or other liquids into the Authority sewer system, either directly or indirectly, is a user of water supplied by the Buffalo Water Board, and the quantity of water used is not measured by a water meter acceptable to the Authority, then the sewer charge or rental for all such accounts shall be in the respective amounts (expressed in dollars) set forth in Exhibit A, attached hereto and made a part hereof, as the Authority determines applicable to such person, lot, parcel of land, building or premises.

(b) In addition to all other rentals and charges provided herein, a monthly drainage connection service charge shall be due for any and all persons, lots, parcels of land, building or premises, other than a City department, that discharge sewage, water or other liquids into the Authority sewer system, either directly or indirectly, as follows:

1. A monthly charge of $6.00 shall be due for all lots, parcels, land, buildings or premises where the quantity of water used is not measured by a meter acceptable to the Authority.

2. A monthly charge in the amounts set forth below shall be due for all lots, parcels, land, building or premises where the quantity of water used

is measured by a meter acceptable to the Authority in accordance with the following meter size:

Residential Users		**Non-Residential Users**	
Meter Size	Charge ($)	Meter Size	Charge ($)
5/8 inch	6.00	5/8 inch	6.00
3/4 inch	6.00	3/4 inch	6.00
1 inch	6.00	1 inch	6.00
1 1/2 inch	6.00	1 1/2 inch	55.00
2 inch	6.00	2 inch	55.00
3 inch	55.00	3 inch	55.00
4 inch or larger	55.00	4 inch or larger	55.00

(c) In the event a person, lot, parcel of land, building or premises discharging sewage, water or other liquids into the Authority sewer system, which directly or indirectly, uses water obtained from a source other than the Buffalo Water Board, and the water so obtained is not measured by a water meter acceptable to the Authority, then, in each such case, the owner, user or other interested party shall, at his own expense, furnish, install, and maintain a water meter or other water or sewage measuring device acceptable to the Authority and the quantity of water used, as measured by said meter, or as otherwise determined, shall be used to determine the sewer charge or rental and there shall be charged an amount determined as set forth in paragraphs II(a), III(a) and III(b) as the case may be.

(d) In the event a person, lot, parcel of land, building or premises discharging sewage, water or other liquids into the Authority sewer system, either directly or indirectly, uses water in excess of 4,000 cubic feet per quarter year and it can be shown to the satisfaction of the Authority, that a portion of the water as measured by the water meter does not and cannot enter the Authority sewer system, then the Authority may determine in such manner as may be found practicable the percentage of metered water entering the Authority sewer system and the quantity of water used to determine the sewer charge or rental shall be that percentage, so determined, of the quantity of water measured by the water meter, or the Authority may require or permit the installation of additional meters or measuring devices in such a manner as to determine the quantity of water or sewage actually entering the Authority sewer system, in which case the quantity of water used to determine the sewer charge or rental shall be the quantity of water actually entering the Authority sewer system and so determined.

(e) In the event a person, lot, parcel of land, building or premises discharges sewage or other wastes into the Authority sewer system which, in the opinion of the Authority, contain unduly high concentrations or any substances which add to the operating costs of the Authority facilities, then the Authority may elect to establish and collect special rates of charge, based on the quantity of these substances, which rate of charge may be established and collected in such manner as the Authority may elect and such charge shall be paid to the Authority, or it may elect to exclude such sewage or other wastes from its facilities.

(f) As a condition of a Buffalo Discharge Elimination System Permit (BPDES), a user may be required to pay an industrial waste surcharge for discharging sewage or waste exhibiting a strength of sewage or waste greater than normal domestic sewage. The Industrial Waste Surcharge Formula reflecting the Treatment Plant unit costs for treatment of Biochemical Oxygen Demand (BOD_5) Total Suspended Solids (TSS) and Total Phosphate (TPO_4) is as follows:

Surcharge = 8.34 QMGY (0.1858 (BOD_5-250) + 0.2115 (TSS-250) + 0.0281 (TPO_4-15.35))

$0.1858 Cost/lb. for treatment of BOD_5
$0.2115 Cost/lb. for treatment of TSS
$0.0281 Cost/lb. for treatment of TPO_4

QMGY shall mean the annual total industrial and sanitary discharge - water retention.
BOD_5 shall mean the average concentration of BOD_5 in sewage or waste discharged to the Authority facilities.
TSS shall mean the average concentration of TSS in sewage or waste discharged to the Authority facilities.
TPO_4 shall mean the average concentration of TPO_4 in sewage or waste discharged to the Authority facilities.

Surchargeable concentrations are as follows:

BOD_5 - Over 250 mg/L; TSS - Over 250 mg/L; TPO_4 - Over 15.35 mg/L

This formula shall be applied in computing the Buffalo Industrial Waste Surcharge subsequent to July 1, 2019 and ending June 30, 2020 for all users that discharge sewage or waste exhibiting a strength of sewage or waste greater than normal domestic sewage. In addition, this formula with the above rates will be used to calculate all monthly, quarterly, semiannual, and annual accounts subsequent to July 1, 2020.

(g) Any person who violates the Sewer Regulations of the Authority or the conditions of the permits issued thereunder shall be subject to fines as specified in said regulations.

(h) Whenever sewage or other wastes result in conditions in the Authority sewer system as to cause blockage or a substantial reduction in the flow, charges for the work necessary to eliminate such blockage or reduction in flow may be made, based upon costs incurred by the Authority for labor, materials, equipment hire, insurances, and other overhead, against the owner of the property or premises that caused the discharge of such sewage or other wastes into the Authority sewer system.

(i) Where sewer facilities have been installed to serve improved and unimproved property and have been paid for in whole or in part by the Authority, a charge shall be made based on a proportionate share of the original cost, determined by the foot frontage

of the parcel served, or by the area of such parcels, or by such other method the Authority determines to be equitable, as a condition to a permit for a connection to the Authority's facilities.

(j) An application and inspection fee for sewer connection permits shall be paid as follows at the time said application is filed with the Authority:

Tap Size	Fee ($)
4 inch	100.00
6 inch	200.00
8 inch	300.00
10 inch	500.00
12 inch	800.00
15 inch	1,200.00
18 inch	1,800.00
21 inch or greater	2,500.00

(k) An application fee of $50.00 per 2,500 square feet or part thereof of soil disturbance or impervious area being drained, whichever is greater, shall be paid at time of plans and/or calculations are submitted to the Authority for site stormwater management review.

(l) An application fee of $150.00 plus $25.00 for every 100 linear feet or part thereof of new sanitary sewer pipe proposed shall be paid at the time that plans and/or calculations are submitted to the Authority for any facility proposing to discharge 2,500 gallons per day or more of additional sanitary and/or industrial flow than existing conditions.

(m) All persons owning or operating a pump truck or other transport vehicle and desiring to discharge wastes, directly or indirectly, into the Authority's facilities shall first secure a valid Truckers Discharge Permit after paying an annual permit fee of $120.00. In addition to said permit fee, a separate charge shall be billed based upon the verified quantity or truck capacity, and character of the waste discharged and, if applicable, the point of discharge.

The following surcharge rates are hereby charged for such wastehaulers who are located outside the City:

DISCHARGE LOCATION	TOTAL SUSPENDED SOLIDS	BOD_5	TOTAL PHOSPHATE
Inlet/South Buffalo Pump	$0.1666 /lb	$0.2424 /lb.	$0.0205 /lb.
Mixing Tank	$0.1478 /lb	$0.1159 /lb.	$0.0205 /lb.
Thickener/Digester	$0.1563 /lb	$0.1223 /lb.	$0.0205 /lb.

The above surcharge rates, along with costs incurred by the Authority when handling, testing, conveying, and administering each wastehauler, will be used to determine the cost per gallon of each wastestream. The wastehauler user charges for various wastestreams are as follows:

1. Septage and portable toilet wastes - The rate of $0.04 per gallon discharged will be assigned to all permitted septage and portable toilet wastehaulers.
2. Grease trap wastes - The rate of $0.05 per gallon discharged will be assigned to all permitted grease trap wastehaulers.
3. Sludge wastes - This rate will vary dependent on strength and volume. Sludge rates will be calculated using the parameter costs for the mixing tank location.
4. Miscellaneous Wastes - This rate will vary dependent on strength of waste, volume and discharge location.

These rates will be used for all permits effective July 1, 2020.

(n) In the event a person, lot, parcel of land, building or premises threatens to discharge or discharges sewage or waste into or near the Authority's publicly owned treatment works, either directly or indirectly, which in the opinion of the Authority will or is likely to bypass, upset, harm or endanger the facilities of the Authority, then such person or the owner or operator of such lot, parcel of land, building or premises shall pay to the Authority charges for any and all clean up, removal and remediation costs actually incurred by the Authority, including but not limited to labor, materials, equipment, insurances or laboratory services for the (i) containment or attempted containment of such discharge or threatened discharge, (ii) sampling and analysis of such discharge or threatened discharge, (iii) removal or attempted removal of such discharge or threatened discharge, (iv) taking of reasonable measures to prevent or mitigate damage to property, public health, safety or welfare, or (v) remediation, treatment, storage or disposal of such discharge or threatened discharge and all soils, water or structures affected by such discharge.

(o) All industrial users and wastehaulers shall pay to the Authority a charge for the actual costs of analysis incurred by the Authority for monitoring of any and all discharges of such users.

(p) Any person who is granted a temporary permit to discharge into the facilities of the Authority shall pay a permit fee of $800.00 to the Authority as a condition of the issuance of such permit.

(q) Except as otherwise defined herein, all terms and phrases used or contained in this schedule of sewer rents shall bear the same meaning and definition as set forth in the Authority's Sewer Use Regulations 21 N.Y.C.R.R. Part 10075 and New York Public Authorities Law Section 1175 *et seq*.

(r) Sewer rents and charges as herein provided shall be payable at the office of the Director of the Treasury for the City at Room 117, City Hall, Buffalo, New York 14202, or at such other location or address as may be set forth on the Authority's invoice, and shall become due and payable as follows:

1. So much of the sewer rents and charges as are based upon water use and the drainage connection service charge covering the respective premises, or such other charges as provided herein shall be due and payable, except as otherwise stated in this schedule or in such invoice, on the same day, one month following the month of the invoice billing date, and such invoice may be billed monthly, quarterly or as otherwise determined by the Authority; and

2. So much of the sewer rents and charges as are based upon the assessed valuation of chargeable real estate shall become due and payable from the first day of July 1938, and each year thereafter, and may be paid without interest on or before September 30th next succeeding.

(s) Such sewer rents and charges that remain unpaid after their respective due dates shall be charged interest, and such interest shall continue to be charged until such sewer rents and charges are paid in full, as follows:

1. Sewer rents based upon water use and drainage connection service charges shall be charged interest at the same rate as unpaid City taxes, to wit: four and one-half percent (4.5%) interest shall be added to amounts unpaid from the first through the thirtieth day after the due date, and thereafter one and one-half percent (1.5%) shall be added to all amounts that remain unpaid for each succeeding month;

2. Sewer rents based upon assessed valuation of chargeable real estate that remain unpaid on October 1 of each year shall be charged interest at the rate of two percent (2%), and such sewer rents that remain unpaid shall be charged two percent (2%) for each month thereafter until paid; and

3. All other sewer rents and charges of the Authority shall be charged interest at the rate of one and one-half percent (1.5%) per month if not paid by the due date stated on the invoice issued by the Authority.

(t) All persons and property served by the Authority shall be subject to paying reasonable costs and expenses, including attorney fees incurred in the collection of sewer rents and charges that remain unpaid, as may be determined by the Board of the Authority. In addition to any other remedy or provision hereof, the Authority reserves the right to engage in such collection activities, as it deems appropriate, for all accounts that remain unpaid after the due date. In consideration of such collection activities and to defray the cost thereof with respect to accounts based on water use and drainage connection service, the person or property served by the Authority may pay an additional charge of twenty-one percent (21%) of the amount of each such delinquent account, together with interest as provided herein, that remains unpaid for more than (i) one hundred twenty (120) days from the due date for metered accounts, and (ii) two hundred ten (210) days from the due date for non-metered flat rate accounts. Due date, as used herein, means the date that the Authority's sewer rent and other charges are due and payable pursuant to III (q) (1) and III (q) (2), herein, respectively.

(u) Invoice statements shall be mailed or delivered to the address of the owner or user, as the case may be, as such address appears on the Authority's records. Such mailing or delivery is a matter of convenience. Failure of an owner or user to receive an invoice statement shall not release such owner or user from the obligation to pay such invoice statement, together with any other charges and interest which may accrue on unpaid amounts.

(v) All invoices shall be paid in United States dollars and may be paid by cash, check or credit card at Room 117, City Hall, Buffalo, New York or such other location or address as may be provided on such invoice, by internet, or by telephone as set forth on the invoice. All persons who pay through the City of Buffalo Website or by telephone shall pay any processing fees charged by the City of Buffalo. Multiple payments in the same transaction will be charged the convenience fee only once. The convenience fee will be added automatically to each transaction.

IV. LIEN OF SEWER RENT

From and after the due date thereof, such sewer rents and charges, together with any interest and collection costs shall constitute a lien upon the real property served by the facilities. Such lien shall have the same priority and superiority as the lien of the general tax of the City.

V. EFFECTIVE DATE OF THIS SCHEDULE

This schedule of sewer rents and other charges shall become effective July 1, 2020; provided, however, that the sewer rents and other charges herein set forth, applicable to water use, shall become effective on all billings on and after August 1, 2020, excepting only monthly metered accounts for July 2020, and Section "W" of the quarterly metered accounts for the period May, June, and July 2020, which shall be billed according to the schedule of rents in effect prior to July 1, 2020.

Exhibit A

Stories High:	1	1 ½	2	2 ½	3	4	5
Under 25 ft	21.65	24.38	29.76	35.17	37.84	40.57	45.97
From 25 ft to 30 ft	24.38	29.76	35.17	37.84	40.57	45.97	51.35
From 31 ft to 35 ft	29.76	35.17	37.84	40.57	45.97	51.35	56.74
From 36 ft to 40 ft	35.17	37.84	40.57	45.97	51.35	56.74	59.44
From 41 ft to 45 ft	37.84	40.57	45.97	51.35	56.74	59.44	62.12
From 46 ft to 50 ft	40.57	45.97	51.35	56.74	59.44	62.12	67.56

The Following Rates Apply To More Than One Family Homes or Housekeeping:

1 Family	21.65
2 Families	43.29
3 Families	64.94
4 Families	86.58
5 Families	108.03
6 Families	129.87

Bathtubs & Showers	*Bathtubs with attached showers are charged for only bathtubs
1 Bathtub	5.45
2 Bathtubs	10.91
3 Bathtubs	16.36
4 Bathtubs	21.81
5 Bathtubs	27.27
6 Bathtubs	32.72
7 Bathtubs	38.17
8 Bathtubs	43.63
9 Bathtubs	49.08

Toilets:	1 Family	2 Family	3 Family	4 Family	5 Family	6 Family
1 Toilet	10.86					
2 Toilets	19.15	21.73				
3 Toilets	27.43	30.01	32.59			
4 Toilets	35.72	38.30	40.88	43.46		
5 Toilets	44.00	46.58	49.16	51.74	54.32	
6 Toilets	52.29	54.87	57.45	60.03	62.61	65.19
7 Toilets	60.57	63.15	65.73	68.31	70.89	73.47
8 Toilets	68.86	71.44	74.02	76.60	79.18	81.76
9 Toilets	77.14	79.72	82.30	84.88	87.46	90.04
Each Additional Toilet	8.28					

Boarder or Roomer

1	4.13
2	8.26
3	12.38
4	16.51

Office with Water: 21.65 Office without Water: 10.86

Hot Water Heating Billed in November & February:

1	10.84
2	21.67
3	32.51
4	43.35
5	54.18
6	65.02
7	75.86
8	86.69

Car in Garage:	Garage w/out Water	Garage w/Water
1 Car	10.84	21.66
2 Cars	21.67	43.32
3 Cars	32.51	64.98
4 Cars	43.35	86.69
5 Cars	54.18	108.30
6 Cars	65.02	129.96
7 Cars	75.86	151.62
8 Cars	86.69	173.28

Appendix F:
2020 BSA Combined Sewer Overflow Annual Report

Part II - CSO LTCP Control Information

CSO Facility: Bird Island Sewage Treatment Plant	Flow: 180.00 MGD

SECTION A: CSO LTCP GENERAL INFORMATION

LTCP Development/Implementation:

Check all that apply:		*Describe other controls currently being used or planned. Also describe how the objectives of the CSO Control Policy have been met.*
In Development	☐	The Buffalo Sewer Authority's Long Term Control Plan was approved by the EPA on March 18, 2014 and is scheduled for completion on March 18, 2034.
Submitted	☐	
Approved	☑	
In Progress	☑	
Completed	☐	
Not Required	☐	

CSO Controls:

Check all that apply:		*Describe other controls currently being used or planned. Also describe how the objectives of the CSO Control Policy have been met under the selected controls*
Source Controls	☑	The Buffalo Sewer Authority's Long Term Control Plan was approved on March 18, 2014 and incorporates gray infrastructure projects such as weir raising, a floatable control facility, a new relief sewer, in-line storage facilities, CSO in-line storage facilities, upgrades to the existing wastewater treatment plant (WWTP) and off-line storage facilities and green infrastructure projects such as removal of impervious surfaces, permeable pavement, and bio-retention facilities.
Collection System Controls	☑	
Storage Technologies	☑	
Treatment Technologies	☑	
Floatable Controls	☑	
Disinfection	☐	
Type:		

Post-Construction Compliance Monitoring (PCCM) Program:

Check all that apply:		*Describe PCCM findings, status, updates, and future plan. Attach a separate sheet if necessary and describe if the PCCM confirms that LTCP is meeting the t objectives of the CSO Control Policy*
In Development	☐	The Buffalo Sewer Authority's Post Construction Monitoring Plan was approved on March 1, 2016.
Submitted	☐	
Approved	☑	
In Progress	☐	
Completed	☑	
Not Required	☐	

Part II - CSO LTCP Control Information

SECTION D: Collection System Information

	Baseline	After CSO BMP and/or LTCP Implementation	Current
Percentage of the collection system owned by the permittee that is combined.	93	93	93
Approximate no. of miles of combined sewers in the permittee owned system	790	790	790
Number of combined sewer outfalls in the permittee owned system	65	52	52
Average annual no. of CSO events in the permittee owned system	1145	117	338
Average annual CSO volume discharged from the permittee owned system (MG)	1886	486.3	1340
Population served by the permittee's owned system	292,648	261,310	254,787
Number of satellite system connections	7	7	7

Use the space below to provide any further relevant information on the collection system. This should include a description of any unique ownership, operation and maintenance agreements or further explanation and description of satellite system connections. (Attach extra sheets, if necessary):

Discharges to the Buffalo Sewer Authority's Combined Sewer System from satellite sanitary sewer districts are restricted through inter-municipal agreements, these values were utilized in constructing the flow model or the LTCP:

1. Town of Cheektowaga: 45 MGD
2. Erie County Sewer District #4: 20 MGD
3. Erie County Sewer District #1: 17.82 MGD
4. West Seneca Town Sewer Districts #5, 13, * 14: 12.8 MGD
5. Village of Sloan: 5.18 MGD
6. West Seneca Town Sewer Districts #1, 2, 3, 4, 9, & 10: 3.49 MGD
7. West Seneca Town Sewer District #15: 0.39 MGD

Part II - CSO LTCP Control Information

SECTION F: Use this section to describe how the implementation of the LTCP development and implementation have met the water quality standards of the receiving stream(s) and also objectives of the EPA CSO Control Policy (attach extra sheets as necessary):

The approved Long Term Control Plan uses a careful balance of traditional gray infrastructure as well as innovative green solutions. The is the right approach for this community and although it is financially burdensome, it is designed to protect the environment in the most affordable and cost-effective manner possible. During the development of the LTCP the BSA conducted a careful analysis of detailed receiving stream water quality modeling results. This analysis revealed that a uniform level of CSO control for all BSA receiving water bodies would be neither cost effective nor necessary to meet the established water quality standard (WQS) in each waterbody in large part due to the extremely varied nature of the CSO receiving waters. The evaluation results showed that the knee of the curve indicates that the approved plan for each receiving water body is designed to provide 100% attainment of the New York State (NYS) recreational WQS. Therefore, the BSA's approved alternative was assembled with a primary focus on providing a cost-effective attainment of the current NYS bacteria WQS in each water body and the associated frequency of activations necessary to accomplish those WQS. The frequency of activation as the performance measurement corresponds to the USEPA CSO Control Policy presumptive approach. Following implementation of the Recommended Plan, based on existing conditions, all water bodies in the BSA system will be positioned to produce less than or equal to 6 events per typical year level of control with the exception of the Niagara River (less than or equal to 9 events per year). The approved LTCP will have a probable project cost of $380 million and will be implemented over a 20 year period.

SECTION G: Use the following space to summarize other planned CSO control projects (attach extra sheets as necessary):

See attached Approved BSA CSO LTCP implementation schedule from the EPA's Amended Administrative Order CWA-02-2014-3033.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Oluwole A. McFoy, P.E.	**Official Title:** General Manager	**Phone:** (716)851-4664
Signature:	**Date Signed: 1/29/2021**	**Email:** omcfoy@buffalosewer.org

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APPENDIX D

CERTAIN INFORMATION CONCERNING THE CITY OF BUFFALO

ECONOMIC AND DEMOGRAPHIC FACTORS

Major Taxpayers

The following table of the fifteen largest taxpayers indicates the distribution of taxable properties in the City. As indicated, two utilities are liable for approximately 5.7% and 1.7%, respectively, of the total tax levy for fiscal year 2020-21 and no other taxpayer individually accounts for more than 1.0% of the tax levy.

CITY OF BUFFALO
FIFTEEN LARGEST PAYERS OF CITY REAL PROPERTY TAXES[1][2][3]
Fiscal Year Ending June 30, 2021

Rank	Taxpayer	Nature of Business	Net Assessed Valuation	Real Property Tax Levied	Ratio of Tax to Tax Levy
1	National Grid, PLC[5]	Utility	$502,562,575	$8,419,880	5.69%
2	National Fuel Fas Corporation[5]	Utility	147,189,565	2,465,998	1.67%
3	Consolidated Rail Corporation[5]	Shipping/Transportation	79,199,874	935,355	0.63%
4	EGP 130 Buffalo, LLC	Commercial Real Estate	50,000,000	837,695	0.57%
5	Manufacturers and Trust Company[4]	Bank	49,961,000	837,041	0.57%
6	Uniquest Delaware, LLC	Condominium/Hotel	41,500,000	695,287	0.47%
7	Violet Realty, Inc.	Commercial Real Estate	41,000,000	686,910	0.46%
8	Verizon Communication, Inc.[5]	Telecommunications	37,248,022	624,049	0.42%
9	LCO Building, LLC	Commercial Real Estate	41,044,800	586,096	0.40%
10	G & I IX Empire, LLC	Retail Plaza	33,127,000	555,006	0.38%
11	KEY Success, LLC	Commercial Real Estate	30,570,000	512,167	0.35%
12	Kissling Interest, LLC	Commercial Real Estate	28,663,800	480,230	0.32%
13	Genesee Hotel Properties, LLC	Hotel/Hospitality	27,400,000	459,057	0.31%
14	Gold Wynn Residential USA	Commercial Real Estate	25,088,000	413,799	0.28%
15	HSBC Bank USA, N.A.[4]	Bank	19,601,000	327,709	0.22%
		Total: Top Fifteen Taxpayers		18,836,281	12.74%
		Total: Real Property Tax Levy		$ 147,865,000	100.00%

Source: City of Buffalo, Department of Audit & Control, Division of Investment & Debt Management
[1]Based on assessed values greater than $100,000
[2]Does not include those properties which are exempt from taxes and are making Payments In-Lieu of Taxes (PILOT)
[3]Based on a non-homestead tax rate of $16.75per thousand
[4]Taxes on bank property only. Does not include taxes paid as mortgagee.
[5]Includes Special Franchise

Employment

The economy of the Buffalo area underwent a transition in the decade from 1980 to 1990. Traditionally dominated by heavy manufacturing and petrochemical industries, the area lost manufacturing jobs in part from the decline in steelmaking employment at both Bethlehem Steel and Republic Steel. However, these losses were offset by increases in employment in trade, government, services, finance, insurance and real estate and contract construction.

While total employment declined from 2000 through 2010, growth in government, services, financial and insurance sectors helped compensate for reductions in manufacturing and trade. Statistically, the Buffalo

area's job categories compare well with the U.S. average in the year 2010 with slight variances in two categories – finance/insurance and mining/construction.

The City remains committed to its downtown development strategy as a means of further diversifying its employment base.

Major employers in the Buffalo area include the State, the University at Buffalo, the U.S. Government, Kaleida Health, the County, Buffalo CSD, Catholic Health Systems and Manufacturers and Traders Trust Company.

Trends in Employment by Category[1]
2000-2020
(000's Omitted)

	2000		2010		2019		2020	
	Buffalo MSA	United States	Buffalo MSA	United States	Buffalo MSA	United States	Buffalo MSA	United States
Category								
Manufacturing	83.0	17,263.0	49.6	11,528.0	52.5	12,817.2	49.2	12,179.1
Trade, Transportation & Utilities	109.3	26,225.0	97.8	24,636.0	99.5	27,722.8	91.6	26,589.9
Retail Trade	65.8	15,279.8	60.8	14,440.4	59.4	15,619.9	54.0	14,853.1
Wholesale Trade	23.9	5,933.2	21.1	5,452.1	21.4	5,888.6	20.0	5,639.9
Governement	90.7	20,790.0	95.0	22,490.0	90.0	22,613.2	85.3	21,908.5
Service Providing	455.3	107,232.0	469.7	112,166.0	491.0	129,867.3	440.6	122,117.3
Other Services	23.1	5,168.0	23.4	5,331.0	25.8	5,890.6	21.3	5,393.8
Finance & Insurance	23.2	5,772.8	24.2	5,761.0	29.2	6,433.3	28.8	6,499.6
Mining & Logging	20.8	599.0	18.9	705.0	21.2	727.0	19.6	619.0
	895.1	204,262.8	860.5	202,509.5	890.0	227,579.8	810.4	215,800.1

Source: U.S. Department of Labor - Bureau of Labor Statistics Data
[1]Does not include all categories of employment

Total Non-Agricultural Employment by Category[1]
2000-2020
(000's Omitted)

	2000		2010		2019		2020	
	Buffalo MSA	United States	Buffalo MSA	United States	Buffalo MSA	United States	Buffalo MSA	United States
Category								
Manufacturing	9.3%	8.5%	5.8%	5.7%	5.9%	5.6%	6.1%	5.6%
Trade, Transportation & Utilities	12.2%	12.8%	11.4%	12.2%	11.2%	12.2%	11.3%	12.3%
Retail Trade	7.4%	7.5%	7.1%	7.1%	6.7%	6.9%	6.7%	6.9%
Wholesale Trade	2.7%	2.9%	2.5%	2.7%	2.4%	2.6%	2.5%	2.6%
Governement	10.1%	10.2%	11.0%	11.1%	10.1%	9.9%	10.5%	10.2%
Service Providing	50.9%	52.5%	54.6%	55.4%	55.2%	57.1%	54.4%	56.6%
Other Services	2.6%	2.5%	2.7%	2.6%	2.9%	2.6%	2.6%	2.5%
Finance & Insurance	2.6%	2.8%	2.8%	2.8%	3.3%	2.8%	3.6%	3.0%
Mining & Logging	2.3%	0.3%	2.2%	0.3%	2.4%	0.3%	2.4%	0.3%
	100%	100%	100%	100%	100%	100%	100%	100%

Source: U.S. Department of Labor - Bureau of Labor Statistics Data
[1]Does not include all categories of employment

Unemployment Rates

The following table indicates that the City's rate of unemployment is higher than the State and national percentages. City data in the table were determined by using the Census share methodology, which is based on the ratio of the City to the County with respect to employment figures. 2011-2020 data for the City is based on the 2010 Census.

UNEMPLOYMENT RATES [1][3]

Year	City	Buffalo MSA	NY State [2]	United States
2011	10.6%	8.2%	8.3%	8.9%
2012	10.9%	8.5%	8.4%	8.1%
2013	9.7%	7.6%	7.5%	7.4%
2014	7.9%	6.2%	6.2%	6.2%
2015	7.1%	5.6%	5.3%	5.3%
2016	6.3%	4.9%	4.9%	4.9%
2017	6.7%	5.4%	4.7%	4.4%
2018	5.8%	4.7%	4.2%	3.9%
2019	5.5%	4.4%	3.8%	3.7%
2020	12.6%	9.5%	10.1%	8.1%

Source: U.S. Department of Labor, Bureau of Labor Statistics
[1]Total employment by place of residence
[2]Figures from 2013-2019 reflect revised population controls and model re-estimation
[3]Average rates through December 2020, represents COVID-19 impacts from March 2020 – December 2020

Population

The 2010 Census revealed that the City's population declined from 292,648 in 2000 to 261,310 in 2010. The most recent estimate provided by the U.S. Department of Commerce, Bureau of the Census has the City of Buffalo with a population of 256,304 for 2019.

POPULATION TREND 1980-2010

	1980	1990	2000	2010
Buffalo	357,870	328,123	292,648	261,310
Erie County	1,015,472	968,532	950,265	919,040
Buffalo MSA	1,242,573	1,189,288	1,170,111	1,135,509
New York State	17,355,668	17,990,455	18,976,457	19,378,102
United States	225,234,182	249,632,692	281,421,906	308,745,538

Source: U.S. Department of Commerce, Bureau of the Census

CITY OF BUFFALO
HOUSING CHARACTERISTICS
1980-2010

	1980	1990	2000	2010
Year Round Housing Units	156,393	151,971	145,574	139,174
Occupied Housing Units	140,954	136,436	122,720	112,844
Persons Per Houshold	2.41	2.33	2.29	2.26

Source: U.S. Department of Commerce, Bureau of the Census

Development Activity

Information Technology

M&T Bank executed a lease to establish a high-tech hub at Seneca One Tower, bringing 1,000 IT employees to Seneca One in 2020 and an additional 1,500 over the next 3 years. Each tech job has potential to result in 5 additional jobs for a total of 7,500 new jobs. The M&T Technology Division will be the anchor tenant at Seneca One.

One Seneca Tower is now home to 43 North, a start-up pitch competition that awards $5.0 million to various start-up companies that locate in the City of Buffalo and the Innovation Center, a business incubator and co-working site designed to promote entrepreneurship. 43 North recently relocated from the Buffalo Medical Campus in early 2020 and will complement M&T's new tech hub. More than 130 start-up companies have been founded at the campus, capitalizing on the synergy and opportunity created by so many different entities on one site. Further tech-oriented office redevelopment is anticipated within The Main Place Mall with an estimated $75.0 million redevelopment to attract other large business tenants to the downtown.

Buffalo Medical Campus

Two major projects were completed on the Buffalo Niagara Medical Campus ("BNMC") in 2017, bringing the total number of employees at the 120-acre site to more than 17,000. Both Kaleida Health's $250.0 million Oishei Children's Hospital and the University at Buffalo's $375.0 million Jacobs School of Medicine and Biomedical Sciences opened for business on the campus, which is a consortium of the region's top health care, education, and research institutions. The campus was already home to Roswell Park Cancer Institute, Buffalo General Hospital, the Hauptman-Woodward Medical Research Institute, and the recently completed $291.0 million facility that is home to the Kaleida Health Gates Vascular Institute and the University at Buffalo's Clinical and Translational Research Center.

Finance & Corporate Headquarters

The City is the home to the corporate headquarters of M&T Bank. M&T Bank, founded in Buffalo in 1856, is one of the nation's largest 20 banks, with $81.0 billion in assets and more than 15,000 employees, a third of which are located in the Buffalo area. M&T's footprint includes 750 branches in New York, Maryland, Pennsylvania, Virginia, Washington, D.C., West Virginia, Delaware, New Jersey and Florida.

HSBC bank has a major back-office presence in Buffalo, with more than 3,000 employees located in the area. Key Bank, Bank of America, Citizens Bank, and several local banks also have a major branch presence in the region.

Buffalo is home to the headquarters of several major corporations, including Delaware North Companies, Rich Products, Labatt USA, the New Era Cap Company and Lactalis American Group.

Education

The construction of the University at Buffalo's new medical school at the Buffalo Niagara Medical Campus is part of the "UB2020" plan, a comprehensive growth strategy to increase jobs, enrollment, and research funding at the school, the largest public university in New York State, with more than 28,000 students across 3 campuses. UB 2020 is expected to create more than 1,000 jobs at the university, in addition to 2,000 private-sector research jobs and 1,600 construction jobs.

In 2019, SUNY Buffalo State College took a lead development role as the designated developer for the former City of Buffalo auto impound lot. Located on the western end of Route 198 (the Scajaquada Expressway), the development is expected to enhance bridge connections to the existing campus and would support revitalization efforts on Buffalo's West Side.

In addition to the University at Buffalo and SUNY Buffalo State College, the area is home to 20 other colleges & universities, for a total of 110,000 students and 32,000 employees in higher education, creating a $3.2 billion economic impact.

Northland

The Northland Workforce Training Center is an industry-driven, public-private partnership between employers, educational institutions, community and faith-based organizations and state and local government focused on closing the skills gap of the local labor pool and creating economic on-ramps to training, co-ops, internships, apprenticeships, and permanent employment for Western New Yorkers seeking high-paying advanced manufacturing and energy careers.

Waterfront Development

The centerpiece of the waterfront development is the Canalside project, a year-round destination on the southern edge of downtown. More than 1.5 million visitors annually enjoy the attractions Canalside, which include concerts, ice skating, paddle boating, special events, and other activities. A new building at Canalside, the $27.0 million Explore & More - Ralph C. Wilson, Jr. Children's Museum, is complete and open to the public.

Canalside's popularity has led to more than a half billion dollars in private development in the area surrounding the attraction. This includes LECOM HarborCenter, where the National Hockey League's (NHL) Buffalo Sabres have completed a $250.0 million project, which includes a 20-story facility with two ice rinks, a 200-room Marriott hotel, retail, and a high-end sports bar known as "716". The Sabres' ownership have also completed renovations to an existing building nearby, which is the headquarters for both Pegula Sports and Entertainment, and beer company Labatt USA.

Canalside has even more attractions coming with the addition of a solar-powered carousel to be located near Clinton's Dish. This seasonal attraction consisting of a historic 1924 carousel will be housed inside a roundhouse enclosed in glass. The construction of a historic replica Longshed Boat Building was completed in October 2020 which consisted of a two-story, gabled-roof wood structure that will include public restrooms. The Buffalo Maritime Center has begun a move to begin a two- to three-year project to build a 19th century packet boat with public participation and viewing. Approved by the Planning Board in the fall of 2019, the Heritage Point project is a planned $30.0 million mixed-use development on the former South Aud block which will include restaurants, retail, and apartments.

Waterfront development has also spread past downtown, with recent park projects leading to nearby residential developments on the Outer Harbor and the Buffalo River. Buffalo Riverfest Park, Mutual Riverfront Park and Buffalo RiverWorks have resulted in new apartment buildings on the Buffalo River, such as the $18.0 million Buffalo River Landing and the $9.0 million 301 Ohio building. Wilkeson Pointe and other improvements have led to the first residential project proposed on the Outer Harbor, a 23-story, $100.0 million multi-phase housing, retail and waterfront amenity project known as Queen City Landing.

In 2018, the Ralph C. Wilson, Jr. Foundation announced $100.0 million in funding for a complete reimagining of LaSalle Park, located on Buffalo's waterfront, as well as a shoreline trail system that connects Buffalo to

Niagara Falls. Additional funding from the Wilson Foundation, the State, and the City was announced in 2019 for the construction of a new pedestrian bridge connecting LaSalle Park and the adjacent neighborhoods.

Downtown Development

Buffalo's tallest building, the Seneca One Tower, has plans of up to $120.0 million worth of investments on a mixed-use redevelopment. Construction is expected to finish in 2021. The space will include retail, residential and commercial space. Douglas Development has agreed to a PIF(PILOT Increment Financing), and will forgo substantial tax benefits for the Seneca One Tower Project, contributing $15.0 million in full tax payments towards a $40.0 million Accelerator fund to support infrastructure improvements, business development and talent attraction in downtown Buffalo.

A $40.0 million expansion of the Buffalo Creek Casino, including 360 new slot machines, 10 table games, a performance stage, and a high-end restaurant, was completed in 2017. The $45.0 million 201 Ellicott projects will bring more than 200 affordable residential units and a grocery store to downtown Buffalo. The Emerson Culinary School is renovating and expanding their facility. The project at 500 Pearl Street is now home to the 110 room Aloft Hotel, 12 high-end apartments, office space, first floor retail, and a restaurant. The $70.0 million project also includes the 2018 renovation of the adjoining Buffalo Christian Center. In 2020, Ellicott development announced plans to construct a mixed-use development on a surface parking lot at 11 St. Paul St. In proximity to the Buffalo Niagara Medical Campus, the development will include 14,000 square feet of retail, an Element by Westin Hotel with 103 extended-stay hotel rooms, and parking for 560 vehicles. Also near BNMC, the "Grid" is an $18.0 million five-story residential complex under construction that will be geared towards students and young professionals working and studying at the medical campus.

Infrastructure

The Cars Sharing Main Street project continues to bring vehicular traffic back to Main Street, while preserving the light rail system on the thoroughfare. With the 500, 600, and 700 blocks of Main Street completed, the project is already fulfilling its goal of increasing economic development and activity on the street. An additional $18.0 million in federal Transportation Investment Generating Economic Recovery (TIGER) grant funding for the project will be used for the portion of Main Street in the Canalside area, between Exchange and Scott Streets.

A three-story, $27.7 million Buffalo Exchange Street Amtrak Station has been completed. At 4,900 square feet, it is three times larger than the station that it replaced. The station will also have the capacity to accommodate expanded train and bus services in the future.

Housing

In 2019, over 400 new units of downtown housing were underway, including approximately 115 units at Douglas Development's Seneca One and 201 units at Ciminelli's 201 Ellicott St project.

In addition to the residential projects on the waterfront and downtown, $91.0 million is being invested in real estate projects, primarily housing, near the Metro Rail subway stations, primarily due to the Buffalo Niagara Medical Campus, Canalside, and the soon to be M&T Tech Hub being located on the city's subway system.

Since 2012, the sale of land from the City of Buffalo and other government agencies has led to the development of over 1000 market rate and affordable housing units either completed or underway. The City will receive over $600,000 in tax revenue in 2020 from development related to city property transfers.

Kaleida Health has announced new plans for the former site of Women and Children's Hospital in the Elmwood Village. Sinatra and Company and Ellicott Development are spearheading a $100 million project that calls for a grocery store, a hotel, a day care center and approximately 220 residential units.

Hospitality

The hotels at HarborCenter and One Canalside are in addition to other new hotels recently completed or planned in the City that rehabilitate historic buildings. Benderson Development invested $18 million in the 105-suite Residence Inn on Delaware Ave that replaced the longstanding Holiday Inn. The Hotel @ the Lafayette a $46 million project, and the Webb Building, a $9 million project, were completed in 2012.

Construction is completed on the Tishman Building, a $40 million project that includes a 123-room Hilton Garden Inn, and the Curtiss Building, a $20 million 68-room luxury hotel. The Richardson Olmsted Complex, which renovated H.H. Richardson's architectural masterpiece into a 90-room, $56.0 million boutique hotel and high-tech conference center, has also been completed. The Curtiss Building renovation into a boutique hotel, fine dining and spa is complete as well. The 120-room Westin hotel on Delaware Avenue opened in 2016, and Ellicott Development announced plans to develop an Element by Westin Hotel near the Buffalo Niagara Medical Campus.

Automotive Industry

More than $1.0 billion has been invested or are slated to be invested in automotive factories in the Buffalo area. $825.0 million was invested in the General Motors engine plant, which added 113 jobs in 2013, for a total of 1,902 jobs at the facility. Ford is currently implementing $150.0 million in new investments to its stamping plant. The investments have led to 230 new jobs, for a total workforce of 1,950 employees, with more jobs expected when the investments are completed.

Entertainment and Culture

Downtown Buffalo is also the regional hub of Western New York entertainment, drawing approximately seven million visitors per year. The largest draw is special events, which attract 1.3 million visits per year for the Taste of Buffalo, Canalside Summer Music Series, the M&T Lunchtime concert series, the National Buffalo Wing Festival, and other events. Sporting events draw 1.2 million visits for hockey, baseball and lacrosse, while some 700,000 patrons enjoy Theatre District events. The City's vibrant arts community and world-renowned architecture are also major tourism draws.

The long term future of the National Football League's Buffalo Bills was ensured with the purchase of the franchise for $1.4 billion by Buffalo Sabres owners Terry and Kim Pegula, who have committed to keeping the team in the region for the foreseeable future. Pegula has also committed to building a new stadium for the Bills, which could potentially be located in the City.

Buffalo is also home to the Buffalo Sabres of the National Hockey League (NHL), and the Buffalo Bisons baseball team, the Triple-A affiliate of the Toronto Blue Jays.

The City is the home of numerous institutions devoted to the arts including Kleinhans Music Hall, the home of the Buffalo Philharmonic Orchestra, and the world famous Albright-Knox Art Gallery which broke ground on its $160 million expansion. The gallery will house temporarily on the Northland Campus during construction and the new Buffalo AKG Art Museum is expected to open in 2022.

The City's historic theater district provides the stage for legitimate theater with the largest concentration of theaters in New York State outside of New York City. Shea's Buffalo Theater, 710 Main Theatre, Alleyway Theatre, and the Irish Classical Theatre anchor the City's downtown theatre district.

The City is also the location of the Buffalo Museum of Science, the Buffalo and Erie County Historical Museum, the Buffalo Zoo, and the Botanical Gardens of Buffalo and Erie County.

Library services are provided through the Buffalo and Erie County Public Library Systems with 218 employees, circulating over 7.6 million items at 37 branches located throughout Erie County.

Canadian Impact

The City's proximity to Canada has resulted in a positive economic impact, especially in retail and transportation. In addition to Canadian shoppers boosting sales tax revenue, Canadian travelers have also been credited with strengthening activity at the Buffalo Niagara International Airport. Canadians are estimated to make up 20-30% of passengers that use the airport, supporting 17,000 jobs with $1.1 billion economic impact.

The impact of Canadians on the local economy is expected to increase as the "Golden Horseshoe" region of Southern Ontario (Toronto-Niagara Falls-Hamilton area) is projected to grow from 8.8 million people today to 11.5 million by 2031. An expanded Peace Bridge Plaza completed construction aimed at strengthening the region's ties with Southern Ontario by making border crossings quicker and easing congestion on the bridge. The plan also included $2.0 million for improvements to the surrounding neighborhood.

Transportation

The City is located in the center of a complex transportation network of truck, rail, highway, water and air facilities. The Peace Bridge Authority has begun a full EIS (Environmental Impact Statement) process to study location, size and design of one or two bridges and an associated plaza.

The Port of Buffalo is eighth in size of the 54 Great Lakes ports and twenty-ninth in size of the 40 major U.S. ports. The Port's terminal facilities encompass 185,000 square feet of enclosed storage space for marine cargo and approximately 200 acres of open storage space. On May 28, 1976 a Foreign Trade Zone (the "FTZ") began operation at the Port of Buffalo. Imported goods may be processed in the FTZ, sorted, stored and repackaged without payment of any duties until the goods are actually sold to importers in the United States or elsewhere. A total of 153 acres at the former Bethlehem Steel Plant has been designated as the FTZ and approximately 31 companies occupy the FTZ at the relocated Port of Buffalo.

Truck service is provided in the Buffalo area by various transcontinental, international and common carriers. Several freight and passenger lines, including Conrail, Amtrak and Canadian National Railways, provide rail service.

The Buffalo Niagara International Airport (BNIA), operated by the Niagara Frontier Transportation Authority (NFTA) is a regional airport serving the Buffalo-Niagara Metropolitan Area providing approximately 110 daily flights. The following table sets forth the trend in passenger volume at the Buffalo Niagara International Airport from 2011 through 2020.

Buffalo-Niagara International Airport
Passenger Volume Trend

Year	Passenger Volume	% Change from Prior Year
2011	5,194,162	-0.2%
2012	5,177,913	-0.3%
2013	5,134,925	-0.8%
2014	4,750,643	-7.5%
2015	4,679,070	-1.5%
2016	4,618,748	-1.3%
2017	4,704,114	1.8%
2018	5,059,555	7.6%
2019	4,967,859	-1.8%
2020	1,434,080	-71.1%

Source: Niagara Frontier Transportation Authority

APPENDIX E

SUMMARY OF CERTAIN PROVISIONS OF THE BOND RESOLUTION

The General Bond Resolution contains various covenants and security provisions certain of which are summarized below. Reference should be made to the General Bond Resolution for a full and complete statement of its provisions. All capitalized terms used in this Summary and not otherwise defined in the Official Statement of which this Summary is a part shall have the meanings set forth in the General Bond Resolution.

Definitions (Section 102)

Set forth below are certain terms used in this Summary and defined in the General Bond Resolution:

"Account" means an account created and established pursuant to the General Bond Resolution.

"Authorized Officer" means the Chairman, the Vice-Chairman, the Assistant Vice-Chairman, the Treasurer, the Comptroller, the Secretary, the Assistant Secretary, or the General Manager or other chief administrative officer of the Authority, and when used with reference to any act or certificate or other document, also means any person duly authorized to perform such act or sign such document.

"Bond Insurance Policy" means a bond insurance policy issued by a Bond Insurer with respect to a Series of Bonds.

"Bond Insurer" means an insurance company or association described in clause (b) of the definition of "Credit Facility" that has issued a Bond Insurance Policy with respect to a Series of Bonds.

"Common Debt Reserve Requirement" means, for all Common Debt Reserve Secured Bonds, the least of: (a) 10% of the aggregate original stated principal amount of all Common Debt Reserve Secured Bonds (provided that if any Common Debt Reserve Secured Bonds have more than a *de minimis* (2%) amount of original issue discount or premium, the issue price of such Common Debt Reserve Secured Bonds (net of pre-issuance accrued interest) is used to measure the 10% limitation in lieu of its stated principal amount); (b) the maximum amount of aggregate principal and interest on all Common Debt Reserve Secured Bonds coming due in any Fiscal Year; or (c) 125% of the average annual aggregate principal and interest on all Common Debt Reserve Secured Bonds.

"Common Debt Reserve Secured Bonds" means any Series of Bonds for which the Supplement Resolution authorizing such Bonds provides for such Bonds to be secured by the Common Debt Reserve Requirement.

"Consulting Engineer" means a reputable and experienced engineer or firm of engineers, selected by the Authority.

"Counsel's Opinion" means an opinion signed by an attorney or firm of attorneys of nationally recognized standing in the field of law relating to revenue bonds of municipalities and public agencies, selected by the Authority and satisfactory to the Trustee.

"Credit Facility" means, with respect to a Series of Bonds, a Bond Insurance Policy, an irrevocable letter of credit (and any confirming letter of credit), surety bond, loan agreement, or other agreement, facility or insurance or guaranty arrangement pursuant to which the Authority is entitled to obtain money to pay the principal and Sinking Fund Installments of and interest on particular Bonds whether or not the Authority is in default hereunder, which is issued or provided by:

(a) a bank, a trust company, a national banking association, a savings bank, a saving and loan association, an organization subject to registration with the Board of Governors of the Federal Reserve System under the Bank Holding Company Act of 1956 or any successor provisions of law, a federal branch pursuant to the International Banking Act of 1978 or any successor provision of law, a domestic branch or agency of a foreign bank which branch or agency is duly licensed or authorized to do business under the laws of any state or territory of the United States of America, the unsecured or uncollateralized long term debt obligations of which, or long term obligations secured or supported by a letter of credit issued by such person, are rated, without regard to qualification of such rating by symbols such as "+" or "-" or numerical notation, in at least the second highest rating category by at least one of the Rating Agencies;

(b) an insurance company or association chartered or organized under the laws of any state of the United States of America, and either (i) the claims paying ability of such insurance company or association is rated in the highest rating category accorded by a nationally recognized insurance rating agency, or (ii) obligations insured by a surety bond or an insurance policy issued by such insurance company or association are rated, without regard to qualification of such rating by symbols such as "+" or " " or numerical notation, in at least the second highest rating category by at least one of the Rating Agencies;

(c) the Government National Mortgage Association or any successor thereto;

(d) the Federal National Mortgage Association or any successor thereto;

(e) a Federal Home Loan Bank; or

(f) any other federal agency or instrumentality approved by the Authority.

"Credit Facility Agreement" means an agreement between the Authority and a Credit Issuer pursuant to which the Credit Issuer issues a Credit Facility.

"Credit Issuer" means any Bond Insurer or other issuer of a Credit Facility then in effect for all or part of the Bonds.

"Debt Service" means, subject to certain provisions set forth in the General Bond Resolution, as of any date of calculation and with respect to any Series, an amount equal to the sum of (i) interest accruing during such period on Bonds of such Series and (ii) that portion of the principal of and Sinking Fund Payments on such Bonds that would accrue during such period if such principal and Sinking Fund Payments were deemed to accrue on the same basis as interest; calculated on the assumption that no Bonds

Outstanding at the date of calculation will cease to be Outstanding except by reason of payment on the due date thereof or redemption from Sinking Fund Payments.

"Depositary Bank" means any bank or trust company selected by the Authority as a depositary of moneys to be held under the provisions of the General Bond Resolution, and may include the Trustee.

"EFC" means the New York State Environmental Facilities Corporation.

"EFC Bonds" means any Series of Bonds issued by the Authority pursuant to the General Bond Resolution and delivered to EFC as evidence of a loan by EFC to the Authority pursuant to Chapter 565 of the Laws of New York of 1989, as amended.

"Fiduciary" means the Trustee or any Paying Agent or Depositary Bank.

"Fiscal Year" means a twelve month period commencing on the first day of July.

"Fitch" means Fitch Ratings and any assigns and successors thereto.

"Fund" means any fund established pursuant to Section 502 of the General Bond Resolution.

"Interest Payment Date" means any date upon which interest on the Bonds is due and payable in accordance with their terms.

"Investment Securities" means and includes any of the following securities, if and to the extent the same are at the time legal investments by the Authority of the funds to be invested therein:

(1) Direct obligations of the United States of America and securities fully and unconditionally guaranteed as to the timely payment of principal and interest by the United States of America, *provided*, that the full faith and credit of the United States of America must be pledged to any such direct obligation or guarantee ("Direct Obligations");

(2) Direct obligations and fully guaranteed certificates of beneficial interest of the Export-Import Bank of the United States; consolidated debt obligations and letter of credit-backed issues of the Federal Home Banks; participation certificates and senior debt obligations of the Federal Home Loan Mortgage Corporation ("FHLMCs"); debentures of the Federal Housing Administration; mortgage-backed securities (except stripped mortgage securities that are valued greater than par on the portion of unpaid principal) and senior debt obligations of the Federal National Mortgage Association ("FNMAs"); participation certificates of the General Services Administration; guaranteed mortgage-backed securities and guaranteed participation certificates and guaranteed pool certificates of the Small Business Administration; debt obligations and letter of credit-backed issues of the Student Loan Marketing Association; local authority bonds of the U.S. Department of Housing & Urban Development; guaranteed Title XI financings of the U.S. Maritime Administration; guaranteed transit bonds of the Washington Metropolitan Area Transit Authority; and Resolution Funding Corporation securities;

(3) Direct obligations of any state of the United States of America or any subdivision or agency thereof whose unsecured, uninsured and unguaranteed general obligation debt is rated, at the time of purchase, "A" or better by Moody's and "A" or better by Standard & Poor's, or any obligation fully and unconditionally guaranteed by any state, subdivision or agency whose unsecured, uninsured and unguaranteed general obligation debt is rated, at the time of purchase, "A" or better by Moody's and "A" or better by Standard & Poor's;

(4) Commercial paper (having original maturities of not more than 270 days) rated, at the time of purchase, "P-1" by Moody's and "A-1" or better by Standard & Poor's;

(5) Federal funds, unsecured certificates of deposit, time deposits or bankers acceptances (in each case having maturities of not more than 365 days) of any domestic bank including a branch office of a foreign bank which branch office is located in the United States, provided legal opinions are received to the effect that full and timely payment of such deposit or similar obligation is enforceable against the principal office or any branch of such bank, which, at the time of purchase, has a short-term "Bank Deposit" rating of "P-1" or better by Moody's and a "Short-Term CD" rating of "A-1" or better by Standard & Poor's;

(6) Deposits of any bank or savings and loan association that has combined capita. Surplus and undivided profits of not less than $3,000,000, provided such deposits are continuously and fully insured by the Bank Insurance Fund or the Savings Association Insurance Fund of the Federal Deposit Insurance Corporation;

(7) Investments in money-market funds rated "AAAm" or "AAAm-G" by Standard & Poor's;

(8) Repurchase agreements collateralized by Direct Obligations, GNMAs, FNMAs or FHLMCs with any registered broker/dealer subject to the Securities Investors' Protection Corporation jurisdiction or any commercial bank insured by the Federal Deposit Insurance Corporation, if such broker/dealer or bank has an uninsured, unsecured and unguaranteed obligation rated "P-1" or "A3" or better by Moody's, and "A-1" or "A-" or better by Standard & Poor's; provided:

(a) a master repurchase agreement or specific written repurchase agreement governs the transaction; and

(b) the securities are held free and clear of any lien by the Trustee or an independent third party acting solely as agent ("Agent") for the Trustee, and such third party is: (A) a Federal Reserve Bank; (B) a bank that is a member of the Federal Deposit Insurance Corporation and that has combined capital, surplus and undivided profits of not less than $50,000,000; or (C) a bank approved in writing for such purpose by Financial Guaranty Insurance Company, and the Trustee shall have received written confirmation from such third party that it holds such securities, free and clear of any lien, as agent for the Trustee;

(c) a perfected first security interest under the Uniform Commercial Code, or book entry procedures prescribed at 31 C.F.R. Part 306, in such securities, is created for the benefit of the Trustee;

(d) the repurchase agreement has a term of 10 years or less, and the Trustee or the Agent will value the collateral securities no less frequently than weekly and will liquidate the collateral securities if any deficiency in the required collateral percentage is not restored within two business days of such valuation; and

(e) the fair market value of the securities in relation to the amount of the repurchase obligation, including principal and interest, is equal to at least 103%.

"Moody's" means Moody's Investors Service and any assigns and successors thereto.

"Operating Expenses" means all reasonable or necessary current expenses of maintaining, repairing, operating and managing the Sewer System, including all salaries, administrative, general, commercial, architectural, engineering, advertising, auditing and legal expenses, insurance and surety bond premiums, consultants' fees and charges, current payments to pension, retirement, health and hospitalization funds or in connection with any other employee benefit program, any taxes that may lawfully be imposed on the Sewer System or the income or operation thereof, payments by the Authority in lieu of taxes, costs of public hearings, ordinary and current rentals of equipment or other property, ordinary lease payments for real property or interest therein, usual expenses of maintenance and repair (including replacements), expenses, liabilities and compensation of any Fiduciary or of any trustee, paying agent or fiduciary for any obligation issued by the Authority other than under this Resolution, reasonable reserves for maintenance and repair, and all other expenses necessary, incidental or convenient for the efficient operation of the Sewer System, but only to the extent properly attributable to the Sewer System. Operating Expenses shall not include any allowance for depreciation or amortization.

"Paying Agent" means any paying agent for the Bonds of any Series, and its successor or successors and any other person that may at any time be substituted in its place pursuant to the General Bond Resolution.

"Rate Consultant" means any nationally recognized independent accountant or firm of independent accountants, or management consultant or firm of management consultants, or independent engineer or firm of independent engineers (which must not be the firm then serving as the accountant for the Authority) selected by the Authority.

"Rating Agencies" means Fitch, Moody's and Standard & Poor's.

"Renewal and Extension Requirement" means the amount set forth in the Annual Budget of the Authority as necessary as a reserve for extraordinary repairs or replacements in connection with the Sewer System and to pay Capital Costs expected to be incurred in the extension, improvement or renewal of the Sewer System, but for which Bonds or other obligations of the Authority are not expected to be issued.

"Reserve Fund Facility" means a surety bond, insurance policy, letter of credit (and any confirming letter of credit) or other financial guaranty or instrument, authorized by or pursuant to a Supplemental

Resolution establishing a Series Debt Reserve Account, to be delivered in lieu of or substitution for all or a portion of the moneys otherwise required to be held in such Series Debt Reserve Account.

"Reserve Fund Facility Agreement" means an agreement between the Authority and a Reserve Fund Facility Provider pursuant to which the Reserve Fund Facility Provider provides a Reserve Fund Facility.

"Reserve Fund Facility Provider" means any provider of a Reserve Fund Facility then in effect for all or part of the Bonds.

"Revenues" means all rates, charges, rents, sewer rents, fees, assessments and other realized income derived or to be derived by or for the account of the Authority from or for the ownership, operation, use or services of the Sewer System, including the proceeds of any business interruption insurance, and any amounts paid into and credited to the Net Revenue Fund pursuant to this Resolution, but shall not include (a) any refundable customer deposit, (b) any amount received or receivable from the United States or the State (or any agency of either thereof) or from any other source as or on account of a contribution for or with respect to (i) the construction, acquisition, improvement, extension, renewal or other development of any part of the Sewer System, or (ii) the financing or repayment of financing of any of the foregoing, (c) sanitation or other charges that the Authority collects not for services of the Sewer System but solely as a fiscal agent or in another such agency capacity, other than the net revenues of such sanitation or other charges retained by the Authority to the extent allocated to the Sewer System, or (d) any amount received by or paid to the Authority that is required to be charged or collected by or paid to the Authority under the terms of any grant agreement with the United States of America or any agency thereof or the State or any agency thereof and which is received by or paid to the Authority in an agency capacity under such grant agreement. For purposes of determining compliance with the coverage test set forth in Section 709(C) of the General Bond Resolution, the computation of Revenues with respect to any period of time shall be increased (to the extent set forth in Section 709(C) of the General Bond Resolution) by the amount of transfers during such period from the Rate Stabilization Fund to the Net Revenue Fund pursuant to Section 509 of the General Bond Resolution, and decreased by the amount of transfers during such period from the Net Revenue Fund to the Rate Stabilization Fund pursuant to Section 509 of the General Bond Resolution.

"Separate Series Debt Reserve Requirement" means, for any Series of Bonds for which the Supplemental Resolution authorizes a Separate Series Debt Reserve Requirement, the amount, if any, specified in such Supplemental Resolution as the Separate Series Debt Reserve Requirement; provided, however, that such amount shall not exceed the least of: (a) 10% of the aggregate original stated principal amount of the Bonds of such Series (provided that if such Bonds have more than a *de minimis* (2%) amount of original issue discount or premium, the issue price of such Bonds (net of pre-issuance accrued interest) is used to measure the 10% limitation in lieu of their stated principal amount); (b) the maximum amount of principal and interest on such Bonds coming due in any Fiscal Year; or (c) 125% of the average annual principal and interest on such Bonds.

"Series Debt Reserve Account" means each account in the Debt Reserve Fund related to a particular Series of Common Debt Reserve Secured Bonds or Separate Series Debt Reserve Bonds that is required to be funded as provided in a Supplemental Resolution.

"Sinking Fund Payment" means, as of any particular date of calculation, the amount of money required to be paid at all events by the Authority on a single future date for the retirement of Outstanding Bonds that are expressed to mature after said future date, but does not include any amount payable by the Authority by reason only of the maturity of a Bond.

"Standard & Poor's" or "S&P" means S&P Global Ratings, a business unit of Standard & Poor's Financial Services LLC, and any assigns and successors thereto.

Contract With Bondholders (Section 202)

The provisions of the General Bond Resolution constitute a contract among the Authority, the Trustee and the holders of the Bonds and the related coupons and the provisions thereof are for the equal benefit, protection and security of the holders of any and all of such Bonds and coupons, each of which is of equal rank without preference, priority or distinction over any other thereof except as expressly provided in the General Bond Resolution.

Provisions for Issuance of Bonds (Sections 203, 206 and 714)

The General Bond Resolution authorizes Bonds to be issued from time to time in one or more Series without limitation as to amount except as provided by law and the provisions of the General Bond Resolution providing for the issuance of additional Bonds secured by the General Bond Resolution. Bonds may be issued under the General Bond Resolution to provide funds for the capital costs of the Sewer System and to refund other Bonds. The Bonds of a Series may be authenticated and delivered only upon receipt by the Trustee of, among other things:

(A) a Counsel's Opinion to the effect that (1) the Authority has the right and power to adopt the General Bond Resolution under the Act as amended to the date of such Opinion; (2) the General Bond Resolution has been duly and lawfully adopted by the Authority, is in full force and effect, is valid and binding upon the Authority and is enforceable against the Authority except as such enforceability may be limited by bankruptcy, insolvency or other laws affecting creditors' rights generally; (3) the General Bond Resolution creates the valid pledge that it purports to create, of all Revenues and proceeds of Bonds on deposit in any of the Funds and Accounts created hereunder, subject to the application thereof to the purposes and on the conditions permitted by the General Bond Resolution; (4) the Bonds of such Series are valid and binding revenue obligations of the Authority, enforceable in accordance with their terms and the terms of this Resolution except as limited by bankruptcy, insolvency or other laws affecting creditors' rights generally; and (5) upon the execution, authentication and delivery thereof, the Bonds of such Series will have been duly and validly authorized and issued in accordance with the Constitution and statutes of the State, including the Act as amended to the date of such Opinion, and in accordance with the General Bond Resolution;

(B) a copy of the Supplemental Resolution authorizing such Series, certified by an Authorized Officer, which shall specify, among other things: the authorized principal amount and Series designation of such Bonds; the date, and the maturity date or dates, of the Bonds of such Series, each of which maturity dates shall fall upon an Interest Payment Date; the interest rate or rates of the Bonds of such Series, or the manner of determining such rate or rates, and the Interest Payment Dates therefor; the Redemption Prices, if any, and, subject to the provisions of Article VI of the General Bond Resolution, the redemption terms

for the Bonds of such Series; and the amount and due date of each Sinking Fund Payment, if any, for Bonds of like maturity of such Series, but the due date of any Sinking Fund Payment shall fall upon an Interest Payment Date; and

(C) a Certificate of an Authorized Officer, dated as of the date of such delivery, stating that the Authority has met the requirements of Section 714 of the General Bond Resolution with respect to such Series.

The General Bond Resolution provides that no Additional Bonds, other than refunding bonds and Additional Bonds issued to pay the capital cost of completing a project for which Bonds have been previously issued, may be issued unless the Revenues for any twelve (12) consecutive month period within the twenty-four (24) consecutive months immediately preceding the date of issuance of such additional Bonds (excluding any transfers between the Net Revenue Fund and the Rate Stabilization Fund during this period) are at least equal to the sum of: (1) the amount required or estimated to be required in any future Fiscal Year described in the following clause (2) to pay Operating Expenses; plus (2) the greater of (a) 120% of the maximum Debt Service on Senior Bonds for any future Fiscal Year (calculated with respect to all Senior Bonds then Outstanding and the additional Bonds); or (b) 100% of the maximum Debt Service on the aggregate of any Senior Bonds and Subordinated Indebtedness for any future Fiscal Year (calculated with respect to all Bonds then Outstanding and the additional Bonds), excluding any amounts provided as capitalized interest from the proceeds of such Bonds but including Debt Service on such Bonds and on additional Bonds estimated by the Certificate of a Consulting Engineer as required to be issued to complete the Project to be financed with the proceeds of such Bonds; provided, however, that Revenues for such twelve (12) month period may be adjusted for purposes of the foregoing calculation: (X) to reflect for such period revisions in the rates, fees, rentals and other charges of the Authority for the services of the System made after the commencement of such period and preceding the date of issuance of the additional Bonds; (Y) to reflect any increase in Revenues due to any new facilities of the Sewer System having been placed into use and operation subsequent to the commencement of such period and preceding the date of issuance of the additional Bonds, as certified by the Consulting Engineer; and (Z) to include an amount equal to the average annual contribution to Revenues for the first three full Fiscal Years commencing after the date of acquisition thereof, estimated to be made by facilities anticipated to be acquired and expected to be placed into use and operation within two years of the date of issuance of such additional Bonds, as certified by the Consulting Engineer.

Provisions for Refunding Issues (Section 207)

One or more Series of refunding Bonds may be issued to refund any outstanding Bonds. Refunding Bonds may be authenticated and delivered only upon receipt by the Trustee of, among other things, irrevocable instructions to give due notice of the redemption of all Bonds to be refunded and either (i) moneys sufficient to effect payment at the applicable redemption price of the Bonds to be refunded, together with interest accrued to the redemption date, or (ii) Investment Securities which by their terms will provide moneys sufficient, together with other available moneys, to provide for the payment of such Bonds upon call for redemption, together with accrued interest. Any such moneys or Investment Securities are required to be held irrevocably in trust under the General Bond Resolution.

Bond Anticipation Notes (Section 208)

Whenever the Authority shall authorize the issuance of a Series of Bonds, the Authority may, by resolution, authorize the issuance of notes (and renewals thereof) in anticipation of such Series. The principal of and interest on such notes and renewals thereof shall be payable from the proceeds of such notes or from the proceeds of the sale of the Series of Bonds in anticipation of which such notes are issued. The proceeds of such Bonds may be pledged for the payment of the principal of and interest on such notes and any such pledge shall have a priority over any other pledge of such proceeds created by the General Bond Resolution. The Authority may also pledge the Revenues to the payment of the interest on the principal of such notes.

Subordinated Indebtedness (Section 209)

Nothing contained in the General Bond Resolution shall prohibit or prevent, or be deemed or construed to prohibit or prevent, the Authority from authorizing and issuing bonds, notes, certificates, warrants or other evidences or indebtedness for any corporate use or purpose relating to the Sewer System payable as to principal and interest from the Revenues subject and subordinate to the deposits and credits required to be made to the Operating Fund and to the payment of Debt Service on any Senior Bonds, or from securing such bonds, notes, certificates, warrants or other evidences of indebtedness the payment thereof by a lien and pledge on the Revenues junior and inferior to the lien and pledge on Revenues herein created for the payment and security of the Senior Bonds and to the lien and pledge on Revenues herein created for the payment of the Trustee's reasonable fee and reimbursement for reasonable expenses.

Credit Facilities (Section 213)

In connection with the issuance of any Series of Bonds, the Authority may obtain or cause to be obtained one or more Credit Facilities providing for or securing payment of all or a portion of the principal installments or redemption price or premium, if any, or interest due or to become due on such Bonds, providing for the purchase of such Bonds by the Credit Issuer of such Credit Facility or providing funds for the purchase of such Bonds by the Authority. In connection therewith, the Authority may enter into a Credit Facility Agreement with the Credit Issuer of any such Credit Facility providing for, *inter alia*: (1) the payment of fees and expenses to such Credit Issuer for the issuance of such Credit Facility; (2) the terms and conditions of such Credit Facility and the Series of Bonds affected thereby; and (3) the security, if any, to be provided for the issuance of such Credit Facility.

Pledge Effected by General Bond Resolution (Section 501)

The General Bond Resolution provides for the pledge for the payment of the Bonds, in accordance with their terms and the provisions of the General Bond Resolution, subject only to the provisions of the General Bond Resolution permitting the application thereof for or to the purposes and on the terms and conditions therein set forth: (A) all Revenues (except any investment earnings on any Funds or accounts of the Authority that are on deposit in the Rebate Fund or that are required to be deposited therein for rebate to the United States of America pursuant the provisions of the Code in order to comply with the Authority's covenants in any Supplemental Resolution for such Series of Bonds so as to ensure that interest on any Bonds that are issued as tax exempt obligations continues to be excludable from gross income under the Code), (B) all Funds and any Accounts (except amounts in the Rebate Fund and any

Account of the Construction Fund held by EFC as provided in Section 502(B) of the General Bond Resolution, which Account shall secure only the Series of Bonds to which it relates), and (C) all other moneys, securities and other funds to be received, held or set aside by the Authority or by any Fiduciary pursuant to the General Bond Resolution. The Authority's pledge shall be valid and binding from the time when it is made, and the Revenues, moneys, securities and other funds so pledged and then or thereafter received by the Authority shall immediately be subject to the lien of such pledge without any physical delivery or further act. The lien of such pledge and the obligation to perform the contractual provisions herein contained shall have priority over any or all other obligations and liabilities of the Authority, except that such lien shall be subordinate to and inferior to the cost of operation and maintenance of the Sewer System, and shall be valid and binding as against all parties having claims of any kind in tort, contract or otherwise against the Authority, irrespective of whether such parties have notice thereof. The lien securing Subordinate Indebtedness shall be subordinate to and inferior to the lien securing the Senior Bonds.

Establishment of Funds and Accounts (Section 502)

The General Bond Resolution establishes the following Funds, which are to be held by the Trustee (except for Construction Funds for particular Series of EFC Bonds, which may be held by EFC to the extent set forth in the Supplemental Resolution authorizing such Series of EFC Bonds):

(1) Construction Fund;

(2) Net Revenue Fund;

(3) Debt Service Fund;

(4) Debt Reserve Fund, in which there shall be established: (a) a Series Debt Reserve Account for all Series of Common Debt Reserve Secured Bonds; and (b) as applicable, a Series Debt Reserve Account for each Series of Bonds that has a Separate Series Debt Reserve Requirement;

(5) Redemption Fund;

(6) Subordinated Indebtedness Fund;

(7) Surplus Fund; and

(8) Rebate Fund.

The General Bond Resolution also establishes an Operating Fund, Capital Improvement Fund and Rate Stabilization Fund to be held by one or more Depositary Banks designated by and under the supervision of the Authority. All revenues are required to be deposited in the Operating Fund. Amounts in the Operating Fund are permitted to be used to pay operating expenses of the Sewer System. Monthly, after retaining a reserve for operating expenses in the following month, the balance remaining in the Operating Fund is to be transferred to the Net Revenue Fund. The Capital Improvement Fund is to be used for the payment of capital costs of the Sewer System.

Construction Fund (Section 503)

All Bond proceeds are to be deposited in the separate Account in the Construction Fund established for the project to be financed from the proceeds of such Bonds. Amounts in each such Account are permitted to be used only for the payment of the costs of construction of improvements, extensions, or renewal of the applicable project (including costs of issuance of Bonds and the payment of obligations previously incurred for such purpose) or to redeem Bonds.

Amounts in each separate Account of the Construction Fund shall be expended only: (1) to pay Capital Costs of the Project for which such account was established; (2) if the Supplemental Resolution authorizing a Series of Bonds provides for a Capitalized Interest Account for such Bonds, to pay interest on such Bonds from such Capitalized Interest Account; and (3) to the extent that the amounts in any other Fund or Account are insufficient or unavailable therefor, to pay the principal of and interest on the Bonds of such Series when due, but in the case of (3) above only in the event that there shall have been filed with the Trustee: (a) a Certificate of an Authorized Officer in form and substance satisfactory to the Trustee stating that the Revenues expected to be received thereafter together with such other specified amounts as are expected to be made available therefor by the Authority will be insufficient to pay in full all Outstanding Bonds when and as the same shall become due in accordance with their terms and in reasonable detail, the basis for such certification; and (b) a Counsel's Opinion that such payment will not result in a violation of any existing law.

Net Revenue Fund; Flow of Funds (Section 504)

The Authority shall cause all Revenues to be deposited promptly in the Operating Fund, except as otherwise expressly provided in the General Bond Resolution. As soon as practicable after the twenty-fifth day of each month, after reserving therein any amount deemed necessary to provide a reserve for the payment of the following month's Operating Expenses based on the Annual Budget (as the same may be amended as provided in Section 707 of the General Bond Resolution), the balance remaining in the Operating Fund shall be paid to the Trustee for deposit in the Net Revenue Fund.

The Trustee shall transfer from the Net Revenue Fund to the Debt Service Fund, no later than the last day of the month in which the Authority makes a payment to the Trustee in accordance with the preceding paragraph, an amount for each Series of Outstanding Senior Bonds equal to the sum of: (1) an amount equal to 1/6 of the amount of interest falling due on the Bonds of such Series on the next Interest Payment Date, or such other proportionate amount as shall be necessary to ensure monthly deposits for the payment in full of interest on the next Interest Payment Date, as set forth in the Supplemental Resolution authorizing such Series; and (2) an amount equal to 1/12 of the amount of principal falling due on the next date upon which an installment of principal (including a Sinking Fund Installment) falls due on the Bonds of such Series, or such other proportionate amount as shall be necessary to ensure monthly deposits for the payment in full of principal (including a Sinking Fund Installment) on such date, as set forth in the Supplemental Resolution authorizing such Series.

The Trustee shall pay out of the Net Revenue Fund to the Authority for deposit in the Operating Fund at any time or from time to time the amount specified in a Certificate of an Authorized Officer of the Authority as necessary for the payment of Operating Expenses due to the insufficiency of amounts available for such purpose in the Operating Fund.

On or before the last day of each month, the Trustee shall apply amounts then on deposit in the Net Revenue Fund to the making of the following payments or transfers, but only to the extent available and in the order specified below:

(1) There shall be transferred to the Debt Reserve Fund the amounts, if any, required with respect to Series Debt Reserve Accounts securing Senior Bonds.

(2) If the Trustee receives a written direction from an Authorized Officer, there shall be transferred to the Operating Fund the amount, if any, specified in such written direction as necessary to cause the amount on deposit in the Operating Fund to equal the Operating Reserve Requirement.

(3) There shall be transferred to the Subordinated Indebtedness Fund an amount for each Series of Outstanding Subordinated Indebtedness equal to the sum of: (a) an amount equal to 1/6 of the amount of interest falling due on the Bonds of such Series on the next Interest Payment Date, or such other proportionate amount as shall be necessary to ensure monthly deposits for the payment in full of interest on the next Interest Payment Date, as set forth in the Supplemental Resolution authorizing such Series; and (b) an amount equal to 1/12 of the amount of principal falling due on the next date upon which an installment of principal (including a Sinking Fund Installment) falls due on the Bonds of such Series, or such other proportionate amount as shall be necessary to ensure monthly deposits for the payment in full of principal (including a Sinking Fund Installment) on such date, as set forth in the Supplemental Resolution authorizing such Series.

(4) There shall be transferred to the Debt Reserve Fund the amounts, if any, required with respect to Series Debt Reserve Accounts securing Subordinated Indebtedness.

On or before the last day of each Fiscal Year, after making all of the payments and transfers described above, the Trustee shall apply amounts then on deposit in the Net Revenue Fund to the making of the following payments or transfers, but only to the extent available and in the order specified below:

(1) There shall be transferred to the Capital Improvement Fund an amount equal to the Renewal and Extension Requirement for such Fiscal Year.

(2) There shall be transferred to the Rate Stabilization Fund the amount, if any, designated in a Certificate of an Authorized Officer.

(3) Any amount remaining after the above payments or transfers have been made shall be deposited in the Surplus Fund.

Debt Service Fund (Section 505)

The Trustee shall pay out of the Debt Service Fund to the respective Paying Agents for any of the Bonds (1) on or before each Interest Payment Date, the amounts required for the payment of principal, if any, and interest due on the Outstanding Bonds on such date and (2) on or before the day preceding the redemption date or date of purchase, the amounts required for the payment of accrued interest on Bonds redeemed or purchased for retirement unless the payment of such accrued interest shall be otherwise

provided for, and in each such case, such amounts shall be applied by such Paying Agents to such payments.

The amounts accumulated in the Debt Service Fund for each Sinking Fund Payment may, and if so directed by an Authorized Officer shall, be applied (together with amounts with respect to interest on the Bonds for which such Sinking Fund Payment was established) by the Trustee prior to the forty-fifth day preceding the due date of such Sinking Fund Payment as follows:

(1) to the purchase of Bonds of the Series and maturity for which such Sinking Fund Payment was established, at prices (including any brokerage and other charges) not exceeding the Redemption Price payable for such Bonds when such Bonds are redeemable by application of such Sinking Fund Payment plus unpaid interest accrued to the date of purchase, such purchases to be made in such manner as the Trustee shall determine; or

(2) to the redemption of such Bonds pursuant to Article VI of the General Bond Resolution, if then redeemable by their terms, at or below the Redemption Price referred to in clause (1) hereof.

Debt Reserve Fund (Section 506)

There shall be deposited in the Debt Reserve Fund all amounts required to be deposited therein pursuant to the General Bond Resolution and any other amounts received and determined to be deposited therein by the Authority. The Series Debt Reserve Account maintained for all Common Debt Reserve Secured Bonds shall be funded at all times to the Common Debt Reserve Requirement, and each other Series Debt Reserve Account shall be funded at all times to the applicable Separate Series Debt Reserve Requirement as set forth in the applicable Supplemental Resolution.

Amounts on deposit in each Series Debt Reserve Account shall be applied, to the extent other funds are not available therefor in the Net Revenue Fund, to pay the principal of and Sinking Fund Payments, if any, and interest on the Bonds secured by such Series Debt Reserve Account when due, whether by call for redemption or otherwise. Whenever on any valuation date the amount in any Series Debt Reserve Account exceeds the Series Debt Reserve Requirement with respect to the Bonds secured by such Series Debt Reserve Account, the Trustee may, if directed by the Certificate of an Authorized Officer of the Authority, withdraw from such Series Debt Reserve Account the amount of any excess therein over the Series Debt Reserve Requirement for such Bonds as of the date of such withdrawal and deposit the moneys so withdrawn into the Operating Fund.

In lieu of or in substitution for moneys, the Authority may deposit or cause to be deposited with the Trustee a Reserve Fund Facility for the benefit of Bondholders of a Series for all or any part of the applicable Debt Reserve Requirement; provided (1) that any such surety bond or insurance policy shall be issued by an insurance company or association duly authorized to do business in the State and either (a) the claims paying ability of such insurance company or association is rated in the highest rating category accorded by a nationally recognized insurance rating agency or (b) obligations insured by a surety bond or an insurance policy issued by such company or association are rated, without regard to qualification of such rating by symbols such as "+" or " " or numerical notation, in at least the second highest rating category at the time such surety bond or insurance policy is issued by at least one of the Rating Agencies, and (2) that any letter of credit shall be issued by a bank, a trust company, a national banking association,

a savings bank, a savings and loan association, an organization subject to registration with the Board of Governors of the Federal Reserve System under the Bank Holding Company Act of 1956 or any successor provision of law, a federal branch pursuant to the International Banking Act of 1978 or any successor provision of law, or a domestic branch or agency of a foreign bank which branch or agency is duly licensed or authorized to do business under the laws of any state or territory of the United States of America, the unsecured or uncollateralized long term debt obligations of which, or long term obligations secured or supported by a letter of credit issued by such person, are rated at the time such letter of credit is delivered, without regard to qualification of such rating by symbols such as "+" or "-" or numerical notation, in at least the second highest rating category by at least one of the Rating Agencies. Such Reserve Fund Facility shall be payable to the Paying Agent (upon the giving of notice as required thereunder) on any Interest Payment Date or redemption date on which a deficiency exists that cannot be cured by moneys in any other fund or account held pursuant to this Resolution and available for such purpose. For the purposes of this Section 506 and Section 514 of the General Bond Resolution, in computing the amount on deposit in the applicable Series Debt Reserve Account, a Reserve Fund Facility shall be valued at the amount available to be paid thereunder on the date of computation. In connection a Reserve Fund Facility, the Authority may enter into a Reserve Fund Facility Agreement with the Reserve Fund Facility Provider of any such Reserve Fund Facility providing for, *inter alia*: (1) the payment of fees and expenses to such Reserve Fund Facility Provider for the issuance of such Reserve Fund Facility; (2) the terms and conditions of such Reserve Fund Facility and the Series of Bonds affected thereby; and (3) the security, if any, to be provided for any obligations of the Authority with respect to such Reserve Fund Facility.

If any Series Debt Reserve Account contains both a Reserve Fund Facility and cash, the cash shall be drawn down completely prior to any draw on the Reserve Fund Facility. If more than one Reserve Fund Facility is on deposit in a Series Debt Reserve Account, amounts required to be drawn thereon shall be done on a pro rata basis. The Authority agrees to pay all costs owing in regard to any Reserve Fund Facility from the amounts pledged under Section 501 of the General Bond Resolution, first to reimburse the Reserve Fund Facility Provider for amounts advanced under such Reserve Fund Facility, second, to replenish any cash deficiencies in such Series Debt Reserve Account, and third, to pay the Reserve Fund Facility Provider applicable expenses and interest on amounts advanced under the Reserve Fund Facility. This Resolution shall not be discharged or defeased while any obligations are owing in regard to a Reserve Fund Facility on deposit in such Series Debt Reserve Account. The Authority will not optionally redeem Bonds secured by a Reserve Fund Facility unless all amounts owing in regard to such Reserve Fund Facility on deposit in the Series Debt Reserve Account for such Bonds have been paid in full.

If at any time it shall be necessary to use moneys in any Series Debt Reserve Account for the purpose of paying principal or interest on Bonds as to which there would otherwise be a default, then the moneys so used shall be replaced within twenty-four (24) months by depositing in such Series Debt Reserve Account twenty-four (24) substantially equal consecutive monthly deposits, commencing not later than the month following the occurrence of such deficiency.

Redemption Fund (Section 507)

Amounts deposited in the Redemption Fund may be used only for the redemption of Bonds. Subject to the provisions of the General Bond Resolution and the Bonds requiring the application thereof to the purchase or redemption of any particular Bonds, amounts in the Redemption Fund may be applied to the purchase or redemption of any Bonds at the election of the Authority. Prior to the forty-fifth day

upon which Bonds are to be redeemed from such amounts, the Trustee may apply amounts in the Redemption Fund to the purchase of any of such Bonds. The purchase price paid may not exceed the principal amount of such Bonds unless such Bonds may be redeemed within six months after such purchase in which event such price shall not exceed the applicable redemption price.

Upon the purchase or redemption of Bonds of any Series and maturity for which sinking fund payments have been established from amounts in the Redemption Fund, each future sinking fund payment for such Bonds will be credited by an amount bearing the same ratio to such sinking fund payment as the total principal amount of such Bonds so purchased or redeemed bears to the total amount of all such sinking fund payments, unless otherwise directed by the Authority.

Subordinated Indebtedness Fund (Section 508)

Amounts on deposit in the Subordinated Indebtedness Fund shall be applied by the Trustee solely to the maintenance of reserves for, or the payment of, Subordinated Indebtedness, or as otherwise provided by the resolution of the Authority authorizing each issue of Subordinated Indebtedness. If at any time the amount in any Series Debt Reserve Account in the Debt Reserve Fund with respect to any Senior Bonds shall be less than the Series Debt Reserve Requirement with respect to such Senior Bonds, the Trustee shall withdraw from the Subordinated Indebtedness Fund and deposit in the Debt Reserve Fund, for allocation to such Series Debt Reserve Account, the amount necessary (or all the moneys in said Fund, if less than the amount necessary) to make up such deficiency. If, upon the payment in full of all Subordinated Indebtedness, any amount remains on deposit in the Subordinated Indebtedness Fund, such amount shall be transferred to the Net Revenue Fund.

Rate Stabilization Fund (Section 509)

The Rate Stabilization Fund shall be held by the Authority in an Account separate and apart from all other funds and Accounts of the Authority and payments therefrom shall be made as hereinafter provided. Moneys may be transferred by the Authority to the Rate Stabilization Fund from the Net Revenue Fund as determined by an Authorized Officer. At any time, the Authority shall transfer from the Rate Stabilization Fund to the Net Revenue Fund an amount determined by an Authorized Officer.

Surplus Fund (Section 510)

There shall be deposited in the Surplus Fund all amounts required to be deposited therein pursuant to the General Bond Resolution and any other amounts received and determined to be deposited therein by the Authority.

Amounts in the Surplus Fund may at any time, as directed by the Certificate of an Authorized Officer, be transferred to the Capital Improvement Fund, the Redemption Fund or the Operating Fund or be paid to the Authority for any lawful purpose of the Authority in connection with the Sewer System.

To the extent that moneys on deposit in the Net Revenue Fund are insufficient to make the required interest and principal payments on Senior Bonds, moneys in the Surplus Fund shall be transferred to the Net Revenue Fund, and then there shall be withdrawals from the Rate Stabilization Fund, Capital

Improvement Fund, Construction Fund, Debt Reserve Fund, Subordinated Indebtedness Fund and Operating Fund, in that order, to cure any such deficiencies.

Deposits and Investments (Sections 511, 512 and 514)

All amounts held by the Trustee or any paying agent under the General Bond Resolution may be deposited in interest bearing time deposits or certificates and, in addition, any amounts held by the Trustee thereunder may be invested in Investment Securities. All amounts of more than $5,000 held under the General Bond Resolution which are not held in trust for the payment of particular Bonds or which do not represent an investment of amounts held thereunder must be continuously and fully secured for the benefit of the Authority and the holders of the Bonds by pledging Investment Securities with the Trustee. In computing the amount in any Fund, obligations purchased as an investment of moneys therein shall be valued at par if purchased at or above par value, or at amortized value if purchased at a discount below par value. Valuation shall be made on the tenth day prior to each interest payment date and on any particular date shall not include the amount of interest then earned or accrued to such date on any such moneys or investment.

Rebate Fund (Section 513)

The Authority shall instruct the Trustee to deposit into the Rebate Fund any investment earnings on any funds or accounts thereof established under the General Bond Resolution to the extent required pursuant to the Arbitrage and Use of Proceeds Certificate executed by the Authority in connection with delivery of any Series of Bonds. The Authority shall determine the amounts (as well as the dates of payment which are subject to rebate to the United States Government pursuant to the provisions of the Code (in order to insure that interest on any Bonds which are issued as tax-exempt obligations continues to be excludable from federal income taxation) in accordance with the terms of the Arbitrage and Use of Proceeds Certificate executed by the Authority in connection with delivery of any Series of Bonds. The amounts which are required to be rebated to the United States Government shall be withdrawn from the Rebate Fund at such times and paid by the Trustee to the United States Government. If there is not a sufficient amount in the Rebate Fund for any required payment to the United States Government, the Authority shall promptly pay, from moneys which are on deposit in the Operating Fund, Net Revenue Fund, the Surplus Fund or such other amounts in any other fund which are available for such purpose pursuant to the General Bond Resolution, the amount which is necessary to make up such deficiency.

Redemption of Bonds (Section 605)

When the Trustee receives notice from the Authority of its election to redeem Bonds, and when redemption of Bonds is required pursuant to a Supplemental Resolution, the Trustee shall give notice, in the name of the Authority, of the redemption of such Bonds, which notice shall specify the Series and maturities of the Bonds to be redeemed, the redemption date and the place or places where amounts due upon such redemption will be payable and, if less than all of the Bonds of any like Series and maturity are to be redeemed, the numbers or other distinguishing marks of such Bonds so to be redeemed. Such notice shall further state that on such date there shall become due and payable upon each Bond to be redeemed the Redemption Price thereof, together with interest accrued to the redemption date, and that from and after such date interest thereon shall cease to accrue and be payable. The Trustee shall, upon written instruction of an Authorized Officer, give such notice either by (i) delivery of a copy of such notice not

less than thirty days before the redemption date, to the registered owners of any Bonds that are to be redeemed, at their last addresses, if any, appearing upon the registry books, or, in the case of Book Entry Bonds, to the Depository for such Book Entry Bonds in accordance with such Depository's standard practices, or (ii) publication once a week for at least two successive weeks in an Authorized Newspaper, the first such publication to be not less than thirty days nor more than sixty days prior to the redemption date, but such delivery or publication shall not be a condition precedent to such redemption and failure so to deliver or publish any such notice shall not affect the validity of the proceedings for the redemption of Bonds.

Payment of Bonds (Section 701)

The Authority covenants that it will duly and punctually pay or cause to be paid the principal or redemption price, if any, of every Bond and the interest thereon, at the dates and places in the manner stated in the Bonds and in the coupons thereto appertaining according to the true intent and meaning thereof, and shall duly and punctually pay or cause to be paid all sinking fund payments, if any, becoming payable with respect to any Series of Bonds.

Extension of Payment of Bonds and Coupons (Section 702)

The Authority shall not directly or indirectly extend or assent to the extension of the maturity of any of the Bonds or the time of payment of any of the coupons or claims for interest by the purchase or funding of such Bonds, coupons or claims for interest or by any other arrangement and in case the maturity of any of the Bonds or the time for payment of any such coupons or claims for interest shall be extended, such Bonds, coupons or claims for interest shall not be entitled, in case of any default hereunder, to the benefit of this Resolution or to any payment out of the Funds or Accounts established pursuant to this Resolution, including the investments, if any, thereof, or out of any assets or revenues pledged hereunder (except moneys held in trust for the payment of particular Bonds, coupons or claims for interest pursuant to this Resolution) prior to benefits accorded to or the payment of the principal of all Bonds Outstanding the maturity of which has not been extended and of such portion of the accrued interest on the Bonds as shall not be represented by such extended coupons or claims for interest. Nothing herein shall be deemed to limit the right of the Authority to issue Refunding Bonds and such issuance shall not be deemed to constitute an extension of maturity of Bonds.

Powers as to Bonds and Pledge (Section 705)

The Authority covenants that it is duly authorized pursuant to law to authorize and issue the Bonds and to adopt the General Bond Resolution and to pledge the assets and revenues purported to be pledged by the General Bond Resolution in the manner and to the extent provided therein.

Operation and Maintenance of Sewer System (Section 706)

The Authority covenants to operate, or cause to be operated, the Sewer System properly and in a sound and economical manner and to maintain, preserve, and keep the same or cause the same to be maintained, preserved and kept with the appurtenances and every part and parcel thereof, in good repair, working order and condition, and from time to time to make, or cause to be made, all necessary and proper

repairs, replacements and renewals so that at all times the operation of the Sewer System may be properly and advantageously conducted.

The Authority covenants to employ a Consulting Engineer, whose duties shall be to make any certificates and perform any other acts required or permitted of the Consulting Engineer under this Resolution, to make an inspection of the Sewer System at least once during every consecutive two Fiscal Years, and, not more than sixty or less than forty-five days before the end of the second such Fiscal Year, to submit to the Authority advice and recommendations as to the proper maintenance, repair and operation of the Sewer System during the ensuing Fiscal Year and an estimate of the amount of money necessary for such purposes. Copies of the reports of the Consulting Engineer and of the advices, recommendations and estimates made as hereinabove provided shall be delivered by the Authority to the Trustee.

The Authority covenants to maintain all insurance customarily maintained with respect to utility systems of like character against loss of or damage to the Sewer System and against public and other liability to the extent reasonably necessary to protect the interest of the Authority and the Bondholders. If any useful part of the Sewer System is damaged or destroyed, the Authority must proceed to repair or replace the damaged property. The proceeds of any insurance shall be deposited in the revenue account under the General Bond Resolution, and thereafter are to be applied to the necessary costs involved in such repair and replacement and, to the extent not so applied, are to be deposited in the Capital Improvement Fund. In the event that the costs of such repair and replacement of the damaged property exceed the proceeds of such insurance available for payment of the same, moneys in the Capital Improvement Fund must be used to the extent necessary for such purposes.

Annual Budget (Section 707)

Not less than forty-five days before the beginning of each fiscal year, the Authority must prepare and file with the Trustee a preliminary budget showing for the ensuing fiscal year estimated operating expense, debt service payments on the Bonds, Revenues, amounts required for the payment of subordinated indebtedness, and amounts expected to be transferred prior to the first day of August from the Surplus Fund to the Operating Fund. Such preliminary budget and any annual budget shall set forth a five year capital project plan, including estimates of all capital costs and associated debt service for each year, and may set forth such additional material as the Authority may determine. On or before the first day of each fiscal year, the Authority must adopt an annual budget for such year, which is not effective until filed with the Trustee.

If for any reason the Authority has not finally adopted an annual budget for any fiscal year, the preliminary budget for such year or otherwise the budget for the preceding fiscal year will be deemed to be in effect until the annual budget for the fiscal year in question has been adopted and filed.

The Authority may at any time adopt an amended annual budget for the then current fiscal year, which will not be effective until filed with the Trustee.

Limitations on Operating Expenses (Section 708)

The Authority covenants not to incur operating expenses in any year in excess of the reasonable and necessary amount thereof and not to expend any amount or incur any indebtedness for maintenance,

repair and operations in excess of the amounts provided for operating expenses in the annual budget, if any, then in effect; provided that the Authority may in any year expend amounts in excess of the annual budget for operating expenses to the extent received by the Authority from some source other than the Revenues and that the Authority does not make or receive any reimbursement therefore out of Revenues.

Rate Covenant (Section 709)

With respect to all direct or indirect connection with, and all use and services of, the Sewer System, the Authority shall make, impose, charge and collect service rates, charges, fees and tolls in accordance with the Act. At least annually, the Authority shall cause the Rate Consultant to review and verify the adequacy of the rates and charges then in effect to meet the coverage test set forth in Section 709(C) of the General Bond Resolution.

The present schedule of rates and charges for services furnished by the Sewer System both within and outside the territorial limits of the Authority, including the service charges, minimum deposits, connection charges and meter rates, and the rules and regulations of the Authority relating therefor, may be adjusted or revised provided that the resulting Revenues satisfy the requirements set forth in Section 709(C) of the General Bond Resolution. All users receiving services from the Sewer System shall pay therefor at the established rates. There shall be no free services rendered by the Sewer System except that the Authority may but is not required to exempt from sewer rent based on assessed valuation property exempted from real property taxes imposed by the City. Free services may be rendered by the Authority to the City for municipal buildings and other customary municipal purposes.

From time to time and as often as it shall appear necessary, the rates, charges, rents, sewer rents, fees and assessments established for the Sewer System will be adjusted whenever necessary or proper so that the Revenues collected in each Fiscal Year will be at least equal to the sum of (1) the amount estimated to be required in the current Fiscal Year to pay Operating Expenses, plus (2) the greater of (a) 120% of Debt Service on Senior Bonds for such Fiscal Year or (b) the sum for such Fiscal Year of (i) 100% of the Debt Service on Senior Bonds and Subordinated Indebtedness, (ii) the amounts estimated to be required to meet Debt Reserve Requirements with respect to any Bonds, (iii) the Renewal and Extension Requirement, and (iv) the Operating Reserve Requirement. In calculating Revenues for purposes of the rate covenant, the Authority shall include transfers from the Rate Stabilization Fund to the Net Revenue Fund during such Fiscal Year, but only to the extent of 20% of Debt Service on Senior Bonds for such Fiscal Year, and transfers from the Net Revenue Fund to the Rate Stabilization Fund during such Fiscal Year.

If the Authority fails to adjust rates, charges, rents, sewer rents, fees and assessments as provided above, but the Authority in the next Fiscal Year has promptly taken all available measures to adjust such rates, charges, rents, sewer rents, fees and assessments as advised by a Rate Consultant retained by the Authority to review the operations of the System, there shall be no Event of Default until at least the end of such next Fiscal Year and then only if Revenues are less than the amount required by Section 709 of the General Bond Resolution.

Accounts and Reports (Section 710)

The Authority must keep proper books of record and account in which complete and correct entries are to be made of its transactions relating to the Sewer System or under the General Bond Resolution and which, together with all other books and papers of the Authority, including insurance policies, are subject to the inspection of the Trustee or the holders of not less than 5% in principal amount of the Bonds then outstanding or their duly authorized attorneys.

Annually, within 100 days after the close of each fiscal year, the Authority must file with the Trustee an annual report of such fiscal year, accompanied by a certificate of independent certified public accountant as to the examination of the financial statements therein (describing such statements as fairly presenting the information therein in conformity with generally accepted accounting principles and the provisions of the General Bond Resolution), relating to the Sewer System and including statements in reasonable detail of: (i) financial condition as of the end of said fiscal year and income and expenses for said fiscal year; (ii) number of users of the Sewer System, revenues collected in each classification of service, and the service charges and annual charges collected for said fiscal year; (iii) operating expenses and the rates of service charges for said fiscal year and (iv) with respect to each Fund and Account created by the General Bond Resolution, the receipts therein and disbursements therefrom during said fiscal year and the amounts held therein at the end of said fiscal year. Within thirty days after the filing of any such annual report, the Authority must mail or cause to be mailed a copy thereof to each Bondholder who has filed his name and address with the Trustee for such purpose.

Sales and Encumbrances (Section 711)

The Authority covenants that no part of the Sewer System shall be sold, leased, mortgaged, pledged, encumbered or otherwise disposed of, except that the Authority may sell, exchange or lease at any time and from time to time any property or facilities constituting part of the Sewer System and not useful or necessary in the construction, reconstruction or operation thereof or the costs of which have been paid from sources other than the Bonds, but any proceeds of any such sale or exchange received and not used to replace the property so sold or exchanged (including the proceeds of any condemnation award with respect to the Sewer System) shall be paid to the Trustee and deposited in the Capital Improvement Account, and any proceeds of any such lease received shall be deposited as Revenues.

Indebtedness and Liens (Section 712)

The Authority shall not issue any bonds, notes or other evidences of indebtedness, other than the Bonds, secured by a pledge of or other lien or charge on the Revenues (including amounts that the Authority may thereafter be entitled to expend for Operating Expenses) and shall not create or cause to be created any lien or charge on such Revenues or on any amounts held by any Fiduciary under this Resolution; but such restriction shall not prevent the Authority from issuing bonds or notes or other obligations for the purposes of the Authority payable out of, or secured by a pledge of, Revenues to be derived on and after such date as the pledge of the Revenues provided in this Resolution shall be discharged and satisfied, or from issuing Subordinated Indebtedness.

Jurisdiction, Control, Possession and Supervision of Sewer System (Section 713)

The Authority covenants that it will make no contract requiring payment for labor or to contractors, builders or materialmen on account of the construction or reconstruction of any part of the Sewer System, unless such part is located on lands to which title or over which an easement or jurisdiction, control, possession and supervision, in any case sufficient for the purpose of the Authority, is owned or can be acquired by the Authority or the City or unless such part is lawfully located in a public street or highway or is part of the Sewer System located on land in which a right or interest less than a fee simple interest, easement jurisdiction, control, possession or supervision has been acquired from the United States of America, the State or a political subdivision thereof or a public utility and such lesser right or interest has been approved by an opinion of counsel as sufficient for the purposes of the Authority.

Supplemental Resolutions (Section 801)

The Authority may adopt Supplemental Resolutions for certain purposes without the consent of the Bondholders or the Trustee, including to authorize Bonds of a Series and, in connection therewith specify and determine the matters and things referred to in Section 206 of the General Bond Resolution, and also any other matters and things relative to such Bonds that are not contrary to or inconsistent with this Resolution as theretofore in effect, or to amend, modify or rescind any such authorization, specification or determination at any time prior to the first authentication and delivery of such Bonds.

Powers of Amendment (Section 902)

Any modification or amendment of the General Bond Resolution or of the rights and obligations of the Authority and of the holders of the Senior Bonds and coupons hereunder, in any particular, may be made by a Supplemental Resolution, with the written consent: (1) of the holders of a majority in principal amount of the Senior Bonds Outstanding at the time such consent is given; (2) in case less than all of the several Series of Senior Bonds then Outstanding are affected by the modification or amendment, of the holders of a majority in principal amount of the Senior Bonds of each Series so affected and Outstanding at the time such consent is given; and (3) in case the modification or amendment changes the terms of any Sinking Fund Payment, of the holders of a majority in principal amount of the Senior Bonds of the particular Series and maturity entitled to such Sinking Fund Payment and Outstanding at the time such consent is given; except that if such modification or amendment will, by its terms, not take effect so long as any Senior Bonds of any specified like Series and maturity remain Outstanding, the consent of the holders of such Senior Bonds shall not be required and such Senior Bonds shall not be deemed to be Outstanding for the purpose of any calculation of Outstanding Senior Bonds. No such modification or amendment shall permit a change in the terms of redemption or maturity of the principal of any Outstanding Senior Bond or of any installment of interest thereon or a reduction in the principal amount or the Redemption Price thereof or in the rate of interest thereon without the consent of the holder of such Senior Bond, or shall reduce the percentages or otherwise affect the classes of Senior Bonds the consent of the holders of which is required to effect any such modification or amendment, or shall change or modify any of the rights or obligations of any Fiduciary without its written assent thereto.

Any Supplemental Resolution that is adopted in accordance with the provisions of Section 902 of the General Bond Resolution shall also require the written consent of the Bond Insurer of any Bonds at

the time such Supplemental Resolution shall take effect if such Bond Insurer is not in payment default under its Bond Insurance Policy.

Consent of Bondholders (Section 903)

The Authority may at any time adopt a Supplemental Resolution making a modification or amendment permitted by the provisions of Section 902 of the General Bond Resolution, to take effect when and as provided in Section 903 of the General Bond Resolution. A copy of such Supplemental Resolution (or brief summary thereof or reference thereto in form approved by the Trustee), together with a request to Bondholders, where applicable, for their consent thereto in form satisfactory to the Trustee, shall be delivered by the Authority to Bondholders (but failure to deliver such copy and request shall not affect the validity of the Supplemental Resolution when consented to as provided in Section 903 of the General Bond Resolution). Such Supplemental Resolution shall not be effective unless and until: (1) there shall have been filed with the Trustee: (a) the written consents of holders of the percentages of Outstanding Bonds specified in Section 902 of the General Bond Resolution; and (b) a Counsel's Opinion stating that such Supplemental Resolution has been duly and lawfully adopted and filed in accordance with the provisions of this Resolution, is authorized or permitted hereby and is valid and binding upon the Authority; and (2) a notice shall have been given as hereinafter provided in Section 903 of the General Bond Resolution.

The consent of a Bondholder to any modification or amendment shall be effective only if accompanied by proof of the holding, at the date of such consent, of the Bonds with respect to which such consent is given, which proof shall be such as is permitted by Section 1114 of the General Bond Resolution. A Certificate or certificates by the Trustee filed with the Trustee that it has examined such proof and that such proof is sufficient in accordance with Section 1114 of the General Bond Resolution shall be conclusive that the consents have been given by the holders of the Bonds described in such certificate or certificates of the Trustee. Any such consent shall be binding upon the holder of the Bonds giving such consent and upon any subsequent holder of such bond or any bonds issued in exchange therefor (whether or not such subsequent holder thereof has notice thereof) unless such consent is revoked in writing by the holder of such Bonds giving such consent or a subsequent holder thereof by filing with the Trustee, prior to the time when the written statement of the Trustee hereinafter provided for in Section 903 of the General Bond Resolution is filed, such revocation and, if such Bonds are transferable by delivery, proof that such Bonds are held by the signer of such revocation in the manner permitted by Section 1114 of the General Bond Resolution. The fact that a consent has not been revoked may likewise be proved by a certificate of the Trustee filed with the Trustee to the effect that no revocation thereof is on file with the Trustee.

At any time after the holders of the required percentages of Bonds shall have filed their consents to the Supplemental Resolution, the Trustee shall make and file with the Authority and the Trustee a written statement that holders of such required percentages of Bonds have filed such consents. Such written statement shall be conclusive that such consents have been so filed. At any time thereafter notice, stating in substance that the Supplemental Resolution (which may be referred to as a Supplemental Resolution adopted by the Authority on a stated date, a copy of which is on file with the Trustee) has been consented to by the holders of the required percentages of Bonds and will be effective as provided in Section 903 of the General Bond Resolution, may be given to Bondholders by the Authority by delivering such notice to Bondholders or, alternatively by publishing the same in the Authorized Newspapers at least

once not more than ninety days after the holders of the required percentages of Bonds shall have filed their consents to the Supplemental Resolution and the written statement of the Trustee hereinabove provided for has been filed (but failure to deliver or publish such notice shall not prevent such Supplemental Resolution from becoming effective and binding as provided in Section 903 of the General Bond Resolution). The Authority shall file with the Trustee proof of the delivery or publication of such notice to Bondholders. A record, consisting of the papers required or permitted by Section 903 of the General Bond Resolution to be filed with the Trustee, shall be proof of the matters therein stated. Such Supplemental Resolution making such amendment or modification shall be deemed conclusively binding upon the Authority, the Fiduciaries and the holders of all Bonds and coupons at the expiration of forty days after the filing with the Trustee of the proof of the delivery or publication of such last mentioned notice, except in the event of a final decree of a court of competent jurisdiction setting aside such Supplemental Resolution in a legal action or equitable proceeding for such purpose commenced within such forty day period; except that any Fiduciary and the Authority during such forty day period and any such further period during which any such action or proceeding may be pending shall be entitled in their absolute discretion to take such action, or to refrain from taking such action, with respect to such Supplemental Resolution as they may deem expedient.

Notwithstanding the foregoing provisions, the consent of Bondholders of any Series of Bonds to be issued under a Supplemental Resolution to an amendment of this Resolution that requires consent pursuant to the provisions of Section 902 of the General Bond Resolution shall be deemed given by such Bondholders if: (1) the nature of the proposed amendment of this Resolution is disclosed in the official statement or other offering document pursuant to which such Series of Bonds is offered and sold to the public; and (2) the underwriters or initial purchasers for resale of such Series of Bonds consent in writing to such Supplemental Resolution and file such written consent with the Trustee, or are deemed by their purchase of Bonds of such Series to have consented to such Supplemental Resolution, which consent will have the same effect as a consent of a Bondholder filed with the Trustee pursuant to Section 903(B) of the General Bond Resolution.

Events of Default (Section 1002)

The following events constitute "Events of Default" pursuant to the terms of the General Bond Resolution:

(1) if default shall be made in the due and punctual payment of the principal or Redemption Price of any Sinking Fund Payment on any Bond when and as the same shall become due and payable, whether at maturity or upon call for redemption, or otherwise; or

(2) if default shall be made in the due and punctual payment of any installment of interest on any Bond, when and as such interest installment shall become due and payable, and such default shall continue for a period of five days; or

(3) if default shall be made by the Authority in the performance or observance of any other of the covenants, agreements or conditions contained in this Resolution, any Supplemental Resolution or in the Bonds, and such default shall continue for a period of forty-five days after written notice thereof to the Authority by the Trustee or to the Authority and to the Trustee by the holders of not less than 25% in principal amount of the Senior Bonds Outstanding; or

(4) if the Authority shall file a petition or otherwise seek relief under any federal or state bankruptcy or similar law.

Upon the happening and continuance of any Event of Default specified in clause (1) or (2), the Trustee shall (by notice in writing to the Authority), or, upon the happening and continuance of any Event of Default specified in clause (3) or (4), the Trustee may, and upon the written request of the holders of not less than 25% in principal amount of the Senior Bonds Outstanding the Trustee shall, in any such case unless the principal of all the Bonds then Outstanding shall already have become due and payable, declare the principal of all the Bonds then Outstanding, and the interest accrued thereon, to be due and payable immediately, and upon any such declaration the same shall become and be immediately due and payable, anything in this Resolution or in any of the Bonds contained to the contrary notwithstanding. The right of the Trustee to make any such declaration as aforesaid, however, is subject to the condition that if, at any time after such declaration, but before the Bonds shall have matured by their terms, all overdue installments of principal and interest upon the Bonds, together with the reasonable and proper charges, expenses and liabilities of the Trustee, and all other sums then payable by the Authority under this Resolution (except the principal of, and interest accrued since the next preceding interest date on, the Bonds due and payable solely by virtue of such declaration) shall either be paid by or for the account of the Authority or provision satisfactory to the Trustee shall be made for such payment, and all defaults under the Bonds or under this Resolution (other than the payment of principal and interest due and payable solely by reason of such declaration) shall be made good or be secured to the satisfaction of the Trustee or provision deemed by the Trustee to be adequate shall be made therefor, then and in every such case the holders of a majority in principal amount of the Senior Bonds Outstanding, by written notice to the Authority and to the Trustee, may rescind such declaration and annul such default in its entirety, or, if the Trustee shall have acted without a direction from the holders of the Senior Bonds as aforesaid at the time of such request, and if there shall not have been theretofore delivered to the Trustee written direction to the contrary by the holders of a majority in principal amount of the Senior Bonds then Outstanding, then any such declaration shall *ipso facto* be deemed to be rescinded and any such default and its consequences shall *ipso facto* be deemed to be annulled, but no such rescission and annulment shall extend to or affect any subsequent default or impair or exhaust any right or power consequent thereon.

Application of Revenues and Other Moneys After Default (Section 1004)

The Authority covenants that if an Event of Default shall happen and shall not have been remedied, the Authority, upon demand of the Trustee, shall pay over or cause to be paid over to the Trustee (i) forthwith, all moneys, securities and funds then held by the Authority or a Depositary Bank in any fund or account under this Resolution, and (ii) as promptly as practicable after receipt thereof, the Revenues.

During the continuance of an Event of Default, the Trustee shall apply such Revenues and the income therefrom as follows and in the following order:

(1) to the payment of the reasonable and proper charges, and expenses of the Trustee and of the Consulting Engineers;

(2) to the payment of the amounts required for reasonable and necessary Operating Expenses, including reasonable and necessary reserves and working capital therefor, and for the reasonable repair and replacement of the Sewer System, necessary to prevent loss of Revenues, as certified to the Trustee by the Consulting Engineers. For this purpose, the

books of record and account of the Authority relating to the Sewer System shall at all times be subject to the inspection of Consulting Engineers during the continuance of such Event of Default; and

(3) to the payment of the interest and principal or Redemption Price then due on the Bonds, subject to the provisions of Section 702 of the General Bond Resolution, as follows:

(a) unless the principal of all of the Bonds shall have become or have been declared due and payable:

First: To the payment to the persons entitled thereto of all installments of interest then due in the order of the maturity of such installments, and, if the amount available shall not be sufficient to pay in full any installment or installments maturing on the same date, then to the payment thereof ratably, according to the amounts due thereon, to the persons entitled thereto, without any discrimination or preference; and

Second: To the payment to the persons entitled thereto of the unpaid principal or Redemption Price of any Bonds that shall have become due, whether at maturity or by call for redemption, in the order of their due dates, and, if the amount available shall not be sufficient to pay in full all the Bonds due on any date, then to the payment thereof ratably, according to the amounts of principal or Redemption Price due on such date, to the persons entitled thereto, without any discrimination or preference.

(b) if the principal of all of the Bonds shall have become or have been declared due and payable, to the payment of the principal and interest then due and unpaid upon the Bonds without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest, or of any Bond over any other Bond, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto without any discrimination or preference.

If and whenever all overdue installments of interest on all Bonds, together with the reasonable and proper charges and expenses of the Trustee, and all other sums payable by the Authority under the General Bond Resolution, including the principal and Redemption Price of and accrued unpaid interest on all Bonds that shall then be payable by declaration or otherwise, shall either be paid by or for the account of the Authority, or provision satisfactory to the Trustee shall be made for such payment, and all defaults under this Resolution or the Bonds shall be made good or secured to the satisfaction of the Trustee or provision deemed by the Trustee to be adequate shall be made therefor, the Trustee shall pay over to the Authority all such Revenues then remaining unexpended in the hands of the Trustee (except Revenues deposited or pledged, or required by the terms of the Resolution to be deposited or pledged, with the Trustee), and thereupon the Authority and the Trustee shall be restored, respectively, to their former positions and rights under this Resolution, and all Revenues shall thereafter be applied as provided in Article V of the General Bond Resolution. No such payment over to the Authority by the Trustee or resumption of the application of Revenues as provided in Article V of the General Bond Resolution shall extend to or affect any subsequent default under this Resolution or impair any right consequent thereon.

Proceedings Brought by Trustee (Section 1005)

If an Event of Default shall happen and shall not have been remedied, then and in every such case, the Trustee may proceed to protect and enforce its rights and the rights of the holders of the Bonds under the General Bond Resolution by a suit or suits in equity or at law, whether for the specific performance of any covenant herein contained, or in aid of the execution of any power herein granted, or for an accounting against the Authority as if the Authority were the trustee of an express trust, or in the enforcement of any other legal or equitable right as the Trustee, being advised by counsel, shall deem most effectual to enforce any of its rights or to perform any of its duties under this Resolution.

All rights of action under the General Bond Resolution may be enforced by the Trustee without the possession of any of the Bonds or coupons or the production thereof on the trial or other proceedings, and any such suit or proceedings instituted by the Trustee shall be brought in its name.

The holders of a majority in principal amount of the Senior Bonds at the time Outstanding, may direct by instrument in writing the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee, provided that the Trustee shall have the right to decline to follow any such direction if the Trustee shall be advised by counsel that the action or proceeding so directed may not lawfully be taken, or if the Trustee in good faith shall determine that the action or proceeding so directed would involve the Trustee in personal liability or be unjustly prejudicial to the Bondholders not parties to such direction.

Upon commencing a suit in equity or upon other commencement of judicial proceedings by the Trustee to enforce any right under the General Bond Resolution, the Trustee shall be entitled to exercise any and all rights and powers conferred in the General Bond Resolution and provided to be exercised by the Trustee upon the occurrence of an Event of Default; and, as a matter of right against the Authority, without notice or demand and without regard to the adequacy of the security for the Bonds, the Trustee shall, to the extent permitted by law, be entitled to the appointment of a receiver of the moneys, securities and funds then held by the Authority in any Fund or Account under the General Bond Resolution and of the Revenues, with all such powers as the court or courts making such appointment shall confer; but notwithstanding the appointment of any receiver, the Trustee shall be entitled to retain possession and control of and to collect and receive income from, any moneys, securities and funds deposited or pledged with it under the General Bond Resolution or agreed or provided to be delivered to or deposited or pledged with it under the General Bond Resolution.

Regardless of the happening of an Event of Default, the Trustee shall have power to, but unless requested in writing by the holders of a majority in principal amount of the Senior Bonds then Outstanding, and furnished with reasonable security and indemnity, shall be under no obligation to, institute and maintain such suits and proceedings as it may be advised shall be necessary or expedient to prevent any impairment of the security under the General Bond Resolution by any acts that may be unlawful or in violation of this Resolution, and such suits and proceedings as the Trustee may be advised shall be necessary or expedient to preserve or protect its interests and the interests of the Bondholders.

Restrictions on Bondholders' Action (Section 1006)

No holder of any Bond or coupon shall have any right to institute any suit, action or proceeding at law or in equity for the enforcement of any provision of the General Bond Resolution or the execution of any trust under the General Bond Resolution or for any remedy under the General Bond Resolution, unless such holder shall have previously given to the Trustee written notice of the happening of an Event of Default, as provided in this Article X of the General Bond Resolution, and the holders of at least 25% in principal amount of the Senior Bonds then Outstanding shall have filed a written request with the Trustee, and shall have offered it reasonable opportunity, either to exercise the powers granted in Section 1006 of the General Bond Resolution or to institute such action, suit or proceeding in its own name, and unless such holders shall have offered to the Trustee adequate security and indemnity against the costs, expenses and liabilities to be incurred therein or thereby, and the Trustee shall have refused to comply with such request within a reasonable time; it being understood and intended that no one or more holders of Bonds or coupons shall have any right in any manner whatever by his or their action to affect, disturb or prejudice the pledge created by this Resolution, or to enforce any right under the General Bond Resolution, except in the manner therein provided; and that all proceedings at law or in equity to enforce any provision of the General Bond Resolution shall be instituted, had and maintained in the manner provided in the General Bond Resolution and for the equal benefit of all holders of the Outstanding Bonds and coupons, subject only to the provisions of Section 702 of the General Bond Resolution.

Nothing in the General Bond Resolution or in the Bonds or in the coupons contained shall affect or impair the obligation of the Authority, which is absolute and unconditional, to pay at the respective dates of maturity and places therein expressed the principal of and interest on the Bonds to the respective holders thereof, or affect or impair the right of action, which is also absolute and unconditional, of any holder to enforce such payment of his Bond.

Control by Bond Insurer (Section 1009)

To the extent a Bond Insurer makes any payment of principal of or interest on Bonds in accordance with its Bond Insurance Policy, such Bond Insurer shall become subrogated to the rights of the recipients of such payments in accordance with the terms of its Bond Insurance Policy. Upon the occurrence and continuance of an Event of Default, a Bond Insurer of a Series of Bonds, if such Bond Insurer is not in payment default under its Bond Insurance Policy, shall be deemed to be the sole owner of such Bonds for purposes of (A) directing and controlling the enforcement of all rights and remedies with respect to such Series of Bonds, including any waiver of an Event of Default, and (B) exercising any voting right or privilege or giving any consent or direction or taking any other action that the Bondholders of such Bonds are entitled to take pursuant to Article X of the General Bond Resolution. No provision expressly recognizing or granting rights in or to a Bond Insurer shall be modified without the consent of such Bond Insurer. A Bond Insurer's rights under Section 1009 of the General Bond Resolution shall be suspended during any period in which such Bond Insurer is in default in its payment obligations under its Bond Insurance Policy (except to the extent of amounts previously paid by such Bond Insurer and due and owing to such Bond Insurer) and shall be of no force or effect if its Bond Insurance Policy is no longer in effect or if the Bond Insurer asserts that its Bond Insurance Policy is not in effect or if the Bond Insurer waives such rights in writing. The rights granted to a Bond Insurer under Section 1009 of the General Bond Resolution are granted in consideration of such Bond Insurer issuing its Bond Insurance Policy. The Authority shall provide each Bond Insurer immediate notice of any Event of Default described in Section

1002(1) or 1002(2) of the General Bond Resolution and notice of any other Event of Default occurring hereunder within 30 days of the occurrence thereof. Each Bond Insurer of any Bonds shall be considered a third party beneficiary of the General Bond Resolution with respect to such Bonds.

Compensation of Trustee and Fiduciaries (Section 1105)

The Authority is required to pay to the Trustee and to each other Fiduciary acting under the General Bond Resolution from time to time reasonable compensation for all services rendered under the General Bond Resolution and also all reasonable expenses, charges, counsel fees and other disbursements, including those of their attorneys, agents and employees, incurred in and about the performance of their powers and duties under the General Bond Resolution.

Defeasance (Section 1201)

If the Authority pays or causes to be paid to the holders of all Bonds and coupons then outstanding, the principal and interest and redemption prices, if any, to become due thereon, at the times and in the manner stipulated therein and in the General Bond Resolution, then the pledge of any revenues and assets thereby pledged and all other rights granted thereby will be discharged and satisfied.

Bonds or coupons or interest installments for the payment or redemption of which moneys have been set aside and held in trust by the paying agents (though deposit by the Authority of funds for such payments or redemption or otherwise) at the maturity or redemption date hereof will be deemed to have been paid within the meaning and with the effect expressed in the above paragraph. All outstanding Bonds of any Series and all coupons pertaining to such Bonds will, prior to the maturity or redemption date thereof, be deemed to have been paid with the effect expressed above if (a) in case any of said Bonds are to be redeemed on any date prior to their maturity, the Authority has given to the Trustee in form satisfactory to it irrevocable instructions to give notice of redemption on said date of such Bonds, (b) there shall have been deposited with the Trustee either moneys in an amount which are sufficient, or Investment Securities the principal of and the interest on which when due will provide moneys which, together with the moneys, if any, deposited with the Trustee at the same time, will be sufficient to pay when due the principal or redemption price, if applicable, and sinking fund payments and interest due and to become due on said Bonds on and prior to the redemption date or maturity date thereof, as the case may be, and (c) in the event said Bonds are not by their terms subject to redemption within the next succeeding sixty days, the Authority has given the Trustee in form satisfactory to it irrevocable instructions to provide notice to the holders of such Bonds and coupons, and to deliver, as soon as practicable, a notice to any Credit Issuer or Reserve Fund Facility Provider with respect to such Bonds, that the deposit required by (b) above has been made with the Trustee and that said Bonds and coupons are deemed to have been paid and stating such maturity or redemption date upon which moneys are to be available for the payment of the principal or redemption price, if applicable, on said Bonds. Neither the Investment Securities nor the moneys so deposited with the Trustee nor principal or interest payments on any such Investment Securities shall be withdrawn or used for any purpose other than, and shall be held in trust for, the payment of the principal or redemption price, if applicable, and interest on said Bonds, but any cash received from such principal or interest payments on such obligations deposited with the Trustee, if not then needed for such purpose, shall, to the extent practicable, be reinvested in Investment Securities maturing at times and in amounts sufficient to pay when due the principal or redemption price, if applicable, and interest to become due on said Bonds on and prior to such redemption date or maturity date thereof, as the case may be, and

interest earned from such reinvestments shall be paid over to the Authority as received by the Trustee, free and clear of any trust, lien or pledge.

Credit Issuer as Bondholder (Section 1202)

If provided in or authorized by the Supplemental Resolution with respect to such Series of Bonds authorizing the issuance of a Series of Bonds, the Authority may provide for the rights of the Credit Issuer in connection with Bonds of such Series, which rights may include that, whenever by the terms of the Resolution the Bondholders of any percentage in principal amount of Outstanding Bonds may exercise any right or power, consent to any amendment, change, modification or waiver, or request or direct the Trustee to take an action, such Credit Issuer may be deemed to be the Bondholder of such Bonds to the extent of such Credit Facility, provided the Credit Issuer is not in default in its payment obligations under such Credit Facility.

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FORM OF PROPOSED BOND COUNSEL OPINION REGARDING SERIES 2021 BONDS

[Closing Date]

Buffalo Sewer Authority
Buffalo, New York

Ladies and Gentlemen:

We have acted as Bond Counsel to the Buffalo Sewer Authority (the "Authority"), a body corporate and politic constituting a public benefit corporation of the State of New York (the "State") created by the Buffalo Sewer Authority Act, being Title 8 of Article 5 of the Public Authorities Law of the State, as amended to the date hereof (the "Act"), in connection with the issuance by the Authority of $_____ aggregate principal amount of Sewer System Environmental Impact Revenue Bonds, Series 2021 (Green Bonds) (the "Series 2021 Bonds").

The Series 2021 Bonds are issued under and pursuant to the Act, and under and pursuant to the Amended and Restated Sewer System Revenue Bond Resolution adopted by the Authority on May __, 2021 (the "General Bond Resolution"), as supplemented by the Sewer System Revenue Bond Resolution adopted by the Authority on May ____, 2021 (the "Series 2021 Bonds Supplemental Resolution"), authorizing the Series 2021 Bonds (the General Bond Resolution as supplemented by the Series 2021 Bonds Supplemental Resolution being herein called the "Resolution"). All capitalized terms used and not otherwise defined herein shall have the respective meanings given to them in the Resolution.

The Series 2021 Bonds are being issued to finance certain environmental projects through the Authority's Rain Check 2.0 Program, consisting of the planning, design, construction and monitoring by the Authority of various green infrastructure initiatives within the City of Buffalo (including, but not limited to, rain gardens, green roofs, storm water planters and tree planting practices, as well as impervious surface removal), implemented on public land, fund the Series Debt Service Fund in connection with the Series 2021 Bonds and pay the costs of issuing the Series 2021 Bonds.

The Series 2021 Bonds are dated, mature, are payable, bear interest and are subject to redemption, all as provided in the Resolution. The Authority reserves the right hereafter to issue additional bonds on the terms and conditions, secured and payable, and for the purposes, as provided in the General Bond Resolution.

As Bond Counsel to the Authority, we have examined the validity of the Series 2021 Bonds and certain other matters as expressly set forth below. We have examined the Constitution and statutes of the State, including the Act, certified copies of proceedings of the Authority authorizing the issuance of the Series 2021 Bonds, including the Resolution, and a

specimen Series 2021 Bond, and have made such other examination of applicable law and fact as we have considered necessary or appropriate for the purposes of rendering the opinions hereinafter set forth.

The Internal Revenue Code of 1986, as amended (the "Code") imposes various requirements that must be met at and subsequent to the issuance and delivery of the Series 2021 Bonds in order that interest on the Series 2021 Bonds be and remain excluded from gross income for federal income tax purposes. Included among these requirements are restrictions on the use of proceeds of the Series 2021 Bonds and the facilities financed by such proceeds, restrictions on the investment of such proceeds and other amounts, the rebate of certain earnings in respect of such investments to the United States, and required ownership by a governmental unit of the facilities financed by the Series 2021 Bonds. Failure to comply with such requirements may cause interest on the Series 2021 Bonds to be includable in gross income for federal income tax purposes retroactive to the date of their issuance irrespective of the date on which such noncompliance occurs. The Authority has covenanted to comply with applicable requirements of the Code to assure the exclusion of interest on the Series 2021 Bonds from gross income under Section 103 of the Code.

Based on the foregoing, and subject to the assumptions and limitations referred to below, we are of the opinion that:

(1) The Authority is a body corporate and politic constituting a public benefit corporation duly created and validly existing under the laws of the State, including the Act.

(2) The Authority has the right and power under the Act to adopt the General Bond Resolution, and the General Bond Resolution has been duly and lawfully adopted by the Authority, is in full force and effect and is valid and binding upon the Authority and enforceable against the Authority in accordance with its terms, and no other authorization for the General Bond Resolution is required. The Series 2021 Bonds Supplemental Resolution has been duly and lawfully adopted in accordance with the provisions of the General Bond Resolution and is authorized or permitted by the General Bond Resolution.

(3) The Resolution creates the valid pledge which it purports to create of (a) all Revenues, except for certain moneys or securities on deposit or required to be deposited in the Rebate Fund established pursuant to the Resolution, (b) all moneys or securities (except amounts in the Rebate Fund) on deposit in the Funds and Accounts established pursuant to the Resolution, and (c) all other moneys and securities to be received, held or set aside by the Authority or by any Fiduciary pursuant to the Resolution.

(4) The Authority is duly authorized and entitled to issue the Series 2021 Bonds, and the Series 2021 Bonds have been duly and validly authorized and issued by the Authority in accordance with law, including the Act, and in accordance with the Resolution. The Series 2021 Bonds constitute valid and binding obligations of the Authority as provided in the Resolution, enforceable in accordance with their terms and the terms of the Resolution, and are entitled to the benefits of the Act and of the Resolution. The Series 2021 Bonds are special obligations of the Authority, payable solely from the funds of the Authority as provided in the Resolution. Under the Act, the Series 2021 Bonds shall not constitute a debt of the State, or the

City of Buffalo, and neither the State, nor the City of Buffalo shall be liable thereon. All conditions precedent to the delivery of the Series 2021 Bonds have been met.

(5) Under existing law, and assuming compliance with certain covenants described herein, and the accuracy and completeness of certain representations, certifications of fact and statements of reasonable expectations made by the Authority, interest on the Series 2021 Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Code. Furthermore, interest on the Series 2021 Bonds is not an item of tax preference for purposes of the alternative minimum tax imposed under the Code.

In rendering the foregoing opinions, we have assumed compliance by the Authority with certain ongoing covenants to comply with applicable requirements of the Code to assure the exclusion of interest on the Series 2021 Bonds from gross income under Section 103 of the Code. In the event of the inaccuracy or incompleteness of any such representation, certifications of fact or statements of reasonable expectation, or of the failure by the Authority to comply with any such covenants, the interest on the Series 2021 Bonds could become includable in gross income for federal income tax purposes retroactive to the date of issuance and delivery of the Series 2021 Bonds, regardless of the date on which the event causing such inclusion occurs. Further, although the interest on the Series 2021 Bonds is excludable from gross income for federal income tax purposes, receipt or accrual of the interest may otherwise affect the tax liability of a holder of a Series 2021 Bond. The tax effect of receipt or accrual of the interest will depend upon the tax status of a holder of a Series 2021 Bond and such holder's other items of income, deduction or credit. We express no opinion with respect to any such effect.

(6) Under the existing statutes, interest on the Series 2021 Bonds is exempt from personal income taxes imposed by the State or any political subdivision thereof (including The City of New York).

We express no opinion regarding any other federal, state or local tax consequences with respect to the Series 2021 Bonds, except as stated in paragraphs (5) and (6) above. Our opinion speaks as of its issue date and does not contain or provide any opinion or assurance regarding the future activities of the Authority or about the effect of future changes in the Code, the applicable regulations, rulings, judicial decisions, the interpretation thereof or the enforcement thereof by the Internal Revenue Service. We express no opinion on the effect of any action taken or not taken in reliance upon an opinion of other counsel regarding federal, state or local tax matters, including, without limitation, the exclusion of interest on the Series 2021 Bonds from gross income for federal income tax purposes.

The opinions expressed in paragraphs (1) through (4) above are subject to applicable bankruptcy, insolvency, reorganization, moratorium and other laws heretofore or hereafter enacted affecting creditors' rights, and are subject to the application of principles of equity relating to or affecting the enforcement of contractual obligations, whether such enforceability is considered in a proceeding in equity or at law. Furthermore, no opinion is expressed as to the availability of any particular remedy.

We express no opinion as to the accuracy, adequacy, sufficiency or completeness of the Official Statement (or any update or amendment thereof or supplement thereto) of the Authority relating to the Series 2021 Bonds, or any other financial or other information which has been or may be supplied to purchasers or prospective purchasers of the Series 2021 Bonds.

This letter is rendered solely with regard to the matters expressly opined on above and does not consider or extend to any documents, agreements, representations or other material of any kind not specifically opined on above. No other opinions are intended nor should they be inferred.

This letter is issued as of the date hereof, and we assume no obligation to update, revise or supplement this letter to reflect any action hereafter taken or not taken, or any facts or circumstances, or changes in law or in interpretations thereof, that may hereafter occur, or for any other reason.

Very truly yours,

APPENDIX G

FORM OF CONTINUING DISCLOSURE AGREEMENT

This Continuing Disclosure Agreement (the "Agreement"), dated _____, 2021, by and between the Buffalo Sewer Authority (the "Authority") and Manufacturers and Traders Trust Company, as Trustee (the "Trustee"), is in connection with the issuance by the Authority of its $_____ aggregate principal amount of "Sewer System Environmental Impact Revenue Bonds, Series 2021 (Green Bonds)" (the "Bonds"). The Bonds are being issued pursuant to the "Amended and Restated Sewer System Revenue Bond Resolution" of the Authority, duly adopted by the Authority on May 26, 2021 (the "General Bond Resolution"), as supplemented by the "Supplemental Sewer System Revenue Bond Resolution," duly adopted by the Authority on May 26, 2021 (the "Supplemental Resolution"; the General Bond Resolution, as supplemented by the Supplemental Resolution and as further amended and supplemented from time to time in accordance with the terms thereof shall be referred to herein as the "Resolution"). Capitalized terms used in this Agreement that are not defined in this Agreement shall have the respective meanings ascribed thereto in the Resolution. Pursuant to the Resolution, the parties hereto agree as follows:

Section 1. Purpose; Beneficiaries. This Agreement is entered into solely to assist the Participating Underwriter (defined below) in complying with subsection (b)(5) of the Rule (defined below). This Agreement constitutes a written undertaking for the benefit of the beneficial owners (within the meaning of the Rule) of the Bonds (such beneficial owners being sometimes referred to herein as the "owners").

Section 2. Definitions. The following words and terms used in this Agreement shall have the following respective meanings:

(a) "Annual Report" shall mean any Annual Report that is provided by the Authority to the Trustee, that is consistent with the requirements of Sections 3 and 4 of this Agreement.

(b) "EMMA" shall mean the MSRB's Electronic Municipal Market Access system, or its successor as designated by the MSRB.

(c) "MSRB" shall mean the Municipal Securities Rulemaking Board.

(d) "Official Statement" shall mean the Official Statement of the Authority, dated May __, 2021, prepared and disseminated by the Authority in connection with the issuance and sale of the Bonds.

(e) "Participating Underwriter" shall mean the original underwriters of the Bonds required to comply with the Rule in connection with offering of the Bonds.

(f) "Rule" shall mean Rule 15c2-12 promulgated by the SEC pursuant to the Securities Exchange Act of 1934, as amended (17 CFR Part 240, §240.15c2-12), as in effect on the date of this Agreement, including any official interpretation thereof.

(g) "SEC" shall mean the United States Securities and Exchange Commission.

Section 3. Provision of Annual Reports. The Authority shall provide to the Trustee the Annual Report with respect to each fiscal year of the Authority, commencing with fiscal year ended June 30, 2021, by no later than 210 business days after the end of the respective fiscal year. The Trustee shall submit such Annual Report to EMMA as the sole repository for the central filing of electronic disclosure pursuant to the Rule, in each case within 5 business days after receipt by the Trustee.

Upon its submission of the Annual Report to EMMA, the Trustee shall file a report with the Authority certifying that the Annual Report has been submitted to EMMA pursuant to the requirements of this Agreement, and stating the date such Annual Report was submitted by the Trustee to EMMA.

Section 4. Content of Annual Report. The Annual Report shall include updated versions of the following financial information and operating data as contained in the Official Statement, for each respective fiscal year of the Authority, as follows:

(i) The annual audited financial statements of the Authority for the preceding fiscal year, which may be combined in a single report. The financial statements of the Authority are required to be prepared in accordance with generally accepted accounting principles applicable to the Authority, except as may otherwise be required by State law. If the audited financial statements of the Authority are not available as of the date, as required herein, for the submission of the Annual Report, the unaudited financial statements of the Authority shall be included as part of the Annual Report. Thereafter, promptly upon completion of the audited financial statements of the Authority, the audited financial statements of the Authority shall be submitted to EMMA.

(ii) The Comprehensive Annual Financial Report of the Authority, which shall include, without limitation, the following tables as set forth in the Official Statement:

a. Table #4 Authority Departments and Employees
b. Table #5 Employees and Spouses Receiving Retirement Benefits
c. Table #6 Total Benefit Expenses of the Authority, Last Five Fiscal Years
a. Table #7 Source of Service Area Flow to the Bird Island Plant, Last Ten Fiscal Years Including the 10-Year Average Percentage
d. Table #8 Service Contracts with the Outside Districts
e. Table #9 Number of Sewer Customers by Type, Last Ten Fiscal Years
f. Table #10 Ten Largest Authority Customers
g. Table #15 Revenue from Sewer Rents Based on Assessed Valuation, Last Five Fiscal Years
h. Table #16 Revenue from Sewer Rents Based on Water Use, Last Five Fiscal Years

i. Table #23 Operating Revenues: Charges for Services by Source, Last Ten Fiscal Years
j. Table #24 Changes in Fund Balance, Governmental Funds, Last Ten Fiscal Years
k. Table #25 Coverage Ratio Calculations, Last Ten Fiscal Years
l. Table #26 Days Cash on Hand, Last Ten Fiscal Years (annually only)
m. Table #27 Operating Expenses, Last Ten Fiscal Years
n. Table #30 Five Year Capital Plan; and
o. Table #31 Debt Service Schedule

Any or all of the items that must be included in the Annual Report may be incorporated by reference to other documents that have been submitted to EMMA, including official statements delivered in connection with other financings issued by, or on behalf of, the Authority or related public entities thereof. If the document incorporated by reference is a final official statement, it must be available from the MSRB. The Authority shall clearly identify each such other document so incorporated by reference.

The Authority's annual financial statements for each fiscal year shall consist of the statement of net position, statement of activities, balance sheet and the related statements of revenue, expenditures and changes in fund balances prepared in accordance with generally accepted accounting principles applicable to the Authority, except as may otherwise be required by State law. Such financial statements shall be audited by a firm of certified public accountants appointed by the Authority.

The Trustee is the agent of the Authority with respect to the dissemination of the Annual Report and the other notices referenced herein, and (i) has no duty or responsibility as to the legal correctness or accuracy of the form or content of said Annual Report or notices or any other information provided pursuant to this Agreement, and (ii) has no duty to determine if the Annual Report, notices or other information provided pursuant to this Agreement complies with the terms of this Agreement.

All documents submitted to EMMA shall be accompanied by identifying information as prescribed by the MSRB. If the Trustee has not submitted the Annual Report to EMMA by the filing deadline set forth in Section 3, above, the Authority shall submit, or cause the Trustee to submit, to EMMA a notice substantially in the form of Exhibit A.

Section 5. Reporting of Listed Events. The Authority shall direct the Trustee, in writing, to file with EMMA notice of the occurrence of any of the following events with respect to the Bonds, which notice shall be completed in a timely manner, not in excess of ten business days after the occurrence of the applicable event:

(a) principal and interest payment delinquencies;

(b) non-payment related defaults, if material;

(c) Unscheduled draws on debt service reserves reflecting financial difficulties;

(d) Unscheduled draws on any credit enhancement reflecting financial difficulties;

(e) Substitution of credit or liquidity providers, or their failure to perform;

(f) Adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determination of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax status of the Bonds, or other material events affecting the tax status of the Bonds;

(g) Modifications to rights of security holders, if material;

(h) Bond calls, if material, and tender offers;

(i) Defeasances;

(j) Release, substitution, or sale of property securing repayment of the Bonds, if material;

(k) Rating changes;

(l) Bankruptcy, insolvency, receivership or similar event of the Authority;

(m) The consummation of a merger, consolidation, or acquisition involving the Authority or the sale of all or substantially all of the assets of the Authority, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material;

(n) Appointment of a successor or additional trustee or the change of name of a trustee, if material;

(o) Incurrence of a financial obligation of the Authority, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a financial obligation of the Authority, any of which affect Bondholders, if material; and

(p) Default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a financial obligation of the Authority, any of which reflect financial difficulties.

For the purposes of the event identified in subparagraph (l), above, the event is considered to occur when any of the following occur: The appointment of a receiver, fiscal agent or similar officer for the Authority in a proceeding under the U.S. Bankruptcy Code or in any other proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of the Authority, or if such jurisdiction has been assumed by leaving the existing governing body and officials or officers in possession but subject to the

supervision and orders of a court or governmental authority, or the entry of an order confirming a plan of reorganization, arrangement or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the Authority. For purposes of the events identified in subparagraphs (o) and (p), above, the term "financial obligation" means (i) a debt obligation, (ii) a derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing or planned debt obligation, or (iii) a guarantee of (i) or (ii).

All documents submitted to EMMA shall be accompanied by identifying information as prescribed by the MSRB.

Section 6. Enforceability of the Agreement; Termination. To the extent permitted by law, the provisions of this Agreement are enforceable against the Authority and the Trustee in accordance with the terms hereof by any owner of a Bond, including, without limitation, any beneficial owner acting as a third party beneficiary (upon proof of its status as a beneficial owner reasonably satisfactory to the Trustee). To the extent permitted by law, any such owner shall have the right, for the equal benefit and protection of all owners of the Bonds, by mandamus or other suit or proceeding at law or in equity, to enforce its rights against the Authority and the Trustee and to compel the Authority and the Trustee and any of their officers, agents or employees to perform and carry out their duties under such provisions of this Agreement; provided, however, that the sole remedy for a violation of this Agreement shall be limited to an action to compel specific performance of the obligations of the Authority and the Trustee under this Agreement and shall not include any rights to monetary damages.

This Agreement shall terminate if no Bonds remain outstanding (without regard to an economic defeasance) or if the provisions of the Rule concerning continuing disclosure are no longer in effect, whichever occurs first.

Section 7. Amendments. This Agreement may be amended, changed or modified by the parties hereto, without the consent of, or notice to, any owners of the Bonds, (a) to comply with, or conform to, the provisions of the Rule or any amendments thereto or authoritative interpretations thereof by the SEC or its staff (whether required or optional), (b) to establish with the Trustee any necessary or desirable compliance provisions or procedures, (c) to add to the covenants of the Authority or the Trustee for the benefit of the owners of the Bonds, (d) to modify the content, presentation and format of the annual financial information, as included in the Annual Report, from time to time, as a result of a change in circumstances that arises from a change in legal requirements, or (e) to otherwise modify the undertaking of the Authority in this Agreement responding to the requirements of the Rule concerning continuing disclosure; provided, however, that in the case of any amendment pursuant to clauses (a), (d) or (e), (i) the undertaking, as amended, would have complied with the requirements of the Rule at the time of the offering of the Bonds, after taking into account any amendments or authoritative interpretations of the Rule, as well as any change in circumstances, and (ii) the amendment does not materially impair the interests of the owners of the Bonds, as determined either by a party unaffiliated with the Authority or the Trustee (such as the firm serving at the time as bond counsel to the Authority) or by the vote or consent of the Registered Owners of a majority in outstanding principal amount of the Bonds affected thereby at or prior to the time of such amendment, which consent shall be obtained as provided in this Agreement with

respect to consents of Registered Owners. Any amendment, change or modification to this Agreement shall be in writing.

If this Agreement is amended with respect to the annual financial information to be submitted by the Authority hereunder, the annual financial information containing the amended financial information will explain, in narrative form, the reasons for the amendment and the impact of the change in the type of financial information being provided. If this Agreement is amended with respect to the accounting principles to be followed in preparing financial statements, the annual financial information for the year in which the change is made will present a comparison between the financial statements or information prepared on the basis of the new accounting principles and the financial statements or information prepared on the basis of the former accounting principles. Such comparison will include a qualitative discussion of the differences in the accounting principles and the impact of the change in the accounting principles on the presentation of the financial information, in order to provide information to investors to enable them to evaluate the ability of the Authority to meet its obligations. To the extent reasonably feasible, the comparison will also be quantitative. The Authority shall direct the Trustee to submit notice of any change in the accounting principles to EMMA as promptly as practicable after such change has been determined.

Section 8. Disclaimer. The Authority shall not be required to file any information regarding matters other than those specifically described in Sections 3, 4 and 5 hereof, nor shall any such filing constitute a representation by the Authority or raise any inference that no other material events have occurred with respect to the Authority or the Bonds or that all material information regarding the Authority or the Bonds has been disclosed. The Authority shall have no obligation under this Agreement to update information provided pursuant to this Agreement except as specifically required hereby.

Section 9. Duties, Immunities and Liabilities of the Trustee. The Trustee shall have only such duties under this Agreement as are specifically set forth in this Agreement, and the Authority hereby agrees to indemnify and save the Trustee, its officers, directors, employees and agents, harmless against any loss, expense and liabilities which it may incur arising out of or in the exercise or performance of its powers and duties hereunder, including the cost and expenses (including attorney's fees) of defending against any claim of liability, but excluding liabilities due to the Trustee's negligence or willful misconduct in the performance of its duties hereunder. The obligations of the Authority pursuant to this Section 9 shall survive resignation or removal of the Trustee and payment of the Bonds.

Section 10. Counterparts. This Agreement may be executed in several counterparts, each of which shall be an original and all of which shall constitute but one and the same instrument.

Section 11. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of New York and applicable law of the United States of America.

IN WITNESS WHEREOF, the parties have each caused this Agreement to be executed by their duly authorized representatives, all as of the date first above written.

BUFFALO SEWER AUTHORITY

By: _____

MANUFACTURERS AND TRADERS TRUST COMPANY, as Trustee

By: _____

EXHIBIT A

NOTICE TO THE MSRB OF FAILURE TO FILE ANNUAL REPORT

Name of Issuer:	Buffalo Sewer Authority
Name of Bond Issue:	Sewer System Environmental Impact Revenue Bonds, Series 2021 (Green Bonds)
Name of Obligated Person:	Buffalo Sewer Authority
Date of Issuance:	_____, 2021

NOTICE IS HEREBY GIVEN that the Buffalo Sewer Authority (the "Authority") has not provided an Annual Report with respect to the above-named Bonds as required by the Continuing Disclosure Agreement, dated _____, 2021, between the Authority and Manufacturers and Traders Trust Company, as trustee (the "Trustee").

DATED_____, 20__

_____
Manufacturers and Traders Trust Company,
as Trustee

cc: Buffalo Sewer Authority

BUFFALO

SEWER AUTHORITY

Mixed Sources
Product group from well managed forests, controlled sources and recycled wood or fiber.

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