

NEW ISSUE**BOOK ENTRY - ONLY**

In the opinion of Hawkins Delafield & Wood LLP, Bond Counsel to the Authority, under existing statutes and court decisions and assuming continuing compliance with certain tax covenants described herein, (i) interest on the Series 2019B Junior Indebtedness Obligations is excluded from gross income for federal income tax purposes pursuant to Section 103 of the Internal Revenue Code of 1986, as amended (the "Code") and (ii) interest on the Series 2019B Junior Indebtedness Obligations is not treated as a preference item in calculating the alternative minimum tax under the Code. In addition, in the opinion of Bond Counsel to the Authority, under existing statutes, interest on the Series 2019B Junior Indebtedness Obligations is exempt from personal income taxes imposed by the State of New York and any political subdivision thereof. See "TAX MATTERS" for further information.



**Thruway
Authority**

\$1,693,245,000

**New York State Thruway Authority
General Revenue Junior Indebtedness Obligations
Series 2019B**

Dated: Date of Delivery

Due: January 1, as shown on the inside cover

Interest is payable each January 1 and July 1, commencing July 1, 2020. The New York State Thruway Authority General Revenue Junior Indebtedness Obligations, Series 2019B (the "Series 2019B Junior Indebtedness Obligations") are issuable only as fully registered bonds without coupons, in denominations of \$5,000 or any integral multiple thereof. The Series 2019B Junior Indebtedness Obligations will be issued initially under a book-entry only system and will be registered in the name of Cede & Co., as nominee of The Depository Trust Company, New York, New York ("DTC"), which will act as securities depository for the Series 2019B Junior Indebtedness Obligations. See **Appendix E** — "BOOK-ENTRY ONLY SYSTEM" herein. Principal of and premium, if any, and interest on the Series 2019B Junior Indebtedness Obligations will be payable to holders of the Series 2019B Junior Indebtedness Obligations through The Bank of New York Mellon, New York, New York, as Trustee.

The Series 2019B Junior Indebtedness Obligations are subject to redemption prior to maturity as described herein.

The Series 2019B Junior Indebtedness Obligations of the New York State Thruway Authority (the "Authority") will be issued in accordance with the terms and provisions of the Authority's Resolution Authorizing General Revenue Junior Indebtedness Obligations adopted on November 7, 2013, as amended on August 6, 2014 (the "Junior Indebtedness Resolution"), as supplemented, including, as supplemented by the Seventh Supplemental Junior Indebtedness Resolution Authorizing General Revenue Junior Indebtedness Obligations, Series 2019B adopted by the Authority on April 4, 2019, as amended and restated as of September 23, 2019 (the "Seventh Supplemental JIO Resolution" and, together with the Junior Indebtedness Resolution, the "Resolution").

The Series 2019B Junior Indebtedness Obligations are special obligations of the Authority and are secured as to the payment of principal, premium, if any, and interest thereon by a pledge of the Revenues and certain accounts established under the Junior Indebtedness Resolution, which pledge is subordinate to the pledge created by the Senior Resolution (hereinafter defined) of the Authority with regard to Senior Bonds, as further described herein.

The Series 2019B Junior Indebtedness Obligations are not a debt of the State of New York (the "State") nor shall the State be liable thereon.

The Series 2019B Junior Indebtedness Obligations are being issued (i) to refund outstanding Junior Indebtedness Obligations, (ii) to fund or reimburse approximately \$75 million of costs related to the Authority's New NY Bridge Project, (iii) to fund capitalized interest on the Series 2019B Junior Indebtedness Obligations, (iv) to purchase a Reserve Credit Facility for the Series 2019B Subaccount of the Junior Indebtedness Debt Service Reserve Account, and (v) to pay the Costs of Issuance incurred in connection with the issuance of the Series 2019B Junior Indebtedness Obligations, including the premium on the insurance policy for certain maturities of the Series 2019B Junior Indebtedness Obligations as set forth on the inside cover page herein.

The cover and inside cover pages contain certain information for general reference only. They are not intended to be a summary of the security or terms of this issue. Investors are advised to read the entire Official Statement to obtain information essential to the making of an informed decision.

The Series 2019B Junior Indebtedness Obligations are offered, when, as and if issued by the Authority and are subject to the approval of legality by Hawkins Delafield & Wood LLP, Bond Counsel to the Authority. Certain legal matters are subject to the approval of Christopher C. O'Brien, Esq., General Counsel to the Authority. Certain legal matters will be passed on for the Underwriters by Harris Beach PLLC, Counsel to the Underwriters. Public Resources Advisory Group and Acacia Financial Group, Inc. are acting as Co-Financial Advisors to the Authority. It is expected that the Series 2019B Junior Indebtedness Obligations will be available for delivery to The Depository Trust Company, New York, New York, on or about October 30, 2019.

Goldman Sachs & Co. LLC

Siebert Cisneros Shank & Co., L.L.C.

Citigroup

Morgan Stanley

RBC Capital Markets

J.P. Morgan

Barclays

Academy Securities

Drexel Hamilton, LLC

BofA Merrill Lynch

Loop Capital Markets

Jefferies

Raymond James

Oppenheimer & Co.

Roosevelt & Cross Incorporated

\$1,693,245,000
New York State Thruway Authority
General Revenue Junior Indebtedness Obligations
Series 2019B

**MATURITIES, PRINCIPAL AMOUNTS, INTEREST RATES,
YIELDS AND CUSIP NUMBERS**

\$438,345,000 Serial Bonds

Due January 1	Principal Amount	Interest Rate	Yield	CUSIP No.¹ (Base # 650010)
2021	\$ 580,000	5.00%	1.12%	BH3
2022	1,090,000	5.00	1.14	BJ9
2023	1,140,000	5.00	1.20	BK6
2024	1,200,000	5.00	1.26	BL4
2025	1,260,000	5.00	1.31	BM2
2026	1,325,000	5.00	1.39	BN0
2027	1,390,000	5.00	1.45	BP5
2028	1,460,000	5.00	1.54	BQ3
2029	36,765,000	5.00	1.63	BR1
2030	39,605,000	5.00	1.71	BS9
2031	1,690,000	5.00	1.79†	BT7
2032	4,245,000	5.00	1.85†	BU4
2033	4,355,000	5.00	1.93†	BV2
2034	4,465,000	5.00	2.00†	BW0
2035	2,710,000	5.00	2.05†	BX8
2036	57,365,000	5.00	2.13†	BY6
2037	62,240,000	4.00	2.46†	BZ3
2038	66,410,000	4.00	2.50†	CA7
2039	69,780,000	4.00	2.54†	CB5
2040	72,270,000*	4.00	2.53†	CC3
2046	7,000,000*	3.00	3.05	CG4

\$ 75,855,000	4.00% Term Bonds due January 1, 2041	Yield 2.63%†	CUSIP No. ¹ : 650010CD1
\$265,685,000	4.00% Term Bonds due January 1, 2045	Yield 2.73%†	CUSIP No. ¹ : 650010CJ8
\$ 65,000,000*	4.00% Term Bonds due January 1, 2045	Yield 2.67%†	CUSIP No. ¹ : 650010CM1
\$ 96,505,000	3.00% Term Bonds due January 1, 2046	Yield 3.10%	CUSIP No. ¹ : 650010CE9
\$330,945,000	4.00% Term Bonds due January 1, 2050	Yield 2.81%†	CUSIP No. ¹ : 650010CK5
\$ 80,000,000*	4.00% Term Bonds due January 1, 2050	Yield 2.74%†	CUSIP No. ¹ : 650010CN9
\$ 92,960,000	3.00% Term Bonds due January 1, 2053	Yield 3.20%	CUSIP No. ¹ : 650010CF6
\$ 87,950,000*	3.00% Term Bonds due January 1, 2053	Yield 3.15%	CUSIP No. ¹ : 650010CH2
\$110,000,000	4.00% Term Bonds due January 1, 2053	Yield 2.86%†	CUSIP No. ¹ : 650010CL3
\$ 50,000,000*	4.00% Term Bonds due January 1, 2053	Yield 2.79%†	CUSIP No. ¹ : 650010CP4

1. Copyright, American Bankers Association. CUSIP numbers have been assigned by CUSIP Global Services, which is managed on behalf of the ABA by S&P Global Market Intelligence, a part of S&P Global Inc., and are provided solely for the convenience of the holders of the Series 2019B Junior Indebtedness Obligations. Neither the Authority nor the Trustee are responsible for the selection or uses of these CUSIP numbers and no representation is made to their correctness on the Series 2019B Junior Indebtedness Obligations or as indicated above. The CUSIP number for a specific maturity is subject to being changed after the issuance of the Series 2019B Junior Indebtedness Obligations as a result of various subsequent actions including, but not limited to, a refunding in whole or in part of such maturity or as a result of the procurement of secondary market portfolio insurance or other similar enhancement by investors that is applicable to all or a portion of certain maturities of the Series 2019B Junior Indebtedness Obligations.

† Priced at the stated yield to the January 1, 2030 optional redemption date at a redemption price of 100%.

* The scheduled payment of the principal of and interest on this maturity of Series 2019B Junior Indebtedness Obligations when due will be guaranteed under an insurance policy to be issued concurrently with the delivery of the Series 2019B Junior Indebtedness Obligations by Assured Guaranty Municipal Corp.

IN CONNECTION WITH THE OFFERING OF THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS, THE UNDERWRITERS MAY OVERALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF SUCH JUNIOR INDEBTEDNESS OBLIGATIONS AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZATION, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

No dealer, broker, salesperson or other person has been authorized to give any information or to make any representations, other than those contained in this Official Statement (the term “Official Statement” when used herein shall for all purposes include reference to the Appendices hereto), and, if given or made, such other information or representations must not be relied upon as having been authorized. 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 2019B Junior Indebtedness Obligations by any person in any jurisdiction in which it is unlawful for the person to make such offer, solicitation or sale.

The information set forth herein has been provided by the Authority and other sources which are believed to be reliable by the Authority, but is not guaranteed as to its accuracy or completeness.

The Underwriters have provided the following sentence for inclusion in this Official Statement. The Underwriters have reviewed the information in this Official Statement in accordance with, and as part of, their respective responsibilities to investors under the federal securities laws as applied to the facts and circumstances of this transaction, but the Underwriters do not guarantee the accuracy or completeness of such information.

The information herein is subject to change without notice and neither the delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the Authority since the date hereof. This Official Statement is submitted in connection with the sale of the securities referred to herein and may not be reproduced or used, in whole or in part, for any other purpose.

Assured Guaranty Municipal Corp. (“AGM”) makes no representation regarding the Series 2019B Junior Indebtedness Obligations or the advisability of investing in the Series 2019B Junior Indebtedness Obligations. In addition, AGM has not independently verified, makes no representation regarding, and does not accept any responsibility for the accuracy or completeness of this Official Statement or any information or disclosure contained herein, or omitted herefrom, other than with respect to the accuracy of the information regarding AGM supplied by AGM and presented under “SOURCES OF PAYMENT AND SECURITY FOR THE JUNIOR INDEBTEDNESS OBLIGATIONS – Junior Indebtedness Debt Service Reserve Account” (last paragraph only), “– AGM Insurance of Certain Maturities of Series 2019B Junior Indebtedness Obligations” and “– Assured Guaranty Municipal Corp.” and in “**Appendix G** - Specimen Assured Guaranty Municipal Corp. Insurance Policy”.

CAUTIONARY STATEMENTS REGARDING FORWARD-LOOKING STATEMENTS IN THIS OFFICIAL STATEMENT

This Official Statement and particularly the information contained under the captions “SUMMARY STATEMENT”, “THE NEW NY BRIDGE PROJECT”, “PLAN OF FINANCE”, “SOURCES OF PAYMENT AND SECURITY FOR THE JUNIOR INDEBTEDNESS OBLIGATIONS”, “NEW YORK STATE INFRASTRUCTURE GRANT AND TOLL-RELATED INITIATIVES”, “BUDGET AND CAPITAL PROGRAM; TRAFFIC ENGINEER’S REPORT”, “INVESTMENT CONSIDERATIONS”, and “**Appendix A** - Report of Traffic Engineer”, contain statements relating to future results and economic performance that are “forward-looking statements” as defined in the Private Securities Litigation Reform Act of 1995. When used in this Official Statement, the words “anticipate”, “believe”, “may”, “will”, “should”, “seeks”, “expect”, “assume”, “estimate”, “projection”, “plan”, “budget”, “forecast”, “intend”, “goal”, and similar expressions identify forward-

looking statements. The words or phrases “to date”, “now”, “currently”, and the like are intended to mean as of the date of this Official Statement. Examples of forward-looking statements contained in this Official Statement are statements that concern the Authority’s or the New NY Bridge Project’s future revenues, costs, traffic projections and liquidity. The forward-looking statements contained herein are based on the Authority’s expectations and are necessarily dependent upon assumptions, estimates and data that it believes are reasonable as of the date made but that may be incorrect, incomplete or imprecise or not reflective of actual results. The Authority does not undertake to update or revise any of the forward-looking statements contained herein, even it becomes clear that they will not be realized.

Such statements are subject to risks and uncertainties that could cause actual results to differ materially from those contemplated in such forward-looking statements. Inevitably, some assumptions used to develop the forecasts will not be realized and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between forecasts and actual results, and those differences may be material. For a discussion of certain risks and possible variations in results, see the information under “INVESTMENT CONSIDERATIONS.” The Authority does not plan to issue any updates or revisions to those forward-looking statements if or when its expectations, or events, conditions or circumstances on which such statements are based occur.

THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS HAVE NOT BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION. THE QUALIFICATION, OR EXEMPTION OF THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS IN ACCORDANCE WITH THE APPLICABLE SECURITIES LAW PROVISIONS OF THE JURISDICTIONS IN WHICH THESE SECURITIES HAVE BEEN QUALIFIED, OR EXEMPTED SHOULD NOT BE REGARDED AS A RECOMMENDATION THEREOF. NEITHER THESE JURISDICTIONS NOR ANY OF THEIR AGENCIES HAVE GUARANTEED OR PASSED UPON THE SAFETY OF THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS AS AN INVESTMENT, UPON THE PROBABILITY OF ANY EARNINGS THEREON OR UPON THE ACCURACY OR ADEQUACY OF THIS OFFICIAL STATEMENT.

The order and placement of information in this Official Statement, including appendices, are not an indication of relevance, materiality or relative importance, and this Official Statement, including the appendices, must be read in its entirety. The captions and headings in this Official Statement are for convenience purposes only and in no way define, limit or describe the scope or intent, or affect the meaning or construction, of any provision or section of this Official Statement.

This Official Statement contains summaries of and references to documents that the Authority believes to be accurate, however, reference is made to the actual documents for complete information. All such summaries and references are qualified in their entirety by such reference.

Website Addresses. References to website addresses presented herein are for informational purposes only and may be in the form of a hyperlink solely for the reader’s convenience. Unless specified otherwise, such websites and the information or links contained therein are not incorporated into, and are not part of, this Official Statement for purposes of Rule 15c2-12 of the United States Securities and Exchange Commission, as amended, and in effect on the date hereof (“Rule 15c2-12”).

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SUMMARY STATEMENT

This summary statement is qualified in its entirety by reference to the information appearing elsewhere in this Official Statement. Terms used in this summary statement and not defined herein shall have the meanings set forth in the body of this Official Statement.

The Authority

The New York State Thruway Authority (the “Authority”), a body corporate and politic constituting a public corporation, created in 1950 by the New York State Thruway Authority Act, as amended, Title 9 of Article 2 of the Public Authorities Law, Chapter 43-A of the Consolidated Laws of the State of New York (the “Act”), is empowered, among other things, to construct, operate and maintain as a toll facility, and to improve and reconstruct the Governor Thomas E. Dewey Thruway (the “Thruway System”), subject to certain statutory limitations on the Authority’s right to impose tolls on certain parts of the Thruway System, including the Cross-Westchester Expressway. The Act also authorizes the Authority to issue, from time to time, negotiable bonds and notes for any corporate purpose secured by tolls, revenues, rates, fees, charges, rents and other earned income of the Authority. See “THE AUTHORITY”.

The Thruway System is a 570-mile superhighway system crossing New York State (the “State”) and is one of the largest toll superhighway systems in the United States. In addition to being the principal artery of travel and commerce within New York connecting the State’s principal cities, the Thruway System is a vital link to long distance interstate travel. In addition, the Thruway System provides the major route of access for visitors to the State’s tourist destinations including Niagara Falls, the Finger Lakes, the Adirondacks, the Catskills and New York City. The new twin-span Governor Mario M. Cuomo Bridge (also referred to herein as the “New NY Bridge Project”), which has replaced the Tappan Zee Bridge, is a major component of the Thruway System spanning the Hudson River north of New York City. See “AUTHORITY GOVERNANCE, FACILITIES AND OPERATIONS — Thruway Facilities and Operations” and **Appendix A** — “Report of Traffic Engineer”.

Purpose of Issue

The Series 2019B Junior Indebtedness Obligations are being issued to (i) refund outstanding Junior Indebtedness Obligations, (ii) to fund or reimburse approximately \$75 million of costs related to the Authority’s New NY Bridge Project, (iii) to fund capitalized interest on the Series 2019B Junior Indebtedness Obligations, (iv) to purchase a Reserve Credit Facility for the Series 2019B Subaccount of the Junior Indebtedness Debt Service Reserve Account, and (v) to pay the Costs of Issuance incurred in connection with the issuance of the Series 2019B Junior Indebtedness Obligations, including the premium on the insurance policy for certain maturities of the Series 2019B Junior Indebtedness Obligations in an aggregate principal amount of \$362,220,000.

Under the plan of finance, the Authority expects to apply the refunding proceeds from the Series 2019B Junior Indebtedness Obligations to redeem the outstanding \$1.6 billion TIFIA Loan and thereby extinguish the Series 2013B Junior Indebtedness Obligation securing the TIFIA Loan. See “PLAN OF FINANCE”.

Concurrently with the issuance of the Series 2019B Junior Indebtedness Obligations, the Authority expects to issue \$857,625,000 of its General Revenue Bonds, Series M (Federally Taxable) (the “Series M Bonds”) to (i) provide funds to refund certain of the Authority’s Outstanding Bonds, and (ii) pay the Costs of Issuance of the Series M Bonds. See “PLAN OF FINANCE”.

Security

The Series 2019B Junior Indebtedness Obligations are special obligations of the Authority. All Junior Indebtedness Obligations, including the Series 2019B Junior Indebtedness Obligations, issued under the

Authority's Resolution Authorizing General Revenue Junior Indebtedness Obligations, adopted on November 7, 2013, as amended on August 6, 2014 (the "Junior Indebtedness Resolution"), are secured as to the payment of principal, premium, if any, and interest thereon by a pledge of the Revenues (as such term is defined in the Junior Indebtedness Resolution) and certain accounts established under the Junior Indebtedness Resolution, subject to the prior pledge securing Bonds ("Senior Bonds") issued and to be issued under the Authority's General Revenue Bond Resolution ("Senior Resolution") adopted August 3, 1992, as amended on January 5, 2007. The pledge and lien created by the Junior Indebtedness Resolution for Junior Indebtedness Obligations is subordinate in all respects to any pledge or lien now or hereafter created for Senior Bonds and is senior in all respects to any pledge or lien now or hereafter created for Subordinated Indebtedness. In addition, a Series 2019B Subaccount of the Junior Indebtedness Debt Service Reserve Account is being established and funded with Reserve Credit Facility solely for the purpose of additionally securing the Series 2019B Junior Indebtedness Obligations.

The Series 2019B Junior Indebtedness Obligations are not a debt of the State nor shall the State be liable thereon. The Authority has no taxing power.

The scheduled payment of principal of and interest on the Series 2019B Junior Indebtedness Obligations maturing on January 1, 2040 (\$72,270,000), January 1, 2045 (\$65,000,000), January 1, 2046 (\$7,000,000), January 1, 2050 (\$80,000,000), January 1, 2053 bearing interest at a rate of 3.00% per annum (\$87,950,000), and January 1, 2053 bearing interest at a rate of 4.00% per annum (\$50,000,000) (collectively, the "Insured JIOs"), when due will be guaranteed under an insurance policy to be issued concurrently with the delivery of the Insured JIOs by Assured Guaranty Municipal Corp.

The Senior Resolution and the Junior Indebtedness Resolution provide that Operating Expenses of Facilities will be funded from Revenues prior to the provision for Accrued Debt Service on Senior Bonds and prior to Accrued Debt Service on Junior Indebtedness Obligations. Revenues needed to fund any shortfalls in the Senior Debt Service Reserve Fund and to make required deposits to the Reserve Maintenance Fund are also required to be applied prior to Accrued Debt Service on Junior Indebtedness Obligations. See "SOURCES OF PAYMENT AND SECURITY FOR THE JUNIOR INDEBTEDNESS OBLIGATIONS" and "AGGREGATE ANNUAL DEBT SERVICE REQUIREMENTS".

Toll Covenant

Pursuant to the Junior Indebtedness Resolution, the Authority has covenanted at all times to fix, charge and collect such tolls, fees and charges for the use of the Facilities as are required in order that, in each fiscal year, Net Revenues shall at least equal the Junior Indebtedness Net Revenue Requirement for such year. "Junior Indebtedness Net Revenue Requirement" means, with respect to any period of time, an amount equal to the greater of (i) the sum of (A) Aggregate Debt Service on Senior Bonds, (B) amounts required to make deposits to the Senior Debt Service Reserve Fund (as defined in the Senior Resolution), if any, (C) amounts required to make Reserve Maintenance Payments (as defined in the Senior Resolution), and (D) amounts required to be deposited in the Junior Indebtedness Fund pursuant to the Senior Resolution and the Junior Indebtedness Resolution and any Supplemental Resolution thereto or other resolution or agreement authorizing Junior Indebtedness Obligations or (ii) for such period of time, 1.20 times the sum of (A) Aggregate Debt Service on Senior Bonds and (B) amounts required to be deposited in the Junior Indebtedness Fund's Debt Service Payment Account pursuant to the Junior Indebtedness Resolution and any Supplemental Resolution thereto or other resolution or agreement authorizing Junior Indebtedness Obligations; provided, however, that (1) Aggregate Debt Service on Senior Bonds for purposes of calculating the Junior Indebtedness Net Revenue Requirement, may be reduced by an amount equal to investment income on the Senior Debt Service Fund (as defined in the Senior Resolution) and the Senior Debt Service Reserve Fund (to the extent such investment income is required to be retained in or transferred to the Senior Debt Service Fund, as appropriate, pursuant to a Supplemental Resolution); and (2) amounts required to be deposited in the Junior Indebtedness Fund for purposes of calculating the Junior Indebtedness Net Revenue Requirement may be reduced by an amount equal to investment income on deposit in the Junior Indebtedness Debt Service Payment Account and the Junior Indebtedness Debt Service Reserve subaccounts (to the extent such investment income is required

to be retained in or transferred to the Junior Indebtedness Debt Service Payment Account). See “SOURCES OF PAYMENT AND SECURITY FOR THE JUNIOR INDEBTEDNESS OBLIGATIONS — Tolls, Fees and Charges” and **Appendix C** — “Summary of Certain Provisions of the Junior Indebtedness Resolution and the Senior Resolution — Tolls, Fees and Charges”.

Issuance of Additional Junior Indebtedness Obligations and Senior Bonds

Under the Junior Indebtedness Resolution, the Authority may issue Additional Junior Indebtedness Obligations and Junior Indebtedness Refunding Obligations payable from Revenues, subject to the satisfaction of certain conditions set forth therein. Prior to the final completion of the construction and equipping of the New NY Bridge Project, (A) Junior Indebtedness Obligations may be issued to pay for Project Costs solely related to the New NY Bridge Project, and (B) Junior Indebtedness Refunding Obligations may be issued to refund Outstanding Junior Indebtedness Obligations. After the completion of the New NY Bridge Project, and subject to certain limitations, (A) Additional Junior Indebtedness Obligations may be issued to pay for Project Costs of the Original Project, any Additional Junior Indebtedness Projects and any Other Authority Projects, and (B) Junior Indebtedness Refunding Obligations may be issued to refund Outstanding Senior Bonds, Junior Indebtedness Obligations and Subordinated Indebtedness. For Additional Junior Indebtedness Obligations, such limitations include, but are not limited to, satisfaction of a coverage test and a not-to-exceed Aggregate Debt Service test. See “SOURCES OF PAYMENT AND SECURITY FOR THE JUNIOR INDEBTEDNESS OBLIGATIONS — Additional Junior Indebtedness Obligations, Junior Indebtedness Refunding Obligations and Other Indebtedness”.

The pledge and lien created by the Junior Indebtedness Resolution for Junior Indebtedness Obligations is subordinate in all respects to any pledge or lien now or hereafter created for Senior Bonds (including Senior Bonds to be issued in the future) and is senior in all respects to any pledge or lien now or hereafter created for Subordinated Indebtedness.

New NY Bridge Project

The Authority has replaced the Tappan Zee Bridge, a critical Hudson River crossing north of New York City that carried approximately 50 million vehicles per year, with The Governor Mario M. Cuomo Bridge. In addition to being a major metropolitan New York transportation asset, The Governor Mario M. Cuomo Bridge has succeeded to the Tappan Zee Bridge as a key economic generator for New York, New Jersey, Connecticut, and Southern New England.

The design-build construction team for The Governor Mario M. Cuomo Bridge, Tappan Zee Constructors, LLC (“Design-Build Contractor”), is a partnership of global firms that has strong financial capacity and a proven track record of successfully delivering complex, high profile mega projects, both individually and together as a team. The Authority gave the Design-Build Contractor notice-to-proceed on January 18, 2013 and construction has proceeded pursuant to the terms and conditions of the design-build contract entered into with the Authority (“Design-Build Contract”). The first span of The Governor Mario M. Cuomo Bridge was opened to vehicular traffic on August 25, 2017 and the second span was opened to vehicular traffic on September 12, 2018.

Through July 31, 2019, approximately \$3.3 billion has been paid or is pending to be paid to the Design-Build Contractor. See “THE NEW NY BRIDGE PROJECT” for a current description of the project and the status of construction activities. See also “INVESTMENT CONSIDERATIONS – Risks Relating to the Design-Build Contract for the New NY Bridge Project”.

The primary sources of financing to construct the New NY Bridge Project are proceeds of the issuances of Junior Indebtedness Obligations, the TIFIA Loan (described herein) as well as NYS Infrastructure Grant Contributions (as defined herein).

Budget and 2019-2024 Capital Program

On November 26, 2018, the Authority Board approved the 2019 Budget (the “2019 Original Budget”) and 2019-2023 Capital Program. The preliminary 2019-2024 Capital Program (subject to approval by the Authority Board, expected in November, 2019 in conjunction with Board approval of the 2020 Budget) totals \$2.78 billion, including \$537.4 million in costs for the New NY Bridge Project. The implementation of enhanced and modernized asset management systems and project selection protocols have allowed the Authority to pursue a more efficient and balanced approach to the 2019-2024 Capital Program project mix, focusing more on high priority and high impact investments to maintain the useful life of Thruway infrastructure. The 2019-2024 Capital Program expects to complete major, job-sustaining reconstruction projects currently underway and includes new projects that address reconstruction and rehabilitation of roadway, bridges, facilities and support systems of the Thruway System; congestion relief and mobility enhancements; and provision for replacement of equipment and other non-bridge and highway projects of the Authority. See “BUDGET AND CAPITAL PROGRAM; TRAFFIC ENGINEER’S REPORT – 2019-2024 Capital Program” and “– Funding of the 2019-2024 Capital Program” for more information on the 2019-2024 Capital Program and the New NY Bridge Project.

Thruway Stabilization Program

As part of an initiative to materially improve critical transportation infrastructure in the State and to moderate the future need for Thruway toll adjustments, the State appropriated \$1.285 billion for general Thruway capital projects in 2015, including \$535 million for system-wide projects and \$750 million for the New NY Bridge Project.

The State’s 2016-2017 enacted budget (the “State’s 2016-2017 Enacted Budget”) provided for an additional \$700 million in grant moneys for investment in Thruway infrastructure. The \$700 million in new grant moneys and the \$1.285 billion from the prior year’s enacted State budget are collectively referred to herein as “NYS Infrastructure Grant Contributions”.

Projected Results

The Authority retained Stantec Consulting Services, Inc. (the “Traffic Engineer”) to prepare a study (the “Traffic Engineer’s Report”) that analyzes the Authority’s current operations, and projects financial results of the Authority’s operations for the years 2019-2024. The forecast of traffic and revenues detailed in the Traffic Engineer’s Report are based on the Authority’s current toll schedule and other information provided by the Authority. The Traffic Engineer’s Report identifies future revenues required for the Authority to meet its system-wide operating, debt service, and capital needs, management’s financial policies with respect to debt service coverage (1.55x Senior Bonds and 1.35x Senior Bonds and Junior Indebtedness Obligations combined) as well as the contractual financial covenants contained in its Senior Resolution and Junior Indebtedness Resolution. The Traffic Engineer’s future incremental funding needs for the years 2019 through 2024 were established by the Authority at amounts necessary to maintain levels of safety and service, good infrastructure conditions, support Thruway operations, and maintain the Authority’s established debt service coverage policy targets.

The projections for the years 2019 through 2024 are included in the Traffic Engineer’s Report included in **Appendix A**, which should be read in its entirety. See “BUDGET AND CAPITAL PROGRAM; TRAFFIC ENGINEER’S REPORT – Projected Results.”

Ratings

Moody’s Investors Service (“Moody’s”) and S&P Global Ratings (“S&P”) have rated the Series 2019B Junior Indebtedness Obligations “A2” and “A-”, respectively. See “RATINGS.”

OFFICIAL STATEMENT

\$1,693,245,000

**New York State Thruway Authority
General Revenue Junior Indebtedness Obligations
Series 2019B**

Albany, New York
October 18, 2019

INTRODUCTION

The purpose of this Official Statement, including the cover and inside cover pages, the summary statement and appendices, is to set forth information with respect to the General Revenue Junior Indebtedness Obligations, Series 2019B (the “Series 2019B Junior Indebtedness Obligations”), of the New York State Thruway Authority (the “Authority”). The Series 2019B Junior Indebtedness Obligations are authorized by the New York State Thruway Authority Act, as amended, Title 9 of Article 2 of the Public Authorities Law, Chapter 43-A of the Consolidated Laws of the State of New York (the “Act”). The Series 2019B Junior Indebtedness Obligations are authorized to be issued under and pursuant to the terms and provisions of the Authority’s Resolution Authorizing General Revenue Junior Indebtedness Obligations adopted on November 7, 2013, as amended on August 6, 2014 (the “Junior Indebtedness Resolution”), as supplemented, including as supplemented by the Seventh Supplemental Junior Indebtedness Resolution Authorizing General Revenue Junior Indebtedness Obligations, Series 2019B adopted by the Authority on April 4, 2019, as amended and restated on September 23, 2019 (the “Seventh Supplemental JIO Resolution” and, together with the Junior Indebtedness Resolution, the “Resolution”).

The Series 2019B Junior Indebtedness Obligations are special obligations of the Authority and are secured as to the payment of principal, premium, if any, and interest thereon by a pledge of the Revenues (as such term is defined in the Junior Indebtedness Resolution) primarily derived from tolls and other revenues of the Authority from the operation of the Thruway System (as defined herein), and certain accounts established under the Junior Indebtedness Resolution. The pledge and lien created by the Junior Indebtedness Resolution for Junior Indebtedness Obligations is subordinate in all respects to any pledge or lien now or hereafter created for Bonds (“Senior Bonds”) issued under the Authority’s General Revenue Bond Resolution adopted on August 3, 1992, amended on January 5, 2007 (as further amended and supplemented, the “Senior Resolution”) and is senior in all respects to any pledge or lien now or hereafter created for Subordinated Indebtedness. A summary of certain provisions of the Junior Indebtedness Resolution, together with certain defined terms used therein, in the Senior Resolution and in this Official Statement, is contained in **Appendix C** hereto.

See “THE NEW NY BRIDGE PROJECT” and “PLAN OF FINANCE” below for an explanation of the role of Junior Indebtedness Obligations, in general, and the Series 2019B Junior Indebtedness Obligations in particular, in financing the cost of constructing and equipping the New NY Bridge Project.

THE AUTHORITY

The Authority, a body corporate and politic constituting a public corporation, created in 1950 by the Act, is empowered to finance, construct, operate and maintain as a toll facility, and to improve and reconstruct, the Governor Thomas E. Dewey Thruway (the “Thruway System”), subject to certain statutory limitations on the Authority’s right to impose tolls on certain parts of the Thruway System, including the Cross-Westchester Expressway. In addition, pursuant to Chapter 766 of the Laws of New York of 1992 and other authorizations, the Authority, among other things, (i) will finance and undertake

specified economic development transportation projects in the State and (ii) may undertake certain financings on behalf of the State for transportation purposes.

History

In 1942, the State's leaders recognized that the State's highway system would not be adequate for post-war needs and ordered the planning of a superhighway system through the major travel corridors of the State. In 1944, the State Legislature authorized the State Bureau of Public Works (the predecessor of the New York State Department of Transportation) to proceed with construction of the Thruway System. Governor Thomas E. Dewey broke ground for the Thruway System in 1946. In May 1948, the first section, four miles between Canandaigua and Victor near Rochester, was opened. By 1950, approximately \$25 million of State funds had been spent on the Thruway System. A special committee of State officials from whom Governor Dewey sought advice urged that it become a toll highway operated by an independent public authority.

In 1950, the Legislature created the Authority to construct, operate and maintain the Thruway System. It was financed primarily through the issuance of \$500,000,000 of State Guaranteed Bonds and \$472,000,000 of Prior General Revenue Bonds, all of which have been paid in full and are no longer outstanding. The revenue to retire these bonds was generated primarily from tolls. In June 1954, the first toll section, a 115-mile stretch from Lowell (west of Utica) to Rochester, was opened. The 416-mile mainline was completed in 1956 and in 1964 it was given Governor Dewey's name in recognition of his role in its development.

Powers

The Authority is authorized under the Act to establish and collect such tolls and charges as may be convenient or necessary to produce at all times sufficient revenues to meet its expenses of maintenance and operation, to pay, as the same shall become due, the principal of and interest on the Senior Bonds and Junior Indebtedness Obligations and to fulfill the terms of any agreement made with the holders of Senior Bonds and Junior Indebtedness Obligations until such Senior Bonds and Junior Indebtedness Obligations and the interest thereon are fully met and discharged. Under the Senior Resolution and the Junior Indebtedness Resolution, tolls shall remain in effect until all of the Senior Bonds and Junior Indebtedness Obligations, as applicable, have been retired.

Under the Act, the powers of the Authority include, among others, the power to maintain, reconstruct and operate the Thruway System so long as its corporate existence shall continue; and, in addition, to construct and maintain facilities for the public not inconsistent with the appropriate use of the Thruway System, to contract for such construction, and to lease the right to construct and use such facilities on such terms and for such considerations as it determines.

Title to the real property utilized by the Authority is vested in the State, but the Authority has the right, so long as its corporate existence shall continue, to possess, use and dispose of all real property and rights therein. The Authority has the power to acquire, hold and dispose of personal property for its corporate purposes. The Authority has no taxing power.

Outstanding Indebtedness

Senior Bonds

The Authority has been authorized under the Act to issue its bonds and notes to fund a portion of the capital needs of the Authority. As of September 30, 2019, the Authority has outstanding under the Senior Resolution \$2,925,075,000 aggregate principal amount of Senior Bonds.

Junior Indebtedness Obligations

The Authority began issuing Junior Indebtedness Obligations in 2013 to fund the New NY Bridge Project. As of September 30, 2019, the Authority had outstanding under the Junior Indebtedness Resolution \$2,450,000,000 of long-term Junior Indebtedness Obligations, consisting of \$850,000,000 Series 2016A Junior Indebtedness Obligations and \$1,600,000,000 of Series 2013B Junior Indebtedness Obligations securing the TIFIA Loan and \$1,187,210,000 of 2019A Notes (all as defined below).

On December 18, 2013, the Authority issued \$1,600,000,000 of General Revenue Junior Indebtedness Obligations, Series 2013A (the “Series 2013A Junior Indebtedness Obligations”) pursuant to the Junior Indebtedness Resolution, all of which were paid at maturity on May 1, 2019 with proceeds of \$1,587,210,000 of General Revenue Junior Indebtedness Obligation Anticipation Notes issued by the Authority on April 30, 2019 (the “2019A Notes”).

On December 19, 2013, the Authority entered into a TIFIA Loan Agreement with the United States Department of Transportation (acting by and through the Federal Highway Administrator) (“USDOT”) authorizing a loan for an amount up to \$1.6 billion (the “TIFIA Loan”). Pursuant to the TIFIA Loan Agreement, the Authority issued its General Revenue Junior Indebtedness Obligations, Series 2013B (the “Series 2013B Junior Indebtedness Obligations”) to secure the TIFIA Loan in an aggregate principal amount not to exceed \$1.6 billion. The Series 2013B Junior Indebtedness Obligation securing the TIFIA Loan is on parity with all other Junior Indebtedness Obligations issued or to be issued by the Authority under the Junior Indebtedness Resolution, including the Series 2019B Junior Indebtedness Obligations (except with respect to any subaccount of the Debt Service Reserve Account specifically established for a particular Series of Junior Indebtedness Obligations).

The Authority has covenanted under the TIFIA Loan Agreement that Junior Indebtedness Obligations will only be used to finance construction and equipping of the New NY Bridge Project through the substantial completion of that project, and that no proceeds of Senior Bonds will be applied to pay costs of construction and equipping of the New NY Bridge Project.

On May 12, 2016, the Authority issued \$850,000,000 of General Revenue Junior Indebtedness Obligations, Series 2016A (the “Series 2016A Junior Indebtedness Obligations”) pursuant to the Junior Indebtedness Resolution to fund additional costs of the New NY Bridge Project.

On September 3, 2019, USDOT disbursed the full \$1,600,000,000 amount of the TIFIA Loan to the Authority. \$400,000,000 of the original \$1,587,210,000 of 2019A Notes were redeemed on September 17, 2019 with a portion of the proceeds from the TIFIA Loan.

All of the remaining 2019A Notes are expected to be redeemed on October 24, 2019 and the \$1,600,000,000 TIFIA Loan is expected to be redeemed with proceeds of the Series 2019B Junior Indebtedness Obligations on or about November 12, 2019. Under the plan of finance, the only Outstanding Junior Indebtedness Obligations after November 12, 2019 will be the Series 2019B Junior Indebtedness Obligations and the \$850,000,000 Series 2016A Junior Indebtedness Obligations. See “PLAN OF FINANCE”.

Members and Officers

The Act provides that the Authority consists of a Board of seven members appointed by the Governor of the State, with the advice and consent of the State Senate. Board members serve for terms of nine years each. Vacancies in the Authority occurring other than by expiration of term are filled for the remainder of the unexpired term in the manner previously stated. Pursuant to the New York State Public Officers Law, members of the Authority whose terms have expired continue to serve until a successor is

appointed and qualified. The members of the Authority receive no salary but are reimbursed for their necessary expenses incurred in connection with their duties. There is currently one vacancy on the Board. The Chair serves in that capacity for the full term of his/her appointment as a member of the Authority. The members of the Authority may appoint other officers. The present members of the Board and the expiration dates of their terms of office are as follows:

<u>Name</u>	<u>Expiration of Term</u>
Joanne M. Mahoney.....	January 1, 2020
José Holguín-Veras.....	December 12, 2018*
George L. Miranda.....	June 23, 2026
Robert L. Megna.....	January 1, 2017*
J. Donald Rice, Jr.....	June 13, 2018*
Stephen M. Saland.....	January 1, 2023
Heather C. Briccetti.....	September 14, 2026

* Holding over.

The present officers of the Authority are as follows:

<u>Name</u>	<u>Office</u>
Joanne M. Mahoney.....	Chair
Robert L. Megna.....	Vice Chair
Matthew J. Driscoll.....	Executive Director
Matthew A. Howard.....	Treasurer
William F. McDonough.....	Assistant Treasurer
Kathy M. LeFave.....	Secretary
Keith Fragomeni.....	Assistant Secretary
Jerry B. Yomoah.....	Assistant Secretary

Matthew J. Driscoll is the Executive Director of the New York State Thruway Authority. Matthew A. Howard serves as Chief Financial Officer of the Authority. Christopher C. O’Brien serves as General Counsel of the Authority. See “AUTHORITY GOVERNANCE, FACILITIES AND OPERATIONS” for additional detail on the Board membership and senior staff at the Authority.

THE NEW NY BRIDGE PROJECT

General

The Tappan Zee Bridge was a major state and regional crossing of the Hudson River in the dense core of the Northeast with no nearby alternative crossings and a significant source of toll revenues for the Thruway System. Opened to traffic in 1955, it was built with a projected useful life of 50 years and serviced traffic that was 40% more than it was designed to handle. Due to growing congestion, the aging of its structural components, and the fact that it had no shoulders for emergency services or disabled vehicles, no mass transit capability and suffered from seismic and other structural deficiencies, the Tappan Zee Bridge was the subject of numerous replacement studies. In 2011, the New NY Bridge Project was advanced to replace the Tappan Zee Bridge.

The New NY Bridge Project (now known as “The Governor Mario M. Cuomo Bridge”) is designed to provide:

- At least a 100-year design life before major maintenance is required, greatly improving operational efficiencies and lowering life-cycle costs;
- Four travel lanes in each direction to match the highway approaches on either side of the Hudson River;
- Dedicated bus lanes during commuter rush hours;
- A structural envelope with the strength and capacity to allow for potential future transit modes, including commuter rail, light rail and/or bus rapid transit service;
- Conformance with current seismic, safety, security and geometric requirements;
- Adequate shoulders to properly manage traffic incidents and emergencies;
- All Electronic Tolling (“AETC”) and reconfigured toll plazas to reduce barrier-related congestion;
- Enhanced environmental features that will lessen long term impacts on the Hudson River; and
- Accommodation for bike/pedestrian use.

Formal construction of the New NY Bridge Project began in October 2013. The north span of The Governor Mario M. Cuomo Bridge was substantially completed and opened to two-way vehicular traffic on August 25, 2017. The second span of the bridge was substantially completed and opened for vehicular traffic on September 12, 2018, whereupon westbound traffic was redirected solely to the north span and eastbound traffic was redirected solely to the south span. The Tappan Zee Bridge has been deconstructed above water and underwater demolition activities remain.

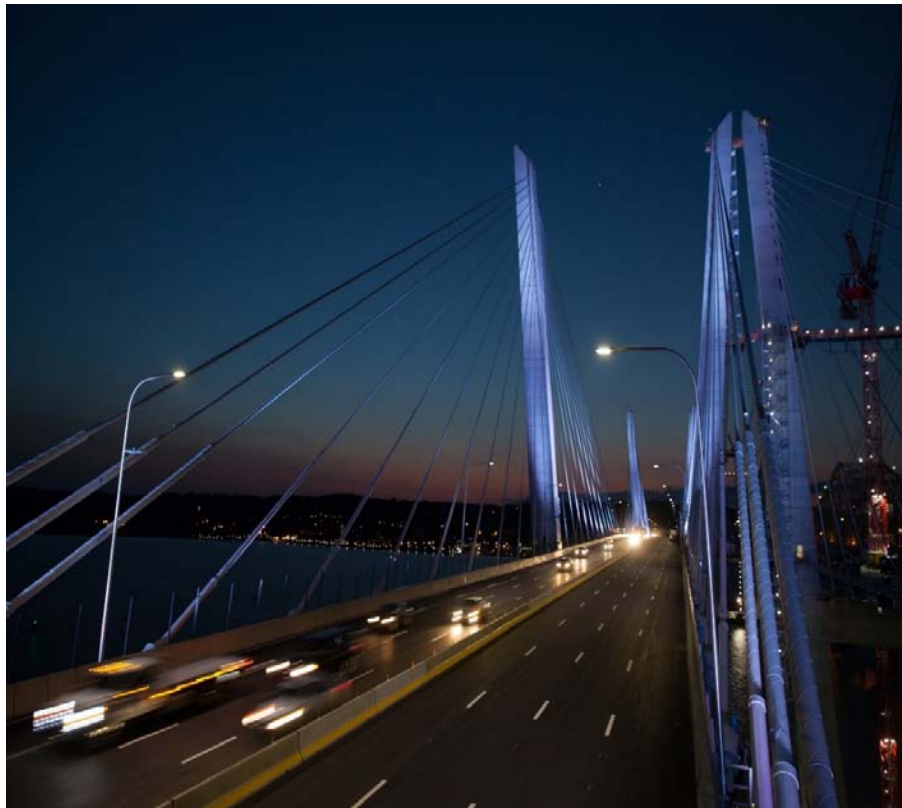
The total estimated cost of the New NY Bridge Project is \$3.9 billion. (See “ACTUAL AND PROJECTED CAPITAL PROGRAM EXPENDITURES”). Through July 31, 2019, costs of \$3.52 billion had been incurred on the New NY Bridge Project, \$77.8 million of which has been spent to date in 2019.

The New NY Bridge Project is being constructed under a fixed-price, date-certain, Design-Build Contract with TZC LLC (the Design-Build Contract”). TZC LLC is a special purpose joint venture of Fluor Enterprises, Inc., American Bridge Company, Granite Construction Northeast, Inc. and Traylor Brothers Inc. The \$3.14 billion Design-Build Contract included over \$650 million of contingency and allowances – over 20% of the original underlying Design-Build Contract price for changes in law, unforeseen costs associated with delay or other factors, and any potential owner-directed changes. Through October 2, 2019, contract change orders totaling \$300 million have been approved by the Authority, increasing the value of the Design-Build Contract to \$3.44 billion.

TZC LLC’s performance is secured by a construction security package that includes a joint and several guarantee of TZC LLC’s performance from its members, including a parent guarantee from Fluor Corp. which has credit ratings of “BBB” with a negative outlook from S&P Global Ratings and “Baa3” with a stable outlook from Moody’s Investors Service. While construction is substantially completed, the construction security package includes surety bonds for payment and performance of approximately \$1.5 billion each, contractual liquidated damages for delays in completing major project milestones and for lane closures, and a maximum liability cap of 50% of the contract price.

The following photographs show the substantially completed Governor Mario M. Cuomo Bridge:

(Views of the Hudson River looking west toward Rockland County)



AETC IMPLEMENTATION

The Authority commenced conversion to all-electronic tolling (“AETC” or “Cashless Tolling”) on its system, beginning with the Tappan Zee Bridge in April 2016. The Governor Mario M. Cuomo Bridge opened with AETC in August 2017. Throughout 2018, AETC was implemented on the Grand Island Bridges, the Harriman, Yonkers, Spring Valley and New Rochelle Barriers. The Authority expects full implementation of AETC across the Thruway System by the end of 2020.

Implementing AETC offered the Authority’s patrons advantages including reduced travel times, enhanced safety and improved traffic flow, and provides environmental benefits by limiting idling and reducing delays, as vehicles no longer have to stop at a toll plaza; instead, overhead gantries detect E-ZPass or use cameras to read license plates of non-E-ZPass customers who are later billed by mail. In the opinion of the Authority’s Traffic Engineers, AETC has resulted in (i) small traffic changes and payment type shifts, and (ii) some uncollectable revenues associated with video tolling. This is in addition to the lag in time to allow for video toll revenues collection. Video toll enforcement has been enhanced by a new regulation enacted by the State on January 20, 2016 authorizing the Department of Motor Vehicles to suspend the registrations of New York State drivers with five or more toll violations in 18 months. See **Appendix A** — “Report of Traffic Engineer”.

During the entire time the twin bridge spans were being constructed, tolls were collected across the Thruway System (including, as applicable, on the Tappan Zee Bridge and then on the north span of the New NY Bridge Project).

PLAN OF FINANCE

The Series 2019B Junior Indebtedness Obligations are being issued to (i) refund outstanding Junior Indebtedness Obligations, (ii) to fund or reimburse approximately \$75 million of costs related to the Authority’s New NY Bridge Project, (iii) to fund capitalized interest on the Series 2019B Junior Indebtedness Obligations, (iv) to purchase a Reserve Credit Facility for the Series 2019B Subaccount of the Junior Indebtedness Debt Service Reserve Account, and (v) to pay the Costs of Issuance incurred in connection with the issuance of the Series 2019B Junior Indebtedness Obligations, including the premium on the insurance policy for certain maturities of the Series 2019B Junior Indebtedness Obligations in an aggregate principal amount of \$362,220,000. See “SOURCES AND USES OF FUNDS”.

The refunding portion of the plan of finance is intended to provide debt service savings for the Authority by lowering the interest costs of its outstanding debt.

Under the plan of finance, the Authority expects to apply the refunding proceeds from the Series 2019B Junior Indebtedness Obligations to redeem the outstanding \$1.6 billion TIFIA Loan and thereby extinguish the Series 2013B Junior Indebtedness Obligation securing the TIFIA Loan. The TIFIA Loan has an annual interest rate of 3.89% and can be prepaid at the option of the Authority upon 10 days’ notice. A portion of the proceeds of the Series 2019B Junior Indebtedness Obligations will be used for capitalized interest to offset the capitalized interest feature of the TIFIA Loan foregone as part of the refunding.

As part of the original plan of finance for the New NY Bridge Project, USDOT disbursed the full \$1,600,000,000 amount of the TIFIA Loan to the Authority on September 3, 2019 to reimburse eligible project costs of the New NY Bridge Project. \$400 million of such amount was applied to redeem \$400 million of the \$1,587,210,000 2019A Notes on September 17, 2019. The remaining proceeds of the TIFIA Loan are expected to be used by the Authority to redeem the remaining principal balance of the 2019A Notes (\$1,187,210,000) on October 24, 2019.

In addition, as part of the Authority’s overall refunding plan, the Authority sold \$857,625,000 of its General Revenue Bonds, Series M (Federally Taxable) (the “Series M Bonds”) to (i) to refund certain of the Authority’s Outstanding General Revenue Bonds, and (ii) pay the Costs of Issuance of the Series M Bonds. The Authority expects the issuance of the Series M Bonds to occur concurrently with the issuance of the Series 2019B Junior Indebtedness Obligations. However, the closing of the 2019B Junior Indebtedness Obligations is not contingent upon the closing of the Series M Bonds and the closing of the Series M Bonds is not contingent upon the closing of the Series 2019B Junior Indebtedness Obligations.

In the future, the Authority may issue an additional Series of Junior Indebtedness Obligations to finance any remaining costs of the New NY Bridge Project. The Authority’s current long term financial plan, which is subject to change, includes a budgeted amount of \$245 million in 2021 to fund any remaining costs for the New NY Bridge Project.

SOURCES AND USES OF FUNDS

The proceeds received from the sale of the Series 2019B Junior Indebtedness Obligations are expected to be applied in the following approximate amounts:

Sources of Funds

Principal Amount of Series 2019B Junior Indebtedness Obligations	\$1,693,245,000.00
Original Issue Premium/Discount	<u>178,404,327.35</u>
Total Sources of Funds	<u>\$1,871,649,327.35</u>

Uses of Funds

Refund Outstanding Junior Indebtedness Obligations	\$1,611,936,443.36
New NY Bridge Capital Costs	75,000,000.00
Capitalized Interest	173,612,666.53
Costs of Issuance ⁽¹⁾	3,578,303.92
Underwriters’ Discount	<u>7,521,913.54</u>
Total Uses of Funds	<u>\$1,871,649,327.35</u>

(1) Includes legal fees, municipal advisory and consultant fees, rating agency fees, printing costs, the premium for the Reserve Credit Facility for the Series 2019B Subaccount of the Junior Indebtedness Debt Service Reserve Account, the premium for the insurance policy for certain maturities of the Series 2019B Junior Indebtedness Obligations in an aggregate principal amount of \$362,220,000, and other fees and costs

AGGREGATE ANNUAL DEBT SERVICE REQUIREMENTS

The following schedule sets forth, for each 12-month period of the years shown, the amounts required to be paid by the Authority for the Debt Service for the Outstanding Senior Bonds, the Outstanding Junior Indebtedness Obligations, the debt service on the Series 2019B Junior Indebtedness Obligations, the aggregate Junior Indebtedness Obligations Debt Service after issuance of the Series 2019B Junior Indebtedness Obligations, and the aggregate Senior Bond and Junior Indebtedness Obligations Debt Service after issuance of the Series 2019B Junior Indebtedness Obligations and the Series M Bonds.

Calendar Year ⁽¹⁾	Junior Indebtedness Obligations					Aggregate Senior Bond and Junior Indebtedness Obligations Debt Service
	Outstanding Senior Bond Debt Service ⁽²⁾	Outstanding Junior Indebtedness Obligations Debt Service ⁽³⁾⁽⁴⁾	Series 2019B Principal	Series 2019B Interest ⁽⁵⁾	Total Junior Indebtedness Obligations Debt Service	
2019	\$ 162,028,580	\$ 20,474,875	-	-	\$ 20,474,875	\$182,503,455
2020	234,279,260	41,199,750	\$ 580,000	\$ 5,598,184	47,377,934	281,657,195
2021	222,940,893	41,192,250	1,090,000	5,091,300	47,373,550	270,314,443
2022	245,554,693	41,182,250	1,140,000	21,588,249	63,910,499	309,465,191
2023	233,966,593	41,172,250	1,200,000	66,351,600	108,723,850	342,690,443
2024	238,739,918	42,912,250	1,260,000	66,291,600	110,463,850	349,203,768
2025	247,538,146	44,812,250	1,325,000	66,228,600	112,365,850	359,903,996
2026	248,292,351	46,612,250	1,390,000	66,162,350	114,164,600	362,456,951
2027	249,895,601	48,312,250	1,460,000	66,092,850	115,865,100	365,760,701
2028	216,150,651	49,912,250	36,765,000	66,019,850	152,697,100	368,847,751
2029	216,159,764	51,412,250	39,605,000	64,181,600	155,198,850	371,358,614
2030	260,574,964	52,812,250	1,690,000	62,201,350	116,703,600	377,278,564
2031	262,705,845	54,112,250	4,245,000	62,116,850	120,474,100	383,179,945
2032	175,893,333	54,642,250	4,355,000	61,904,600	120,901,850	296,795,183
2033	177,855,828	54,640,750	4,465,000	61,686,850	120,792,600	298,648,428
2034	180,558,803	54,641,000	2,710,000	61,463,600	118,814,600	299,373,403
2035	131,838,688	54,640,750	57,365,000	61,328,100	173,333,850	305,172,538
2036	131,858,994	54,642,750	62,240,000	58,459,850	175,342,600	307,201,594
2037	95,644,006	54,645,150	66,410,000	55,970,250	177,025,400	272,669,406
2038	95,656,206	54,643,750	69,780,000	53,313,850	177,737,600	273,393,806
2039	95,665,569	54,644,500	72,270,000	50,522,650	177,437,150	273,102,719
2040	95,676,950	54,643,250	75,855,000	46,891,550	177,389,800	273,066,750
2041	95,685,094	54,642,250	80,205,000	43,828,350	178,675,600	274,360,694
2042	23,074,994	54,643,500	83,395,000	40,594,050	178,632,550	201,707,544
2043	23,075,044	54,643,750	86,800,000	37,224,250	178,668,000	201,743,044
2044	-	54,644,750	90,285,000	33,745,750	178,675,500	178,675,500
2045	-	54,643,000	93,505,000	30,400,350	178,548,350	178,548,350
2046	-	54,645,000	96,665,000	27,343,200	178,653,200	178,653,200
2047	-	54,641,750	100,270,000	23,444,300	178,356,050	178,356,050
2048	-	54,644,500	104,965,000	19,386,200	178,995,700	178,995,700
2049	-	54,644,000	109,045,000	15,152,100	178,841,100	178,841,100
2050	-	54,641,250	109,835,000	10,884,850	175,361,100	175,361,100
2051	-	54,642,000	113,465,000	7,042,300	175,149,300	175,149,300
2052	-	54,640,475	117,610,000	3,074,250	175,324,725	175,324,725
2053	-	62,210,263	-	-	62,210,263	62,210,263
2054	-	62,213,425	-	-	62,213,425	62,213,425
2055	-	62,210,613	-	-	62,210,613	62,210,613
Total	\$4,361,310,764	\$1,910,254,050	\$1,693,245,000	\$1,421,585,633	\$5,025,084,683	\$9,386,395,447

(1) Includes principal and interest due January 1 of the following calendar year.

(2) Does not include debt service on Senior Bonds to be refunded by the Series M Bonds and includes debt service on the Series M Bonds.

(3) Does not include debt service on Junior Indebtedness Obligations to be refunded by the Series 2019B Junior Indebtedness Obligations.

(4) Does not include debt service on the 2019A Notes.

(5) Net of capitalized interest applied in 2020, 2021 and 2022.

Note: Totals may not add due to rounding.

DESCRIPTION OF THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS

General

The Series 2019B Junior Indebtedness Obligations will be dated their date of delivery, will bear interest at the rate per annum and will mature, subject to optional redemption as described below, on the date and in the principal amount set forth on the inside cover page of this Official Statement. Interest on the Series 2019B Junior Indebtedness Obligations will be payable semiannually on January 1 and July 1 of each year, commencing on July 1, 2020. The Series 2019B Junior Indebtedness Obligations are issuable only as fully registered bonds without coupons, in denominations of \$5,000 or any integral multiple thereof.

Book-Entry Only System

The Series 2019B Junior Indebtedness Obligations will be issued as fully registered bonds and, when issued, will be registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York (“DTC”). The Series 2019B Junior Indebtedness Obligations will be held in book-entry only form. Principal of and premium, if any, and interest on the Series 2019B Junior Indebtedness Obligations will be payable through The Bank of New York Mellon, as paying agent (the “Paying Agent”). The Bank of New York Mellon is also serving as trustee (the “Trustee”) under the Junior Indebtedness Resolution and the Senior Resolution. Purchases from DTC of beneficial interests in the Series 2019B Junior Indebtedness Obligations will be made in book-entry only form (without certificates) in the principal amount of \$5,000 or any integral multiple of \$5,000 in excess thereof. For so long as Cede & Co., as nominee of DTC, is the registered owner of the Series 2019B Junior Indebtedness Obligations, payments of the principal of, premium, if any, and interest on the Series 2019B Junior Indebtedness Obligations will be made directly to DTC. Disbursement of such payment to the DTC Participants is the responsibility of DTC and disbursements of such payments to the Beneficial Owners is the responsibility of the DTC Participants and the Indirect Participants, each such term as hereinafter defined. SO LONG AS CEDE & CO. IS THE REGISTERED OWNER OF THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS, AS NOMINEE FOR DTC, REFERENCES HEREIN TO HOLDERS OR OWNERS OF THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS (OTHER THAN UNDER THE CAPTION “TAX MATTERS” AND “CONTINUING DISCLOSURE UNDER RULE 15c2-12” HEREIN) SHALL MEAN CEDE & CO. AND SHALL NOT MEAN THE BENEFICIAL OWNERS OF THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS.

See **Appendix E** — “BOOK-ENTRY ONLY SYSTEM”.

Redemption Provisions

The Series 2019B Junior Indebtedness Obligations are subject to optional and mandatory redemption as described below. In addition, pursuant to the Act, the State may, upon furnishing sufficient funds therefore, require the Authority to redeem, prior to maturity, as a whole, any issue of bonds (which may include the Series 2019B Junior Indebtedness Obligations) on any interest payment date not less than fifteen years after the date of the bonds of such issue at 104% of principal plus accrued interest or at such lower redemption price as may be provided in the bonds in the case of the redemption thereof as a whole on the redemption date. See **Appendix C** — “Summary of Certain Provisions of Junior Indebtedness Resolution and the Senior Resolution — Redemption of Bonds”.

Optional Redemption. The Series 2019B Junior Indebtedness Obligations maturing on or before January 1, 2030 are not subject to optional redemption prior to maturity. The Series 2019B Junior Indebtedness Obligations maturing on or after January 1, 2031 are subject to redemption prior to maturity at any time on or after January 1, 2030, at the option of the Authority, as a whole or in part in the

principal amounts and from the maturities selected by the Authority, at par, plus accrued interest to the redemption date.

Mandatory Redemption. The Series 2019B Junior Indebtedness Obligations maturing on January 1, 2041 (the “2041 Term Bond”), on January 1, 2045 (respectively, the “Uninsured 2045 Term Bond” and the “Insured 2045 Term Bond”), on January 1, 2046 (the “2046 Term Bond”) on January 1, 2050 (respectively, the “Uninsured 2050 Term Bond” and the “Insured 2050 Term Bond”) and on January 1, 2053 (respectively, the “3.00% Uninsured 2053 Term Bond”, the “3.00% Insured 2053 Term Bond”, the “4.00% Uninsured 2053 Term Bond” and the “4.00% Insured 2053 Term Bond”) are also subject to redemption, in part, on January 1 and July 1 of the years and in the respective principal amounts set forth below, at 100% of the principal amount thereof, plus accrued interest to the date of redemption, from mandatory Sinking Fund Installments which are required to be paid in amounts sufficient to redeem on January 1 and July 1, as indicated, of the following years the principal amount of Series 2019B Junior Indebtedness Obligations specified for each of the years shown below:

2041 Term Bond

<u>Date</u>	<u>Sinking Fund Installments</u>
Jul. 1, 2040	\$37,015,000
Jan. 1, 2041	38,840,000 [†]

Uninsured 2045 Term Bond

<u>Date</u>	<u>Sinking Fund Installments</u>
Jul. 1, 2041	\$29,900,000
Jan. 1, 2042	32,455,000
Jul. 1, 2042	30,905,000
Jan. 1, 2043	34,060,000
Jul. 1, 2043	32,295,000
Jan. 1, 2044	35,460,000
Jul. 1, 2044	33,590,000
Jan. 1, 2045	37,020,000 [†]

Insured 2045 Term Bond

<u>Date</u>	<u>Sinking Fund Installments</u>
Jul. 1, 2041	\$8,565,000
Jan. 1, 2042	9,285,000
Jul. 1, 2042	8,865,000
Jan. 1, 2043	9,565,000
Jul. 1, 2043	9,175,000
Jan. 1, 2044	9,870,000
Jul. 1, 2044	4,455,000
Jan. 1, 2045	5,220,000 [†]

2046 Term Bond

<u>Year</u>	<u>Sinking Fund Installments</u>
Jul. 1, 2044	\$ 5,000,000
Jan. 1, 2045	5,000,000
Jul. 1, 2045	44,660,000
Jan. 1, 2046	41,845,000 [†]

[†] Maturity.

Uninsured 2050 Term Bond

<u>Date</u>	<u>Sinking Fund Installments</u>
Jul. 1, 2046	\$37,110,000
Jan. 1, 2047	40,740,000
Jul. 1, 2047	38,415,000
Jan. 1, 2048	42,335,000
Jul. 1, 2048	40,315,000
Jan. 1, 2049	44,210,000
Jul. 1, 2049	41,745,000
Jan. 1, 2050	46,075,000 [†]

Insured 2050 Term Bond

<u>Date</u>	<u>Sinking Fund Installments</u>
Jul. 1, 2046	\$ 8,985,000
Jan. 1, 2047	9,830,000
Jul. 1, 2047	9,295,000
Jan. 1, 2048	10,225,000
Jul. 1, 2048	9,760,000
Jan. 1, 2049	10,680,000
Jul. 1, 2049	10,105,000
Jan. 1, 2050	11,120,000 [†]

Uninsured 3.00% 2053 Term Bond

<u>Date</u>	<u>Sinking Fund Installments</u>
Jul. 1, 2050	\$14,915,000
Jan. 1, 2051	15,180,000
Jul. 1, 2051	15,385,000
Jan. 1, 2052	15,560,000
Jul. 1, 2052	15,795,000
Jan. 1, 2053	16,125,000 [†]

Insured 3.00% 2053 Term Bond

<u>Date</u>	<u>Sinking Fund Installments</u>
Jul. 1, 2050	\$14,115,000
Jan. 1, 2051	14,360,000
Jul. 1, 2051	14,555,000
Jan. 1, 2052	14,725,000
Jul. 1, 2052	14,945,000
Jan. 1, 2053	15,250,000 [†]

Uninsured 4.00% 2053 Term Bond

<u>Date</u>	<u>Sinking Fund Installments</u>
Jul. 1, 2050	\$17,325,000
Jan. 1, 2051	17,750,000
Jul. 1, 2051	18,135,000
Jan. 1, 2052	18,460,000
Jul. 1, 2052	18,900,000
Jan. 1, 2053	19,430,000 [†]

Insured 4.00% 2053 Term Bond

<u>Date</u>	<u>Sinking Fund Installments</u>
Jul. 1, 2050	\$8,025,000
Jan. 1, 2051	8,165,000
Jul. 1, 2051	8,275,000
Jan. 1, 2052	8,370,000
Jul. 1, 2052	8,495,000
Jan. 1, 2053	8,670,000 [†]

[†] Maturity.

In satisfaction, in whole or in part, of any Sinking Fund Installment, the Authority may deliver to the Trustee at least 45 days prior to the date of such Sinking Fund Installment, for cancellation, Junior Indebtedness Obligations acquired by purchase or redemption, except Junior Indebtedness Obligations acquired by purchase or redemption pursuant to certain provisions of the Junior Indebtedness Resolution, of the same series, maturity and interest rate entitled to such Sinking Fund Installment. All Junior Indebtedness Obligations so delivered to the Trustee in satisfaction of a Sinking Fund Installment shall reduce the amount thereof by the amount of the aggregate principal amount of such Junior Indebtedness Obligations. Upon any purchase or redemption of Junior Indebtedness Obligations for which Sinking Fund Installments have been established with moneys in the Series 2019B Subaccount of the Junior Indebtedness Debt Service Payment Account of the Junior Indebtedness Fund, there shall be credited toward each such Sinking Fund Installment thereafter to become due (other than that next due), unless

otherwise directed by the Authority, an amount bearing the same ratio to such Sinking Fund Installment as the total principal amount of such Junior Indebtedness Obligations so purchased or redeemed bears to the total amount of all remaining Sinking Fund Installments for the Series 2019B Junior Indebtedness Obligations of the same maturity.

Selection of Junior Indebtedness Obligations to be Redeemed. In the case of redemption of less than all of the Series 2019B Junior Indebtedness Obligations, the Authority will select the maturities of the Series 2019B Junior Indebtedness Obligations to be redeemed. If less than all of the Series 2019B Junior Indebtedness Obligations of a maturity are to be redeemed, the Trustee shall select the Outstanding Series 2019B Junior Indebtedness Obligations of such maturity to be redeemed, using such method of selection as it shall consider proper in its discretion.

Notice of Redemption. The Trustee shall give notice of the redemption of the Series 2019B Junior Indebtedness Obligations in the name of the Authority. Such notice shall be given by first-class mail, postage prepaid, not less than thirty (30) days nor more than forty-five (45) days prior to the redemption date to the registered owners of any Series 2019B Junior Indebtedness Obligations which are to be redeemed, at their last known addresses appearing on the registration books of the Authority. The failure of any owner of a Series 2019B Junior Indebtedness Obligation to be redeemed to receive notice of redemption thereof will not affect the validity of the proceedings for the redemption of such Series 2019B Junior Indebtedness Obligations.

If at the time of the giving of any notice of optional redemption there shall not be on deposit with the Trustee moneys sufficient to redeem all of the Series 2019B Junior Indebtedness Obligations being called for redemption, the notice of optional redemption of the Series 2019B Junior Indebtedness Obligations shall state that such redemption is conditioned upon receipt by the Trustee, on or prior to the Redemption Date, of moneys sufficient to pay the Redemption Price of the Series 2019B Junior Indebtedness Obligations to be redeemed, and that if such moneys are not received, such notice shall be of no force or effect and such Series 2019B Junior Indebtedness Obligations shall not be required to be redeemed. If the amount on deposit with the Trustee is insufficient to pay the redemption price and accrued interest on the Series 2019B Junior Indebtedness Obligations called for redemption on such date, the Trustee shall redeem and pay on such date an amount of such Series 2019B Junior Indebtedness Obligations for which such moneys on deposit with it are sufficient, selecting the Series 2019B Junior Indebtedness Obligations to be redeemed by lot.

If on the redemption date moneys for the redemption of the Series 2019B Junior Indebtedness Obligations to be redeemed, together with interest thereon to the redemption date, are held by the Trustee so as to be available for payment of the Redemption Price, and if notice of redemption shall have been given, then interest on the Series 2019B Junior Indebtedness Obligations to be redeemed will cease to accrue from and after the Redemption Date and such Series 2019B Junior Indebtedness Obligations will no longer be considered to be Outstanding under the Junior Indebtedness Resolution.

SOURCES OF PAYMENT AND SECURITY FOR THE JUNIOR INDEBTEDNESS OBLIGATIONS

This heading describes the sources of payment and security for all Junior Indebtedness Obligations, including the Series 2019B Junior Indebtedness Obligations.

Authorized Projects

In order to finance the projects included within the Authority's responsibilities as broadened by 1992 legislation, the Authority adopted the Senior Resolution which established two project categories: "Facilities" and "Other Authority Projects", as defined below. Only projects which qualify in one of

those two categories may be funded from proceeds of Senior Bonds or Junior Indebtedness Obligations. Any project of the Authority may be funded from surplus Revenues released from time to time from the General Reserve Fund.

The Senior Resolution uses the two categories to determine which revenues are pledged to the Senior Bonds, and pursuant to the Junior Indebtedness Resolution to the Junior Indebtedness Obligations, the priority of application of Revenues, and the amount of Additional Bonds or Additional Junior Indebtedness Obligations that may be issued, all as discussed below.

The first category, “Facilities”, includes all of the Thruway System as it existed in 1992 (including the Tappan Zee Bridge) when the Senior Resolution was adopted (the “Original Project”), together with “Additional Projects” acquired or constructed thereafter, such as additional interchanges, extensions, toll roads, tunnels or bridges and other transportation or transportation-related projects. To qualify as an “Additional Project”, a project must meet certain financial requirements and be under the Authority’s jurisdiction, and the Authority must have the exclusive power to set tolls, rates, fees and charges on it. The issuance of Senior Bonds or Junior Indebtedness Obligations for Facilities is limited by the Additional Bonds test, with certain limited exceptions. Furthermore, prior to the completion of the construction and equipping of the New NY Bridge Project, (A) Junior Indebtedness Obligations may be issued to pay for Project Costs solely related to the New NY Bridge Project, and (B) Junior Indebtedness Refunding Obligations may be issued only to refund Outstanding Junior Indebtedness Obligations.

The second category, “Other Authority Projects”, includes six specifically designated projects: the Inner Harbor project and the Intermodal Transportation Center in Syracuse, the Horizons Waterfront project in Buffalo, the Thruway Exit 26 Bridge and the Tappan Zee Ferry Service and Stewart International Airport Access projects. Pursuant to a Supplemental Resolution, the Authority may designate a transportation or transportation-related facility or property as an Other Authority Project, if it is within the jurisdiction and control of the Authority. The issuance of Senior Bonds or Junior Indebtedness Obligations for Other Authority Projects is limited by the Additional Bonds test, and a provision which restricts total debt service in any year on all debt issued for Other Authority Projects to a level equal to no more than 20% of certain historical Net Revenues.

Revenues

Under the Senior Resolution, the Authority has pledged “Revenues” to the payment of Senior Bonds and pursuant to the Junior Indebtedness Resolution, such Revenues are pledged on a subordinate basis to the payment of Junior Indebtedness Obligations. “Revenues” mean (i) all tolls, revenues, fees, charges, rent and other income and receipts derived from the operation, jurisdiction and control of the Facilities (*i.e.*, the Original Project and Additional Projects), (ii) the proceeds of any use and occupancy insurance relating to the Facilities and of any other insurance which insures against loss of Revenues and (iii) investment income received on any moneys or securities held under the Senior Resolution other than investment income on amounts held in the Rebate Fund or Junior Indebtedness Fund and certain other investment income which is not transferred to the Revenue Fund pursuant to the Senior Resolution. Revenues do not include the (i) proceeds of any gifts, grants or other income to the Authority from the government of the United States or the State, any public instrumentality of the State or any other individual or entity to the extent the Authority is precluded by law, the grant or other operative contract or instrument from applying such amounts to Operating Expenses and debt service, or (ii) revenues of Other Authority Projects. Provision for operating expenses or capital needs associated with Other Authority Projects or activities to be financed from amounts released from time to time from the General Reserve Fund may not be made under the Senior Resolution or the Junior Indebtedness Resolution unless provision has first been made for, among other things, Operating Expenses of Facilities, accrual of debt service on the Senior Bonds and accrual of debt service on Junior Indebtedness Obligations, and required

Reserve Maintenance Fund deposits for Facilities. See “— Senior Resolution and Junior Indebtedness Resolution Flow of Funds”.

Pledge under the Junior Indebtedness Resolution

The Junior Indebtedness Obligations are special obligations of the Authority. Under the Junior Indebtedness Resolution, the payment of principal, premium, if any, and redemption price of, interest on, and Sinking Fund Installments for the Junior Indebtedness Obligations is secured by a pledge of the following: (i) the Revenues, on a subordinated basis to the pledge granted to the holders of the Senior Bonds, (ii) the proceeds of the sale of the Junior Indebtedness Obligations, and (iii) all accounts established under the Junior Indebtedness Resolution referred to below under “Junior Indebtedness Resolution Flow of Funds” and in **Appendix C** — “Summary of Certain Provisions of the Junior Indebtedness Resolution and the Senior Resolution — Funds and Revenues”, including the investments thereof, except for the Rebate Fund and, (iv) with respect to certain Series of Junior Indebtedness Obligations and Junior Indebtedness Refunding Obligations, the Junior Indebtedness Debt Service Reserve Account to the extent that a separate subaccount of the Junior Indebtedness Debt Service Reserve Account has been established and funded to additionally secure such Series of Junior Indebtedness Obligations. See “Junior Indebtedness Debt Service Reserve Account” below.

The pledge created by the Junior Indebtedness Resolution is subordinate to the pledge of Revenues and other funds established under the Senior Resolution for the benefit of the holders of Senior Bonds and is further subject to the provisions of the Junior Indebtedness Resolution permitting the application of the Revenues, the proceeds of the sale of the Junior Indebtedness Obligations and the accounts established under the Junior Indebtedness Resolution for the purposes and upon the terms and conditions set forth in the Junior Indebtedness Resolution. Each of the Senior Resolution and Junior Indebtedness Resolution also provides that monthly Operating Expenses of Facilities will be funded from Revenues prior to the provision for Accrued Debt Service on Senior Bonds and Accrued Debt Service on the Junior Indebtedness Obligations. The Senior Resolution also provides that the pledge and lien created by the Senior Resolution shall be superior in all respects to any pledge or lien now or hereafter created for Junior Indebtedness Obligations or Subordinated Indebtedness.

All Junior Indebtedness Obligations, including the Series 2019B Junior Indebtedness Obligations, are secured as to the payment of principal, premium, if any, and interest thereon by a pledge of the Revenues (as such term is defined in the Junior Indebtedness Resolution) and certain accounts established under the Junior Indebtedness Resolution. The pledge created by the Junior Indebtedness Resolution is subordinate to the pledge of Revenues and other funds established under the Senior Resolution for the benefit of the holders of Senior Bonds issued and to be issued and is further subject to the provisions of the Junior Indebtedness Resolution permitting the application of the Revenues, the proceeds of the sale of the Junior Indebtedness Obligations and the accounts established under the Junior Indebtedness Resolution for the purposes and upon the terms and conditions set forth in the Junior Indebtedness Resolution. Each of the Senior Resolution and Junior Indebtedness Resolution also provides that monthly Operating Expenses of Facilities will be funded from Revenues prior to the provision for Accrued Debt Service on Senior Bonds and Accrued Debt Service on the Junior Indebtedness Obligations. The Senior Resolution also provides that the pledge and lien created by the Senior Resolution shall be superior in all respects to any pledge or lien now or hereafter created for Junior Indebtedness Obligations or Subordinated Indebtedness.

The Act provides that notes and bonds (including the Series 2019B Junior Indebtedness Obligations) of the Authority shall not be a debt of the State nor shall the State be liable thereon, nor shall such notes or bonds be payable out of any funds other than those of the Authority. The Junior Indebtedness Resolution specifically provides that the Junior Indebtedness Obligations shall not be a debt of the State nor shall the State be liable thereon.

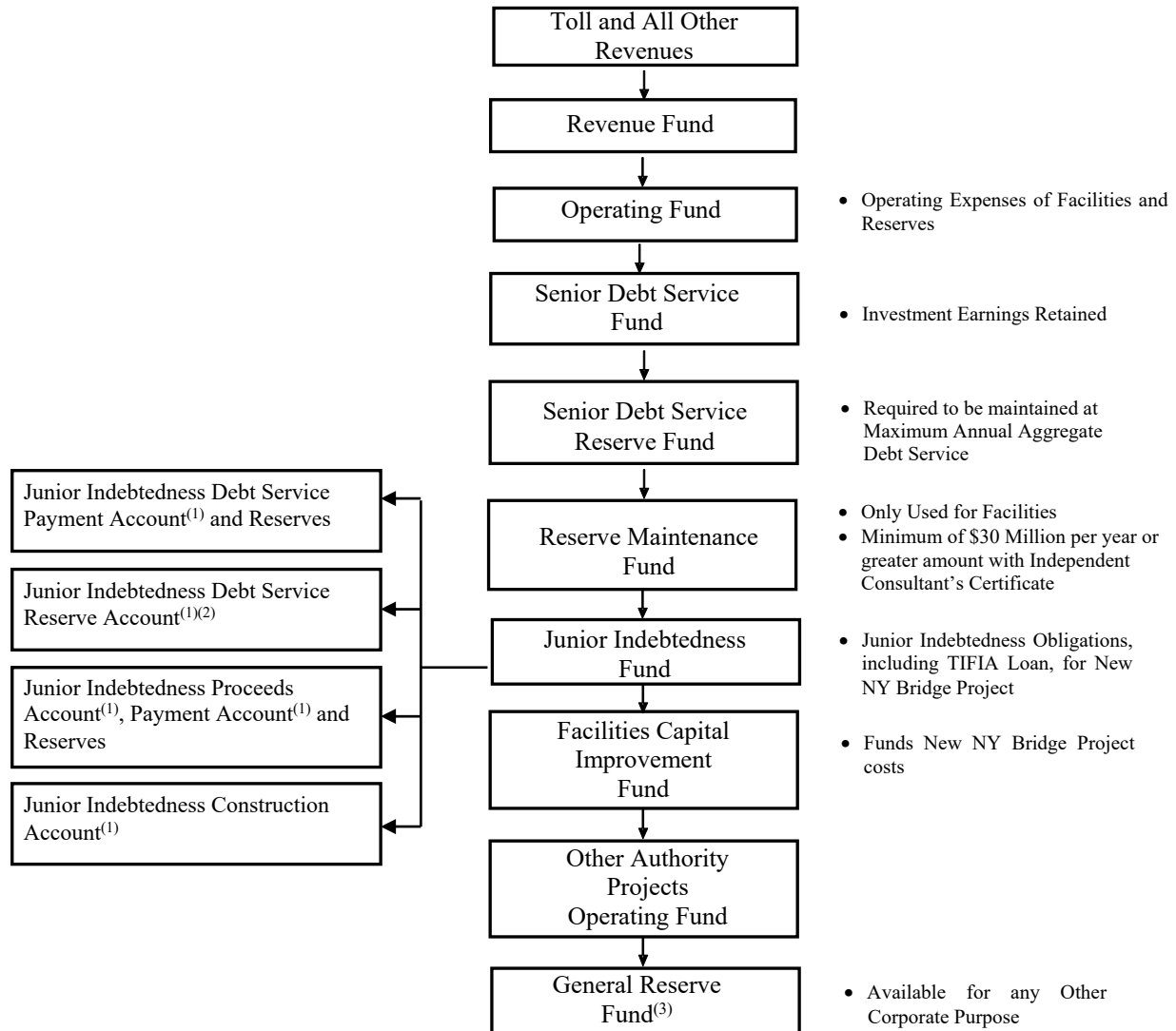
Junior Indebtedness Resolution Flow of Funds

On or before the last Business Day of each month, the Authority shall, out of the moneys remaining in the Revenue Fund after paying (i) into the Operating Fund (such term and all other undefined terms in this paragraph having the meaning ascribed to each of them in the Senior Resolution) all amounts required for reasonable and necessary Operating Expenses and reserves for Operating Expenses and working capital, (ii) to the Trustee for deposit in the Senior Debt Service Fund, an amount at least equal to Accrued Debt Service for all Senior Bonds Outstanding as of the last day of such month, after taking into account any other amounts available for payment of Debt Service on Senior Bonds, including any amounts representing investment earnings retained in the Senior Debt Service Fund or transferred from the Senior Debt Service Reserve Fund (as defined in the Senior Resolution); (iii) to the Trustee for deposit in the Senior Debt Service Reserve Fund, if and to the extent required so that the balance in said Fund shall equal the Senior Debt Service Reserve Requirement for all Senior Bonds secured by such Fund and Outstanding on said date, and (iv) to the Reserve Maintenance Fund (as defined in the Senior Resolution), amounts such that (a) on or before the first day of the seventh month of the Authority's fiscal year there shall have been deposited an amount equal to or greater than one-half of the amount, and (b) on or before the last day of the Authority's fiscal year there shall have been deposited an amount equal to or greater than the full amount, in each case provided in the Authority Budget for the applicable fiscal year for Reserve Maintenance Payments, plus accrued deficits, if any, with respect to prior required allocations to such Fund; all in accordance with the provisions of the Senior Resolution, make the following payments or deposits to the applicable accounts or subaccounts of the Junior Indebtedness Fund so that the balance in said Fund shall equal the amounts required to be deposited therein by the Junior Indebtedness Resolution on said date in accordance with the Junior Indebtedness Net Revenue Requirement:

(1) To the Trustee for deposit in the Junior Indebtedness Debt Service Payment Account for Junior Indebtedness Debt Service (a) one-sixth of the interest coming due on the next Interest Payment Date, (b) one-sixth of the principal or Sinking Fund Installment coming due on the next Principal Payment Date for principal that is payable semi-annually and (c) one twelfth of the principal or Sinking Fund Installment coming due on the next Principal Payment Date for principal that is payable annually, after taking into account any other amounts available for payment of debt service on Outstanding Junior Indebtedness Obligations, including any amounts representing investment earnings retained in the Junior Indebtedness Debt Service Payment Account or transferred from the Junior Indebtedness Debt Service Reserve Account; provided, however, that such deposits are only required to be made if the next payment of Junior Indebtedness Debt Service is not more than 12 months in the future for Junior Indebtedness Debt Service payments that are made annually and is not more than 6 months in the future for Junior Indebtedness Debt Service payments that are made semi-annually; and

(2) To the Trustee for deposit in any applicable subaccount of the Junior Indebtedness Debt Service Reserve Account, if and to the extent required, one twenty-fourth of any amount previously withdrawn by the Trustee from any such subaccount of the Junior Indebtedness Debt Service Reserve Account; *provided, however*, that so long as the total amount held in the Junior Indebtedness Fund or in other funds or accounts established to secure Junior Indebtedness Obligations shall be sufficient to fully pay all Junior Indebtedness Debt Service then due under the Junior Indebtedness Resolution (including principal or applicable redemption price thereof and interest thereon) in accordance with their terms, no deposits shall be required to be made into such Fund.

Senior Resolution and Junior Indebtedness Resolution Flow of Funds



(1) Established pursuant to the Junior Indebtedness Resolution.

(2) To the extent established as security for a Series of Junior Indebtedness Obligations. A Series 2019B Subaccount of the Junior Indebtedness Debt Service Reserve Account is being established and funded with proceeds of the Series 2019B Junior Indebtedness Obligations, solely for the purpose of additionally securing the Series 2019B Junior Indebtedness Obligations.

(3) As of April 1, 2016, the Authority reimburses the State for State Police Troop T costs for enforcement activities on the Thruway System, payable solely from the General Reserve Fund.

Junior Indebtedness Debt Service Reserve Account

Junior Indebtedness Obligations of a particular Series may be additionally secured by the establishment and funding of a separate subaccount of the Junior Indebtedness Debt Service Reserve Account established pursuant to the Junior Indebtedness Resolution so designated for such purpose in the applicable Supplemental Resolution authorizing a Series of Junior Indebtedness Obligations or the related Certificate of Determination. Except as otherwise provided in such applicable Supplemental Resolution or related Certificate of Determination, each subaccount of the Junior Indebtedness Debt Service Reserve Account shall separately and solely secure the Series of Junior Indebtedness Obligations for which it was established. Funding of the applicable subaccount of the Junior Indebtedness Debt Service Reserve Account shall be from the proceeds of such Series or from available moneys of the Authority so designated and in an amount equal to the Junior Indebtedness Debt Service Reserve Account Requirement established for such series in the applicable Supplemental Resolution or Certificate of Determination. Moneys held for the credit of the Junior Indebtedness Debt Service Reserve Account may be invested in Investment Obligations; provided, however, that any investment of such moneys shall have a maturity of no greater than five years.

A Series 2019B Subaccount of the Junior Indebtedness Debt Service Reserve Account is being established solely for the purpose of additionally securing the Series 2019B Junior Indebtedness Obligations in an amount equal to one-half of the maximum annual debt service in the then current and all future Bond Years on the Series 2019B Junior Indebtedness Obligations. The initial Junior Indebtedness Debt Service Reserve Account Requirement for the Series 2019B Junior Indebtedness Obligations is \$62,175,600.

As permitted by the Junior Indebtedness Resolution, the Authority expects to deposit in the Series 2019B Subaccount of the Junior Indebtedness Debt Service Reserve Account, to meet the Junior Indebtedness Debt Service Reserve Account Requirement, a Reserve Credit Facility in the form of a Debt Service Reserve Insurance Policy issued by Assured Guaranty Municipal Corp. (“AGM”) in the maximum amount of \$62,175,600 (the “Series 2019B Reserve Account Policy”). The Reserve Fund Policy expires on January 1, 2053, subject to early termination. The Series 2019B Reserve Account Policy permits the Trustee, in the event that scheduled debt service is due on the Series 2019B Junior Indebtedness Obligations and moneys to the credit of the Junior Indebtedness Fund are insufficient, to draw amounts up to the maximum amount of the Series 2019B Reserve Account Policy after all the cash and investments of that cash to the credit of the Series 2019B Subaccount have first been withdrawn. The Junior Indebtedness Resolution and the Series 2019B Reserve Account Policy permit the substitution at any time and from time to time of other Reserve Credit Facility meeting certain requirements for cash to the credit of the Series 2019B Subaccount. The Junior Indebtedness Resolution does not require any replacement of the Series 2019B Reserve Account Policy in the event of a rating downgrade of AGM.

In the event that on any Interest Payment Date or Principal Payment Date moneys in the Junior Indebtedness Debt Service Payment Account shall be insufficient to pay the interest, principal and Sinking Fund Installments then due on all Junior Indebtedness Obligations, after utilizing all unencumbered moneys in the General Reserve Fund, the Other Authority Projects Operating Fund and the Facilities Capital Improvement Fund and on deposit in the Junior Indebtedness Debt Service Payment Account, moneys held for the credit of any subaccount of the Junior Indebtedness Debt Service Reserve Account shall be withdrawn by the Trustee and applied solely to the payment of interest, principal and Sinking Fund Installments then due and unpaid on the Series of Junior Indebtedness Obligations for which such subaccount additionally secures.

Repayment of draws on the Series 2019B Reserve Account Policy and payment of expenses and the interest accrued thereon (collectively, “Policy Costs”) is required to commence in the first month following each draw, and each such monthly payment shall be in an amount at least equal to 1/12th of the Policy Costs. Amounts in respect of Policy Costs paid to the Insurer shall be credited first to interest due,

then to the expenses due and then to principal due. As and to the extent that payments are made to the AGM on account of principal due, the coverage under the Series 2019B Reserve Account Policy will be increased by a like amount, subject to the terms of the Series 2019B Reserve Account Policy.

AGM Insurance of Certain Maturities of Series 2019B Junior Indebtedness Obligations

Concurrently with the issuance of the Series 2019B Junior Indebtedness Obligations, AGM will issue its Municipal Bond Insurance Policy for the Series 2019B Junior Indebtedness Obligations maturing on January 1, 2040 (\$72,270,000), January 1, 2045 (\$65,000,000), January 1, 2046 (\$7,000,000), January 1, 2050 (\$80,000,000), January 1, 2053 bearing interest at a rate of 3.00% per annum (\$87,950,000), and January 1, 2053 bearing interest at a rate of 4.00% per annum (\$50,000,000) (collectively, the “Insured JIOs”) (the “Policy”). The Policy guarantees the scheduled payment of principal of and interest on the Insured JIOs when due as set forth in the form of the Policy included as **Appendix G** to this Official Statement.

The Policy is not covered by any insurance security or guaranty fund established under New York, California, Connecticut or Florida insurance law.

Assured Guaranty Municipal Corp.

AGM is a New York domiciled financial guaranty insurance company and an indirect subsidiary of Assured Guaranty Ltd. (“AGL”), a Bermuda-based holding company whose shares are publicly traded and are listed on the New York Stock Exchange under the symbol “AGO”. AGL, through its operating subsidiaries, provides credit enhancement products to the U.S. and global public finance, infrastructure and structured finance markets. Neither AGL nor any of its shareholders or affiliates, other than AGM, is obligated to pay any debts of AGM or any claims under any insurance policy issued by AGM.

AGM’s financial strength is rated “AA” (stable outlook) by S&P Global Ratings, a business unit of Standard & Poor’s Financial Services LLC (“S&P”), “AA+” (stable outlook) by Kroll Bond Rating Agency, Inc. (“KBRA”) and “A2” (stable outlook) by Moody’s Investors Service, Inc. (“Moody’s”). Each rating of AGM should be evaluated independently. An explanation of the significance of the above ratings may be obtained from the applicable rating agency. The above ratings are not recommendations to buy, sell or hold any security, and such ratings are subject to revision or withdrawal at any time by the rating agencies, including withdrawal initiated at the request of AGM in its sole discretion. In addition, the rating agencies may at any time change AGM’s long-term rating outlooks or place such ratings on a watch list for possible downgrade in the near term. Any downward revision or withdrawal of any of the above ratings, the assignment of a negative outlook to such ratings or the placement of such ratings on a negative watch list may have an adverse effect on the market price of any security guaranteed by AGM. AGM only guarantees scheduled principal and scheduled interest payments payable by the issuer of bonds and obligations insured by AGM on the date(s) when such amounts were initially scheduled to become due and payable (subject to and in accordance with the terms of the relevant insurance policy), and does not guarantee the market price or liquidity of the securities it insures, nor does it guarantee that the ratings on such securities will not be revised or withdrawn.

Current Financial Strength Ratings

On August 13, 2019, Moody’s announced it had affirmed AGM’s insurance financial strength rating of “A2” (stable outlook). AGM can give no assurance as to any further ratings action that Moody’s may take.

On June 27, 2019, S&P announced it had affirmed AGM’s financial strength rating of “AA” (stable outlook). AGM can give no assurance as to any further ratings action that S&P may take.

On December 21, 2018, KBRA announced it had affirmed AGM's insurance financial strength rating of "AA+" (stable outlook). AGM can give no assurance as to any further ratings action that KBRA may take.

For more information regarding AGM's financial strength ratings and the risks relating thereto, see AGL's Annual Report on Form 10-K for the fiscal year ended December 31, 2018.

Capitalization of AGM

At June 30, 2019:

- The policyholders' surplus of AGM was approximately \$2,530 million.
- The contingency reserves of AGM and its indirect subsidiary Municipal Assurance Corp. ("MAC") (as described below) were approximately \$1,082 million. Such amount includes 100% of AGM's contingency reserve and 60.7% of MAC's contingency reserve.
- The net unearned premium reserves and net deferred ceding commission income of AGM and its subsidiaries (as described below) were approximately \$1,853 million. Such amount includes (i) 100% of the net unearned premium reserve and deferred ceding commission income of AGM, (ii) the net unearned premium reserves and net deferred ceding commissions of AGM's wholly owned subsidiary Assured Guaranty (Europe) plc ("AGE"), and (iii) 60.7% of the net unearned premium reserve of MAC.

The policyholders' surplus of AGM and the contingency reserves, net unearned premium reserves and deferred ceding commission income of AGM and MAC were determined in accordance with statutory accounting principles. The net unearned premium reserves and net deferred ceding commissions of AGE were determined in accordance with accounting principles generally accepted in the United States of America.

Incorporation of Certain Documents by Reference

Portions of the following documents filed by AGL with the Securities and Exchange Commission (the "SEC") that relate to AGM are incorporated by reference into this Official Statement and shall be deemed to be a part hereof:

- (i) the Annual Report on Form 10-K for the fiscal year ended December 31, 2018 (filed by AGL with the SEC on March 1, 2019);
- (ii) the Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2019 (filed by AGL with the SEC on May 10, 2019); and
- (iii) the Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2019 (filed by AGL with the SEC on August 8, 2019).

All consolidated financial statements of AGM and all other information relating to AGM included in, or as exhibits to, documents filed by AGL with the SEC pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, excluding Current Reports or portions thereof "furnished" under Item 2.02 or Item 7.01 of Form 8-K, after the filing of the last document referred to above and before the termination of the offering of the Bonds shall be deemed incorporated by reference into this Official Statement and to be a part hereof from the respective dates of filing such documents. Copies of materials incorporated by reference are available over the internet at the SEC's website at <http://www.sec.gov>, at AGL's website at <http://www.assuredguaranty.com>, or will be provided upon request to Assured Guaranty Municipal Corp.: 1633 Broadway, New York, New York 10019, Attention:

Communications Department (telephone (212) 974-0100). Except for the information referred to above, no information available on or through AGL’s website shall be deemed to be part of or incorporated in this Official Statement.

Miscellaneous Matters

AGM makes no representation regarding the Series 2019B Junior Indebtedness Obligations or the advisability of investing in the Series 2019B Junior Indebtedness Obligations. In addition, AGM has not independently verified, makes no representation regarding, and does not accept any responsibility for the accuracy or completeness of this Official Statement or any information or disclosure contained herein, or omitted herefrom, other than with respect to the accuracy of the information regarding AGM supplied by AGM and presented under this subheading or the prior two subheadings entitled “Junior Indebtedness Debt Service Reserve Account” (last paragraph only) and “AGM Insurance of Certain Maturities of Series 2019B Junior Indebtedness Obligations”.

Additional Junior Indebtedness Obligations, Junior Indebtedness Refunding Obligations and Other Subordinated Indebtedness

Under the Junior Indebtedness Resolution, the Authority may issue Additional Junior Indebtedness Obligations and Junior Indebtedness Refunding Obligations payable from Revenues. Subject to the limitations described below, Additional Junior Indebtedness Obligations may be issued (i) to pay for Project Costs of the Original Project, any Additional Projects and any Other Authority Projects, (ii) refund or refinance any Senior Bonds (including any bond anticipation notes related thereto), Junior Indebtedness Obligations or Subordinated Indebtedness of the Authority, (iii) make a deposit to a subaccount of the Junior Indebtedness Debt Service Reserve Account, if required, (iv) pay Costs of Issuance relating to the issuance or incurrence of Junior Indebtedness Obligations and (v) pay or provide for the payment of Project Costs of improvement, reconstruction or rehabilitation of the New NY Bridge for the purpose of preventing a loss of Net Revenues derived from the New NY Bridge, provided, that, such loss of Net Revenues would be the result of an emergency declared by the State, the federal government or a federal authority or agency and that proceeds of Additional Junior Indebtedness Obligations would not be used for such purpose to the extent that insurance proceeds relating to such occurrence were then available. *Notwithstanding the foregoing, prior to the completion of the construction and equipping of the New NY Bridge Project, (A) Junior Indebtedness Obligations may be issued to pay for Project Costs solely related to the New NY Bridge Project, and (B) Junior Indebtedness Refunding Obligations may be issued only to refund Outstanding Junior Indebtedness Obligations. After the completion of the New NY Bridge Project, and subject to certain limitations, (A) Additional Junior Indebtedness Obligations may be issued, to pay for Project Costs of the Original Project, any Additional Junior Indebtedness Projects and any Other Authority Projects, and (B) Junior Indebtedness Refunding Obligations may be issued to refund Outstanding Senior Bonds, Junior Indebtedness Obligations and Subordinated Indebtedness.*

The Senior Resolution permits the issuance of Senior Bonds, Junior Indebtedness Obligations and Subordinated Indebtedness. **See Appendix C__** – “Summary of Certain Provisions of the Bond Resolution— Additional Bonds” and “— Refunding Bonds”.

Beginning in 2020, additional Senior Bonds are expected to be issued by the Authority from time-to-time to pay a portion of the costs of the Authority’s ongoing capital program for non-New NY Bridge Project components of the Thruway System.

Additional Junior Indebtedness Obligations

(i) Except for (a) Junior Indebtedness Refunding Obligations and (b) Junior Indebtedness Obligations to prevent a loss of Revenues from the New NY Bridge Project, as described below, Junior Indebtedness Obligations of one or more Series authorized and delivered upon original issuance for the

purpose of paying Project Costs for the New NY Bridge Project shall be authenticated and delivered by the Trustee only upon receipt by it (in addition to the other documents and moneys required by the Junior Indebtedness Resolution) of:

1. A certificate of an Authorized Officer setting forth (a) the Net Revenues for any period of 12 consecutive calendar months out of the 18 calendar months next preceding the authentication and delivery of the Junior Indebtedness Obligation to be issued or incurred, provided that if any adjustment of rates shall have been placed in effect during such 12-month period, such Net Revenues shall reflect the Revenues which an Independent Consultant's Certificate estimates in the certificate delivered pursuant to paragraph 3 below would have resulted had such rate adjustment been in effect for the entire 12-month period, and (b) the Junior Indebtedness Net Revenue Requirement for such 12-month period, which certificate shall demonstrate that such Net Revenues equal or exceed such Junior Indebtedness Net Revenue Requirement;
2. A certificate of an Authorized Officer familiar with such matters and an Independent Consultant's Certificate, in each case stating whether, to the best of such party's knowledge, any federal, State or other agency is then projecting or planning the construction, improvement or acquisition of any highway or other facility which, in the opinion of such person or firm, may be materially competitive with any part of the Facilities, and the estimated date of completion of such highway or other facility;
3. An Independent Consultant's Certificate setting forth, for the then current Authority fiscal year and each of the Authority fiscal years in the Test Period (as defined in the Senior Resolution), estimates of Revenues giving effect to (a) the placing in service of any Facility not yet placed in service and on the assumption that any competitive highway or other facility referred to in its certificate delivered pursuant to paragraph 2 above will be completed on the date therein estimated and will thereafter be in operation during the period covered by such estimates, (b) any adjustment of rates which shall have been placed in effect subsequent to the beginning of such Authority fiscal year, as if such toll, fee or charge adjustment had been in effect from the beginning of such Authority fiscal year until the effective date of any subsequent adjustment presumed necessary, and (c) any adjustment of rates which, in the opinion of the Independent Consultant, would be practicable and necessary to comply with the provisions of the toll covenant in the Junior Indebtedness Resolution, as if such adjustment were to be in effect from its effective date to the effective date of any other such adjustment;
4. An Independent Consultant's Certificate setting forth (a) for the years and taking into account the assumptions specified for the Independent Consultant's Certificate pursuant to paragraph 3 above, estimates of the Operating Expenses giving effect to the placing in service of any Facility taken into account in such paragraph 3, (b) the estimated total Project Cost, and (c) the estimated date of placing in service of any Facility taken into account in such paragraph 3;
5. A certificate of an Authorized Officer setting forth (a) the estimated Net Revenues (based on the certificates delivered pursuant to paragraphs 3 and 4 above) for such Authority fiscal year and each of the years in the Test Period giving effect to the placing in service of any Facility not yet placed in service, and (b) the opinion that such estimated Net Revenues for the Authority fiscal year and each of the Authority fiscal years in the Test Period equal or exceed the estimated Junior Indebtedness Net Revenue Requirement (based on the certificate delivered pursuant to paragraph 1 above, assuming the Maximum Interest Rate on any Variable Interest Rate Bonds (as such terms are defined in the Senior Resolution) for each such year and that estimated Net Revenues in the last full

Authority fiscal year of the Test Period equal or exceed Maximum Annual Senior and Junior Indebtedness Debt Service immediately after the authentication and delivery of the Junior Indebtedness Obligations being issued or incurred.

(ii) Any Series of Junior Indebtedness Obligations to be issued or incurred for the purpose of financing or refinancing Other Authority Project Costs shall be issued or incurred only if, in addition to satisfying the conditions of paragraph (i) above, Maximum Annual Senior and Junior Indebtedness Debt Service issued for the purpose of financing or refinancing Other Authority Project Costs (after the issuance of such Series of Additional Bonds) shall be less than 20% of the amount of Net Revenues calculated pursuant to clause (1) of paragraph (i) above; provided that there shall not be counted in the calculation of such Maximum Annual Senior and Junior Indebtedness Debt Service any Senior Bonds or Junior Indebtedness Obligations initially issued to finance or refinance an Other Authority Project (1) if such Senior Bonds and Junior Indebtedness Obligations are no longer Outstanding, (2) if such Other Authority Project has since been designated an “Additional Project” in accordance with the terms of the Senior Resolution and the Junior Indebtedness Resolution, or (3) to the extent that the proceeds of such Senior Bonds and Junior Indebtedness Obligations were used to finance Project Costs rather than Other Authority Project Costs, in accordance with the terms of the Senior Resolution.

Additional Junior Indebtedness Obligations to Prevent a Loss of Revenues from the New NY Bridge Project. The Authority may issue Additional Junior Indebtedness Obligations without satisfying any earnings or coverage test for the purpose of providing for Project Costs of improvement, reconstruction or rehabilitation of the New NY Bridge Project for the purpose of preventing a loss of Net Revenues derived from the New NY Bridge Project where such loss would otherwise result from an emergency declared by the State, the federal government or a federal authority or agency and that proceeds of such Additional Junior Indebtedness Obligations would not be used for such purpose to the extent that insurance proceeds relating to such occurrence were then available.

Junior Indebtedness Refunding Obligations. Under the Junior Indebtedness Resolution, Junior Indebtedness Refunding Obligations are authorized to be issued or incurred to refund or refinance any Senior Bonds (including any bond anticipation notes related thereto), Junior Indebtedness Obligations or Subordinated Indebtedness of the Authority (including any portion of a maturity thereof) (collectively, the “Refunded Indebtedness”) that was originally issued to finance or refinance Project Costs, Additional Project Costs or Other Authority Project Costs. Notwithstanding the foregoing, prior to the completion of the construction and equipping of the New NY Bridge Project, Junior Indebtedness Refunding Obligations may be issued only to refund Outstanding Junior Indebtedness Obligations. After the completion of the New NY Bridge Project, this restriction is eliminated.

The Authority may issue Junior Indebtedness Refunding Obligations in an aggregate principal amount sufficient, together with other moneys available therefor, to accomplish such refunding or refinancing and to make such deposits required by these refunding provisions and of the Supplemental Resolution authorizing such Junior Indebtedness Refunding Obligations. Junior Indebtedness Refunding Obligations issued as bonds or notes of the Authority shall be authenticated by the Trustee either by satisfying the Additional Junior Indebtedness Obligations test set forth above for new money purposes, or upon the receipt by the Trustee of, among other items, a certificate of an Authorized Officer (a) setting forth the Junior Indebtedness Aggregate Debt Service for the then current and each future Authority fiscal year to and including the Authority fiscal year in which the latest maturity of any Junior Indebtedness Obligations of any Series then outstanding matures (i) with respect to all Junior Indebtedness Obligations outstanding immediately prior to the date of authentication and delivery of such Junior Indebtedness Refunding Obligations, and (ii) with respect to all Junior Indebtedness Obligations to be outstanding immediately thereafter, and (b) demonstrating that the Junior Indebtedness Aggregate Debt Service set forth for each Authority fiscal year pursuant to (ii) above is no greater than that set forth for such Authority fiscal year pursuant to (i) above.

Subordinated Indebtedness. The Senior Resolution and the Junior Indebtedness Resolution each permit the issuance of Subordinated Indebtedness under the Senior Resolution. See **Appendix C** — “Summary of Certain Provisions of the Junior Indebtedness Resolution and the Senior Resolution — General Reserve Fund”. Under the Senior Resolution, the Authority may covenant with the holders of Junior Indebtedness or Subordinated Indebtedness to add to the conditions and restrictions under which Additional Bonds may be issued. *The holders of Junior Indebtedness Obligations or Subordinated Indebtedness may not accelerate the principal owed upon a default unless all Outstanding Senior Bonds shall have been declared immediately due and payable in accordance with the Senior Resolution.*

Subordinated Indebtedness may be used to finance any lawful corporate purpose of the Authority.

Facilities

The Facilities consist of the Original Project and any Additional Projects. Additional Projects consist of New Interchanges, New Extensions and Other Authority Projects that have been designated as Additional Projects by the Authority in accordance with the requirements set forth in the Senior Resolution.

Original Project. The Original Project consists of all Thruway sections and connections constituting roads or bridges, authorized by the Act as in effect on, and open to traffic on, the date of adoption of the Senior Resolution on August 3, 1992, together with any Facility Capital Improvements related thereto which include other related structures and facilities. The New NY Bridge Project as the replacement of the Tappan Zee Bridge is considered an Original Project.

Additional Projects. Pursuant to the Senior Resolution, any project may become an Additional Project if so designated by the Authority and if (i) such project has been operated (whether or not by the Authority) so as to produce revenues in excess of operating expenses for a twelve-month period prior to the date such project is designated as an Additional Project by the Authority, (ii) the Authority certifies that the Net Revenues (including the revenues and operating expenses of the proposed Additional Project) at least equaled the Net Revenue Requirement for such twelve-month period, (iii) an Independent Consultant estimates that Net Revenues for all Facilities (including the proposed Additional Project) less the estimated Reserve Maintenance Payments for each of the fiscal years in the Test Period equal or exceed the estimated Net Revenues for all Facilities (excluding the proposed Additional Project) less the estimated Reserve Maintenance Payments for each of the fiscal years in the Test Period, and (iv) counsel opines that the Authority has the legal right and authority to undertake such project and to establish charges in connection therewith which do not require certain additional governmental approvals. See **Appendix C** — “Summary of Certain Provisions of the Junior Indebtedness Resolution and the Senior Resolution — Additional Projects”. Operating Expenses with respect to Facilities, including Additional Projects, are payable from the Operating Fund prior to Debt Service on the Senior Bonds, and prior to Debt Service on the Junior Indebtedness Obligations, including the Series 2013B Junior Indebtedness Obligation (securing the TIFIA Loan), the Series 2016A Junior Indebtedness Obligations and the Series 2019B Junior Indebtedness Obligations. As of the date of this Official Statement the Authority has not designated any project as an Additional Project under the Senior Resolution.

Other Authority Projects. Under the Senior Resolution, Other Authority Projects include facilities and other property which the Authority is now or hereafter authorized to acquire, construct, maintain, operate, finance, improve, reconstruct, rehabilitate or otherwise undertake for transportation or transportation-related purposes. In order for a facility or any other property to qualify as an Other Authority Project, it must be within the jurisdiction and control of the Authority and be designated as an Other Authority Project by the Authority. Other than projects for which the Authority has already reached its maximum funding obligation, the Authority has not designated any other project as an Other Authority Project under the Senior Resolution.

Reserve Maintenance Fund

Pursuant to the Senior Resolution, the Authority is required to deposit in each fiscal year into the Reserve Maintenance Fund, for costs relating to the Facilities, an amount which shall be no less than the greater of \$30,000,000 or the amount specified in an Independent Consultant's Certificate for such fiscal year (the "Minimum Amount"). The Authority may from time to time transfer any money from the Reserve Maintenance Fund to the Revenue Fund when such amount is no longer needed for the purposes of the Reserve Maintenance Fund. In addition, to the extent that amounts in the Senior Debt Service Fund and unencumbered moneys in the General Reserve Fund, the Other Authority Projects Operating Fund and the Facilities Capital Improvement Fund are insufficient to pay debt service, when due, on the Senior Bonds, deficiencies will be made up from amounts in the Reserve Maintenance Fund. *There is no recourse to the Junior Indebtedness Fund, or the accounts thereunder, to replenish any shortfall in the Reserve Maintenance Fund. Holders of Junior Indebtedness Obligations have no recourse to amounts in the Reserve Maintenance Fund, whether such amounts constitute required Reserve Maintenance Fund deposits for Facilities or amounts in excess of such deposits that are intended for pay-as-you-go capital projects; provided, however, the Authority may direct the Trustee to release funds in excess of the required Reserve Maintenance Fund deposits for Facilities, if any, in order to pay debt service on Junior Indebtedness Obligations to the extent not otherwise met with available moneys of the Authority.*

Facilities Capital Improvement Fund

The Authority may, from time to time, disburse or transfer amounts in the Facilities Capital Improvement Fund for the purposes of providing for transfers to the Construction Fund, for Project Costs or, upon the determination of the Authority Board and after satisfying any deficiencies in the Senior Debt Service Fund, the Senior Debt Service Reserve Fund, the Reserve Maintenance Fund or the Junior Indebtedness Fund, transfer such amounts to any other Fund or account held under the Resolution. The Authority expects to apply available pay-as-you-go resources deposited in the Facilities Capital Improvement Fund to Project Costs, including the costs of the New NY Bridge Project.

Tolls, Fees and Charges

Toll Covenant. Pursuant to the Junior Indebtedness Resolution, the Authority has covenanted at all times to fix, charge and collect such tolls, fees and charges for the use of the Facilities as are required in order that, in each fiscal year, Net Revenues shall at least equal the Junior Indebtedness Net Revenue Requirement for such year. "Junior Indebtedness Net Revenue Requirement" means, with respect to any period of time, an amount equal to the greater of (i) the sum of (A) Aggregate Debt Service on Senior Bonds, (B) amounts required to make deposits to the Senior Debt Service Reserve Fund (as defined in the Senior Resolution), if any, (C) amounts required to make Reserve Maintenance Payments (as defined in the Senior Resolution), and (D) amounts required to be deposited in the Junior Indebtedness Fund pursuant to the Senior Resolution and the Junior Indebtedness Resolution and any Supplemental Resolution thereto or other resolution or agreement authorizing Junior Indebtedness Obligations; or (ii) for such period of time, 1.20 times the sum of (A) Aggregate Debt Service on Senior Bonds and (B) amounts required to be deposited in the Junior Indebtedness Fund's Debt Service Payment Account pursuant to the Junior Indebtedness Resolution and any Supplemental Resolution thereto or other resolution or agreement authorizing Junior Indebtedness Obligations; provided, however, that (1) Aggregate Debt Service on Senior Bonds for purposes of calculating the Junior Indebtedness Net Revenue Requirement, may be reduced by an amount equal to investment income on the Senior Debt Service Fund (as defined in the Senior Resolution) and the Senior Debt Service Reserve Fund (to the extent such investment income is required to be retained in or transferred to the Senior Debt Service Fund, as appropriate, pursuant to a Supplemental Resolution); and (2) amounts required to be deposited in the Junior Indebtedness Fund for purposes of calculating the Junior Indebtedness Net Revenue Requirement may be reduced by an amount equal to investment income on deposit in the Junior

Indebtedness Fund Debt Service Payment Account and the Junior Indebtedness Debt Service Reserve subaccounts (to the extent such investment income is required to be retained in or transferred to the Junior Indebtedness Debt Fund Service Payment Account).

If the Authority determines that Net Revenues may be inadequate, it is required to cause a study to be made by an Independent Consultant that will recommend a schedule of tolls, fees and charges which will provide sufficient Net Revenues in the following year to comply with the revenue covenant described above and which will provide additional Net Revenues to eliminate any deficiency in funds and accounts held under the Senior Resolution or the Junior Indebtedness Resolution at the earliest practicable time, and the Authority will place in effect as soon as practicable either (i) the recommended schedule of tolls, fees and charges, or (ii) a different schedule of tolls, fees and charges developed by the Authority which will provide sufficient Net Revenues in the following fiscal year to comply with the Junior Indebtedness Net Revenue Requirement and which will provide additional Net Revenues in such following fiscal year to eliminate any deficiency at the earliest practicable time, which conclusion is concurred in by an Independent Consultant. See **Appendix C** — “Summary of Certain Provisions of the Junior Indebtedness Resolution and the Senior Resolution — Tolls, Fees and Charges”.

Ability To Set Tolls. The Authority’s power under the Act to fix, collect and alter toll rates is not subject to the approval of any governmental entity. Tolls on the Tappan Zee Bridge/Governor Mario M. Cuomo Bridge and the Grand Island Bridges, which were constructed pursuant to the General Bridge Act of 1946, as amended, may be subject to the standard imposed by Section 135 of the Surface Transportation and Uniform Relocation Assistance Act of 1987, Pub. L. 100-17 to the effect that such tolls be “just and reasonable”. The Authority believes that the tolls on all of its vehicular toll facilities are just and reasonable.

Agreement of the State

Under the Act, the State has agreed with the holders of the bonds and notes of the Authority, including the Junior Indebtedness Obligations and the Senior Bonds, that it will not limit or alter the rights vested by the Act in the Authority to establish and collect such fees, rentals and charges as may be convenient or necessary to produce sufficient revenue to meet the expense of maintenance and operation and to fulfill the terms of any agreements made with such holders of bonds, or in any way impair the rights and remedies of such bondholders and noteholders. In addition, the State has agreed with the holders of bonds and notes of the Authority secured by a pledge of tolls from any bridge constructed by the Authority across the Hudson River south of Bear Mountain bridge or from any part of the Original Project which includes such bridge, that no bridge or tunnel constituting a connection for vehicular traffic over, under or across the Hudson River between the present location of the Bear Mountain bridge and the boundary line between New York and New Jersey at the west side of the Hudson River will be constructed or maintained so long as the obligations of such bonds and notes for principal and interest shall not have been paid or otherwise discharged.

AUTHORITY GOVERNANCE, FACILITIES AND OPERATIONS

Thruway Facilities and Operations

The Thruway System is one of the largest tolled highway systems in the United States and is a critical component in the national interstate network. The original Thruway roadway system was constructed between 1949 and 1960 and is one of the oldest components of the national Interstate Highway System. In 1991, State legislation made the Authority additionally responsible for the operation and maintenance of 11 miles of I-287 Cross-Westchester Expressway. (The New York State Department of Transportation (“NYSDOT”) remains responsible for capital improvements to this roadway.) The Thruway System is now over 570 miles in total length and includes 134 interchanges.

The Thruway System serves travelers with a variety of needs and purposes, including commuters, business travelers, recreational travelers, and commercial vehicle traffic and provides the major route of access for visitors to the State's tourist destinations including Niagara Falls, the Finger Lakes, the Adirondacks, the Catskills and New York City. The Thruway System has provided a dependable roadway system for these travelers, sustaining and encouraging economic growth, fostering job creation and generating tax revenues to the State and its local governments. Underscoring its importance to the state, region and nation, in 2018 Thruway customers traveled approximately 8.4 billion vehicle-miles on the highway, averaging over 23.1 million vehicle-miles per day. Due to the extent of its maintenance activities, good infrastructure conditions and the dedication of a specialized troop of the New York State Police to patrol the Thruway System, it has remained one of the safest roadway networks in the nation.

The Thruway System is comprised of 2,840 lane miles of roadway. In addition, the Authority has maintenance responsibility for 814 bridges and also owns 27 travel plazas and three Welcome Centers located at intervals along the Thruway System, operated by three food service and two fuel concessionaires that are open 24-hours daily, 7 days a week. Routine maintenance activities are performed by Authority staff from 21 maintenance locations grouped into four divisions. Also, the Authority's tolling system is extensive, including over 282 toll booths and 90 dedicated E-ZPass-only lanes, and it manages sophisticated incident response, ITS and traveler information systems to enhance mobility, safety and service.

The Thruway System connects the principal cities of the State from New York City to Albany, and on to Utica, Syracuse and Rochester through to Buffalo and the Pennsylvania State Line. Because the Thruway System corridor serves 37 of the State's 62 counties and the majority of the State's population, it is the principal artery of travel and commerce within the State. It also is an important interstate connector, joining with the Massachusetts Turnpike (I-90), Connecticut Turnpike (I-95), New Jersey's Garden State Parkway, as well as several other Interstate routes such as I-287 from New Jersey; I-90 in Pennsylvania; I-290 around the north side of Buffalo; I-390 and I-490 serving Rochester; I-81, I-481 and I-690 at Syracuse; I-790 in Utica; I-87 (the Northway), I-88, I-90, I-787, and I-890 at Albany; and I-84 at Newburgh. As a result, the Thruway System is a vital link to long distance interstate travel and a high proportion of its patrons are from out-of-state.

The Thruway System is comprised of two types of toll systems – a controlled (ticket) system and a barrier system. The controlled system (approximately 481 miles) makes up the largest portion of the Thruway System, running from Woodbury (in the southeast corner of the State) north along I-87 to Albany, then west on I-90 to Buffalo and south of Lake Erie to the Pennsylvania border. In addition to this main stretch of the controlled system, there is a small tolled branch south and east of Albany, known as the Berkshire Spur.

On the controlled system, tolls are charged based on the actual distance traveled by the customer. Meanwhile, barrier toll plazas have a fixed toll rate for each vehicle class and payment type (e.g., Cash, E ZPass, as well as Commuter and other E-ZPass Discounts). The two barrier systems (four barriers located in the NYC metropolitan region and one barrier located in the Buffalo region) are comprised of The Governor Mario M. Cuomo Bridge (formerly Tappan Zee Bridge Barrier), Yonkers Barrier, New Rochelle Barrier, Spring Valley Barrier, Harriman Barrier and the Grand Island Bridges. Under the existing policy, toll rates across the system are based on vehicle classifications, related to the number of axles per vehicle and the height of the vehicle over the first two axles. Approximately 266.4 million toll transactions occurred on the Thruway System in 2018, generating over \$736.5 million in toll revenues.

For a further description of the Thruway System's facilities, traffic patterns on the Thruway System, and an analysis of the Thruway System's financial history and projections for the future, see **Appendix A** — "Report of Traffic Engineer".

Board Members

The Act grants to the Authority Board the broad powers of the Authority, as summarized herein under the caption “THE AUTHORITY”. The Authority Board continues in existence so long as the Authority has any indebtedness or other obligations outstanding. Pursuant to the New York State Public Officers Law, members of the Authority whose terms have expired continue to serve until a successor is appointed and qualified. There is currently one vacancy on the Authority Board.

Joanne M. (Joanie) Mahoney was confirmed as a member of the Authority Board on March 30, 2015. Ms. Mahoney will serve in a term that expires on January 1, 2020. Ms. Mahoney was named as the chief operating officer at SUNY College of Environmental Science and Forestry. Previously, Ms. Mahoney served as the Onondaga County Executive, a position to which she was elected in November 2007, and is the first woman to serve in that role. She was re-elected in November, 2011. In 2010, then Governor-elect Andrew Cuomo asked Ms. Mahoney to serve as co-chair of his transition team and in 2012, he appointed Ms. Mahoney to serve as a trustee for the New York Power Authority. A Syracuse native, Ms. Mahoney graduated from Corcoran High School, and then from Syracuse University’s School of Management and Syracuse University’s College of Law. After spending time in private practice, Ms. Mahoney worked for five years as a criminal prosecutor in the District Attorney’s office before being elected Councilor-at-Large in the City of Syracuse, where she served a four year term.

José Holguín-Veras, Ph.D., P.E., was confirmed as a member of the Authority Board in May 2010. Mr. Holguín-Veras serves in a term that expired on December 12, 2018. Dr. Holguín-Veras is a Professor and Director of the Center for Infrastructure, Transportation, and the Environment at the Rensselaer Polytechnic Institute. Dr. Holguín-Veras received a Bachelor of Science degree in Civil Engineering from Universidad Autonoma de Santo Domingo; Master of Science degree in Transportation from Universidad Central de Venezuela; and a doctoral degree in transportation from the University of Texas at Austin.

Robert L. Megna was confirmed as a member of the Authority Board in June 2016. Mr. Megna currently serves as the Senior Vice Chancellor and Chief Operating Officer for the State University of New York (SUNY) System Administration. Previously, Mr. Megna served as executive director of the Authority from 2015 to 2016. Prior to joining the Authority, Mr. Megna served for six years as director at the New York State Division of the Budget and previously served as commissioner of the New York State Department of Taxation and Finance. Mr. Megna holds master’s degrees in public policy from Fordham University and economics from the London School of Economics.

George L. Miranda was confirmed as a member of the Authority Board in June 2017. Mr. Miranda is an At-Large Vice President of the Teamsters in New York, President of the Teamsters National Hispanic Caucus and Chairman of the Board of Directors for the Teamsters Airline Division. George Miranda is also Chairman of the Board of Directors of the Consortium for Worker Education and a Vice President of the New York City Central Labor Council.

J. Donald Rice, Jr., was confirmed as a member of the Authority Board in May 2010. Mr. Rice serves in a term that expired on June 13, 2018. Mr. Rice is founder and Chief Executive Officer of Rice Financial Products Company, a New York City-based full service municipal investment banking firm. Mr. Rice received a M.B.A. with distinction from Harvard Business School and a bachelor’s degree in engineering with honors from Kettering University.

Stephen M. Saland was confirmed as a member of the Authority board in June 2016. Mr. Saland represented the 99th District in the New York State Assembly between 1980 until 1990, and served as New York State Senator for the 41st District from 1990 to 2012. He is also a past-President of the

National Conference of State Legislatures. Mr. Saland holds a Bachelor of Arts degree from the University of Buffalo and a Juris Doctor from Rutgers Law School.

Heather C. Briccetti was nominated by the Governor and confirmed by the New York State Senate as a member of the Thruway Authority Board in June 2019. Ms. Briccetti is the President and Chief Executive Officer of The Business Council of New York State, Inc. Ms. Briccetti joined The Business Council in 2007 and has also served as Vice President of Government Affairs. Ms. Briccetti's career spans decades in the public and private sectors. Prior to The Business Council, Ms. Briccetti was a consultant and lobbyist for Powers and Company. She has also served as assistant counsel to the New York State Senate majority, as a legislative aide and counsel to the New York State Assembly majority committee on Racing and Wagering, and special counsel in the New York State Attorney General's office. Ms. Briccetti received a bachelor's degree in political science from the State University of New York at Binghamton and graduated from Albany Law.

Senior Staff

The day-to-day management of the Authority is primarily the responsibility of the following senior staff members:

Executive Director. Matthew J. Driscoll serves as Executive Director of the New York State Thruway Authority. Prior to joining the Authority, Mr. Driscoll served as Commissioner of the New York State Department of Transportation. From 2010 to 2015, Mr. Driscoll served as President and Chief Executive Officer of the New York State Environmental Facilities Corporation, which provides low-cost financing to local governments for wastewater and drinking water infrastructure. From 2001 through 2009, Mr. Driscoll served as the 52nd Mayor of the City of Syracuse. Mr. Driscoll also serves as a member of Governor Cuomo's Strategic Implementation Assessment Team and as a member of the Financial Restructuring Board for Local Governments.

Chief of Staff. Matthew Trapasso was appointed to serve as Chief of Staff of the Authority on April 4, 2019. Mr. Trapasso previously served as Senior Policy Advisor for Transportation for Governor Andrew M. Cuomo. Mr. Trapasso has also held positions within the State at the New York State Department of Taxation and Finance and New York State Senate. He has a Bachelor's Degree from Siena College and a Master's Degree from New England College.

Chief Financial Officer and Treasurer. Matthew A. Howard was appointed to serve as the Chief Financial Officer and Treasurer of the Authority in January, 2015. Mr. Howard's career in public service spans nearly 22 years, and includes leadership roles in fiscal management, public policy and public administration. Prior to his appointment, Mr. Howard served as the Secretary to the New York State Assembly Committee on Ways and Means. In this role he worked as a chief budget negotiator for the Assembly during its negotiations with the Office of the Governor and the New York State Senate. Mr. Howard received his undergraduate degree from Springfield College and master's degree in public administration from Cornell University.

Chief Engineer. Richard Lee, P.E. was appointed Chief Engineer of the Authority in October 2016. Prior to joining the Authority, he served in a number of positions in both Design and Construction throughout his 34-year career with the New York State Department of Transportation. Most recently, from 2009-2016, he was the Deputy Chief Engineer (Design) and Director of the Office of Design. Mr. Lee graduated from Union College in Schenectady, New York with a Bachelor of Science Degree in Civil Engineering.

New NY Bridge Project Director. Jamey Barbas, P.E. was appointed to serve as New NY Bridge Project Director in November, 2015. Prior to assuming such role for the Authority, Ms. Barbas served as

Senior Vice President and Global Practice Leader for Major Structures at Louis Berger. Prior to joining Louis Berger, she held leadership positions in several international consulting firms. Ms. Barbas has extensive management and design experience including several award winning, domestic and international projects. A registered professional engineer in the State of New York, Ms. Barbas has over 30 years of experience in bridge management, design, construction, and inspection, with a special emphasis on complex and long span bridges. She led the inspection, design and construction support services for the reconstruction of the Williamsburg Bridge in New York City – one of the largest bridge reconstruction projects ever undertaken in the United States, and was the Bridge Design Manager for the major bridges of the AutoRoute 30 project in Montreal, Canada. Ms. Barbas was Principal, Design Manager, and/or Lead Technical Advisor on various mega Design-Build, Construction Manager/General Contract and P3 projects worldwide, including the Indiana Toll Road (\$3.8B), Pocahontas Parkway (\$350M), AutoRoute A25 Cable-stayed bridge (\$450M), AutoRoute 30 (\$1.7B), Port Mann cable-stayed bridge (\$2B), PR5/PR22 toll road (\$1.1B), Forth Road Bridge in Scotland (\$800M), Sarah Mildred Long Bridge (\$180M) and the I-77 North Carolina (\$700M). Ms. Barbas was also a peer advisor to the State of New York and the Authority and a member of the Review Team which assisted in the evaluation of the proposals for the New NY Bridge Project.

General Counsel. Christopher C. O'Brien, Esq. was appointed to serve as General Counsel to the New York State Thruway Authority in November, 2018. Prior to assuming such role for the Authority, Mr. O'Brien served in Governor Andrew M. Cuomo's administration as the Director of Special Projects, where he was responsible for the planning, negotiation and execution of infrastructure and transportation oriented projects in New York State, working closely with state and local agencies. Prior to his time in Governor Cuomo's Administration, Mr. O'Brien spent ten years at Xerox Legal Business Services where he held the positions of Senior Vice President of Business Operations, Corporate Development, and Transformation, and Vice President and Chief Operating Officer. Early in his professional career, Mr. O'Brien also served the State of New York as a Senior Assistant Counsel to Governor George E. Pataki and Deputy Commissioner and General Counsel at the New York State Department of Taxation and Finance.

Director of Administrative Services. John F. Barr was appointed Director of Administrative Services on November 16, 2006. Prior to joining the Authority, Mr. Barr served as the Executive Deputy Commissioner of the New York State Department of Civil Service. Mr. Barr received a Bachelor of Arts degree in History from Hartwick College. Mr. Barr earned his Juris Doctor at Thomas M. Cooley Law School.

Director of Maintenance and Operations. Mark A. Hixson, P.E. is the Director of Maintenance and Operations for the Authority. He previously served as the Authority's Deputy Director since 2008, the Superintendent of Maintenance from 2003-2008, and before that as Deputy Division Director and Division Highway Engineer in the Authority's Albany Division. Upon joining the Authority in April 1987, he served in various roles in the Department of Engineering. Mr. Hixson has over 32 years of transportation engineering and management experience. He is a graduate of Clarkson University with a B.S. in Civil and Environmental Engineering and received an MBA from Sage Graduate School. He also holds a Graduate Studies Certificate from Cornell University's School of Industrial and Labor Relations and is a graduate of the AASHTO Executive Leadership Institute. Mr. Hixson has been a licensed Professional Engineer in the State of New York since 1989.

Director of Audit and Management Services. Harry A. Lennon was appointed Director for the Department of Audit and Management Services in May 2012. Prior to this appointment, Mr. Lennon served as Senior Confidential Investigator Auditor for the Department of Audit and Management Services. During this time, Mr. Lennon also served as Infrastructure Security Officer. Prior to joining the Authority, Mr. Lennon served as a Confidential Investigator for the New York State Ethics Commission.

At the beginning of his career, Mr. Lennon served as a Police Officer for the Supreme Court of the United States. Mr. Lennon earned his Bachelor of Science degree at the University of Scranton.

Director of Information Technology. Kim McKinney serves as the Chief Information Officer for the New York State Thruway Authority. Prior to this appointment, she served as the Chief Technology Officer (CTO) for the past two years and has played an integral role transforming the Authority through the use of technology. From 2014 to 2016, Ms. McKinney was appointed to the role of CIO for Transportation and Economic Development for NYS Information Technology Services. In this role, she was responsible for setting strategic direction, technology vision and IT services that supported the business missions of the Department of Transportation, Department of Homes and Community Renewal, Department of Economic Development and Governor's Office of Storm Recovery. Prior to her role as the Cluster CIO, she was appointed the Chief Operations Officer (COO) for NYS ITS. Prior to joining the state, Kim served as Chief Information Officer and Commissioner of Information Technology for Orange County, NY and Chief Information Officer for Broome County, NY. Prior to working in government, Ms. McKinney worked in the private sector and at Binghamton University. She received her Bachelor of Science from Penn State University and her MBA from Binghamton University.

Organization

To administer its responsibilities for the Thruway System and Other Authority Projects, the Authority is organized into nine operating departments and employs approximately 2,165 permanent employees.

The departments are Engineering, Maintenance and Operations, Administrative Services, Finance and Accounts, Legal, Media Relations & Communications, Audit and Management Services and Information Technology.

The Department of Engineering includes Asset and Innovation Management, Capital Program and Contracts Management, Program Delivery, and Transportation Planning and Environmental Services. The Department oversees the development and implementation of the Authority's and Corporation's long range capital programs. It has the professional capacity to design and inspect some capital projects in-house and accordingly does not have to rely solely on outside consultants.

The Department of Maintenance and Operations manages and maintains the highway, bridge and facilities infrastructure and equipment in a cost-effective manner in order to offer Thruway users high levels of safety and service. It is responsible for all toll collection activities, traffic management and travelers' services including concessions. The Department helps develop the multi-year Capital Program designed to preserve the condition, serviceability and safety of the roadway, bridges and facilities. The Department also continues to explore and implement innovative designs and technologies to enhance the safety and efficiency of the Thruway System. Direct field management of the maintenance and operations functions is handled through the four division offices (New York, Albany, Syracuse and Buffalo) under the auspices of the four Division Directors who report to the Director of Maintenance and Operations.

The Department of Maintenance and Operations also acts as liaison with New York State Police Troop T, whose 320 members patrol the Thruway System. Beginning in 2016, the Authority has reimbursed the State for payment of State Police Troop T enforcement on the Thruway System, but reimbursement of such costs to the State are not payable as Operating Expenses and are payable only from the General Reserve Fund.

RESULTS OF OPERATIONS

Financial Results of Operations

Set forth below are certain revenue and expense items (\$ in millions) and certain other financial information derived from the Authority's audited financial statements for each of the Authority's fiscal years 2014 through 2018. The revenues and operating expenses below are presented in accordance with the Senior Resolution and the Junior Indebtedness Resolution and were derived by adjusting information contained in the Authority's audited financial statements, which are prepared in conformity with generally accepted accounting principles. This information is qualified by, and should be read in conjunction with, the audited financial statements for the Authority's fiscal year ended December 31, 2018 included in **Appendix B** to this Official Statement. See also "MANAGEMENT'S DISCUSSION AND ANALYSIS OF RESULTS OF OPERATIONS" below.

ACTUAL RESULTS OF OPERATIONS For the Calendar Years 2014-2018 (in \$ millions)

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
Toll Revenue ⁽¹⁾	\$664.1	\$691.7	\$708.3	\$731.5	\$736.5
Concession Revenue	13.6	14.6	14.8	14.9	14.9
Other Revenues	<u>18.8</u>	<u>20.0</u>	<u>26.2</u>	<u>45.7</u>	<u>47.4</u>
Total Revenues	696.5	726.3	749.3	792.1	798.8
Thruway Operating Expenses ⁽²⁾	286.1 ⁽²⁾	287.4	311.6	329.7	339.9
Reserve for Claims and Indemnities and Environmental Remediation ⁽³⁾	<u>5.9</u>	<u>1.8</u>	<u>1.8</u>	<u>2.7</u>	<u>5.0</u>
Net Revenue (A)	404.5	437.1	435.9	459.7	453.8
Senior Debt Service	252.0	236.3	227.8	236.4	225.0
Less Interest Earnings on Senior Debt Service Reserve Funds	<u>(1.0)</u>	<u>(0.9)</u>	<u>(0.5)</u>	<u>(1.8)</u>	<u>(4.7)</u>
Net Senior Debt Service (B)	251.0	235.4	227.3	234.6	220.3
Net Revenue after Senior Debt Service	153.5	201.8	208.6	225.1	233.5
Reserve Maintenance Deposit ⁽⁴⁾	35.7	97.1	68.8	103.2	74.1
Net Junior Debt Service (C)	0.0	0.0	29.2	43.7	79.2
Retain for Operations/Adjustment for Cash Basis ⁽⁵⁾	15.4	18.1	8.5	19.3	24.6
Facilities Capital Improvement Deposit ⁽⁶⁾	10.0	20.5	14.0	5.0	12.0
Canal Corporation (Net of Federal Aid) ⁽²⁾	46.8 ⁽²⁾	52.0	13.8	0.0	0.0
General Reserve Fund Provision - Canal Capital and State Police ⁽⁷⁾	45.2	13.6	73.9	54.0	43.6
General Reserve Fund - Subordinate Debt ⁽⁷⁾	0.4	0.4	0.4	0.0	0.0
Remaining Balance	0.0	0.0	0.0	(0.1)	0.0
Adjustment to Cash Basis ⁽⁸⁾	0.0	0.0	0.0	0.1	0.0
Balance After Cash Adjustment	0.0	0.0	0.0	0.0	0.0
Senior Debt Service Coverage Ratio (A/B)	1.61	1.86	1.92	1.96	2.06
Junior Debt Service Coverage Ratio (A/(B + C))	1.61	1.86	1.70	1.65	1.52

(1) Based on the Authority's audited financial statements for the years 2014, 2015, 2016, 2017 and 2018.

(2) Operating expenses do not include the liability of \$39.4 million in 2014, \$43.9 million in 2015, \$46.1 million in 2016, \$38.8 million in 2017 and 52.7 million in 2018 for Thruway, \$8.7 million in 2014, \$10.4 million in 2015, and \$10.7 million in 2016 for Canals, relative to the implementation of Governmental Accounting Standards Board ("GASB") Statement No. 45, which establishes reporting standards for post-employment health care benefits and represents the unfunded expenses for the years as noted. In 2015, the Authority adopted GASB Statement No. 68 Accounting and Financial Reporting for Pensions and GASB Statement No. 71 Pension Transition for Contributions Made Subsequent to the Measurement Date. The adjustment to comply with GASB 68 and GASB 71 was \$9.0 million in 2015, \$7.7 million in 2016, \$4.4 million in 2017 and (\$2.6) million in 2018 for Thruway, and (\$1.3) million in 2015 and \$1.3 million in 2016 for Canals.

(3) Includes \$0.7 million for Environmental Remediation Reserve in 2014, \$0.8 million in 2015, \$0.7 million in 2016, \$0.8 million in 2017 and \$1.1 million in 2018. In addition, \$2.5 million was provided as an AET transition reserve in 2018.

(4) Reflects the minimum required deposit to the Reserve Maintenance Fund (\$30,000,000) as well as excess revenue used for pay-as-you-go capital projects (see "SOURCES OF PAYMENT AND SECURITY FOR THE JUNIOR INDEBTEDNESS OBLIGATIONS - Reserve Maintenance Fund").

(5) In 2014, \$14.3 million was retained for use in 2015, in 2015, \$22.5 million was retained for 2016, in 2016, \$2.3 million was retained for 2017, in 2017, \$20.5 million was retained for 2018, and in 2018, \$29.4 million was retained for 2019.

(6) The Facilities Capital Improvement Fund has been designated for capturing project costs relating to the New NY Bridge Project.

(7) Funds transferred to cover Canal capital program expenditures as well as interest and commitment fees from a line of credit secured in 2012 to finance emergency repair work on the Canals due to damage to the Canal system from Tropical Storms Irene and Lee. Beginning in April 2016, the State Police costs were reimbursed for Troop T.

(8) Reflects differences in cash and accrual basis and timing differences relating to permit sales, investments and Debt Service.

Note: Totals may not add due to rounding.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF RESULTS OF OPERATIONS

Discussion of Results of Operations: 2014 through 2018

A number of significant factors have impacted the Authority's operating results during the years 2014-2018. During the period 2014 to 2015, traffic and revenues along the Thruway System grew due to lower fuel prices and a moderate economic recovery. However, during the same 2014-2015 period traffic was adversely impacted by road closures during major weather events. To maintain fiscal balance during this period, the Authority pursued a number of significant cost containment initiatives, including reduced energy consumption and costs, joint procurements with other State entities to enhance buying power and reduce costs, reduced staffing and a transition to a more flexible workforce, extending the useful life of equipment and facilities, and many other initiatives.

2014. Total revenues were \$696.5 million or \$15.7 million above the prior year due to commercial revenues at the Tappan Zee Bridge and Yonkers Barrier being positively impacted by traffic diverting to the Thruway System to avoid construction closures on the George Washington Bridge from June through December 2014. In addition, commercial revenues system wide were positively impacted by the implementation of an Automated Vehicle Classification system which ensures commercial vehicles using E-ZPass are charged the correct toll rate. Concession revenue increased by \$0.3 million, while other revenue increased by \$0.2 million.

Total operating expenses increased by \$8.8 million primarily due to higher estimated costs for litigation claims filed against the Authority, as well as higher workers' compensation insurance costs and higher snow and ice control costs.

2015. Total revenues were \$726.3 million or \$29.8 million above the prior year due to lower fuel prices and continued economic recovery. Additionally, in 2014 there was a road closure and loss of revenues due to major weather events.

2016. Total revenues were \$749.3 million or \$23.0 million above the prior year primarily due to higher traffic volumes across most of the Thruway System and an extra day due to leap year in February 2016. In addition, a shift in commercial truck traffic from the George Washington Bridge to the Tappan Zee Bridge also contributed to the increase.

Total operating expenses increased by \$24.2 million primarily due to higher costs for pensions, Tolls by Mail administration, claims filed against the Authority, administrative fees charged by the State and health insurance for active and retired employees.

2017. Total revenues were \$792.1 million or \$42.8 million above the prior year primarily due to higher traffic volumes across most of the Thruway System, the elimination of a five-percent discount on tolls paid by non-New York E-ZPass accountholders, increased E-ZPass and Tolls by Mail fees and interest on investments. A further shift in commercial truck traffic from the George Washington Bridge to the Tappan Zee Bridge also contributed to the increase.

Total operating expenses increased by \$18.1 million compared to 2016. The increase is primarily due to higher costs for personal services, Tolls by Mail administration, administrative fees charged by the State, and snow and ice control expenses.

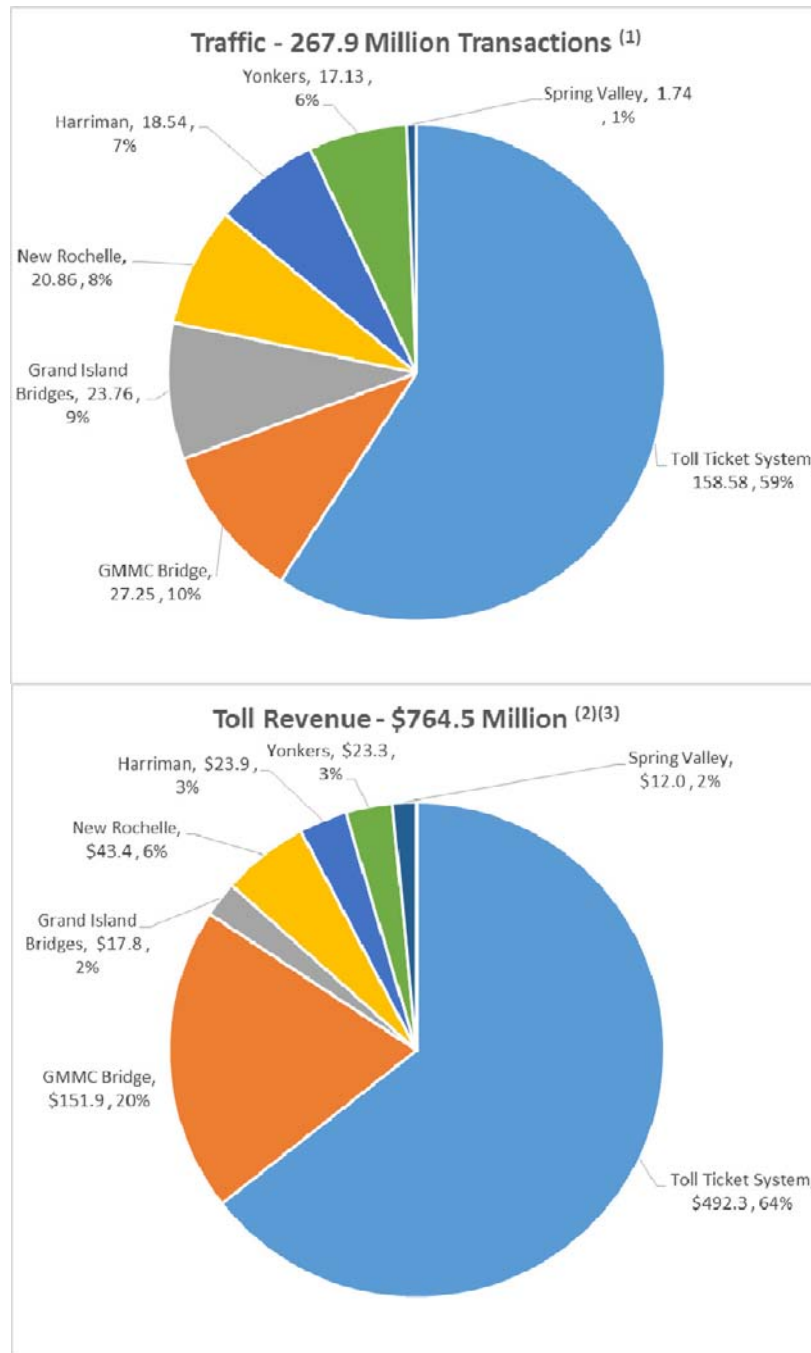
2018. Total revenue was \$798.8 million, an increase of \$6.7 million, or 0.8% compared to 2017. Toll revenue for the year was \$736.5 million, an increase of \$5.0 million, or 0.7% compared to 2017.

Total operating expenses and State Police Troop T reimbursement costs were \$454.6 million, an increase of \$15.9 million, or 3.6% compared to 2017. Salary costs increased \$5.2 million, or 3.7% compared to 2017. This increase is primarily due to incentives aimed at retaining toll collection employees during the Authority's transition to all electronic tolling. Professional and other services increased \$5.6 million, or 12.3% compared to 2017. This increase is primarily due to the Authority's ongoing shift from cash-based toll collection to all electronic tolling.

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Traffic and Revenue

The following charts show traffic and toll revenues at the various pay points and total revenues for 2018:



See **Appendix A** — “Report of Traffic Engineer” for a more detailed discussion of historical traffic, revenue and expenses for the years 2008 through 2018 and forecasted data for the years 2019 through 2024.

- (1) Reflects actual results of traffic operations at 2018 year-end. “Traffic” refers to number of all toll and non-tolled transactions at all locations where tolls are collected.
- (2) Based on the Authority’s 2018 audited financial statements.
- (3) Toll Revenue does not reflect volume discounts totaling \$28.0 million taken under the Authority’s commercial charge account program

Note: Totals may not add due to rounding.

NEW YORK STATE INFRASTRUCTURE GRANT AND TOLL RELATED INITIATIVES

As part of an initiative to materially improve critical transportation infrastructure in the State and to moderate the future need for Thruway toll adjustments, the State in 2015, at Governor Cuomo’s urging, appropriated \$1.285 billion for general Thruway capital projects, including \$535 million for system-wide projects and \$750 million for the New NY Bridge Project. The State’s 2016-2017 Enacted Budget provided for an additional \$700 million in grant moneys for investment in Thruway infrastructure. The \$700 million in new grant moneys and the \$1.285 billion from the prior year’s enacted State budget are collectively referred to as “NYS Infrastructure Grant Contributions”. Of the NYS Infrastructure Grant Contributions, \$1.2 billion has been used or is expected to pay costs of the New NY Bridge Project.

In July 2019, The New York State Thruway Authority announced the formation of a Toll Advisory Panel to review toll rates, potential resident and commuter discount programs and commercial vehicle rates on the Governor Mario M. Cuomo Bridge. In July 2019, the panel convened meetings to gather feedback from the public related to any potential toll adjustments at The Governor Mario M. Cuomo Bridge.

BUDGET AND CAPITAL PROGRAM; TRAFFIC ENGINEER’S REPORT

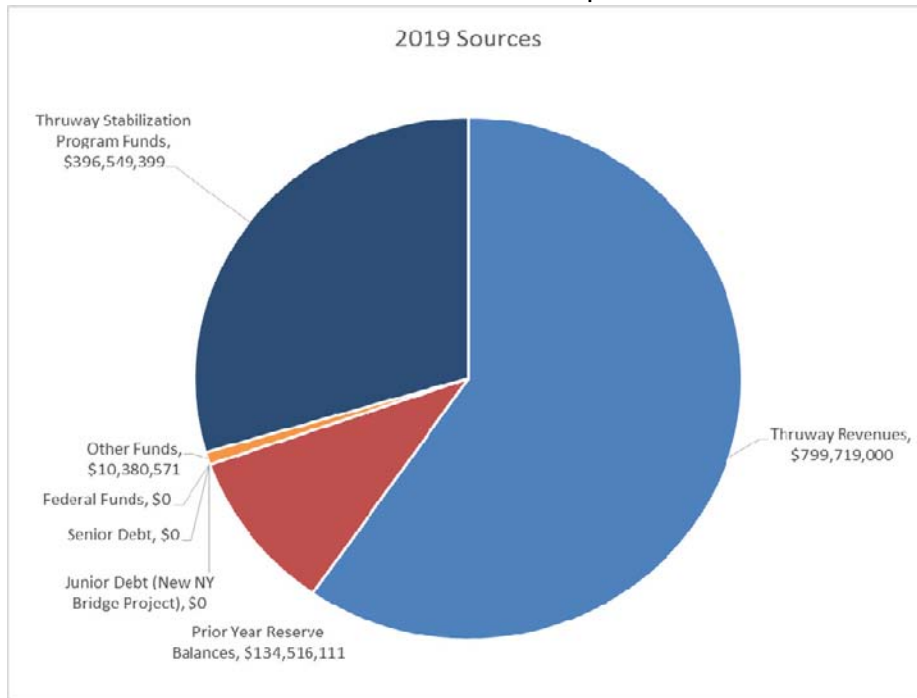
2019 Revised Budget

The Board of the Authority adopted a 2019 Budget (the “2019 Original Budget”) at its November 26, 2018 meeting. The Authority has prepared a revised budget (the “2019 Revised Budget”), which is subject to Board approval. The following charts and discussion present the 2019 Revised Budget and shows the differences in sources and uses of funds between the 2019 Original Budget and the 2019 Revised Budget*. Additional detail comparing the 2019 Revised Budget to Actual 2018 Results as well as a discussion of actual results through July 31, 2019 are also included below.

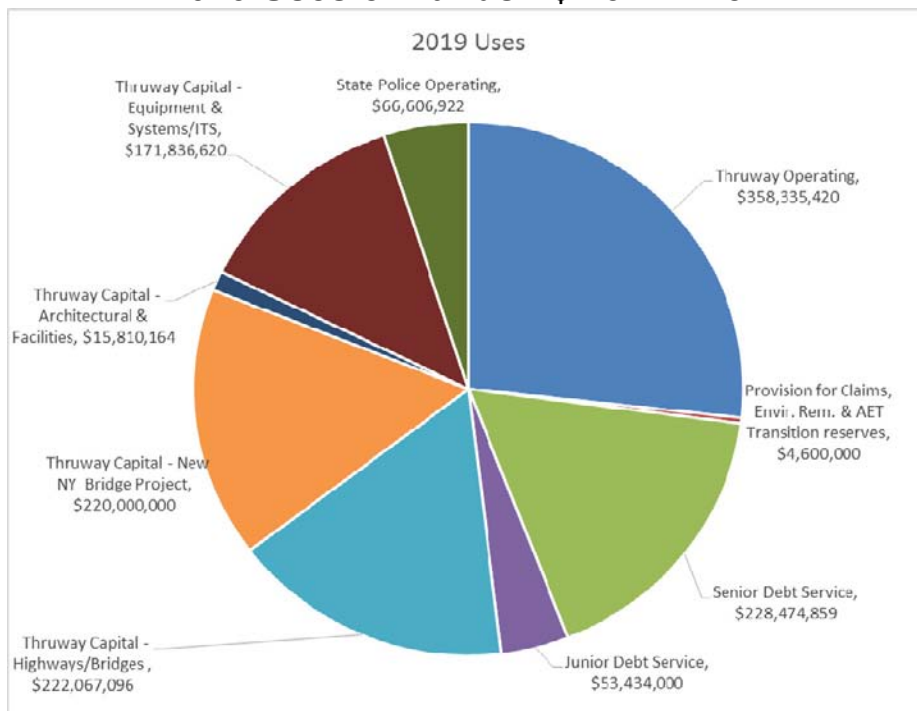
* The 2019 Revised Budget has not yet been approved by the Board.

Sources and uses of the 2019 Revised Budget are highlighted in the following charts.

2019 Sources of Funds - \$1.34 Billion



2019 Uses of Funds - \$1.34 Billion



2019 Revised Budget Compared to 2019 Original Budget

	2019 Original Budget	2019 Revised Budget	Change from 2019 Original Budget
SOURCES:			
Thruway Revenues	\$797,882,052	\$799,719,000	\$1,836,948
Prior Year Reserve Balances	96,220,460	134,516,111	38,295,651
Senior Debt	137,103,084	0	(137,103,084)
Junior Debt	331,657,167	0	(331,657,167)
Other Funds	13,578,014	10,380,571	(3,197,443)
Thruway Stabilization Program Funds	276,762,667	396,549,399	119,786,732
Total Sources	<u>\$1,653,203,444</u>	<u>\$1,341,165,081</u>	<u>(\$312,038,363)</u>
USES:			
Operating Expenses:			
Thruway Operating	361,935,420	358,335,420	(3,600,000)
State Police Operating	67,132,977	66,606,922	(526,055)
Sub Total	429,068,397	424,942,342	(4,126,055)
Provisions for Claims & Env. Remediation	1,000,000	4,600,000	3,600,000
Total	430,068,397	429,542,342	(526,055)
Retained for Working Capital	0	0	0
Debt Service:			
Senior Debt	242,273,538	228,474,859	(13,798,679)
Junior Debt	67,684,000	53,434,000	(14,250,000)
Total Debt Service	309,957,538	281,908,859	(28,048,679)
Capital Program:			
Thruway Capital - Highways and Bridges	298,325,335	222,067,096	(76,258,239)
Thruway Capital - New NY Bridge	401,530,484	220,000,000	(181,530,484)
Thruway Capital - Architectural & Facilities	35,153,703	15,810,164	(19,343,539)
Thruway Capital - Equipment & Systems/ITS	178,137,987	171,806,620	(6,331,367)
Thruway Capital - State Police Equipment/Facilities	30,000	30,000	0
Total Capital Program	913,177,509	629,713,880	(283,463,629)
Total Uses	<u>\$1,653,203,444</u>	<u>\$1,341,165,081</u>	<u>(\$312,038,363)</u>

2019 Revised Budget Compared to the 2019 Original Budget

- The 2019 Revised Budget provides for an overall budget of \$1.34 billion, reflecting a \$312 million or 18.87% downward revision from the projected overall \$1.65 billion 2019 Original Budget approved by the Authority Board in November 2018. This downward revision in projections is the result of the following:
 - A downward revision of \$181.5 million for the New NY Bridge Project; and a \$101.9 million downward revision in the projected capital program expenses for Thruway System-wide projects. These revisions are primarily due to timing changes, bid savings, and revised letting estimates;
 - A \$3.6 million downward revision in Thruway operating expenses primarily due to updated personal services and employee benefit expense estimates. This reduction is offset by an increase of \$3.6 million in provisions for environmental and legal claims. In addition, the estimated cost for reimbursement for State Police costs for Troop T patrolling of the Thruway System is reduced by \$526,055 or 0.8% to \$66.6 million; and

- A \$28.05 million reduction in projected debt service costs that results from changes in the 2019 debt issuance schedule to reflect the reduced level of new debt issuance required to support capital program requirements.
- The 2019 Revised Budget includes a revised revenue forecast that projects \$800.9 million in total Thruway revenues in 2019. This reflects a \$2.4 million or 0.3 percent increase from the \$798.5 million level in total Thruway revenues included in the 2019 Original Budget.

2019 Revised Budget Compared to 2018 Actuals

	2018 Actual	2019 Revised Budget	Change from 2018 Actual
SOURCES:			
Thruway Revenues	\$789,250,946	\$799,719,000	\$10,468,054
Prior Year Reserve Balances	16,287,027	134,516,111	118,229,084
Senior Debt	0	0	0
Junior Debt	2,968,517	0	(2,968,517)
Other Funds	56,055,078	10,380,571	(45,674,507)
Thruway Stabilization Program Funds	448,023,346	396,549,399	(51,473,947)
Total Sources	<u>\$1,312,584,914</u>	<u>\$1,341,165,081</u>	<u>\$28,580,167</u>
USES:			
Operating Expenses:			
Thruway Operating	\$339,944,093	\$358,335,420	\$18,391,327
State Police Operating	61,260,430	66,606,922	5,346,492
Sub Total	\$401,204,523	\$424,942,342	\$23,737,819
Provisions for Claims & Env. Remediation	5,038,287	4,600,000	(438,287)
Total	\$406,242,810	\$429,542,342	\$23,299,532
Retained for Working Capital	15,000,000	0	(15,000,000)
Debt Service:			
Senior Debt	220,302,475	228,474,859	8,172,384
Junior Debt	79,219,033	54,434,000	(25,785,033)
Total Debt Service	\$299,521,508	\$281,908,859	\$(17,612,649)
Capital Program:			
Thruway Capital - Highways and Bridges	222,912,144	222,067,096	(845,048)
Thruway Capital - New NY Bridge	264,146,021	220,000,000	(44,146,021)
Thruway Capital - Architectural & Facilities	47,713,320	15,810,164	(31,903,156)
Thruway Capital - Equipment & Systems/ITS	57,011,725	171,806,620	114,794,895
Thruway Capital – State Police Equipment/Facilities	37,386	30,000	(7,386)
Total Capital Program	\$591,820,596	\$629,713,880	\$37,893,284
Total Uses	<u>\$1,312,584,914</u>	<u>\$1,341,165,081</u>	<u>\$28,580,167</u>

2019 Revised Budget Compared to 2018 Actuals

- The 2019 Revised Budget provides for an overall budget of \$1.34 billion, representing a \$28.58 million or 2.18 percent increase from 2018 actuals.
- The 2019 Revised Budget forecasts total traffic of 267.2 million vehicles, reflecting growth of 0.8 million vehicles or 0.3 percent above 2018. This corresponds to a toll revenue forecast of \$739.6 million, reflecting an increase of \$3.1 million or 0.4 percent above 2018 actuals.

- The 2019 Revised Budget provides a total of \$362.94 million for operating expenses of the Authority (including provisions). This represents an increase of \$17.95 million or 5.2 percent above 2018 actuals. The 2019 Revised Budget also provides \$66.6 million for reimbursement to the State for the cost of the Troop T patrolling of the system.
- The 2019 Revised Budget provides a total of \$629.7 million to support the capital program of the Authority. This represents an increase of \$37.89 million or 6.4 percent above 2018 actuals.
- The 2019 Revised Budget provides a 2019-2024 Capital Program that would provide \$2.78 billion for Authority capital projects. This includes \$537.4 million for New NY Bridge Project that will result in the completion of The Governor Mario M. Cuomo Bridge and \$2.24 billion for projects on the Thruway System.

2019 Preliminary Financial Results through July 31, 2019

- Through July, 31 2019 the Authority has collected revenues of \$459.5 million. This reflects an increase of \$7.4 million or 1.6% above revenues collected for the same time period in 2018. These actual results through July 31, 2019 are \$5.7 million or 1.3 percent above the level for the 2019 Budget that was approved by the Authority Board in November 2018.
- Through July, 31 2019, Authority operating expenses and provisions totaled \$209.3 million. This reflects an increase of \$11.98 million or 6.1% above 2018 levels. These actual results through July 31, 2019 are \$2.6 million or 1.3 percent below the level for the 2019 Budget that was approved by the Authority Board in November 2018.

2019-2024 Capital Program

Annually, the Authority adopts a one-year contracts program based on the prioritization of projects scheduled in its Capital Program. This annual contracts program is approved by the Board and represents the Authority's official capital construction program for the year. Project selection considers the following priority factors: safety, bridge and highway condition rating, capacity needs, and facility needs.

As the Thruway System is at the end of its sixth decade of operation, the necessity for reconstruction and rehabilitation of the aging Thruway infrastructure requires an increasing level of investment. At the same time, travelers on the roadway during peak travel periods are experiencing delays resulting from increasing traffic volumes. Authority staff, utilizing enhanced and modernized asset management systems, historical records of past remedial work, and their knowledge of the current condition of facilities, developed the multi-year Capital Program.

The multi-year Capital Program is designed to address several key objectives that are critical to Thruway customers and is intended to maximize the benefit to the Thruway System. These objectives are system reliability, increased customer service, improved safety and mobility and environmental stewardship. The multi-year Capital Program also will take advantage of technology improvements and innovations in the field of transportation management. As evidenced through the plan, the Authority is committed to providing customers with the mobility and service they expect, and to preserving the main transportation artery that supports New York State's economy.

On November 26, 2018, the Authority Board approved the 2019 Budget and the 2019 Contracts Program and revisions are subject to Board approval. The 2019-2023 Capital Program was approved by the Authority Board on November 26, 2018. The preliminary 2019-2024 Capital Program (subject to approval by the Authority Board of Directors) totals \$2.78 billion in investments for capital projects and equipment and including a subtotal of \$537.4 million for the New NY Bridge Project. See “—Funding of

the 2019-2024 Capital Program – Tappan Zee Bridge Project” for a more detailed description of the New NY Bridge Project.

The 2019-2024 Capital Program will complete major, job-sustaining reconstruction projects that were let during the previous multi-year Capital Program and includes reconstruction and rehabilitation of roadway, bridges, facilities, equipment and support systems of the Thruway System. The 2019-2024 Capital Program provides for the replacement or rehabilitation of 49 bridges, the resurfacing/rehabilitation/reconstruction of approximately 1,225 lane miles) of highway and the reduction of congestion in key corridors. From 2019 through 2024, the Authority estimates that the investments made in this program will preserve overall highway and bridge conditions in the “good” category, allowing for the continued reliability of the Thruway System.

Total Capital Program Expenditures. The following table presents the year-by-year actual cash expenditure for the period from 2008-2018 and reflects the 2019 Revised Budget and projections for the 2019-2024 Capital Program. The table also includes the Authority’s projections for capital expenditures on the New NY Bridge Project, which began in 2013. With this level of capital expenses, the Authority can continue to provide good service to patrons, meet the growing demands of increased use with up-to-date technology and other necessary improvements, and assure that the system is not adversely affected by deteriorating bridge and pavement conditions.

ACTUAL AND PROJECTED CAPITAL PROGRAM EXPENDITURES⁽¹⁾
2008-2024
(in millions)

		<u>Thruway Highway and Bridge Capital Expenditures</u>	<u>Equipment Replacement and Other Facility Capital Needs</u>	<u>Canal Capital Program⁽²⁾</u>	<u>Subtotal Capital Program Expenditures</u>	<u>New NY Bridge</u>	<u>Thruway AETC Projects</u>	<u>Total Capital Program Expenditures</u>
2008	Actual	\$ 288.7	\$ 36.2	\$30.3	\$355.2			\$ 355.2
2009	Actual	259.6	35.4	26.1	321.1			321.1
2010	Actual	311.0	39.9	26.8	377.7			377.7
2011	Actual	367.6	49.5	27.4	444.5			444.5
2012	Actual	322.4	22.9	45.7	390.9			390.9
2013	Actual	183.7 ⁽³⁾	30.7	37.5	251.9	\$613.4		865.3
2014	Actual	170.7	33.7	76.7	281.1	594.2		875.3
2015	Actual	251.3	35.2	48.8	335.3	702.0		1,037.3
2016	Actual	200.1	36.5	30.3	266.9	790.7		1,057.6
2017	Actual	184.7	44.8		229.5	479.1		708.6
2018	Actual	222.9	76.7		299.6	264.1	\$ 28.1	591.8
2019	Projected	222.1	49.5		271.6	220.0	138.1	629.7
2020	Projected	219.7	48.9		268.6	72.4	265.1	606.1
2021	Projected	231.1	45.6		276.7	245.0	83.8	605.5
2022	Projected	243.9	54.4		298.4		10.5	308.9
2023	Projected	259.7	50.2		310.0			310.0
2024	Projected	<u>265.7</u>	<u>50.5</u>	<u>—</u>	<u>316.2</u>	<u>—</u>	<u>—</u>	<u>316.2</u>
Total⁽¹⁾		\$4,204.9	\$740.6	\$349.6	\$5,295.1	\$3,981.0 ⁽⁴⁾	\$525.5	\$9,801.7

(1) Totals may not add due to rounding.

(2) As noted above Canal system costs for the years 2017 and thereafter will be no longer be Authority costs. The portion of the total cost shown in 2016 incurred after March 31, 2016 will be reimbursed by the New York Power Authority.

(3) Includes \$8.3 million of Pre-Design Environmental costs.

(4) Does not include prior years’ expenses that had been paid from the Construction fund that are included in the column titled “Thruway Highway and Bridge Capital Expenditures”.

Funding of the 2019-2024 Capital Program

The 2019-2024 Capital Program totals \$2.78 billion including the New NY Bridge Project. The 2019-2024 Capital Program is funded with a combination of Net Revenues, Senior Bond proceeds, Junior Indebtedness Obligation proceeds (for the New NY Bridge Project only) and Federal, State and other funds.

The Authority’s Capital Program Management Group (the Authority’s Chief Engineer, Chief Financial Officer and Director and Maintenance and Operations) and the Authority Board continually monitor projected system needs and balance them with available resources. The Authority is also enhancing and modernizing its asset management system to ensure the efficient and effective delivery of the 2019-2024 Capital Program, resulting in smart project selections and enhancing its ability to respond to price variability and other changes that would impact funding, project cost and delivery. It is important to note that the Authority Board has the power, without approval by the Legislature or the Governor, to increase toll rates to maintain a high level of operating safety and services on the Thruway System, to maintain and rehabilitate the Thruway System, to pay debt service, to meet toll covenants and to maintain the balance of revenues and expenses.

Funding sources projected to be applied to complete the 2019-2024 Capital Program are set forth in the following chart.

	2019 – 2024 Capital Program						2019-24
	2019	2020	2021	2022	2023	2024	Total
Thruway System:							
Senior Debt Proceeds	\$ 0.0	\$425.7	\$297.5	\$251.2	\$236.2	\$237.1	\$1,447.8
Reserve Maintenance Fund	179.7	60.6	60.7	56.9	73.5	78.8	510.3
Federal, State and Other Funds	10.4	1.3	2.4	0.8	0.2	0.2	15.2
NYS Grant proceeds	219.6	46.1	0.0	0.0	0.0	0.0	265.7
Sub-Total	<u>\$409.7</u>	<u>\$533.7</u>	<u>\$360.5</u>	<u>\$308.9</u>	<u>\$310.0</u>	<u>\$316.2</u>	<u>\$2,238.9</u>
New NY Bridge Project:							
Junior Indebtedness Obligations	0.0	72.4	245.0	0.0	0.0	0.0	317.4
Facilities Capital Improvement Fund	43.0	0.0	0.0	0.0	0.0	0.0	43.0
Thruway Stabilization Program Funds	177.0	0.0	0.0	0.0	0.0	0.0	177.0
Sub Total – New Bridge Program	<u>220.0</u>	<u>72.4</u>	<u>245.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>537.4</u>
Grand Total	<u>\$629.7</u>	<u>\$606.1</u>	<u>\$605.5</u>	<u>\$308.9</u>	<u>\$310.0</u>	<u>\$316.2</u>	<u>\$2,776.3</u>

Note: Totals may not add due to rounding

Bridge Inspection Program and Condition Ratings

There are 872 bridges on the Thruway System, excluding bridges on the Cross-Westchester Expressway for which the Authority has not assumed any inspection responsibility. The Authority currently has inspection responsibility for 814 of these bridges, including 370 mainline and ramp bridges and 443 overhead bridges carrying interchange traffic as well those carrying State and local roads, pedestrian or railroad traffic. The New York State Department of Transportation (“NYSDOT”) is responsible for inspecting the remaining bridges.

The Authority’s inspection program exceeds current Federal and State standards. The inspection process strives for strict adherence to both the qualification and training of inspectors, and inspection methodologies as prescribed by NYSDOT. All bridges are inspected biennially as required by the State’s Uniform Code of Bridge Inspection (the “Bridge Code”). The Authority contracts with outside consultants to conduct this inspection for most of its bridges. In addition to the Bridge Code requirement,

the Authority performs an annual inspection of suspension components of pin and hanger assemblies of bridges, inspection of bridges over waterways after each major flood event, and inspection of bridges after any seismic activity in the area. During each general biennial or interim inspection, certain superstructure elements which could cause the failure of a bridge receive particularly close inspection. Bridges over waterways which are identified for underwater diving inspection are also inspected regularly at a frequency recommended in the last diving inspection report as per guidelines issued by NYSDOT.

The Authority currently has maintenance responsibility for 814 bridges, while NYSDOT and other entities have maintenance responsibility for the remaining bridges. The Authority’s bridge maintenance engineers review each bridge inspection report to determine maintenance and rehabilitation needs. A maintenance and rehabilitation program is implemented through in-house crews or through a contracts program depending upon the extent of work required to be performed at any bridge.

A comparison of the Authority’s Bridge Condition Ratings for the years 2017 and 2018 are shown as follows.

BRIDGE RATINGS		
CONDITION	NO. OF BRIDGES	
	Dec. 2017	Dec. 2018 ¹
GENERAL RECOMMENDATION 5-7 Bridges in generally good condition with only minor to moderate repairs required.	679	689
GENERAL RECOMMENDATION 4 Bridges in good to fair condition requiring reconditioning of some structural elements.	122	115
GENERAL RECOMMENDATION 2-3 Bridges in poor condition requiring major repairs or replacement.	8	9

¹In December 2018, the Authority had maintenance and inspection responsibility for 813 bridges. One new bridge was added in 2019 - the south span of the Gov. Mario M. Cuomo Bridge.

The change in the Authority’s bridge ratings between December 2017 and 2018 is due to aging of facilities and replacement of the Tappan Zee Bridge. As of December 31, 2018 there were nine bridges with a general recommendation of 3. Three of the bridges are currently being replaced. An additional four bridges with a general recommendation of 3 will be replaced in the 2019-2024 Capital Program.

Federal Funding

Pursuant to the provisions of an agreement dated July 19, 1982, entered into among the Authority, the United States Department of Transportation and the State and in accordance with the provisions of Title 23, United States Code, as amended (“Title 23”), the Authority historically has received Federal funds in connection with the funding of various resurfacing, restoration and rehabilitation projects on certain designated interstate portions of the Thruway System. In recent years the amount of Federal aid received by the Authority has been *de minimis* and the Authority does not currently expect to receive Federal aid in 2019-2023 to fund Thruway capital projects.

Report of Independent Traffic Engineer

The Authority retained Stantec Consulting Services, Inc., as Traffic Engineer to prepare a study (the “Traffic Engineer’s Report”) that reviewed the operations and physical condition of the Thruway System. The study further projects the financial results of the Authority’s operations in the years 2018-2023. The forecast of traffic and revenues detailed in the Traffic Engineer’s Report are based on the Authority’s current toll schedule. The study projects future revenues to be sufficient for the Authority to successfully complete the New NY Bridge Project while fulfilling its system-wide operating, debt service, and capital needs. Future funding needs through 2023 were established by the Authority at amounts necessary to maintain levels of safety and service, good infrastructure conditions, support Thruway operations, and maintain the Authority established debt service coverage policy targets.

The Authority has the ability to counter any Net Revenue shortfalls through periodic toll adjustments. In the Traffic Engineer’s opinion, any toll rate adjustments to fill an identified revenue shortfall can be implemented on the Thruway System and will result in only small changes to traffic patterns. In addition, the Traffic Engineer’s Report concluded that if the Authority through whatever means generates enough Net Revenue to match its needs it will be able to:

- Fully fund necessary operations, maintenance and capital expenses;
- Meet the covenants of the Senior Resolution and the Junior Indebtedness Resolution;
- Complete the New NY Bridge Project;
- Preserve good overall infrastructure conditions of the Thruway System;
- Comply with the requirements of the Authority’s Fiscal Management Guidelines; and
- Maintain targeted levels of debt service coverage.

In the Traffic Engineer’s opinion, the Authority will continue to be able to provide good service to its customers and will continue to fulfill its critical role in supporting the State’s economy through the forecast period. Finally, the Traffic Engineer found that if any modifications to toll rates are necessary to achieve these goals, they are attainable and will not result in significant traffic losses or diversions as a result of those increases.

The Traffic Engineer’s Report contains the following additional conclusions:

- The Authority has the independent, statutory ability to adjust its toll rates and provide significant amounts of additional revenue;
- The Authority’s toll rates are relatively low and compare well to other toll systems, allowing for future rate setting flexibility with minimal long-term traffic diversion impact;
- The Authority’s on-going operational streamlining efforts have limited growth in operational expenses and can be anticipated to provide recurring, long-term savings;
- Infrastructure conditions and the capacity of the Thruway System should not affect the projected growth of traffic and toll revenues throughout the forecast period;
- The Authority’s facilities have been maintained at high standards over the years, resulting in good overall infrastructure conditions throughout the Thruway System;
- The Authority’s planned extensive and regular maintenance programs, asset management systems and long-term capital planning process provide confidence that overall operational and structural integrity of its facilities will be maintained;

- Target levels of future maintenance and capital expenditures beyond the current 2019-2024 Capital Program will support the integrity and reliability of the Thruway System;
- The remaining elements of the New NY Bridge Project – construction on the Governor Mario M. Cuomo Bridge and demolition of the Tappan Zee Bridge - can be fully completed within the project’s budget; and.
- The Authority can fully implement Thruway System-wide AETC within the parameters described in the forecasting methodology for conversion to AETC in the Traffic Engineer’s Report.

The conclusions presented above are subject to the limitations and assumptions detailed in the Traffic Engineer’s Report. The Traffic Engineer’s Report is contained in **Appendix A**, which should be read in its entirety.

Projected Results

The Traffic Engineer’s Report analyzes the Authority’s current operations, and projects financial results of the Authority’s operations for the years 2019-2024. The forecast of traffic and revenues detailed in the Traffic Engineer’s Report are based on the Authority’s current toll schedule and other information provided by the Authority. The Traffic Engineer’s Report identifies future revenues required for the Authority to meet its system-wide operating, debt service, and capital needs, as well as the contractual covenants contained in its Senior Resolution and Junior Indebtedness Resolution. Future funding needs through 2024 were established by the Authority at amounts necessary to maintain levels of safety and service, good infrastructure conditions, support Thruway, and maintain the Authority’s established debt service coverage policy targets.

The projections summarized in the following table, entitled “Projected Results” show the Traffic Engineer’s findings for the years 2019 through 2024. See “Report of Independent Traffic Engineer” above, and **Appendix A** — “Report of Traffic Engineer”.

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Projected Results

(in millions)

	Actual 2018	Revised Budget 2019	Projected 2020	Projected 2021	Projected 2022	Projected 2023	Projected 2024
Toll Revenue	\$736.5	\$739.6 ⁽¹⁾	\$735.8 ⁽¹⁾	\$713.8	\$722.9	\$730.4	\$737.1
Other Revenues	62.3	61.3	58.2	76.2	91.8	88.1	88.3
Additional Revenue Need ⁽²⁾	0.0	0.0	0.0	0.0	53.1	124.5	149.2
Total Revenues [Target]	798.8	800.9	793.9	790.0	867.8	943.0	974.6
Thruway Operating Expenses	339.9	358.3	370.7	374.8	380.4	386.1	391.9
Reserve for Claims and Indemnities and Environmental Remediation	5.0	4.6	1.0	1.0	1.0	1.0	1.0
Net Revenue (A)	453.8	437.9	422.3	414.1	486.4	555.8	581.7
Senior Debt Service ⁽³⁾	225.0	231.9	239.1	240.7	287.4	293.4	310.8
Less Interest Earnings on Sr. Debt Service Res Funds	(4.7)	(3.4)	(0.7)	(0.7)	(0.8)	(0.8)	(0.9)
Net Senior Debt Service (B)	220.3	228.5	238.4	240.0	286.6	292.5	309.9
Net Revenue after Senior Debt Service	233.5	209.4	183.9	174.2	199.8	263.3	271.7
Reserve Maintenance Deposit ⁽⁴⁾	74.1	104.7	60.6	60.7	56.9	73.5	78.8
Total Junior Debt Service	79.5	53.8	44.4	46.0	74.0	119.5	121.2
Less Interest Earnings on Jr. Debt Service Res Account	(0.3)	(0.4)	(0.4)	(0.4)	(0.3)	(0.3)	(0.3)
Net Junior Debt Service (C)	79.2	53.4	44.1	45.6	73.7	119.2	120.9
Retain for Operations/Adjustment for Cash Basis ⁽⁴⁾	24.6	1.1	12.7	0.0	0.0	0.0	0.0
Facilities Capital Improvement Deposit	12.0	8.0	0.0	0.0	0.0	0.0	0.0
General Reserve Fund Provisions – State Police	43.6	42.2	66.5	67.8	69.2	70.6	72.0
Balance	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senior Debt Service Coverage Ratio (A/B) ⁽²⁾	2.06	1.92	1.77	1.73	1.70	1.90	1.88
Senior & Junior Debt Service Coverage Ratio (A/(B+C)) ⁽²⁾⁽⁵⁾	1.52	1.55	1.50	1.45	1.35	1.35	1.35
Proposed Non-Refunding Debt Issuances/Year:							
Senior – General Revenue Bonds	-0-	-0-	403.3	308.9	260.6	258.8	247.4
Junior Indebtedness	-0-	67.5	-0-	251.6	-0-	-0-	-0-

Source: Derived from Stantec Consulting Services, Inc., Traffic Engineer's Report dated October 7, 2019.

- (1) Total Revenue includes toll by mail revenues that are earned in a fiscal year but not collected until later fiscal years. The amounts earned but not collected until later years are \$1.1 million and \$12.7 million in years 2019-2020, respectively. Without these revenues included, combined Senior Bonds and Junior Indebtedness Obligations debt service coverage is projected to be 1.55 times in 2019 and 1.45 times in 2020.
- (2) Includes estimated additional revenue of \$53.1 million, \$124.5 million and \$149.2 million in 2022-2024, respectively, that will be necessary to meet Board-adopted Fiscal Management Guidelines (the "Fiscal Management Guidelines"), as well as the current Authority management commitment which requires a minimum 1.55x Senior Bond debt service coverage ratio and minimum 1.35x combined Senior Bonds and Junior Indebtedness Obligations debt service coverage ratio. The debt service coverage ratios established in the Fiscal Management Guidelines and the current Authority management commitment are not required by the terms of either the Senior Resolution or the Junior Indebtedness Resolution.
- (3) Senior Debt Service is net of projected future defeasances of \$6.2 million in 2020 and \$9.9 million in 2021.
- (4) Reflects the minimum required deposit to the Reserve Maintenance Fund (\$30,000,000) as well excess revenue intended for pay-as-you-go capital projects (see "SOURCES OF PAYMENT AND SECURITY FOR THE JUNIOR INDEBTEDNESS OBLIGATIONS – Reserve Maintenance Fund").
- (5) The Senior Resolution requires a 1.2x minimum debt service coverage ratio only on Senior Bonds while the Junior Indebtedness Resolution requires a 1.2x minimum debt service coverage ratio on Senior Bonds and Junior Indebtedness Obligations.

Note: Totals may not add due to rounding.

Future availability of Net Revenues will affect the level of debt service coverage and the amount of debt issued under both the Senior Resolution and the Junior Indebtedness Resolution to fund Authority capital expenditures. The Authority has covenanted to maintain tolls in order that Net Revenues will at least equal both the Net Revenue Requirement under the Senior Resolution and the Junior Indebtedness Net Revenue Requirement under the Junior Indebtedness Resolution for each year. See “SOURCES OF PAYMENT AND SECURITY FOR THE JUNIOR INDEBTEDNESS OBLIGATIONS — Tolls, Fees and Charges”.

In addition, the Authority continually monitors its projected needs and financial plan. It also continually reviews projections of revenues and expenses and has the power, without approval by the Legislature or the Governor, to increase toll rates to maintain a high level of operating safety and services on the Thruway System, to maintain and rehabilitate the Thruway System, to pay debt service, to meet toll covenants and to maintain the balance of revenues and expenses.

ADDITIONAL AUTHORITY INFORMATION

Employee Relations

Authority employees are represented pursuant to New York State’s Public Employees’ Fair Employment Act (Taylor Law) by two unions, International Brotherhood of Teamsters (the “Teamsters”) and Civil Service Employees Association (“CSEA”). The Teamsters represent the Authority’s maintenance, toll collection and clerical employees while the CSEA represents Authority professional, supervisory and technical employees. At its March 27, 2017 Authority Board meeting, the Authority approved the terms of a collective bargaining agreement with CSEA effective through July 1, 2022. At its November 13, 2017 Authority Board meeting, the Authority approved the terms of a collective bargaining agreement with the Teamsters, effective through July 1, 2022.

Retirement Plans and Other Post-Employment Benefits

The Authority is a participating employer in the New York State and Local Employees’ Retirement System (“ERS”). ERS is a cost-sharing multiple-employer retirement system that provides retirement benefits as well as death and disability benefits. Plan benefits are provided under the provisions of the New York State Retirement and Social Security Law and are guaranteed under the State Constitution. The Authority’s election to participate in the State plans is irrevocable. Employees in permanent positions are required to enroll in ERS, and employees in part-time or seasonal positions have the option of enrolling in ERS. ERS Tiers I through IV are noncontributory except for employees with less than 10 years of service who contribute 3% of their salary. All Tier V employees contribute 3% of their salary. All Tier VI employees contribute between 3% and 6% of their salary, based upon the amount of their annual salary. Under State law, the Comptroller certifies annually the rates, expressed as proportions of payroll of members, which are used in computing the contributions required to be made by employers. The rates billed by the Comptroller for ERS during the year ended December 31, 2018 ranged from 9.3% to 21.6% and during the year ended December 31, 2017 ranged from 9.3% to 21.7%.

The approximate required Authority contributions for each of the years 2015 through 2018 were as follows (in thousands):

	<u>ERS⁽¹⁾</u>
2018	\$22,454
2017	21,026
2016	24,795
2015	28,815

(1) 2015 and 2016 include contributions for both the Authority and the Canal Corporation.

The Authority’s contributions in each of the foregoing years were equal to 100% of the contributions required for the period.

Other Post-Employment Benefits

The Authority provides other postemployment benefits, principally employer funded health care. With the exception of part-time toll collectors, substantially all Authority employees may become eligible for these benefits if they reach normal retirement age while working for the Authority. The Authority participates in the New York State Health Insurance Program (“NYSHIP”), an Agent Multiple-Employer Plan. The Authority contributes to the plan to satisfy obligations on a pay-as-you-go basis. For the year ended December 31, 2018, the Authority paid \$30.6 million on behalf of retirees.

The following table summarizes the Authority’s OPEB liability at December 31, 2018 (in thousands):

	<u>2018</u>
OPEB Liability	\$1,083,760
OPEB Covered Payroll	146,100
OPEB Liability as a percentage of Covered payroll	741.8%

During 2018, the Authority implemented Government Accounting Standards Board Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other than Pensions*. As a result, comparable amounts for years prior to 2018 are not available.

See Note 1u – Adoption of GASB 75, Note 7 – Retirement Benefits and Note 9 – Other Postemployment Benefits in the Authority’s financial statements in **Appendix B** to this Official Statement for a further discussion of the Authority’s retirement and OPEB programs.

Investments

The Senior Resolution and the Junior Indebtedness Resolution enumerate various investments for Authority funds as authorized by law. See **Appendix C** — “Summary of Certain Provisions of the Junior Indebtedness Resolution and the Senior Resolution — Definitions — Investment Obligations” and “Investments of Funds”. The Act limits investments to those obligations in which the Comptroller of the State may invest public funds pursuant to Section 98-a of the State Finance Law, as amended from time to time. Title 7, Section 2925 of the Public Authorities Law requires that the Authority Board annually review and approve its investment policies and practices and provides for an annual independent audit of all investments. **Appendix B** includes a copy of the Authority’s financial statements and a list of its investments as of December 31, 2018 and 2017. The Authority’s investment policies emphasize preservation of principal and the Authority believes its practices are fiscally responsible.

Insurance

Pursuant to the Senior Resolution, the Authority purchases various insurance policies to provide against loss of or damage to the Facilities and loss of revenue, to the extent necessary and reasonably obtainable, to protect the interests of the Authority and the Bondholders. The insurance program is comprised of a combination of policies from major insurance companies, self-insurance and contractual transfer of liability, including naming the Authority as an additional insured and indemnification.

Property damage to bridges is insured through two policies with major insurance companies equal to the maximum probable loss from a single occurrence. The Thruway System's largest bridge, The Governor Mario M. Cuomo Bridge, is separately covered by a commercial insurance policy providing loss of revenue and damage coverage in the amount of \$1,088.2 million in total for the two spans. A second policy provides terrorism coverage for both spans in the amount of \$500 million per occurrence. All of the other Authority's bridges are covered separately, whereby loss of revenues is insured through a use and occupancy policy that covers any interruption in excess of fifteen days with a maximum recovery period of 30 months.

The Authority purchases insurance for workers' compensation benefits and various liability exposures. In addition, the Authority is self-insured for property damage to its division headquarters buildings, maintenance facilities and toll plazas and third party liability, including automobile liability. There are two funded reserves for these exposures, a \$2.5 million insurance fund and a reserve for public liability claims which, as of December 31, 2018, totaled \$12.8 million.

Insurance for the Authority's service area facilities is provided by the concessionaires. Also, the liability related to construction projects, tandem trailer operations, authorized garage operations and similar type risks is transferred through contractual indemnification and compliance with Authority insurance requirements.

Other Bond Programs

Pursuant to its statutory mandate, the Authority has from time to time issued bonds to provide funds to finance primarily non-Authority transportation projects in the State. Those bonds and the programs discussed below have no lien on the Revenues, assets or properties of the Authority which secure the Senior Bonds and the Junior Indebtedness Obligations. Those bond programs include the Local Highway and Bridge Service Contract Bonds, the General Highway and Bridge Trust Fund Bonds, State Personal Income Tax Revenue Bonds (Transportation), as well as the State Sales Tax Revenue Bond program, all issued or expected to be issued in multiple series for State and local highway purposes. These bond programs require varying debt service payments which are payable solely from payments received by the Authority under contractual agreements with the State. In each of these bond programs, the obligation of the State to make such payments is subject to, and dependent upon, annual State legislative appropriations. The State may from time to time authorize the Authority by statute to undertake additional financing activities.

INVESTMENT CONSIDERATIONS

The Series 2019B Junior Indebtedness Obligations are special obligations of the Authority which are secured and payable solely from the Net Revenues available therefor under the Junior Indebtedness Resolution. The following is a discussion of certain investment considerations that should be considered in evaluating an investment in the Series 2019B Junior Indebtedness Obligations. This discussion does not purport to be either comprehensive or definitive. The order in which such considerations and risks are presented is not intended to reflect either the likelihood that a particular event will occur or the relative significance of such an event. Moreover, there may well be other considerations and risks associated with an investment in the Series 2019B Junior Indebtedness Obligations in addition to those set forth herein. Investors are advised to read the entire Official Statement, including the appendices hereto, to obtain information essential to the making of an informed investment decision.

Traffic Engineer's Report

As the Traffic Engineer for the Authority, Stantec Inc. was requested by the Authority to prepare a traffic and toll revenue projection study (the "Traffic Engineer's Report") presenting its analyses and findings relative to recent trends in traffic and revenue on the Thruway System. See "**Appendix A — Report of Traffic Engineer**" attached to this Official Statement. *The revenue forecasts contained in the Traffic Engineer's Report are based upon certain assumptions and limits set forth or incorporated therein which should be reviewed by potential investors to assure an understanding of some of the risks inherent in such estimates and projections. Moreover, the Traffic Engineer's Report does not recommend specific toll levels that should be adopted by the Authority to meet its programmatic needs, including the completion of The Governor Mario M. Cuomo Bridge and Thruway System-wide implementation of AETC, but projects such needs for the period through 2024 and concludes that the Thruway System can sustain toll adjustments necessary to finance such needs.* The Traffic Engineer's Report is not a guarantee of any future events or trends and the forecasts therein are subject to future economic and social conditions and demographic developments that cannot be predicted with certainty. Further, the estimates, projections and assumptions in the Traffic Engineer's Report are inherently subject to significant economic and competitive uncertainties and contingencies, many of which are beyond the control of the Authority. Failure to achieve or realize any of the assumptions listed in the Traffic Engineer's Report may have a materially adverse effect upon the Net Revenues actually realized by the Authority.

The information provided with respect to toll revenues collected by the Authority is based on historical data. The amount of future toll revenues to be collected by the Authority depends upon a number of factors, some of which are not in the control of the Authority. Some of these factors include a decline in traffic on the Thruway System due to general economic conditions, diversion of traffic to alternative non-toll routes, increased fuel costs, limited supply of fuel, availability of alternate forms of travel and shipping, and government regulations, such as Clean Air Act requirements, increased mileage standards or higher fuel taxes, which could significantly restrict motor vehicle use, as well as international events affecting fuel supply and costs.

As shown in the Traffic Engineer's Report and the Authority's financial plan, significant additional revenue is required starting in 2022 in order for the Authority to meet its Board-adopted financial policies, comply with its rate covenants and meet all of its financial obligations. The Traffic Engineer states in its report that "*Based on our experience and knowledge of the Thruway System, the essentiality of the Thruway System, and its currently relatively low toll rates (compared to other toll roads nationally), we have determined that the size of future rate adjustments that may be needed to produce these additional revenues can be achieved.*" Revenue actions which the Authority determines to be necessary to meet its financial policies and rate covenants are contingent on future Board action, environmental reviews and traffic demand.

In addition, with the implementation of AETC at all existing barriers on the Thruway System in 2018, and planned implementation of AETC for the Thruway System's mainline by the end of 2020, the Traffic Engineer's Report discusses in detail their forecasting methodology for the AETC system for non-E-ZPass patrons and their estimates for potential revenue offsets attributable to the inability to collect from all video toll customers. Although the Authority has covenanted in the Junior Indebtedness Resolution to fix, charge and collect tolls for the use of the Thruway System in amounts so that, in each calendar year, the Net Revenues shall at least equal the Junior Indebtedness Net Revenue Requirement for such year, there can be no assurance that the traffic on the Thruway System will continue to be sufficient for the Authority to generate the necessary revenues to meet its obligations under the Junior Indebtedness Resolution.

Toll-Backed Components of the 2019-2024 Capital Program

The planned and ongoing capital improvements to the Thruway System to sustain a state of good repair are primarily dependent upon additional debt and pay-as-you-go funding. Revenue actions which the Authority determines to be necessary to fund such capital program obligations are contingent on future Board action, environmental reviews and traffic demand. The Authority has consistently fulfilled its responsibilities to maintain a state of good repair and its safety record exceeds the norms of the national interstate highway system. The Authority expects to maintain access to the capital markets to finance its capital costs and other system-wide capital needs through adherence to Board-adopted fiscal policies that assure continuation of the Authority's stable credit ratings, as well as strict controls over future operating costs and a disciplined approach to capital project selection.

Risks Relating to Natural and Catastrophic Events

It is possible that a natural disaster (earthquake, landslide), severe weather (tornados, floods, hurricanes, extreme wind and storm), or any other event (terrorism, explosion, ship strike) that damages the Thruway System, including The Governor Mario M. Cuomo Bridge, could reduce toll revenues projected to be generated by the Thruway System or significantly increase the expense of maintaining or restoring elements of the Thruway System. These risks are generally covered by Authority insurance policies for property damage and business interruption, and, in the extreme, assistance from FEMA. If any of the foregoing events occur, to the extent not fully covered by insurance or federal disaster assistance, the Authority's ability to meet its financial obligations, including the payment of debt service could be adversely affected.

Risks Relating to the Design-Build Contract for the New NY Bridge Project

The New NY Bridge Project was procured using a Design-Build Contract that transfers many risks normally retained by the Authority to the design-build joint venture, including such items as design defects, changed geotechnical conditions, project management and coordination, and commodity price escalation, among others. As noted above, the Design-Build Contract was awarded to a consortium, TZC LLC, whose members have extensive experience in large infrastructure developments and are providing significant levels of financial security to the Authority. Design-build contracts are viewed as providing greater cost certainty than traditional contracting methods. However, it is possible that despite these modifications to traditional contracting processes, additional costs beyond the initial contract price may be incurred by the Authority relating to such risks as pre-existing contamination beyond what had been identified in prior studies or change orders related to evolving homeland security considerations. To mitigate these risks, the Authority budgeted contingencies and allowances for such possibilities of approximately 20% of the Design-Build Contract price. The first span of The Governor Mario M. Cuomo Bridge was opened to vehicular traffic on August 25, 2017 and the second span was opened to vehicular traffic on September 12, 2018 and the original Tappan Zee Bridge has been fully demolished. The Authority does not expect that actual exposure for additional costs would exceed these budgeted amounts, but in that event additional Junior Indebtedness Obligations for completion could be required. See Note 11a – Contingencies and Commitments – Governor Mario M. Cuomo Bridge Claims in the Authority's financial statements in **Appendix B** to this Official Statement for a discussion of the status of certain claims asserted by TZC LLC and "THE NEW NY BRIDGE PROJECT" above for more detail on the Design-Build Contract and TZC LLC.

Risks Relating to the Implementation of All Electronic Toll Collection

The Authority is currently planning to convert the entire Thruway System to AETC by the end of 2020. The Authority converted the barrier at The Governor Mario M. Cuomo Bridge in April 2016. The

Authority's conversion to AETC of its remaining barriers (Grand Island Bridges, and the Harriman New Rochelle, Yonkers and Spring Valley Barriers) occurred during 2018. The Authority is planning to complete system-wide AETC with conversion of the entire controlled system to AETC by the end of 2020.

While there are many benefits to AETC, the Thruway System-wide conversion to AETC presents revenue risk that must be considered. Electronic toll collection records patron trips through the use of overhead gantries at AETC locations equipped with readers to detect E-ZPass transponders, and cameras to photograph license plates of non-E-ZPass customers. Trips charged to patrons using E-ZPass transponders are recorded and paid to the Authority electronically through their related pre-paid E-ZPass accounts; non-E-ZPass customers are billed by mail. AETC for both E-ZPass customers and non-E-ZPass customers is dependent upon uninterrupted gantry operation, including physical and technological components. The Authority mitigates the technology and recording risk by careful design of each AETC location and physically protecting its AETC equipment, hardware and software, providing for appropriate backup equipment and periodic testing. Additionally, the Authority has secured an insurance policy for The Governor Mario M. Cuomo Bridge with respect to its AETC equipment that also includes coverage for certain lost toll revenues, although the future availability of such policy at a reasonable price cannot be assured. Collection for non-E-ZPass customer trips recorded via AETC can be affected by the inability to invoice due to poor license plate photos. The timely collection of tolls can also be affected by delays in invoicing patrons, delays in payment, or non-payment. The Authority mitigates collection risk through marketing of E-ZPass to patrons, the use of late fees as part of the invoicing process, imposing additional violation fees for repeat offenders and non-payers, seeking enforcement of motor vehicle regulation mandating suspension of vehicle registration for non-payers, entering into reciprocity agreements with other states for toll enforcement, and improving and updating technology where possible.

See, **Appendix A** – Report of Traffic Engineer, for a discussion of additional considerations relating to the Authority's implementation of AETC on the Thruway System.

Ratings of the Series 2019B Junior Indebtedness Obligations Could be Lowered or Withdrawn

Two credit rating agencies have assigned credit ratings to the Junior Indebtedness Obligations, including the Series 2019B Junior Indebtedness Obligations. The ratings of the Junior Indebtedness Obligations are not a recommendation to purchase, hold or sell the Junior Indebtedness Obligations, and the ratings do not comment on the market price or suitability of the Junior Indebtedness Obligations for a particular investor. The ratings of the Series 2019B Junior Indebtedness Obligations may not remain for any given period of time and may be lowered or withdrawn depending on, among other things, each rating agency's assessment of the Authority's (A) financial strength and the financial plan relating to the New NY Bridge Project and its progress and implementation, and (B) continued financial strength and ability to meet all of its financial obligations.

Certain Matters Relating to Enforceability of Obligations

The remedies available to the owners of the Series 2019B Junior Indebtedness Obligations upon the occurrence of an Event of Default under the Junior Indebtedness Resolution are, in many respects, dependent upon regulatory and judicial actions that are often subject to discretion or delay. Under existing law and judicial decisions, including specifically the United States Bankruptcy Code, the remedies specified in the Junior Indebtedness Resolution may not be readily available or may be limited. However, the Authority is not authorized under existing State law to file for bankruptcy under the United State Bankruptcy Code. Enforcement of such remedies (i) may be subject to general principles of equity which may permit the exercise of judicial discretion, (ii) are subject to the exercise in the future by the State and its agencies and political subdivisions of the police power inherent in the sovereignty of the

State, (iii) may be subject, in part, to the provisions of the United States Bankruptcy Act and other applicable bankruptcy, insolvency, reorganization, moratorium or similar laws relating to or affecting the enforcement of creditors' rights generally, now or hereafter in effect, and (iv) are subject to the exercise by the United States of the powers delegated to it by the Constitution of the United States of America. The various legal opinions to be delivered concurrently with the delivery of the Series 2019B Junior Indebtedness Obligations will be qualified to the extent that the enforceability of certain legal rights related to the Series 2019B Junior Indebtedness Obligations is subject to limitations imposed by bankruptcy, reorganization, insolvency or other similar laws affecting the rights of creditors generally and by equitable remedies and proceedings generally.

Legislative Action

Legislation is introduced from time to time in the State Legislature which, if adopted, may affect the Authority and/or the Thruway System. The Authority cannot predict whether or not these bills will be enacted into law or how such legislation may affect the Authority and its ability to pay debt service on the Series 2019B Junior Indebtedness Obligations. Under the Act, the State has agreed with the holders of the bonds and notes of the Authority, including the Junior Indebtedness Obligations, that it will not limit or alter the rights vested by the Act in the Authority to establish and collect such fees, rentals and charges as may be convenient or necessary to produce sufficient revenue to meet the expense of maintenance and operation and to fulfill the terms of any agreements made with such holders of bonds, or in any way impair the rights and remedies of such bondholders and noteholders.

Subordination of Junior Indebtedness Obligations

All Junior Indebtedness Obligations, including the Series 2019B Junior Indebtedness Obligations, are subordinate in right of payment to the payments due under the Senior Resolution, including payment of debt service on Senior Bonds, and funding of any shortfalls in either the Senior Debt Service Reserve Fund or Reserve Maintenance Fund. In the event of default, remedies of Junior Indebtedness holders will be subordinate to remedies of the holders of Senior Bonds and may be limited by the obligations to holders of Senior Bonds under the General Revenue Bond Resolution. The Authority anticipates the future issuance of significant additional Senior Bonds for its capital program, which would increase the amount of Senior Bonds outstanding to which payment of Junior Indebtedness Obligations, including the Series 2019B JIOs, are subordinated.

LITIGATION

There is no litigation pending or, to the knowledge of the Authority, threatened in any court, questioning the creation, organization or existence of the Authority, the title to office of the members or officers of the Authority, the validity of any provision of the Series 2019B Junior Indebtedness Obligations or the Junior Indebtedness Resolution, or any proceedings of the Authority taken with respect to the issuance or sale thereof, or seeking to restrain or enjoin the issuance, sale, execution or delivery of the Series 2019B Junior Indebtedness Obligations.

A class action lawsuit pertaining to the Authority's all electronic toll collection was filed in the United States District Court for the Southern District of New York on April 30, 2018 (*Jason Farina, Charles Gardner, Dorothy Troiano, Deloris Ritchie, and Mirian Rojas v. Metropolitan Transportation Authority, Triborough Bridge and Tunnel Authority, The Port Authority of New York and New Jersey, New York State Thruway Authority, Transworld Systems, Inc., Allianceone Receivables Management, Inc., Linebarger Goggan Blair & Sampson, LLP and Conduent, Inc.*). The plaintiffs allege that the \$50/\$100 violation fee imposed for each toll violation at the bridges and tunnels of the Authority, Metropolitan Transportation Authority/Triborough Bridge and Tunnel Authority, and Port Authority of

New York and New Jersey (“Authority Defendants”) is excessive and defendants’ fee policies, practices and collection methods are illegal and unconstitutional because they allegedly violate the protection against excessive fines contained in the Eighth Amendment of the United States Constitution and Article I, Section 5 of the New York State Constitution; the Due Process clauses of the United States Constitution and New York State Constitution; and the Fair Debt Collection Practices Act. Plaintiffs also allege that the Authority Defendants have committed deceptive business practices in violation of New York General Business Law §§349-350, have been unjustly enriched and breached E-ZPass agreements. The plaintiffs on behalf of a putative class of persons and entities who have E-ZPass accounts or received a Tolls by Mail bill and have been assessed a fee seek declaratory and injunctive relief invalidating the fees/penalties and the defendants’ policies, practices and collection methods pertaining to such; payment of restitution to the class; disgorgement of gains; actual damages; punitive, treble, statutory and exemplary damages; pre-judgment interest; and costs, including attorneys’ fees. The United States District Court for the Southern District of New York granted the Authority’s motion to dismiss on August 21, 2019. Plaintiffs have the right to appeal the decision to the United States Court of Appeals for the Second Circuit.

On April 18, 2019, a class action lawsuit (*Carl Kettle, Larry Biesuz Jr., and David Tredo v. New York State Thruway Authority and Linebarger Goggan Blair & Sampson, LLP*) pertaining to the Authority’s all electronic toll collection program (referred to in this Official Statement as “AETC”) at the Grand Island Bridges was filed in the United States District Court for the Western District of New York. The lawsuit alleges that the Authority’s \$50 violation fee imposed for untimely payment of a cashless toll for travel on the Grand Island Bridges is unconstitutional because it violates the protection against excessive fines contained in the Eighth Amendment of the United States Constitution and Article I, Section 5 of the New York State Constitution and the Due Process clauses of the United States Constitution and New York State Constitution.

As described in this Official Statement, the Authority has already implemented AETC at all existing barriers on the Thruway System and on the Governor Mario M. Cuomo Bridge, and anticipates converting the entire Thruway System to AETC by the end of 2020. The Authority believes that it has meritorious defenses to the plaintiff’s claims and will vigorously defend this action. The Authority has filed a motion to dismiss with the United States District Court for the Western District of New York.

The Seneca Nation of Indians filed an action April 11, 2018, in United States District Court for the Western District of New York, alleging that the October 5, 1954 permanent easement for a portion of Thruway going through the Seneca Nation’s Cattaraugus Reservation was never legally valid or effective because the easement did not comply with federal law requiring approval of the Secretary of the Interior. *Seneca Nation v. Andrew Cuomo, Eric T. Schneiderman, Paul A. Karas, Thomas P. DiNapoli, The New York State Thruway Authority*. The Seneca Nation is seeking an injunction requiring a valid easement, an injunction requiring that the Comptroller of the State of New York segregate and hold in escrow all future toll monies collected on the Thruway System that are fairly attributable to the portion of the easement, and compensation pro rata for future use of its land or to prohibit the collection of tolls on the portion of land through the territory. A motion to dismiss the lawsuit was filed on June 5, 2018. On Dec. 19, 2018, the Magistrate Judge for US District Court for Western District of New York recommended dismissal of the lawsuit. In 2004, the Second Circuit for the United States Court of Appeals upheld the dismissal of a similar lawsuit brought by the Seneca Nation.

The Authority is a party to various legal proceedings including negligence suits, many of which arise in the normal course of the Authority’s operations, a majority of which will, in the opinion of the Authority, be disposed of within the amounts which the Authority has reserved or has available therefor, or, as applicable, within the amounts of insurance coverage provided therefor and without any material adverse effect on the financial position of the Authority. The Authority maintains a claims reserve sufficient to cover anticipated liability and it is periodically replenished.

TAX MATTERS

Opinion of Bond Counsel

In the opinion of Hawkins Delafield & Wood LLP, Bond Counsel to the Authority, under existing statutes and court decisions and assuming continuing compliance with certain tax covenants described herein, (i) interest on the Series 2019B Junior Indebtedness Obligations is excluded from gross income for federal income tax purposes pursuant to Section 103 of the Internal Revenue Code of 1986, as amended (the “Code”) and (ii) interest on the Series 2019B Junior Indebtedness Obligations is not treated as a preference item in calculating the alternative minimum tax under the Code. In rendering its opinion, Bond Counsel has relied on certain representations, certifications of fact, and statements of reasonable expectations made by the Authority and others in connection with the Series 2019B Junior Indebtedness Obligations, and Bond Counsel has 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 2019B Junior Indebtedness Obligations from gross income under Section 103 of the Code.

In addition, in the opinion of Bond Counsel to the Authority, under existing statutes, interest on the Series 2019B Junior Indebtedness Obligations is exempt from personal income taxes imposed by the State of New York and any political subdivision thereof.

Bond Counsel expresses no opinion as to any other federal, state or local tax consequences arising with respect to the Series 2019B Junior Indebtedness Obligations, or the ownership or disposition thereof, except as stated above. Bond Counsel renders its opinion under existing statutes and court decisions as of the issue date, and assumes no obligation to update, revise or supplement its opinion to reflect any action thereafter taken or not taken, any fact or circumstance that may thereafter come to its attention, any change in law or interpretation thereof that may thereafter occur, or for any other reason. Bond Counsel expresses no opinion as to the consequence of any of the events described in the preceding sentence or the likelihood of their occurrence. 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, exclusion from gross income for federal income tax purposes of interest on the Series 2019B Junior Indebtedness Obligations.

Certain Ongoing Federal Tax Requirements and Covenants

The Code establishes certain ongoing requirements that must be met subsequent to the issuance and delivery of the Series 2019B Junior Indebtedness Obligations in order that interest on the Series 2019B Junior Indebtedness Obligations be and remain excluded from gross income under Section 103 of the Code. These requirements include, but are not limited to, requirements relating to use and expenditure of gross proceeds of the Series 2019B Junior Indebtedness Obligations, yield and other restrictions on investments of gross proceeds, and the arbitrage rebate requirement that certain excess earnings on gross proceeds be rebated to the federal government. Noncompliance with such requirements may cause interest on the Series 2019B Junior Indebtedness Obligations to become included in gross income for federal income tax purposes retroactive to their issue date, irrespective of the date on which such noncompliance occurs or is discovered. The Authority has covenanted to comply with certain applicable requirements of the Code to assure the exclusion of interest on the Series 2019B Junior Indebtedness Obligations from gross income under Section 103 of the Code.

Certain Collateral Federal Tax Consequences

The following is a brief discussion of certain collateral federal income tax matters with respect to the Series 2019B Junior Indebtedness Obligations. It does not purport to address all aspects of federal taxation that may be relevant to a particular owner of a Series 2019B Junior Indebtedness Obligation.

Prospective investors, particularly those who may be subject to special rules, are advised to consult their own tax advisors regarding the federal tax consequences of owning and disposing of the Series 2019B Junior Indebtedness Obligations.

Prospective owners of the Series 2019B Junior Indebtedness Obligations should be aware that the ownership of such obligations may result in collateral federal income tax consequences to various categories of persons, such as corporations (including S corporations and foreign corporations), financial institutions, property and casualty and life insurance companies, individual recipients of Social Security and railroad retirement benefits, individuals otherwise eligible for the earned income tax credit, and taxpayers deemed to have incurred or continued indebtedness to purchase or carry obligations the interest on which is excluded from gross income for federal income tax purposes. Interest on the Series 2019B Junior Indebtedness Obligations may be taken into account in determining the tax liability of foreign corporations subject to the branch profits tax imposed by Section 884 of the Code.

Original Issue Discount

“Original issue discount” (“OID”) is the excess of the sum of all amounts payable at the stated maturity of a Series 2019B Junior Indebtedness Obligations (excluding certain “qualified stated interest” that is unconditionally payable at least annually at prescribed rates) over the issue price of that maturity. In general, the “issue price” of a maturity (a bond with the same maturity date, interest rate, and credit terms) means the first price at which at least 10 percent of such maturity was sold to the public, i.e., a purchaser who is not, directly or indirectly, a signatory to a written contract to participate in the initial sale of the Series 2019B Junior Indebtedness Obligations. In general, the issue price for each maturity of Series 2019B Junior Indebtedness Obligations is expected to be the initial public offering price set forth on the cover page of the Official Statement. Bond Counsel further is of the opinion that, for any Series 2019B Junior Indebtedness Obligations having OID (a “Discount Bond”), OID that has accrued and is properly allocable to the owners of the Discount Bond under Section 1288 of the Code is excludable from gross income for federal income tax purposes to the same extent as other interest on the Series 2019B Junior Indebtedness Obligations.

In general, under Section 1288 of the Code, OID on a Discount Bond accrues under a constant yield method, based on periodic compounding of interest over prescribed accrual periods using a compounding rate determined by reference to the yield on that Discount Bond. An owner’s adjusted basis in a Discount Bond is increased by accrued OID for purposes of determining gain or loss on sale, exchange, or other disposition of such Bond. Accrued OID may be taken into account as an increase in the amount of tax-exempt income received or deemed to have been received for purposes of determining various other tax consequences of owning a Discount Bond even though there will not be a corresponding cash payment.

Owners of Discount Bonds should consult their own tax advisors with respect to the treatment of original issue discount for federal income tax purposes, including various special rules relating thereto, and the state and local tax consequences of acquiring, holding, and disposing of Discount Bonds.

Bond Premium

In general, if an owner acquires a bond for a purchase price (excluding accrued interest) or otherwise at a tax basis that reflects a premium over the sum of all amounts payable on the bond after the acquisition date (excluding certain “qualified stated interest” that is unconditionally payable at least annually at prescribed rates), that premium constitutes “bond premium” on that bond (a “Premium Bond”). In general, under Section 171 of the Code, an owner of a Premium Bond must amortize the bond premium over the remaining term of the Premium Bond, based on the owner’s yield over the remaining

term of the Premium Bond determined based on constant yield principles (in certain cases involving a Premium Bond callable prior to its stated maturity date, the amortization period and yield may be required to be determined on the basis of an earlier call date that results in the lowest yield on such bond). An owner of a Premium Bond must amortize the bond premium by offsetting the qualified stated interest allocable to each interest accrual period under the owner's regular method of accounting against the bond premium allocable to that period. In the case of a tax-exempt Premium Bond, if the bond premium allocable to an accrual period exceeds the qualified stated interest allocable to that accrual period, the excess is a nondeductible loss. Under certain circumstances, the owner of a Premium Bond may realize a taxable gain upon disposition of the Premium Bond even though it is sold or redeemed for an amount less than or equal to the owner's original acquisition cost. Owners of any Premium Bonds should consult their own tax advisors regarding the treatment of bond premium for federal income tax purposes, including various special rules relating thereto, and state and local tax consequences, in connection with the acquisition, ownership, amortization of bond premium on, sale, exchange, or other disposition of Premium Bonds.

Information Reporting and Backup Withholding

Information reporting requirements apply to interest paid on tax-exempt obligations, including the Series 2019B Junior Indebtedness Obligations. In general, such requirements are satisfied if the interest recipient completes, and provides the payor with, a Form W-9, "Request for Taxpayer Identification Number and Certification," or if the recipient is one of a limited class of exempt recipients. A recipient not otherwise exempt from information reporting who fails to satisfy the information reporting requirements will be subject to "backup withholding," which means that the payor is required to deduct and withhold a tax from the interest payment, calculated in the manner set forth in the Code. For the foregoing purpose, a "payor" generally refers to the person or entity from whom a recipient receives its payments of interest or who collects such payments on behalf of the recipient.

If an owner purchasing a Series 2019B Junior Indebtedness Obligation through a brokerage account has executed a Form W-9 in connection with the establishment of such account, as generally can be expected, no backup withholding should occur. In any event, backup withholding does not affect the excludability of the interest on the Series 2019B Junior Indebtedness Obligations from gross income for federal income tax purposes. Any amounts withheld pursuant to backup withholding would be allowed as a refund or a credit against the owner's federal income tax once the required information is furnished to the Internal Revenue Service.

Miscellaneous

Tax legislation, administrative actions taken by tax authorities, or court decisions, whether at the federal or state level, may adversely affect the tax-exempt status of interest on the Series 2019B Junior Indebtedness Obligations under federal or state law or otherwise prevent beneficial owners of the Series 2019B Junior Indebtedness Obligations from realizing the full current benefit of the tax status of such interest. In addition, such legislation or actions (whether currently proposed, proposed in the future, or enacted) and such decisions could affect the market price or marketability of the Series 2019B Junior Indebtedness Obligations.

Prospective purchasers of the Series 2019B Junior Indebtedness Obligations should consult their own tax advisors regarding the foregoing matters.

RATINGS

Moody's Investors Service ("Moody's") has rated the Series 2019B Junior Indebtedness Obligations "A2". S&P Global Ratings ("S&P") has rated the Series 2019B Junior Indebtedness Obligations "A-".

Ratings reflect only the respective views of such organizations, and any desired explanation of the significance of such ratings should be obtained from the rating agencies furnishing the same. The Authority furnished to such rating agencies certain materials and information in addition to that provided here. There is no assurance that such ratings will prevail for any given period of time or that they will not be revised downward or withdrawn entirely by any or all of such rating agencies if, in the judgment of any or all of them, circumstances so warrant. Any such downward revision or withdrawal of such rating or ratings may have an adverse effect on the market price of the Series 2019B Junior Indebtedness Obligations. A securities rating is not a recommendation to buy, sell or hold securities and may be subject to revision or withdrawal at any time.

UNDERWRITING

The Underwriters have jointly and severally agreed, subject to certain conditions, to purchase from the Authority the Series 2019B Junior Indebtedness Obligations at an aggregate purchase price of \$1,864,127,413.81, reflecting a net original issue premium of \$178,404,327.35 and an Underwriters' discount of \$7,521,913.54 and to reoffer such Series 2019B Junior Indebtedness Obligations at the public offering prices or yields set forth on the inside cover page hereof. Such Series 2019B Junior Indebtedness Obligations may be offered and sold to certain dealers (including dealers depositing such Series 2019B Junior Indebtedness Obligations into investment trusts) at prices lower and yields higher than such public offering prices and yields and prices and yields may be changed, from time to time, by the Underwriters. The Underwriters' obligations are subject to certain conditions precedent, and they will be obligated to purchase all such Series 2019B Junior Indebtedness Obligations if any Series 2019B Junior Indebtedness Obligations are purchased. The Underwriters have designated Goldman Sachs & Co. LLC, as Representative of the Underwriters of the Series 2019B Junior Indebtedness Obligations.

The following paragraphs have been provided by the Underwriters.

The Underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, investment management, principal investment, hedging, financing and brokerage activities. Certain of the Underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various 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 Underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (which may include bank loans and/or credit default swaps) 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. The Underwriters and their respective affiliates also may communicate independent investment recommendations, market advice, or trading ideas and/or publish or express independent research views in respect of such assets, securities or other financial instruments and at any time may hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and other financial instruments. Such investment and securities activities may involve securities and instruments of the Authority.

In addition, certain of the Underwriters may have entered into retail distribution agreements with their respective affiliates and/or other broker-dealers (that have not been designated by the Authority as Underwriters) for the retail distribution of the Series 2019B Junior Indebtedness Obligations at the original issue prices. Such agreements generally provide that the relevant Underwriter will share a portion of its underwriting compensation or selling concession with such broker-dealers.

LEGALITY OF INVESTMENT

Pursuant to the Act, the Series 2019B Junior Indebtedness Obligations are made securities in which all public officers and bodies of the State and all municipalities and municipal subdivisions, all insurance companies and associations and other persons carrying on an insurance business, all banks, bankers, trust companies, savings banks and saving associations, including savings and loan associations, building and loan associations, investment companies and other persons carrying on a banking business, all administrators, guardians, executors, trustees and other fiduciaries and all other persons whatsoever who are now or may hereafter be authorized to invest in bonds or other obligations of the State, may properly and legally invest funds including capital in their control or belonging to them. The Series 2019B Junior Indebtedness Obligations are also made securities which may be deposited with and may be received by all public officers and bodies of the State and all municipalities and municipal subdivisions for any purpose for which the deposit of bonds or other obligations of the State is now or may hereafter be authorized.

LEGAL MATTERS

All legal matters incident to the authorization and issuance of the Series 2019B Junior Indebtedness Obligations are subject to the approval of Hawkins Delafield & Wood LLP, New York, New York, Bond Counsel to the Authority. Certain legal matters will be passed on for the Underwriters by Harris Beach PLLC, Counsel to the Underwriters. Certain legal matters are subject to the approval of Christopher C. O'Brien, Esq., General Counsel of the Authority.

CONSULTANT'S AND ACCOUNTANT'S REPORTS

The Traffic Engineer's Report is included herein as **Appendix A** of this Official Statement in reliance upon the authority of Stantec, Inc. as experts. The Traffic Engineer has advised the Authority that they have reviewed the summaries contained in this Official Statement of the information, estimates and projections contained in the Traffic Engineer's Report and that, in their opinion, the statements made herein are correct and fairly present in summary form the information contained in such Traffic Engineer's Report, and that all material assumptions or qualifications with respect to such statements are reflected therein.

The financial statements of the Authority as of December 31, 2018 and 2017, and for the years then ended, included in **Appendix B** of this Official Statement have been audited by SaxBST LLP, independent auditors, as stated in their report appearing in herein.

CO-FINANCIAL ADVISOR

The Authority has retained Public Resources Advisory Group and Acacia Financial Group, Inc. to serve as Co-Financial Advisors (the "Co-Financial Advisors") in connection with the issuance of the Series 2019B Junior Indebtedness Obligations. Although the Co-Financial Advisors have reviewed the Official Statement, the Co-Financial Advisors have not undertaken to make an independent verification or to assume responsibility for the accuracy, completeness, or fairness of information in the Official Statement. Public Resources Advisory Group and Acacia Financial Group, Inc. are independent financial

advisory firms not engaged in the business of underwriting, trading or distributing municipal securities or other public securities.

CONTINUING DISCLOSURE UNDER SEC RULE 15c2-12

In order to assist the initial purchaser or purchasers of the Junior Indebtedness Obligations, including the Series 2019B Junior Indebtedness Obligations, in complying with Rule 15c2-12 (“Rule 15c2-12”) promulgated by the Securities and Exchange Commission (“SEC”) under the Securities Exchange Act of 1934, as amended, the Authority and the Trustee entered into a written agreement, dated December 18, 2013, as amended and restated as of April 4, 2019 (the “Master Disclosure Agreement”) for the benefit of the holders of all Junior Indebtedness Obligations (including the Series 2019B Junior Indebtedness Obligations) to provide continuing disclosure of certain financial and operating data concerning the Authority (collectively, the “Annual Information”) in accordance with the requirements of Rule 15c2-12 and as described in the Master Disclosure Agreement. Pursuant to the Master Disclosure Agreement, with respect to the Series 2019B Junior Indebtedness Obligations, the Authority has agreed to electronically file with the Municipal Securities Rulemaking Board (the “MSRB”) through its Electronic Municipal Market Access (“EMMA”) System, an update of the Annual Information on or before 120 days after the end of each Authority fiscal year. The Master Disclosure Agreement is attached hereto as **Appendix F**. With respect to all Junior Indebtedness Obligations, the Authority has also agreed to electronically file no later than 120 days after the end of each of its fiscal years, the Authority’s annual financial statements for such year, prepared in accordance with GAAP and audited by an independent firm of certified public accountants in accordance with generally accepted auditing standards, to the MSRB; provided, however, that if audited financial statements are not then available, unaudited financial statements shall be so filed and such audited financial statements shall be electronically filed with the MSRB if and when available. In addition, the Authority has agreed, for the benefit of all holders of Junior Indebtedness Obligations, to electronically file with the MSRB, in a timely manner not in excess of ten (10) business days after the occurrence of any of the sixteen events described in the Master Disclosure Agreement, notice of any such events.

If the Authority fails to comply with any provisions thereof, then the Trustee and, as a direct or third party beneficiary, as the case may be, any holder of Junior Indebtedness Obligations, including the holders of the Series 2019B Junior Indebtedness Obligations, may enforce, for the equal benefit and protection of all holders similarly situated, by mandamus or other suit or proceeding at law or in equity, the Master Disclosure Agreement against such party and any of its officers, agents and employees, and may compel such party or any such officers, agents or employees to perform and carry out their duties thereunder. The sole and exclusive remedy for breach or default under the Master Disclosure Agreement to provide continuing disclosure described above is an action to compel specific performance of the undertakings of the Authority contained therein, and no person or other entity, including any holder of Junior Indebtedness Obligations, including the holders of the Series 2019B Junior Indebtedness Obligations, may recover monetary damages thereunder under any circumstances. Any holder of Junior Indebtedness Obligations, including the holders of Series 2019B Junior Indebtedness Obligations, including any beneficial owner, may enforce the Master Disclosure Agreement to the equal and proportionate benefit of all holders similarly situated to the extent provided in the Master Disclosure Agreement. A breach or default under the Master Disclosure Agreement shall not constitute an Event of Default under the Senior Resolution or the Junior Indebtedness Resolution. In addition, if all or any part of Rule 15c2-12 ceases to be in effect for any reason, then the information required to be provided under the Master Disclosure Agreement, insofar as the provision of Rule 15c2-12 no longer in effect required the provision of such information, shall no longer be required to be provided.

The Authority has not in the previous five years failed to comply, in all material respects, with any previous undertakings pursuant to Rule 15c2-12. The Master Disclosure Agreement is intended to set

forth a general description of the type of financial information and operating data that will be provided; the descriptions are not intended to state more than general categories of financial information and operating data; and where an undertaking calls for information that no longer can be generated because the operations to which it is related have been materially changed or discontinued, a statement to that effect will be electronically filed. As a result, the parties to the Master Disclosure Agreement do not anticipate that it often will be necessary to amend the information undertakings. The Master Disclosure Agreement, however, may be amended or modified without the consent of the holders of Junior Indebtedness Obligations under certain circumstances set forth therein.

MISCELLANEOUS

The references herein to the Act, the Junior Indebtedness Resolution, the Seventh Supplemental JIO Resolution and the Senior Resolution are brief outlines of certain provisions thereof. Such outlines do not purport to be complete and reference is made to the Act, the Junior Indebtedness Resolution, the Seventh Supplemental JIO Resolution and the Senior Resolution for full and complete statements of such provisions. Copies of the Act, the Junior Indebtedness Resolution, the Seventh Supplemental JIO Resolution and the Senior Resolution are on file at the offices of the Authority, and the Trustee.

The agreements of the Authority with the holders of the Series 2019B Junior Indebtedness Obligations are fully set forth in the Junior Indebtedness Resolution. Neither any advertisement of the Series 2019B Junior Indebtedness Obligations nor this Official Statement is to be construed as a contract with purchasers of the Series 2019B Junior Indebtedness Obligations.

Any statements in this Official Statement involving matters of opinion, forecasts or estimates, whether or not expressly stated, are intended merely as expressions of opinion, forecasts or estimates and not as representations of fact.

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The delivery of this Official Statement by its Chief Financial Officer and Treasurer has been duly authorized by the Authority.

NEW YORK STATE THRUWAY AUTHORITY

By /s/ Matthew A. Howard
Chief Financial Officer and Treasurer

Report of Traffic Engineer

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**New York State Thruway
Traffic and Revenue Report
Including a Review of the
Physical Condition of the Thruway System**

October 7, 2019

Prepared for:



New York State Thruway Authority

Prepared by:

Stantec Consulting Services, Inc.

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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The New York State Thruway Authority (“Authority” or “Thruway Authority”) has requested that Stantec Consulting Services Inc. (“Stantec”) provide an investment grade traffic and revenue study for its Junior Indebtedness Obligations, Series 2019B (the “Series 2019B JIOs”) and General Revenue Obligation Bonds, Series M (the “Series M Bonds”).

The updated forecasts of traffic and revenues set forth herein are based on the Authority’s current toll schedule, and include recent and future conversions of all facilities to all-electronic toll collection (AETC) on the following dates:

- The Governor Mario M. Cuomo Bridge (formerly Tappan Zee Bridge barrier) on April 23, 2016
- Grand Island Bridges on March 30, 2018
- Harriman Barrier on September 28, 2018
- Yonkers Barrier on November 19, 2018
- Spring Valley and New Rochelle Barriers on December 20, 2018
- Rest of the system (ticket controlled) in October 2020

This study identifies future revenues required for the Authority to fulfill its system-wide operating, debt service, and capital needs, including the completion of the New NY Bridge Project – replacement of the Tappan Zee Bridge with the new Governor Mario M. Cuomo Bridge. Future funding needs through 2024 were established by the Authority at amounts necessary to maintain levels of safety and service, good infrastructure conditions, support Thruway operations, and maintain established debt service coverage policy targets appropriate for high level investment-grade credit ratings.

Historically, the Authority has funded its system through toll adjustments (although there have not been any toll adjustments since 2010) and the Board announced in November 2018 that there would be no toll increase in 2019. This period of no toll adjustment was made possible in part due to State grants totaling \$1.98 billion, and transfer of jurisdiction of the New York State Canal System - which under State law had been managed by the Thruway Authority for 25 years - to the New York Power Authority (NYPA) in 2017.

It is our opinion that the Authority has the independent statutory power, and is contractually required, to adjust toll rates to maintain its high level of operating safety and service on the Thruway System, maintain and rehabilitate the Thruway System, pay debt service, meet General Revenue Bond Resolution and Junior Indebtedness Resolution toll covenants and maintain the proper balance of revenues to expenses. Based on our experience and knowledge of the Thruway System, the essentiality of the Thruway System, and its currently relatively low toll rates (compared to other toll roads nationally), we have determined that the size of future rate adjustments that may be needed to produce these additional revenues can be achieved. Those adjustments, if required, would likely result in only small changes to traffic patterns. In addition, either through the actions by the State or through periodic toll adjustments, or in combination, it is our opinion that these will allow the Authority to:

- Fund necessary operations, maintenance and capital expenses;
- Meet the covenants of the General Revenue Bond Resolution and the Junior Indebtedness Resolution;



- Complete the New NY Bridge Project – the replacement of the Tappan Zee Bridge with The Governor Mario M. Cuomo Bridge;
- Preserve good overall infrastructure conditions of the Thruway System and complete its current 5-Year Capital Program;
- Comply with the Authority's Fiscal Management Guidelines by maintaining targeted levels of debt service coverage.

On the basis of our studies and analyses, we are providing the following additional conclusions:

- The Authority has the independent, statutory ability to adjust its toll rates and provide significant amounts of additional revenue;
- The Authority's toll rates are relatively low and compare well to other toll systems, allowing for future rate setting flexibility with minimal long-term traffic diversion impact;
- The Authority's ongoing operational streamlining efforts have limited growth in operational expenses and can be anticipated to provide recurring, long-term savings;
- Infrastructure conditions and the capacity of the Thruway System have been considered in the forecasts, and should not adversely affect the projected growth of traffic and toll revenues throughout the forecast period;
- The Authority's facilities have been maintained at high standards over the years, resulting in good overall infrastructure conditions throughout the Thruway System;
- The Authority's planned extensive and regular maintenance programs, asset management systems and long-term capital planning process provide confidence that overall operational and structural integrity of its facilities will be maintained;
- Target levels of future maintenance and capital expenditures beyond the current Capital Program will support the integrity and reliability of the Thruway System;
- The New NY Bridge Project – Since September 2018, both spans of the Governor Mario M. Cuomo Bridge have been open to vehicular traffic and deconstruction of the Tappan Zee Bridge has been completed above water and underwater demolition remains. Thus, the project can be fully completed within the project's budget; and
- The Authority can fully implement Thruway System-wide AETC within the parameters described in the forecasting methodology for conversion to AETC in this study.

2.0 THE NEW YORK STATE THRUWAY SYSTEM

2.1 BACKGROUND

Since its opening 65 years ago, the Thruway has served as an essential and central artery of the State's transportation system, providing a vital link between its major cities from the Atlantic Ocean to Canada and the Great Lakes. Over the years, the Authority has taken actions that have allowed for safe and efficient travel for millions of passenger and commercial customers.

The Thruway serves travelers with a variety of essential needs and purposes, including commuters, business travelers, recreational travelers, and commercial vehicle traffic that transports goods and services throughout the State. The Thruway has provided a dependable roadway system for these travelers, sustaining and encouraging economic growth, fostering job creation and generating tax revenues for the State and its local governments. Underscoring its importance to the State, region



and nation, Thruway customers traveled approximately 8.4 billion vehicle-miles on the highway in 2018, averaging 23.1 million vehicle-miles per day.

At 570 miles in length, the New York State Thruway is one of the largest tolled highway systems in the United States and is a critical component in the national interstate network. There are few alternatives to the Thruway as it connects the principal cities of the State from New York City to Albany, and on to Utica, Syracuse and Rochester through to Buffalo and the Pennsylvania state line. The Thruway corridor serves 37 of the State's 62 counties and the majority of the State's population. Approximately 266.4 million toll transactions occurred on the Thruway in 2018, generating about \$736.5 million in toll revenues¹.

The Thruway is an important interstate connector, joining with the Massachusetts Turnpike (I-90), Connecticut Turnpike (I-95), New Jersey's Garden State Parkway, as well as several other Interstate routes such as I-287 from New Jersey; I-90 in Pennsylvania; I-290 around the north side of Buffalo; I-390 and I-490 serving Rochester; I-81, I-481 and I-690 at Syracuse; I-790 in Utica; I-87 (the Northway), I-88, I-90, I-787, and I-890 at Albany; and I-84 at Newburgh. It also makes direct connections with numerous major State highways.

The Thruway is comprised of two types of toll systems – a controlled (ticket) system and a barrier system, as shown in Figure 1. The controlled system (approximately 481 miles) makes up the largest portion of the Thruway, running from Woodbury (in the southeast corner of the State) north along I-87 to Albany, then west on I-90 to Buffalo and south of Lake Erie to the Pennsylvania border. In addition to this main stretch of the controlled system, there is a small branch south and east of Albany providing a connection to the Massachusetts border and the I-90 Massachusetts Turnpike. The barrier systems - located in the southeast corner of the State and the northwest corner of the State - are comprised of The Governor Mario M. Cuomo Bridge (formerly Tappan Zee Bridge barrier), Yonkers Barrier, New Rochelle Barrier, Spring Valley Barrier (where passenger cars only are toll-free), Harriman Barrier, and the Grand Island Bridges. All barriers currently operate with AETC.

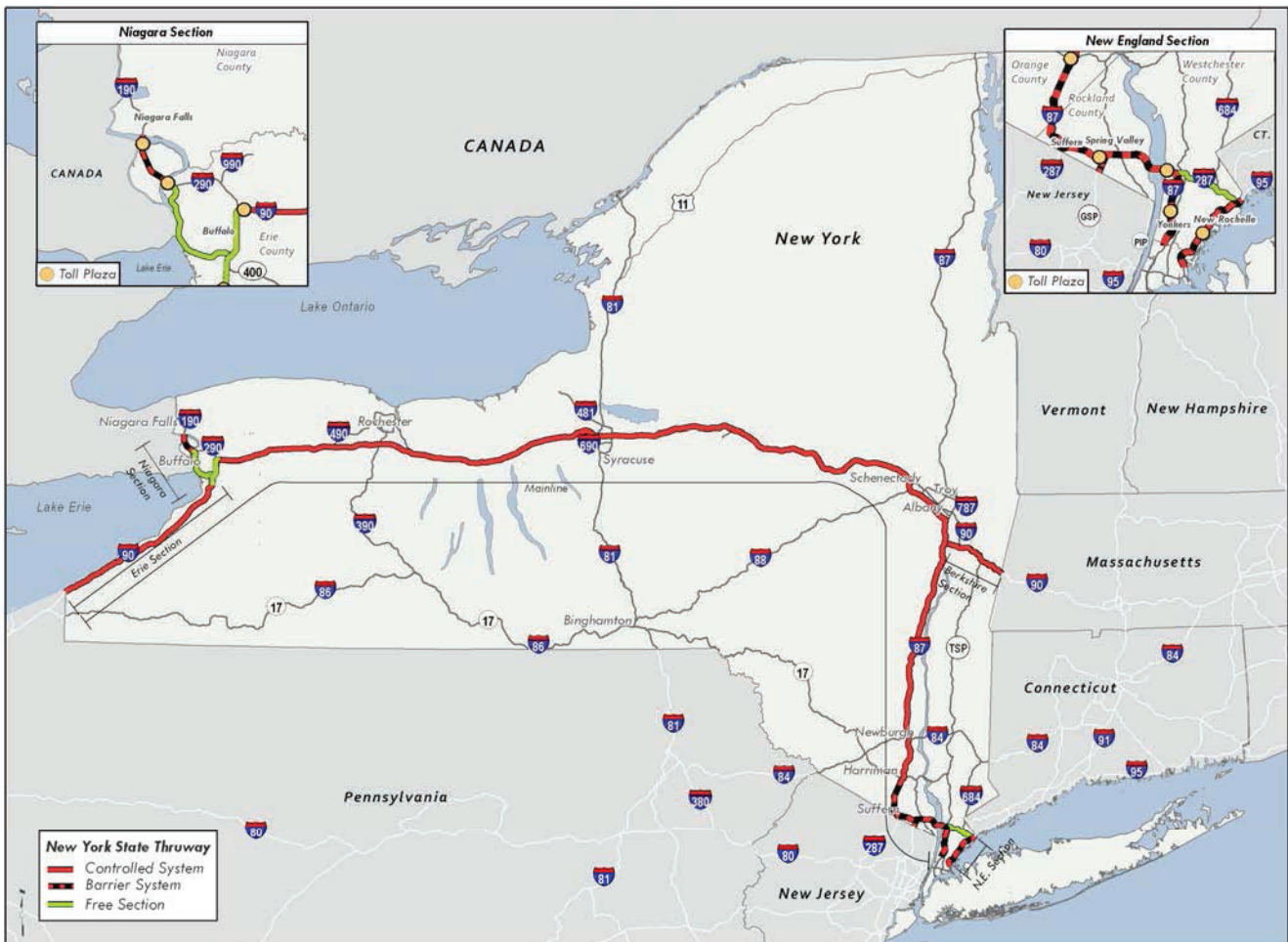
Under the existing policy, toll rates across the Thruway System are based on vehicle classification, related to the number of axles per vehicle and the height of the vehicle over the first two axles. On the controlled system, tolls are charged based on the actual distance traveled by the customer. Meanwhile, barrier toll plazas have a fixed toll rate for each vehicle class and payment type (e.g., Tolls by Mail, out-of-state and New York *E-ZPass*, as well as Commuter and other *E-ZPass* Discounts).

Portions of the roadways under the Thruway jurisdiction are currently toll-free. These include a nine-mile section in the Buffalo area between the controlled sections; I-190 between Buffalo and Grand Island; I-90 between Albany (Interchange 24) and I-88 (Interchange 25A); and the Cross Westchester Expressway (I-287). In addition, there are stretches of roadway on the sections with fixed-toll barriers where short trips can be made without passing through a toll barrier.

¹ \$764.5 million in gross toll revenues minus \$28.0 million in commercial volume discounts



Figure 1: New York State Thruway Toll Systems



The Authority recently completed conversion of all its toll collection barriers to AETC. At The Governor Mario M. Cuomo Bridge (formerly Tappan Zee Bridge barrier), AETC was implemented on April 23, 2016. AETC began at both of the Grand Island Bridges on March 30, 2018, at the Harriman Barrier on September 28, 2018, and at the Yonkers Barrier on November 19, 2018. The Spring Valley Barrier and New Rochelle Barrier were converted to AETC on December 20, 2018. The ticket controlled system will be converted to AETC in October 2020.

2.2 ROADWAYS

The 2,800 lane-mile Thruway roadway system was constructed between 1949 and 1960 and is one of the oldest components of the national Interstate Highway System. In addition to the Authority's mandate to operate and maintain the original components of the Thruway, the Authority was given responsibility for several other transportation facilities in the early 1990s:

- In 1991, the Cross-Westchester Expressway (I-287), which starts at I-87 near Tarrytown and travels east for 11 miles to the Thruway's New England Section (I-95) in Rye became the Authority's responsibility for maintenance and operational expenditures only. Capital improvements remain the responsibility of the New York State Department of Transportation (NYSDOT); and



- In 1991, via an agreement with NYSDOT, the Authority began to operate and maintain I-84, a 71-mile section of roadway that connects the Pennsylvania state line to the Connecticut state line. After November 2007, the agreement was amended, and the Authority was fully reimbursed by NYSDOT for all operating and maintenance costs associated with I-84 from that point forward. The operation and maintenance responsibility of I-84 was legislatively returned to NYSDOT as of October 11, 2010.

The Thruway System is currently about 570 total miles in length and has 134 interchanges. The various sections of the roadway currently maintained by the Authority are listed in Table 1.

Table 1: The Thruway System

Section	Controlled Section	Barrier Section	Length (miles)
The Mainline (New York City – Buffalo)	X	X	426
Erie Section (Buffalo – Pennsylvania Line)	X		70
Niagara Section I-90 (Buffalo – Niagara Falls)		X	21
Berkshire Section (Selkirk – Massachusetts Line)	X		24
New England Section (I-95) (Bronx – Connecticut Line)		X	15
Garden State Parkway Connection (Spring Valley – New Jersey)			3
Cross-Westchester Expressway (I-287) (Mainline I-87 in Tarrytown – I-95 in Rye)			11
Total			570

X= tolled section of the Thruway

Thruway pavements are typically nine inches of reinforced Portland cement concrete placed on 12 inches of granular sub-base. Shoulders are made up of treated granular material with asphaltic wearing surface. A large portion of the roadway's base dates back to its original construction, highlighting the need for heavy maintenance, reconstruction and rehabilitation activities to retain the riding surface in a state of good repair.

The Authority has an established process under which it selects highway projects for its capital program, which relies strongly on information and analytical tools embodied within the Authority's Asset Management Systems, and coordination with the Department of Maintenance and the Authority's four geographic divisions. Projects are prioritized based on safety, riding surface condition, and the impact on asset useful life and capacity. This process has historically allowed the Authority to maintain good overall surface and riding conditions of its highway pavement.

2.3 BRIDGES

The Authority has maintenance and inspection responsibility for 814 bridges that carry Thruway traffic as well as local roads and State highways over the Thruway System. The structural characteristics of these bridges vary: about 15 percent are concrete structures, either pre-stressed girder, arch, rigid frame or box culverts. The remaining 85 percent of the bridges are steel structures with asphalt overlaid, reinforced concrete decks. As with the roadway, an overwhelming majority of the structures date back to the original opening of the Thruway System in the 1950s and require continual and significant repair, rehabilitation and reconstruction investments to prevent deteriorating conditions.



The largest bridge on the Thruway System is the twin-span Governor Mario M. Cuomo Bridge over the Hudson River, which is located approximately 20 miles north of New York City and replaced the 61-year old Tappan Zee Bridge. The new bridge consists of multi steel girder/composite deck approach spans at each end with cable-stayed spans over the main Hudson River shipping channels. Each of the twin bridge spans is approximately three miles in total length, with chamfered towers supporting the cables. Construction on the bridge project began in 2013. The north span of The Governor Mario M. Cuomo Bridge was opened to northbound (westbound) traffic on August 26, 2017 and to southbound (eastbound) traffic on October 6, 2017. Southbound traffic was shifted to the south span when it was opened to traffic in September 2018. Each span operates with four lanes of vehicle traffic per direction, with AETC continuing to collect tolls from southbound traffic only. When the project is fully completed, the north span will have a shared-use bike and pedestrian path. More details on the project can be found on the project website <http://www.newnybridge.com>.

In addition to The Governor Mario M. Cuomo Bridge, the Thruway System includes other large and unique bridge structures: the Castleton-on-Hudson Bridge across the Hudson River on the Berkshire Section; the four Grand Island Bridges spanning branches of the Niagara River north of Buffalo; and the three bridges crossing Catskill, Kaaterskill, and Normanskill Creeks in the Catskill Region.

As with its highways, the Authority pursues a similar established process under which it selects bridge projects for rehabilitation or replacement. Potential bridge capital projects are identified by Authority field engineering staff and are vetted through the Authority's Asset Management Systems. This process has allowed the Authority to target bridge projects towards those that are critical to maintain safety and good structural conditions.

2.4 SERVICE AREAS AND BUILDINGS

The Authority currently owns 603 buildings of various types. These include large maintenance and administrative facilities as well as storage sheds, utility buildings, and other minor facilities. The buildings include:

- 234 section maintenance and storage buildings
- 66 salt sheds
- 83 toll and toll storage buildings
- 161 service area buildings (including water and waste water buildings)
- 3 New York State Welcome Centers, one with an additional storage building
- Port Byron Old Erie Canal Heritage Park Visitors Center
- 21 State Police barracks and storage buildings
- 33 radio shelter buildings

Note that this list does not include buildings that are being constructed to support The Governor Mario M. Cuomo Bridge.

The Authority's Administrative Headquarters is located just off Interchange 23 at 200 Southern Boulevard in Albany, overlooking the Thruway mainline and the Albany Division maintenance complex. This building has been the Authority's Headquarters since it was constructed in 1972.

The Thruway's maintenance responsibility is divided into four divisions, with each division having its own headquarters facility. These Division headquarters are located in Suffern, Albany, Syracuse, and Buffalo. The Division headquarters serve several



functions that include housing the administrative staff for the maintenance program, as well as providing offices for State police and toll collection, traffic and customer service personnel.

Service areas providing fuel, restaurants and other amenities for the 27 service areas owned by the Authority are operated through concessionaire agreements. The buildings, parking areas, and wastewater treatment plants are maintained by Thruway staff. These service areas are located at intervals along the Thruway System and are currently operated by three food service concessionaires: HMS Host Family Restaurants, Inc. (12 plazas), McDonald's Corporation (11 plazas) and Delaware North Companies Travel Hospitality Services, Inc. (4 plazas), and Taste NY (at the Mohawk Valley Welcome Center which opened in June 2017, the Western New York Welcome Center that opened August 31, 2018, and the Capital Region Welcome Center that opened November 23, 2018). In addition, there are two fuel service operators, Dunne Manning (12 plazas) and Sunoco, Inc. (R&M) (15 plazas). The Authority collected \$14.88 million in concession payments from these vendors in 2018.

All food and fuel centers are open 24 hours daily, seven days a week and offer parking, fuel, public restrooms (including family assist restrooms equipped for persons with disabilities), ATMs, and free Wireless Internet Service. There is also a brand name food vendor at each service area open to the public 24 hours a day, seven days a week. Furthermore, many service areas have seasonal farm markets, gift shops, fax machines, sell *E-ZPass* On-the-Go (retail *E-ZPass* transponders) and staff a number of Tourist Information Centers. The Mohawk Valley Welcome Center opened in 2017 and showcases the rich heritage of New York State's historical past, a Walk of Fame highlighting influential individuals from the Mohawk Valley, an ADA compliant playground, covered porch overlooking the scenic Erie Canal, three electric vehicle charging stations, and pet comfort areas. The new Western New York Welcome Center, located in the Town of Grand Island, is inspired by the architectural designs of Frank Lloyd Wright and features a Walk of Fame highlighting influential figures in Western New York State, a Great Lakes shipwreck-themed children's play area, an "I LOVE NY" sculpture, electric vehicle charging stations, a motorcycle shelter, pet comfort area, and parking spaces for cars, buses/RVs, and trucks. The new Capital Region Welcome Center features a historic Dutch-style building façade, and has a music-themed children's playground, an artifact wall, "I LOVE NY" interactive kiosks, and Electric Vehicle charging stations.

The Authority and its concessionaires continue to make various improvements at the service areas, including updating food concepts and the overall appearance of the interiors and exteriors of the buildings, renovating gas stations, and adding trucker's lounges and increased tractor trailer parking. The Authority is currently preparing to utilize design-build contracting procurement to substantially re-build and modernize the travel plaza elements of each of the 27 service areas. The contract is currently subject to the procurement process and is expected to be awarded by the end of 2019.

2.5 SAFETY, INCIDENT RESPONSE AND TRAVELER INFORMATION SYSTEMS

The Thruway Statewide Operations Center (TSOC), housed at the Authority's Administrative Headquarters in Albany, is the central location for the coordination of all traffic incident response, emergency management, and dissemination of traveler information along the entire Thruway. The TSOC operates 24 hours a day, seven days a week, 365 days a year. The Authority exchanges traffic and Intelligent Transportation Systems (ITS) data with NYSDOT through the Regional Traffic Operation Centers and uses the traveler's resource website 511ny.org to provide drivers with a view of traffic operations across the State so they may make more informed travel choices.

The TSOC controls an Advanced Traffic Management System that integrates and controls all current and future ITS devices and systems. Such devices include 80 Permanent Variable Message Signs, 166 Closed Circuit Television cameras, 13 Highway Advisory Radio stations, 125 real-time vehicle detector sites, and 90 Portable Variable Message Signs. The Authority has started to integrate the following ITS devices located on the Governor Mario M. Cuomo Bridge: 2 Permanent



Message Signs, 27 Closed Circuit Television Cameras, 8 real-time vehicle detector sites, 119 Lane Indicator Signs, 4 Weather Stations, 17 Message Signs on the Shared-Use Path, 8 Weigh-In-Motion sensors and 20 Variable Speed Limit Signs.

The Authority also offers an email alert service (TRANSalert) to its customers to inform them of major unscheduled incidents that may affect their travel plans and the Thruway website (www.thruway.ny.gov) offers a centralized location to access a multitude of traveler information. In addition, an iPhone and Android app was released in November 2017 with live traveler information, interactive feedback and a Thruway travel planner.

Finally, a troop of New York State Police (Troop T) is entirely dedicated to policing on the Thruway System. The principal mission for Troop T is to increase safety on the roadway and reduce fatal and personal injury auto accidents. They achieve this through enforcement and education. Through the years, Troop T has participated in traffic enforcement initiatives directed at drivers who engage in behavior known to cause fatalities or exacerbate the fatality rate, such as speed, failure to use seatbelts and drunk and/or drugged driving. Since 2016, Troop T has participated in an annual campaign to raise awareness of New York's Move Over Law, which requires motorists to drive with care, slow down, and safely move over when approaching emergency vehicles, tow trucks, construction and maintenance vehicles that are stopped along the side of the road. Additionally, in April 2018, Troop T boosted patrols along the Thruway during 'Operation Work Brake'; this campaign cracked down on speeding motorists and aggressive driving before, in, and around construction zones. However, the greatest proven method to reduce fatalities is the day-to-day visible enforcement of traffic laws by the patrol troopers on the highway.

Good overall highway conditions, traveler access to online and radio information services, good incident and weather response and the efforts of Troop T contributed to a very low accident fatality rate in 2017. The fatality rate on the Thruway is among the lowest in the nation at 0.22 fatalities per 100 million miles traveled. This compares to an index of 1.16 nationwide in 2017² and 0.77 for all of New York State³ in 2017.

2.6 ANNUAL ROUTINE MAINTENANCE ACTIVITIES

Over the years, the Authority has developed comprehensive plans for the maintenance of its facilities. Formal pavement and bridge management systems have been developed to address maintenance issues and provide input into the development of long-term infrastructure management programs. Routine maintenance activities are performed by Authority staff from 21 maintenance locations grouped into four divisions. Additional oversight of maintenance activities is provided by the four division highway and bridge maintenance headquarters and by The Governor Mario M. Cuomo Bridge maintenance team. Responsibilities include snow and ice removal, pavement and bridge repair and maintenance, guiderail and safety work, responding to incidents and accident damage, and right-of-way maintenance. Maintenance activities also include innovative preventative maintenance operations to preserve the highway system and minimize added capital improvement costs.

Environmental stewardship has become an important factor in ongoing maintenance decisions. Examples of these types of enhancements by the Authority are the use of solar-powered ITS elements, the planting of living snow fencing, the use of beet juice as an additive to road salt to promote adhesion and snow melting, and the purchase of flex fuel vehicles.

In addition to the original mandate of the Authority to operate and maintain the controlled and barrier systems along the Thruway, the Authority was given responsibility over the Cross-Westchester Expressway (I-287) in 1991. This highway starts at I-87 near Tarrytown and travels east for 11 miles to the Thruway's New England Section (I-95) in Rye. In 1991, it became

² "2017 Fatal Motor Vehicle Crashes: Overview." National Highway Traffic Safety Administration, Oct. 2018, <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812603>.

³ "General Statistics." Insurance Institute for Highway Safety Highway Loss Data Institute, Dec. 2018, www.iihs.org/iihs/topics/t/general-statistics/fatalityfacts/state-by-state-overview.



the Authority's responsibility for maintenance and operational expenditures only. Capital improvements have remained the responsibility of NYSDOT.

2.7 PHYSICAL CONDITION OF THE THRUWAY'S INFRASTRUCTURE

This section summarizes the physical inspection of the Thruway facilities in compliance with Section 619 of the General Revenue Bond Resolution, which requires a physical inspection by the Traffic Engineer once every three years. Stantec, with assistance from Popli Design Group, performed a "drive-through" physical inspection of the entire Thruway system during the period of August 8, 2019 through September 5, 2019. While an inspection of this type is not intended to identify specific localized problems, it does provide an overview of the Thruway's physical condition.

The effectiveness of the Thruway's maintenance and capital programs was evident during this inspection. With some exceptions, the condition of the pavement and bridges was observed to be satisfactory or better. In locations where assets were less than satisfactory, construction or repair efforts were either underway or scheduled for the near term.

The Authority has developed a comprehensive asset management program to strategically operate, maintain, and upgrade the bridge and highway network through its life cycle. Through the use of analytical techniques and mathematical models that take into account current conditions, traffic volumes, maintenance history, and location, the Authority determines how best to manage and maintain its assets in a state of good repair.

Stantec conducted interviews with the leadership of each of the Thruway's four Division Directors: New York Division, Albany Division, Syracuse Division, and Buffalo Division. Each of the Division's Directors reinforced their commitment to the New York State Thruway's goal of providing a safe, sustainable, reliable and resilient facility. Each interview explored the following topics:

- Current geographical limits of the Division;
- For major facilities, condition and issues concerning pavement, bridges, facilities and service areas, and other assets;
- Maintenance issues, practices, resources, and potential needs;
- Capital Improvements, including status of existing projects, planned or potential new projects, quality of support from the consultant community, and potential needs; and
- Organization / Asset Management, including any potential risks to the Division, any suggested changes or improvements in organization, and any other topics that the Division Engineers believe should be addressed.

The following sections contain the results of the drive-through inspection and interviews for each Division.

2.7.1 New York Division

The New York Division runs from the New York City line to New Paltz, MP 0 to MP 76. In addition to I-87, it includes I-95 to the Connecticut state line (the New England Section), the Cross-Westchester Expressway (I-287, for which the Thruway is responsible only for maintenance), and a three-mile connection from Spring Valley to the New Jersey state line (Garden State Parkway). Major bridges in the New York Division include The Governor Mario M. Cuomo Bridge (which has replaced the Tappan Zee Bridge), and the Byram River Bridge in the New England Section. Toll facilities include The Governor Mario M. Cuomo Bridge (formerly Tappan Zee) Barrier, Yonkers Barrier, New Rochelle Barrier, Spring Valley Barrier, and Harriman Barrier, all of which have now been converted to AETC. Removal of the physical toll booths has begun at some locations. The



bridges, barriers, and pavement in this Division were generally observed to be in satisfactory condition or better. Construction activity was observed at Exit 16 on the New England Thruway at the time of the drive-through inspection.

Maintenance. The New York Division has more than 250 maintenance personnel for its roadway, bridges, and facilities, including a group dedicated solely to The Governor Mario M. Cuomo Bridge. The Division's maintenance program is ongoing, and it follows guidelines and directives from the Authority's headquarters in Albany. The Division's maintenance fleet varies widely in age and undergoes a regular program of repair and replacement. The Division has purchased some new equipment in the last few years (e.g. vacuum truck) to enhance its maintenance operations. Ongoing maintenance activity including repair of guiderail and safety upgrades was observed during the drive-through. It was noted that The Gov. Mario M. Cuomo Bridge now allows the Division to develop a "planned" program for bridge maintenance, versus the "unplanned" program that existed for the old Tappan Zee Bridge due to its aging condition.

Capital Program. The 2019-2024 Capital Program includes current on-going projects, along with various planned future construction projects. For the 2019 season, the most notable project is the I-95 (New England Thruway) Highway Replacement from Port Chester (MP NE14.1) to the Connecticut State Line (MP NE15.0), Replacement of the Cross-Westchester Expressway Ramp (EB), Grace Street over I-95 Bridges and the Rehabilitation of Four I-95 Bridges (\$135M). In addition, there are various on-going safety upgrades and drainage improvement projects. Future programmed projects include bridge replacements, pavement resurfacing, municipal utility connections, bridge maintenance cleaning, bridge joint replacements, and landscaping/trail improvements.

The Governor Mario M. Cuomo Bridge. The construction of the approximately \$4.0 billion bridge replacing the former Tappan Zee Bridge is now complete. The Thruway is finalizing the construction of a shared used path as part of The Gov. Mario M. Cuomo Bridge.

2.7.2 Albany Division

The Albany Division runs from MP 76 in New Paltz to MP 197.9 in Canajoharie. It also includes the 24.3-mile Berkshire Section (I-90), which connects the Thruway mainline to the Massachusetts Turnpike through rugged terrain, including several steep rock cuts. The Berkshire Section includes the largest bridge in the Albany Division: the Castleton-on-Hudson Bridge, a 1500-ft cantilever truss bridge spanning the Hudson River. Construction activities were observed between MP 167 and 170 and between 191 and 193. The pavement and bridges in the Albany Division were generally observed to be in satisfactory or better condition.

Maintenance. The Albany Division has more than 200 personnel devoted to maintenance who plan and prioritize preventive maintenance activities such as repairing and sealing pavement, maintaining guiderails and safety elements, and repairing bridge bearings. The Division's maintenance fleet varies widely in age and undergoes a regular program of repair and replacement. Ongoing maintenance activity also includes safety upgrades, rock removal, and maintenance of salt sheds and service areas.

Capital Program. The 2019-2024 Capital Program in the Albany Division includes current on-going projects, along with various planned future construction projects. There are currently various projects under construction throughout the division including: pavement resurfacing, bridge replacement, retaining wall rehabilitation, and various bridge rehabilitations. Notable capital projects include pavement resurfacing between Selkirk (Exit, MP 134.9) to south of Albany (Exit 23, MP 141.9) (\$9.8M) and pavement resurfacing from North of Coxsackie (MP 121.2) to Selkirk (MP 134.9) (\$17.3M). Upcoming projects in the program include pavement rehabilitation, steel repairs, bridge scour repairs, bridge replacements, slope stabilization, and safety upgrades. The program also includes a major investment in the Castleton Bridge (\$30M).



2.7.3 Syracuse Division

The Syracuse Division runs from MP 197.9 in Canajoharie to MP 350.6 (Rochester – Victor – I-490). As this section of the Thruway runs primarily through rural areas, the Syracuse Division includes eleven travel plazas that are strategically located every 30 to 40 miles along the Thruway. The pavement and bridges in the Syracuse Division were generally observed to be in satisfactory condition or better. Construction activities were observed in the westbound direction to repair the concrete pavement between exits 39 and 40.

Maintenance. The Syracuse Division has approximately 200 personnel devoted to maintenance who are heavily engaged in maintaining the roadways, 189 bridges, 11 travel plazas, and 8 wastewater treatment plants. Inventories are kept for facility maintenance and repair. Inventories are also kept for the Division's many bridges and culverts, all of which require regular maintenance. Preventive maintenance activities conducted by Division forces include mowing, repairing and sealing pavement, maintaining guiderails and safety elements, repairing bridge bearings, and snow removal, to name a few. The Syracuse Division is still considering/evaluating the potential for decommissioning structures that are underutilized. By decommissioning them, the Authority can reallocate its maintenance resources and operate more efficiently. The Division also noted that they have implemented new storm monitoring equipment to enhance communications and reliability of the system. There have also been improvements to their operations center.

Capital Program. The 2019-2024 Capital Program in the Syracuse Division of the Thruway focuses on the replacement of the Manchester Interchange (Exit 43) and Chapin-Palmyra Bridges, pavement resurfacing between the bridges (East Manchester, Exit 43) and replacement of the Sulphur Brook Culverts at MP 335.2 (\$17M); the rehabilitation of two Syracuse Division Mainline bridges over the railroad at MP 306.72 and MP 326.74 (\$2.6M); replacement of the Thruway bridges over Vine Street (MP 284.80) and CSX Railroad (Salina) (MP 284.74) (\$15.2M); and Canandaigua (Exit 44, MP 347.1) to Rochester (Exit 45, MP 351.4) concrete pavement restoration. The program also includes pavement surfacing, and 30 culvert rehabilitations.

A major pavement replacement project from Electronics Parkway (Exit 37) to I-690 (Exit 39) (MP284.1-MP 289.3, \$65M) is planned to address subsurface drainage conditions and replace the original 9" thick concrete pavement with a thicker and stronger new concrete pavement. In addition, the Capital Program improvements include safety upgrades, a design-build contract to replace 8 bridges from MP 219.91 to MP 262.01, and municipal sewer/water connection improvements

2.7.4 Buffalo Division

The Buffalo Division runs from MP 350 (Rochester – Victor – I-490) to the Pennsylvania State Line (MP 496) and from MP 426.17 (Exit 53, I-190) to Niagara Falls (the Niagara Section). The Erie Section (MP426.17 to the Pennsylvania State Line) is rural and known for its many vineyards. This section also runs through land belonging to the Seneca Nation. The Niagara Section includes a mile-long viaduct (the viaduct deck was replaced in the mid-1990s) and four major bridges to Grand Island (two bridges northbound and two southbound). The Buffalo Division includes more bridges than any other section of the Thruway. Toll facilities include the Williamsville Barrier, Lackawanna Barrier, Ripley Barrier, Tonawanda Barrier, and Niagara Barrier. The Lackawanna Barrier is one of the busiest toll barriers on the Thruway. The Tonawanda and Niagara Barriers, which toll the South and North Grand Island Bridges, respectively, have been converted to AETC with overhead gantries for high speed tolling.

The pavement and bridges in the Buffalo Division were generally observed to be in satisfactory condition or better. It is noted the approximately three-mile section crossing the Seneca Nation is marginally considered satisfactory and in need of repairs. In late September 2019 the Authority was given approval by the Seneca Nation to complete the pavement work from MP 451.5



to MP 455.5. The current scope will be to mill down to concrete, perform full depth concrete repairs, install a 5" two course overlay, and upgrade roadside safety to current standards. The Authority will let the project in January 2020.

Maintenance. The Buffalo Division has approximately 300 personnel dedicated to maintenance for bridges and highway, facilities, and for ITS and other assets. The maintenance personnel are also responsible for safety upgrades. The Division's maintenance fleet includes 77 plow trucks, among other vehicles. A new paving machine was also added to the fleet. As noted, the Thruway has a seasonal preventative maintenance program which prescribes preventative maintenance and annual maintenance plans.

Capital Program. The Buffalo Division's Capital Program for the 2019 construction season includes pavement resurfacing from West Seneca (Exit 54, MP 427.7) to US Route 219 (Exit 55, MP 429.55), pavement replacement from Route 219 (Exit 55, MP 427.7) to Lackawanna Toll Barrier (MP 430.4), rehabilitation of bridges over Smokes Creek, Seneca Street, Cazenovia Creek and Potters Corners Road, replacement of the bridge over Norfolk Southern Railroad (\$66M); pavement resurfacing and replacement from West Pembroke (MP 404.7) to Depew (Exit 49, MP 416.9) and highway lighting on I-190 (Niagara Section) from Exit 7 to Exit 14. Other projects include bridge joint replacements (21 locations), trail repairs, and VMS replacements/ modifications.

Other upcoming projects in the 2019-2024 Capital Program include Eastern bridge joint replacements (19 locations), Western bridge joint replacements (21 locations), bridge replacements, bridge rehabilitations, pavement resurfacing, and Grand Island Bridges rehabilitation contracts (maintenance cleaning for steel preservation; retrofit/repair roller bearings, pins, and hangers).

2.7.5 Statewide

The Authority has initiated a project across the state to transition the remainder of the Thruway System to AETC – also known as cashless tolling – to reduce congestion, improve safety, and reduce air pollution. The project covers the ticket-controlled system from Exits 16 to 61 (MP 45.03 to MP 496.00) and from Exit 21A to B3. The work to be performed varies by exits with cashless tolling to occur at Exits 16-22, B1-B2, 26-34, 35, 37-38, 40-44, 48-49, and 56-60, 23-25A, 34A, 36, 39, and 45-47, along with terminus locations at Woodbury, Canaan, Williamsville, Lackawanna and Ripley. The scope of this project will require gantry solutions equipped with appropriate electronic equipment for both E-ZPass and Tolls by Mail. The goal is for the entire system to be cashless by the end of 2020.

2.7.6 Opinion

This review of the Authority's maintenance and capital activities indicates a comprehensive program based on detailed inspections, evaluations, asset management, and a structured priority setting. The facilities have been maintained to high standards over the years with the result that the condition is generally good. In our opinion, the development and implementation of the Authority's 2019-2024 Capital Program, together with the ongoing heavy and regular maintenance programs should assure that the operational and structural integrity of these facilities will be maintained during the terms of the Series 2019B JIOs and the Series M Bonds. We are also of the opinion that sufficient toll revenues can be generated to fund these programs.



3.0 ECONOMIC BACKDROP AND OUTLOOK FOR THE FUTURE

Historically, Thruway traffic trends have been influenced by socio-economic conditions and correlations have been found between passenger car growth and Gross Domestic Product (GDP) growth, and between commercial vehicle growth and Industrial Production Index (IPI) growth.

Stantec typically uses the consensus forecast from a group of financial institutions and economic forecasting firms as an input into its traffic growth forecasts for revenue estimation purposes. The most recent consensus forecast, derived from projections from more than 50 financial institutions and professional forecasting firms, is that real GDP will grow by 2.4 percent in 2019 and 1.8 percent in 2020.⁴

Any forecast of toll traffic and revenues will, of necessity, recognize the significant variations that can and do occur in the national, regional and local economies and population changes within the Thruway corridors. Considering this, Stantec performed a detailed analysis of the historical economic trends seen over the last few decades, particularly as they relate to the economic influences that occurred and how traffic on the Authority's facilities reacted to those trends.

3.1 RECENT MACROECONOMIC TRENDS

3.1.1 Gross Domestic Product

As noted previously, Thruway passenger car traffic growth trends have been influenced by socio-economic conditions, and correlations have been found between car traffic growth and GDP growth. Figure 2 shows the real *annual* GDP from 1980 through the end of 2018. From 2000 through 2018, real GDP in the United States increased at an average annual rate of 1.9 percent. This period included the 2001 recession and the recession that began in late 2007 and ended in June 2009. This most recent recession, which some economists termed the “Great Recession”, was far more severe than originally predicted and significantly deeper and longer than previous recessions. In 2008, real GDP decreased by 0.3 percent, and in 2009 the recession reached its nadir, with real GDP decreasing by 2.8 percent. Since 2009, the U.S. economy has recovered and shown consistent growth. Real GDP increased on an annual basis by between 1.6 and 2.9 percent in the years 2010 to 2016,⁵ then increased at annual rates of 2.4 percent in 2017 and 2.9 percent in 2018.⁶ The second quarter 2019 real GDP was estimated at \$19.0 trillion.⁷

Note that gray shaded areas on the figures in this section represent U.S. recessions as determined by the National Bureau of Economic Research. Recessions are technically defined as two consecutive calendar quarters of negative GDP growth.

⁴ Blue Chip Economic Indicators, “Top Analysts’ Forecasts of the U.S. Economic Outlook for the Year Ahead”, Wolters and Kluwer Law & Business, August 10, 2019

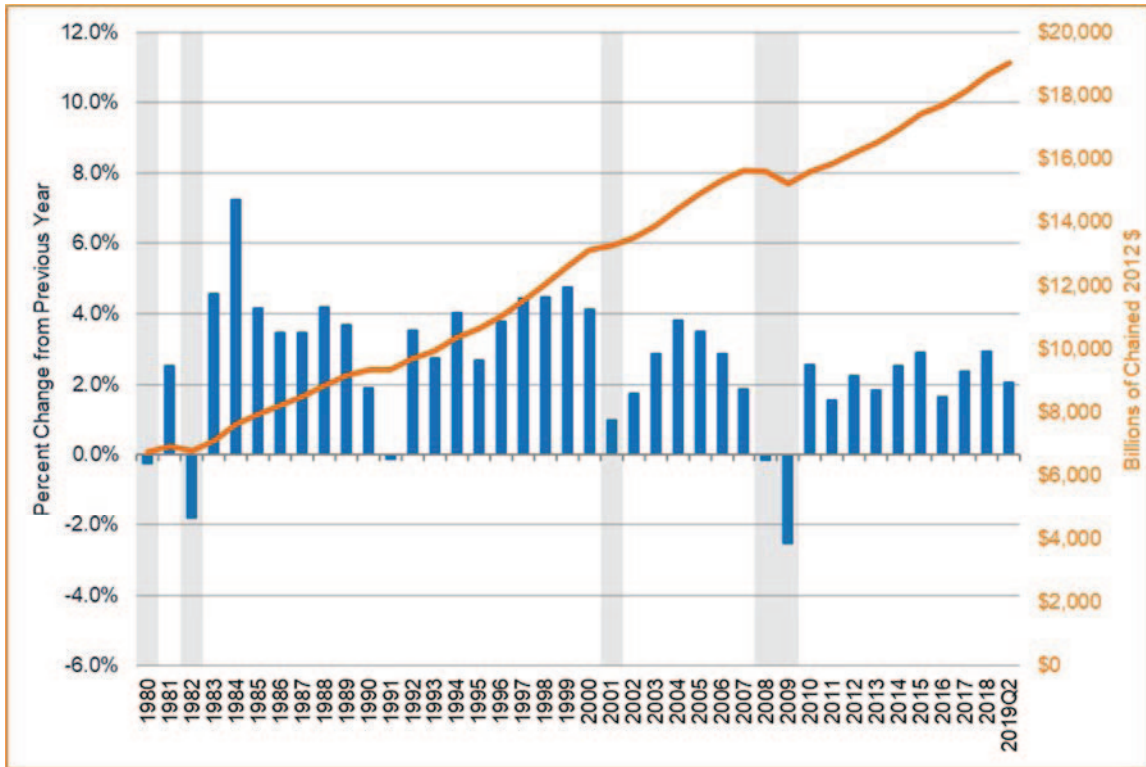
⁵ U.S. Bureau of Economic Analysis, Real Gross Domestic Product [A191RL1A225NBEA], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/A191RL1A225NBEA>, March 14, 2019

⁶ Bureau of Economic Analysis, News Release, “Gross Domestic Product, Second Quarter 2019 (Second Estimate); Corporate Profits, Second Quarter 2019 (Preliminary Estimate)” August 29, 2019.

⁷ Ibid.



Figure 2: Real Gross Domestic Product (GDP), Historical Annual, 1980 – 2019 Q2



Source: U.S. Census Bureau, Bureau of Economic Analysis, National Bureau of Economic Research
 Note: gray shaded areas of the graphic represent U.S. recessions

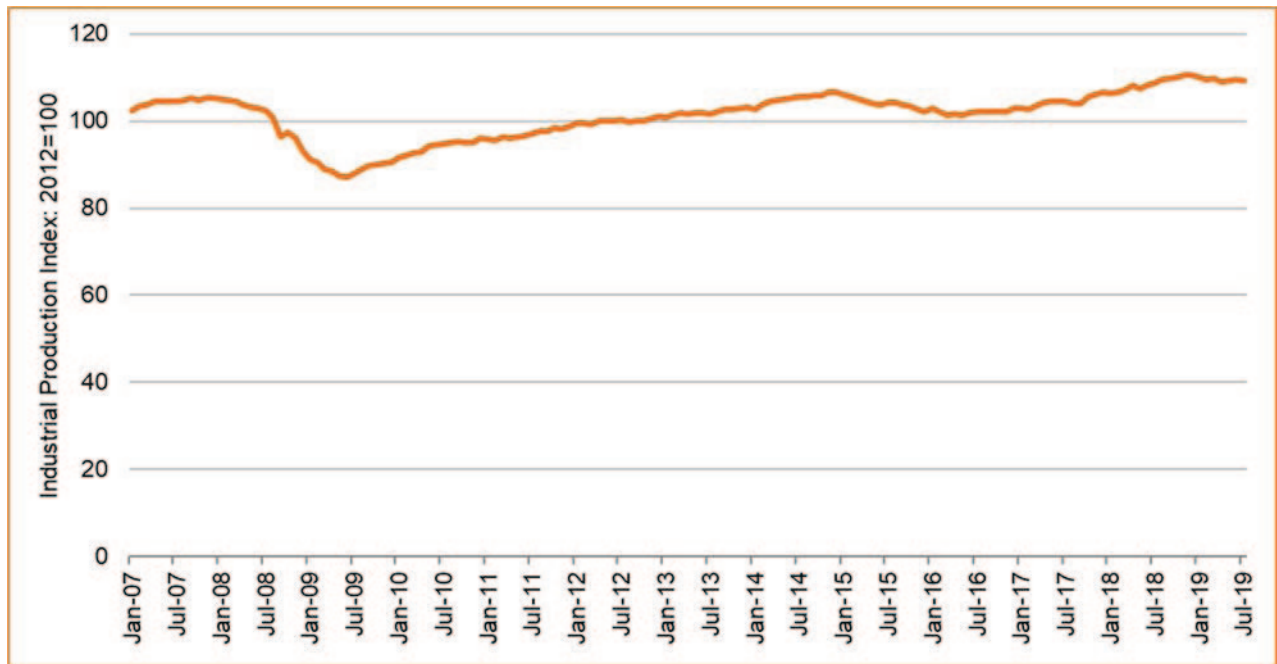
3.1.2 Industrial Production Index

Stantec has tracked the traffic volumes on the Thruway and other toll facilities throughout the Northeastern US for over a decade and has found that growth in commercial vehicle traffic generally correlates to growth in Industrial Production Index (IPI) growth. The IPI is a measure of real output in the manufacturing, mining, electric and gas industries published by the Board of Governors of the Federal Reserve System. The Index is measured as a percentage of real output of a given base year, in this case 2012.

As shown in Figure 3, the IPI hit its most recent trough in June 2009, the last month of the 2007 to 2009 recession. Since that time, with the exception of a slow but small decline throughout 2015 and 2016, it has generally been on an upward trajectory, increasing by more than 25 percent from June 2009 to July 2019.



Figure 3: Industrial Production Index (IPI), Historical Monthly, January 2007 – July 2019



Source: Board of Governors of the Federal Reserve System, National Bureau of Economic Research

3.1.3 Trends in Vehicle Miles Traveled (VMT), National and New York State

The United States experienced an historic flattening and drop in vehicle-miles traveled (VMT) on its highways, starting in 2008 and lasting until approximately 2014. A reduction in VMT means less revenue – in the form of gasoline taxes or tolls - for funding transportation operation, maintenance and capital expenses. However, beginning in mid-2014, national VMT experienced a growth trend, increasing at an even more rapid rate than in the 1990s until a recent period of low growth began in late 2017. It remains to be seen if this recent VMT trend is a temporary or a longer-lived phenomenon.

Figure 4 depicts the 12-month moving total of national VMT on all U.S. highways, from 1971 through June 2019. As seen in this figure, there were temporary reductions in VMT during military combat, oil crises and previous economic recessions. Despite these temporary “dips”, the VMT continued to grow rapidly over the years. The figure shows that, in recent years, with the exception of short, flat periods during the 1991 and 2001 recessions (each less than one year), VMT grew at a steady pace through about 2005, then grew at a much slower pace through 2008. The increase in gas prices and the downturn in economic activity that took hold in late 2008 resulted in a significant reduction in total national travel mileage after the December 2007 peak. VMT declined throughout 2008 and early 2009. From the official end of the recession in mid-2009 through 2013, VMT generally remained flat.

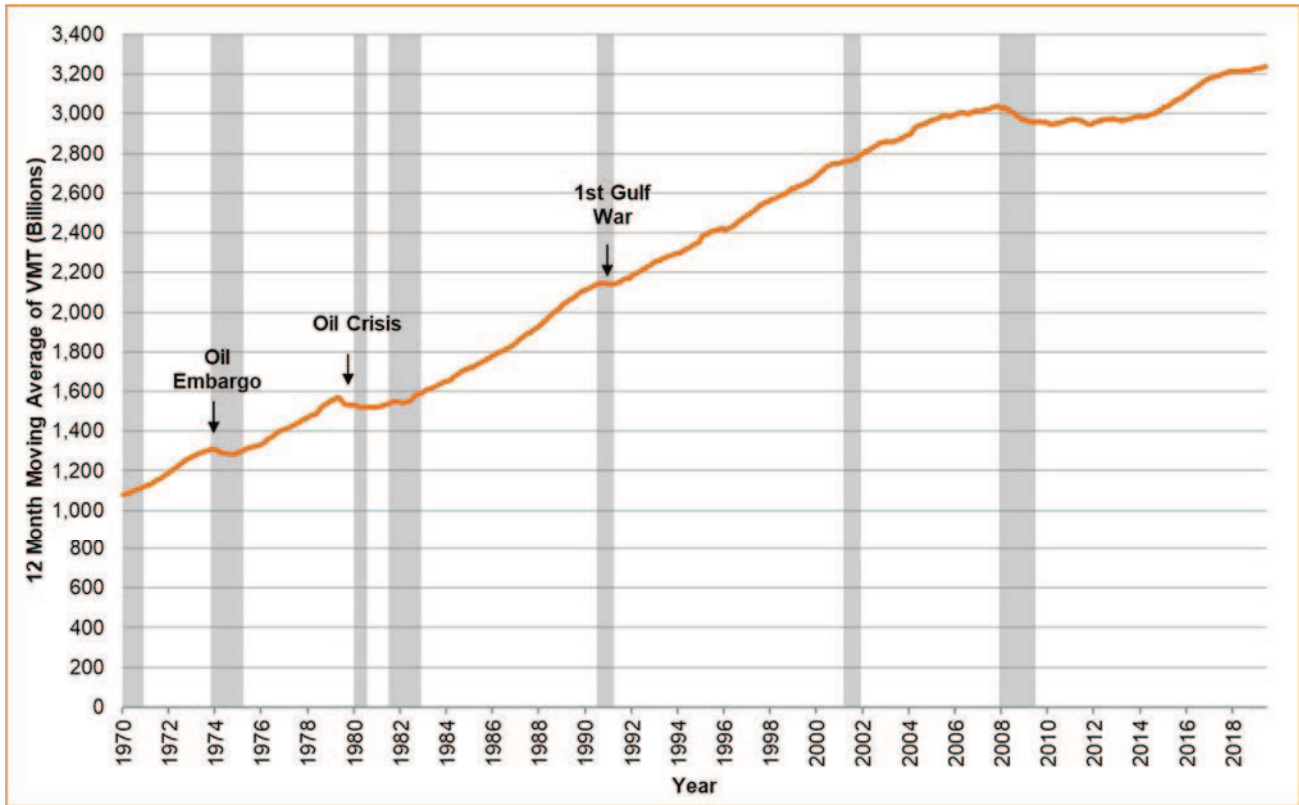
Then, in 2014 through 2017, VMT increased at a strong rate not seen since the late 1990s. The year 2016 experienced the largest annual increase in VMT since tracking began in 1971.⁸ This upward trend in VMT was likely due to an improved economy, employment and population growth, and a reduction in fuel prices. In addition, recent data has shown that the millennials, many of whom delayed purchasing a car, are now buying cars and driving more because they are now employed.

⁸ U.S. Department of Energy, Alternative Fuels Data Center, Maps and Data - Annual Vehicle Miles Traveled in the U.S.



On the other hand, there are factors that may decrease vehicle miles traveled over time, including baby boomers retiring and driving less, the ability of workers to work remotely in the internet era, and communication technologies that can substitute for in-person interaction.⁹ It is important to note that even with the recent overall growth in VMT, per capita VMT fell for nine straight years between 2005 and 2013. The State Smart Transport Initiative (SSTI) concluded in a 2014 report that this decline reflected “changing demographics, saturated highways, and a rising preference for compact, mixed-use neighborhoods, which reduce the need for driving.”¹⁰ These factors may have come into play in the past year; in late 2017 through mid-2019, nationwide VMT has experienced little to no growth.

Figure 4: Vehicle Miles Traveled (VMT) – National, Historical 12-month Moving Average, 1971 – 2019



Source: U.S. Department of Transportation, Federal Highway Administration, National Bureau of Economic Research

Figure 5 shows historical 12-month moving-average VMT trends for New York State through 2017, the most recent annual data available. The most recent available *monthly* data show that June 2019 VMT was 0.1 percent lower than in June 2018 for New York State¹¹, compared with a 0.5 percent decrease for the entire Northeast and a 0.3 percent decrease for the U.S.¹²

⁹“Vehicle Miles Traveled: Another Look at Our Evolving Behavior”, [Jill Misliniski](#), March 17, 2017.

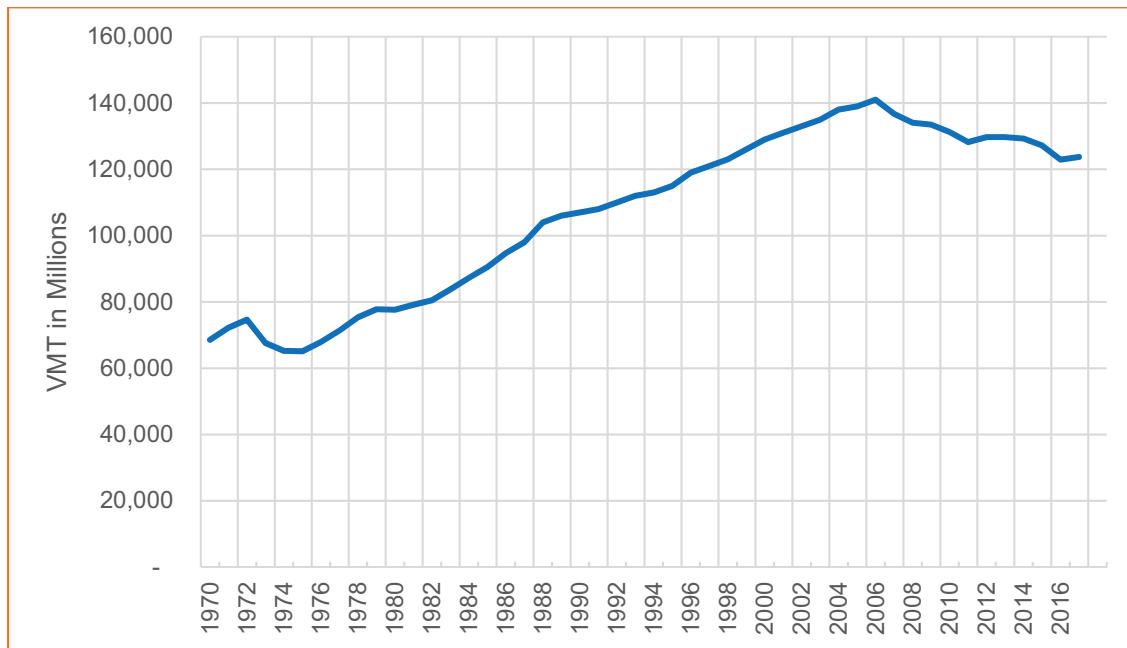
¹⁰State Smart Transportation Initiative News, “[Per capita VMT drops for ninth straight year; DOTs taking notice](#),” Chris Cahill, February 24, 2014.

¹¹ FHWA Office of Highway Policy Information, Traffic Volume Trends, June 2019 accessed at https://www.fhwa.dot.gov/policyinformation/travel_monitoring/19juntvt/page6.cfm

¹² *ibid*



Figure 5: Vehicle Miles Traveled (VMT) – New York, Historical 12-month Moving Average, 1970 – 2017



Source: FHWA Office of Highway Policy Information. Most recent data available.

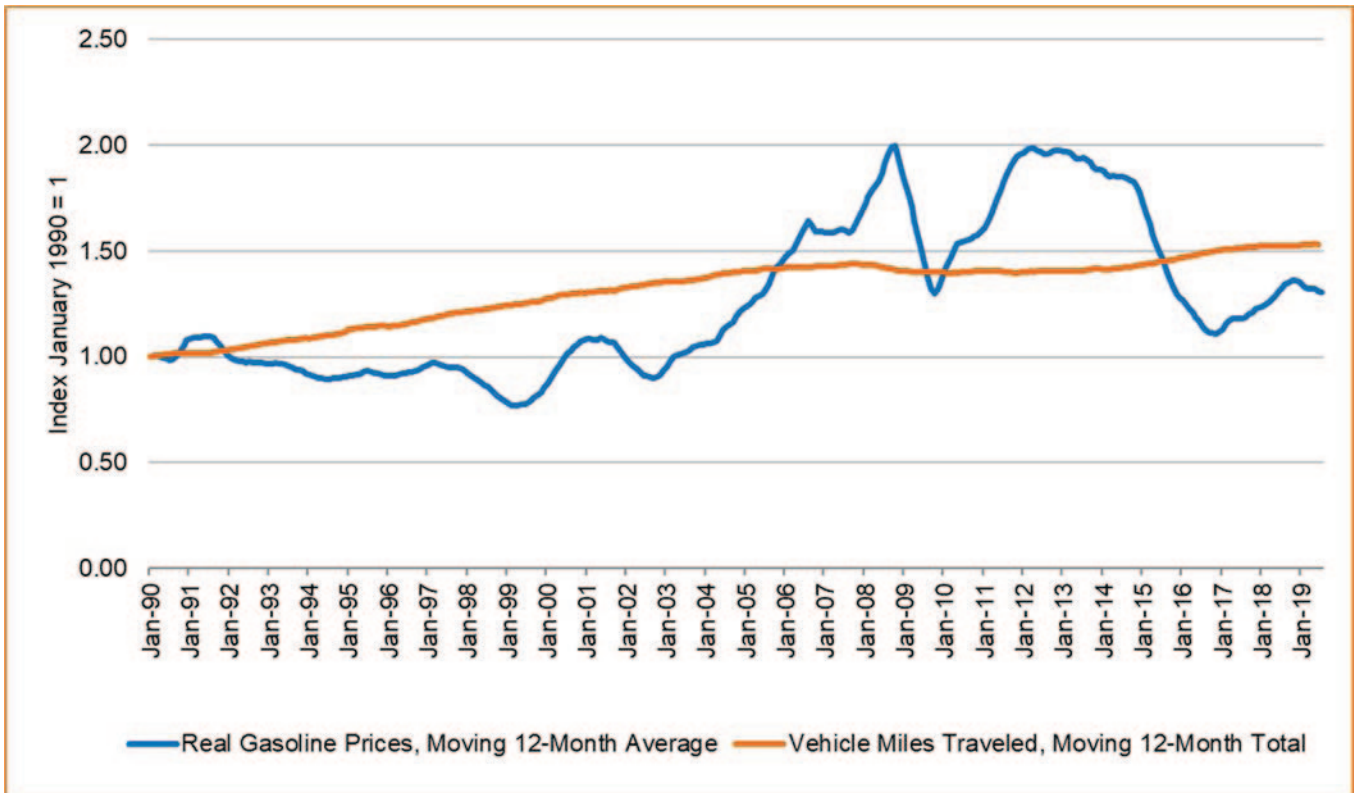
3.1.4 National Vehicle Miles Traveled (VMT) vs. Gas Prices (Fuel Costs)

A number of factors may have caused the recent growth in VMT; however, fuel costs (gas prices) are often cited as one of the primary factors that can have a significant impact on travel trends. Figure 6 shows the historical correlation between VMT and gas prices, presenting VMT across the United States (national) as compared to real retail gasoline prices, from 1990 through summer of 2019. The VMT and real gas prices represent a 12-month moving average to remove any seasonality factors; all data are indexed to the 12 months ending January 1990. The decline in VMT seen after the fall of 2008 is likely more attributable to the economic meltdown than gas price changes, as prices dropped significantly by early 2009. Throughout the rest of 2009 and through the spring of 2011 gas prices increased with no noticeable change to VMT. However, between 2014 and 2016 there was a precipitous drop in gas prices which coincided with a steep increase in VMT at the national level. Since late 2016 gas prices started climbing and VMT growth was nearly flat.

These data show that it is difficult to pinpoint the elasticity of travel as it relates to gas prices; however, very large gas price changes do generally result in a change in driving behavior.



Figure 6: National Vehicle Miles Traveled (VMT) vs. Real Gas Prices, Historical 12-month Moving Average, Indexed to January 1990, 1990 – 2019



Source: U.S. Department of Energy, Energy Information Administration and U.S. Department of Transportation, Federal Highway Administration, August 2019

3.1.5 Unemployment Rate

At the beginning of 2008, the national unemployment rate was 5.0 percent, as it had been similarly for years. By October 2009 during the depth of the recent recession, unemployment peaked at approximately 10.0 percent. Total employment has since recovered and finally eclipsed its pre-recession peak, reaching 156.9 million persons in February 2019.¹³ Consequently, as shown in Figure 7, the national unemployment rate has fallen to 4.0 percent as of January 2019. Figure 7 also shows that the New York State unemployment rate has closely tracked national trends, except for immediately after the recession when the state recovered more quickly than the U.S. Between mid-2017 and mid-2018, the New York State unemployment rate was generally consistently just above the national rate. From June 2018 through March 2019, the national and state unemployment rates were almost identical. In January 2019, however, since then, the New York State unemployment rate has been 0.3 to 0.4 percentage points higher than the national rate. For example, in June and July 2019 the state unemployment rate was 4.0 percent¹⁴ and the national unemployment rate was 3.7 percent¹⁵.

¹³ Bureau of Labor Statistics, “The Employment Situation- February 2019,” as accessed on March 14, 2019 at <https://www.bls.gov/news.release/pdf/empst.pdf>. Employment figure is based on Household Data Summary Table A.

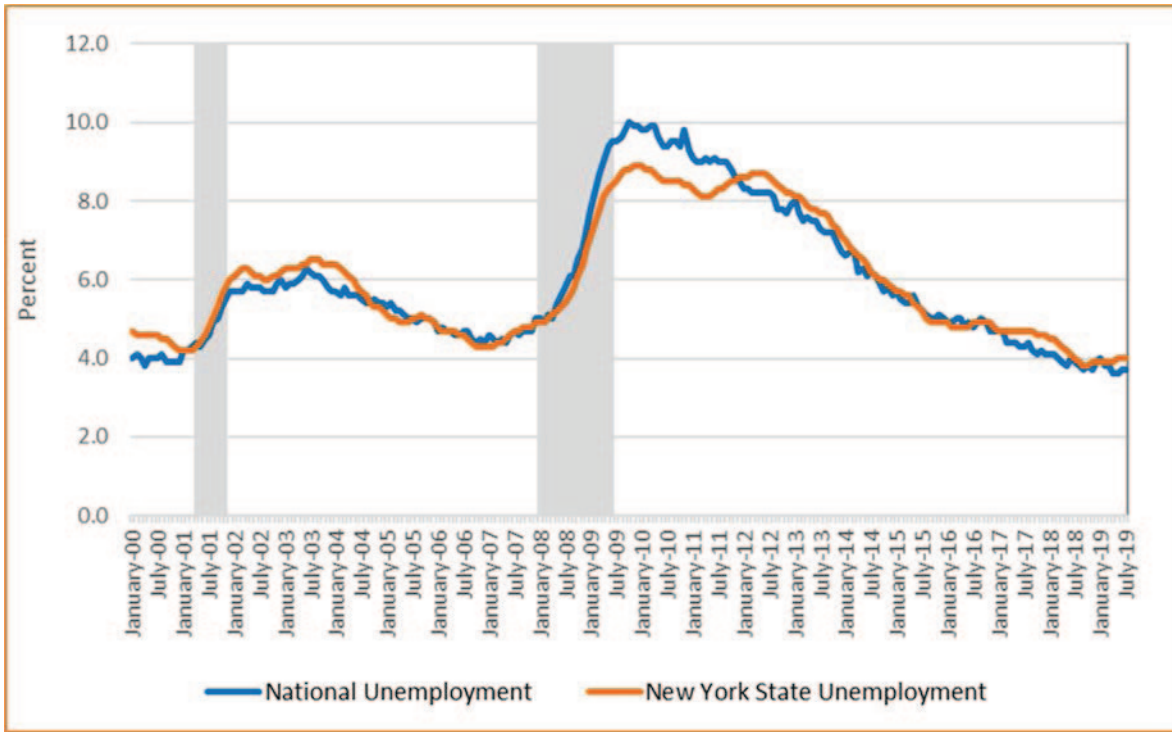
¹⁴ “Bureau of Labor Statistics BLS Data Finder 1.1, Extracted on August 28, 2019 from <https://beta.bls.gov/dataQuery/find?fq=survey:%5bbl%5d&s=popularity:D>

¹⁵ Federal Reserve Bank of St. Louis “Civilian Unemployment Rate.” Extracted on August 28, 2019 from <https://fred.stlouisfed.org/series/UNRATE>



While the most recent recession caused a spike in unemployment and a notable reduction in VMT, there otherwise has been no distinct correlation between the two. For example, U.S. post-recession VMT was nearly flat for about four years after the recession, while unemployment dropped by around 40 percent, and in the past year unemployment has continued to decline while VMT has seen almost no growth.

Figure 7: Civilian Unemployment Rate, National vs. New York State, Historical Monthly, Seasonally Adjusted, January 2000 – July 2019



Source: U.S. Department of Labor, Bureau of Labor Statistics, National Bureau of Economic Research



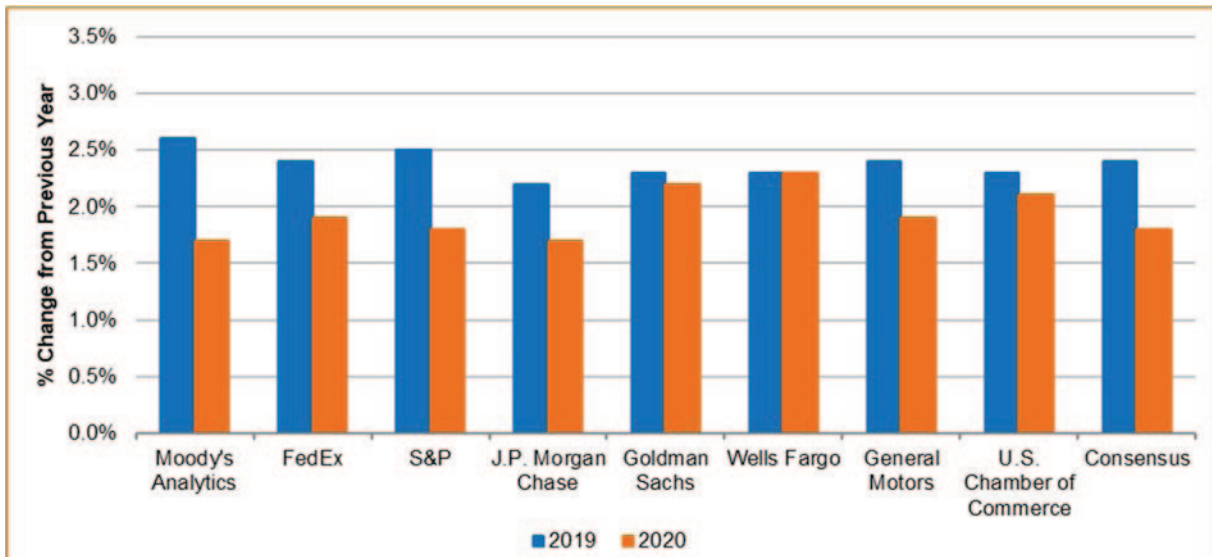
3.2 SHORT-TERM ECONOMIC FORECASTS

Financial and economic analysts expect the U.S. economy to continue to grow in the near-term future.

3.2.1 Gross Domestic Product

The most recent (August 2019) consensus forecast, derived from projections from more than 50 financial institutions and professional forecasting firms, is that real GDP will grow by 2.4 percent in 2019 and 1.8 percent in 2020.¹⁶ The 2019 consensus forecast is slightly lower than the average forecast from January 2018 through July 2019, which was between 2.5 and 2.6 percent. Figure 8 presents Real GDP Forecasts by eight different forecasting groups for the short-term timeframe through 2020. In the 2021-2025 timeframe, the consensus forecast is for real GDP to continue to grow by an average of 1.9 percent annually.¹⁷

Figure 8: Real Gross Domestic Product (GDP), Short-term Forecasts for 2019 and 2020



Source: *Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead*, Wolters and Kluwer Law & Business, August 10, 2019.

¹⁶ "Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, August 10, 2019.

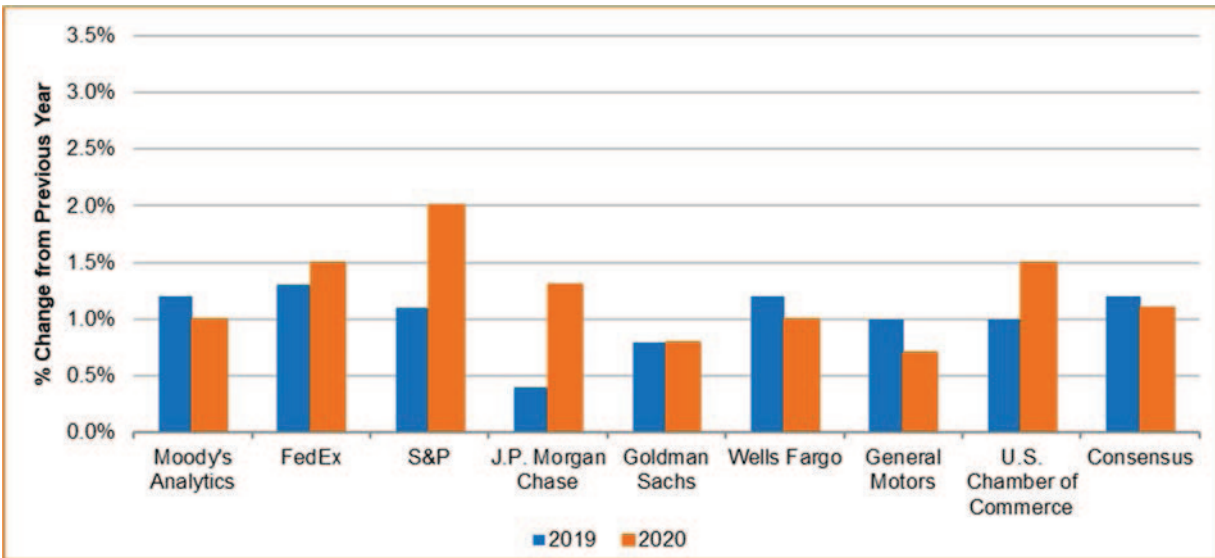
¹⁷ Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, March 10, 2019.



3.2.2 Industrial Production Index

Based on consensus forecasts developed by financial institutions and industry analysts, the Industrial Production Index (IPI) is forecasted to increase by 1.2 percent in 2019 and by 1.1 percent in 2020.¹⁸ Figure 9 presents Industrial Production Forecasts by eight different forecasting groups for this year and next. *Blue Chip* consensus forecasts for the 2021-2025 timeframe have not been completed since March 2019; the March consensus forecast is for the IPI to grow by 2.0 percent annually in this timeframe¹⁹, however, since 2019 and 2020 IPI forecasts have been reduced in recent months (the 2019 forecast was reduced from 2.8 percent in March to 1.2 percent in August) it is likely that the 2021-2025 growth forecasts will also be reduced when new forecasts are produced in October.

Figure 9: Industrial Production Index (IPI), Short-term Forecasts for 2019 and 2020



Source: *Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead*, Wolters and Kluwer Law & Business, August 10, 2019.

3.2.3 Fuel Cost Trends

Figure 10 presents historical and projected gasoline and crude prices from the U.S. Energy Information Administration (EIA). Between the depths of the recession in December 2008 and mid-2011, gas prices jumped by more than 130 percent to \$4.13 in today's dollars. After three years of high gas prices, the prices plunged from \$3.69 in June 2014 to under \$2 per gallon in the first quarter of 2016. Between the spring of 2016 and third quarter of 2017, gas prices generally remained in the \$2.20 to

¹⁸ *Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead*, Wolters and Kluwer Law & Business, August 10, 2019.

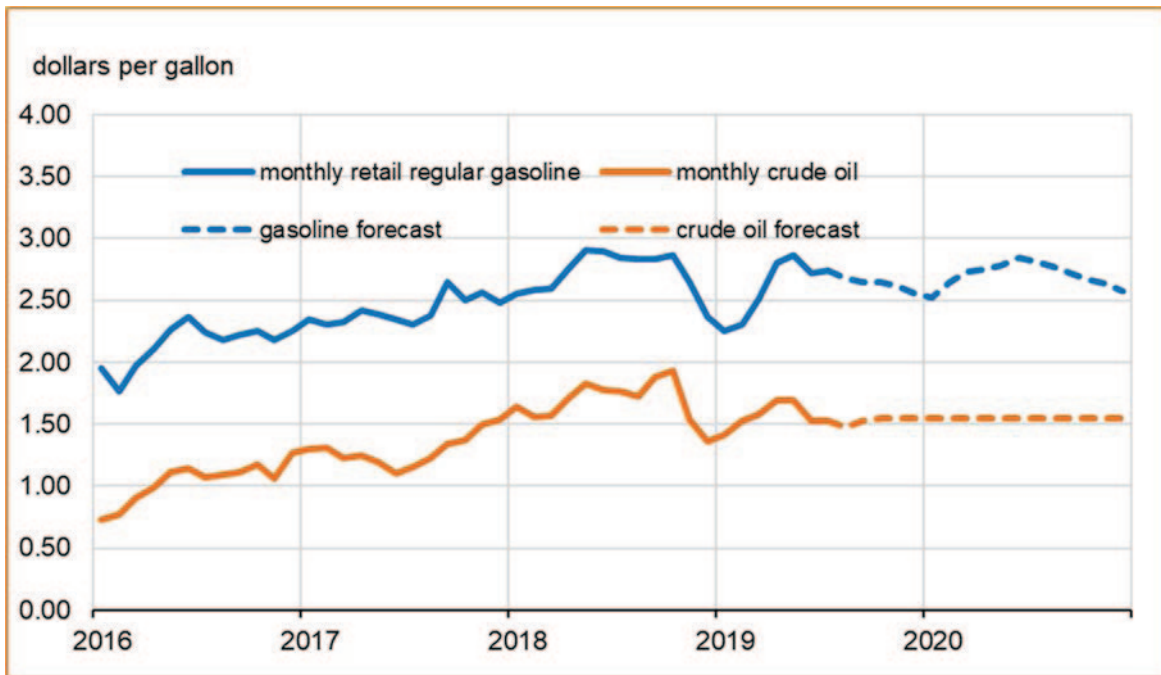
¹⁹ *Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead*, Wolters and Kluwer Law & Business, March 10, 2019.



\$2.40 range.²⁰ Since then (September 2017 through July 2019), prices have averaged just over \$2.65 per gallon. U.S. regular gasoline retail prices are forecast to average \$2.61 per gallon in 2019 and \$2.70 in 2020²¹

As shown in the figure, the retail price for gasoline is expected to remain well under \$3.00 per gallon in the near term. In addition to the reduced gas prices, it is important to note that average fuel economy increased by 28 percent ²² between 2004 and 2017, the latest year for which final fuel economy data is available.

Figure 10: U.S. Gasoline and Crude Oil Prices, Historical and Short-term Forecasts, 2016 – 2020



Source: U.S. Department of Energy, U.S Energy Information Administration, Short-Term Energy Outlook, August 2019

This relatively low, static forecast of future oil and gas prices may be reassuring; however, this figure does not show the level of uncertainty in these projections. Figure 11 presents the EIA’s projections for West Texas Intermediate (WTI) Crude Oil Price. The base projection is similar to that illustrated in Figure 10, but it is the possible range of this price that represents a downside risk to the U.S. economy and VMT. Based on options markets, the 95 percent confidence interval for WTI is between 59 percent more to 47 percent less than current forecasts for December 2020.²³ Recognizing the impact fuel prices have on motorist behavior, with a wide range of likely future prices of oil and gasoline, accurately projecting traffic volumes has become an increasingly challenging task.

²⁰ “Short-Term Energy Outlook,” U.S. Energy Information Administration, March 2019.

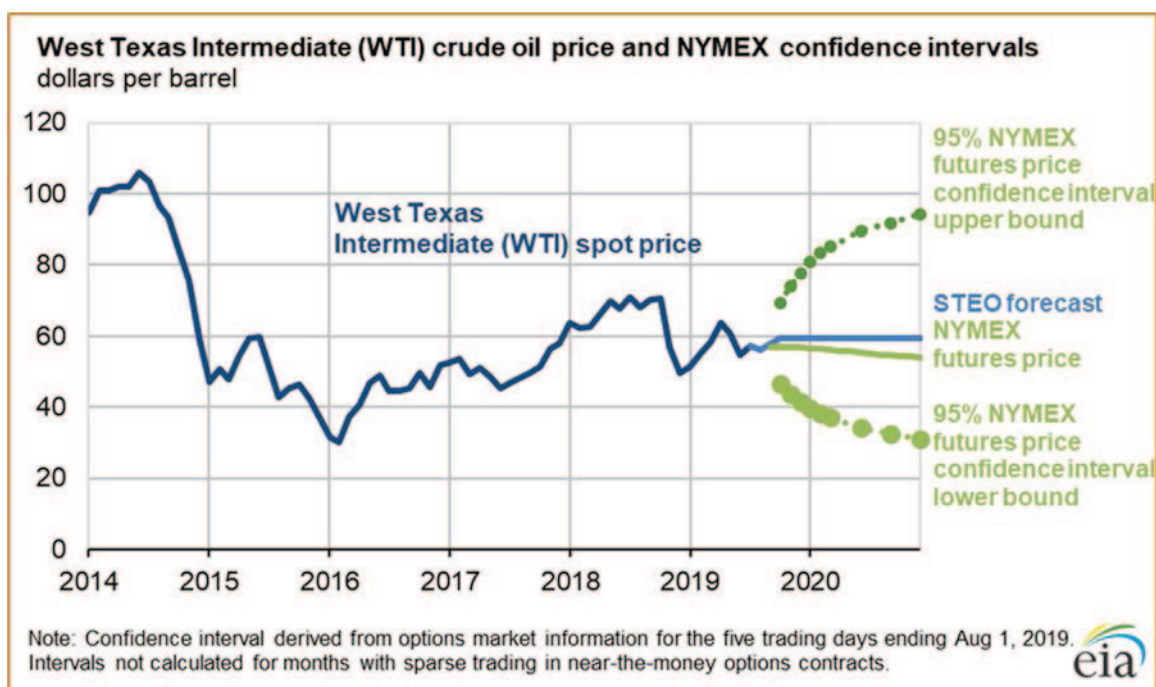
²¹ Ibid.

²² Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2017, U.S. Environmental Protection Agency, January 2018.

²³ Short-Term Energy Outlook U.S. Energy Information Administration, August 2019.



Figure 11: Crude Oil Prices, Historical and Short-term Forecasts, with Confidence Intervals, 2014 – 2020



Source: U.S. Department of Energy, U.S. Energy Information Administration, Short-Term Energy Outlook, August 2019

3.2.4 Unemployment Rate

Based on consensus forecasts developed by financial institutions and industry analysts, the unemployment rate is projected to average 4.2 percent over the 2021-2025 time period.²⁴

3.3 LONG-TERM ECONOMIC FORECASTS

3.3.1 Gross Domestic Product and Industrial Production Index

In the 2026-2030 timeframe, the consensus forecast developed by financial institutions and industry analysts is for real GDP to continue to grow by 2.0 percent annually.²⁵ In the same timeframe, the consensus forecast developed by financial institutions and industry analysts is for the Industrial Production index to continue to grow by 2.2 percent annually.²⁶

3.3.2 Vehicle Miles Traveled (VMT)

The Federal Highway Administration prepares long term (20- and 30-year) forecasts of VMT each year. In its May 2019 report (the most recent report available), FHWA highlights “prospects for future economic growth, alternative interpretations of the causes of recent declines in vehicle ownership and use (particularly among younger Americans), and the potential effects on

²⁴ Blue Chip Economic Indicators: Top Analysts’ Forecasts of the U.S. Economic Outlook for the Year Ahead”, Wolters and Kluwer Law & Business, March 10, 2019.

²⁵ Ibid.

²⁶ Ibid.



vehicle use of dramatic innovations in technology such as the advent of autonomous vehicles” as sources of uncertainty in its forecasts. While not attempting to capture the impacts of all these uncertainties in its forecasts, FHWA projects VMT growth under three different economic outlooks- baseline, low economic growth, and high economic growth, with the most recent forecasts shown in Table 2.²⁷ Interestingly, growth in vehicle mileage for single unit and combination trucks is forecast to be at a higher rate than light duty vehicles.

Table 2: FHWA Long-Term Growth Forecasts of National Vehicle Miles Traveled (VMT)

Vehicle Class	Compound Annual Growth Rates					
	Low Economic Growth Outlook		Baseline Economic Growth Outlook		High Economic Growth Outlook	
	2017-2037 (20-Year)	2017-2047 (30-Year)	2017-2037 (20-Year)	2017-2047 (30-Year)	2017-2037 (20-Year)	2017-2047 (30-Year)
Light-Duty Vehicles	0.9%	0.6%	1.1%	0.7%	1.2%	0.9%
Single-Unit Trucks	1.1%	1.4%	1.6%	1.9%	2.0%	2.3%
Combination Trucks	1.1%	1.2%	1.5%	1.5%	1.5%	1.5%
TOTAL	0.9%	0.7%	1.1%	0.8%	1.3%	1.0%

Source: Office of Highway Policy Information U.S. DOT, Federal Highway Administration, May 2019. Most recent report available.

The Energy Information Administration (EIA) projects a similar differential between light duty vehicles and trucks for the 2018-2050 timeframe with lower projected rates of growth than in the FHWA forecasts for two vehicle categories but higher projected growth for the heaviest vehicle category:²⁸

- 0.6 percent annually for light duty vehicles less than 8,501 pounds
- 1.4 percent annually for light duty trucks (commercial trucks 8,501 to 10,000 pounds gross vehicle weight rating)
- 1.3 percent annually for freight trucks greater than 10,000 pounds

3.3.3 Unemployment Rate

Long-term forecasts of the unemployment rate tend to differ, depending on varying assumptions of the impact of long-term structural trends such as advances in information technology, outsourcing, and an aging population. In its latest 10-year economic projections, the U.S. Congressional Budget Office (CBO) has forecasted that the unemployment rate will average 3.7 percent in 2019 and 2020, steadily rising to 4.6 percent by the end of 2023, and remaining at 4.6 percent between 2024 and 2029.²⁹ Based on consensus forecasts developed by financial institutions and industry analysts, the unemployment rate is projected to average 4.3 percent over the 2026-30 timeframe³⁰, lower than the rate forecasted by CBO for the 2024-2029 timeframe.

²⁷ "FHWA Forecasts of Vehicle Miles Traveled (VMT): Spring 2019," Office of Highway Policy Information, May 2019, as accessed on August 28, 2019 at https://www.fhwa.dot.gov/policyinformation/tables/vmt/vmt_forecast_sum.pdf

²⁸ Annual Energy Outlook, 2019, Transportation Sector Key Indicators accessed on March 15, 2019 at <https://www.eia.gov/outlooks/aeo/data/browser/#/?id=7-AEQ2019&cases=ref2019&sourcekey=0>

²⁹ An Update to the Budget and Economic Outlook: 2019 to 2029", Congressional Budget Office Report, August 2019 as accessed August 28, 2019 at <https://www.cbo.gov/system/files?file=2019-01/54918-Outlook-Chapter2.pdf>

³⁰ Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, March 10, 2019



4.0 CAPITAL PROGRAM

In order to better understand the Authority's current and future financial condition, consideration must be given to the size, complexity and capital needs of its highway and bridge infrastructure. The Authority's Thruway System is extensive and aging and requires considerable investments to remain reliable. This section summarizes the Authority's 2019-2024 Capital Program, the infrastructure investments and program changes that are to be made therein, and the impact that these investments will likely have on facility condition ratings. Table 3 and Table 4 on page 28 summarize the actual annual capital expenditures from 2008 through 2018, and planned expenditures through 2024. These are followed by Table 5 and Table 6 starting which provide detail on the funding sources for the recent capital program and projections for future capital programs.

4.1 2019-2024 CAPITAL PROGRAM DETAILS

The Authority's 2019-2024 Capital Program will provide about \$2.78 billion for Authority capital projects. This includes approximately \$537.4 million for the remaining elements of the New NY Bridge Project, and \$497.5 million for the implementation of system-wide AETC. The Capital Program includes reconstruction and rehabilitation of roadway, bridges, facilities, equipment and support systems. From 2019 through 2024, the Authority believes that the planned investments made in this program will preserve overall highway and bridge conditions in the "good" category, allowing for the continued reliability of the Thruway System and to accomplish full completion of the New NY Bridge Project and Thruway System-wide AETC.

The New NY Bridge Project / Governor Mario M. Cuomo Bridge is discussed in Section 4.2. Other than the New NY Bridge Project and Thruway System-wide AETC conversion, major Thruway projects included in the 2019-2024 program include:

- Pavement Replacement from Electronics Parkway (Exit 37, MP 284.1) to I-690 (Exit 39, MP 289.3) and Replacement of the (MP 288.13) Thruway Bridge over CSX Railroad (Geddes) and Rehabilitation of (MP 287.11) Bridge over Onondaga Pkwy and (MP 287.25) Bridge over Onondaga Lake Outlet (2021 letting)
- I-95, New England Thruway north of Exit 17 to north of Exit 18B Northbound Only and north of Exit 19 to north of Exit 21: Pavement Resurfacing (2021 letting)
- Castleton Bridge (MP 801.08): Rehabilitation (2020 letting)
- I-287/Route 17S (Exit 15, MP 29.4) to north of Suffern (MP 38.7): Pavement Resurfacing (2021 letting)
- Major Deegan Expressway (MP 0.00) to Cross Westchester Expressway (Exit 8, MP 11.3): Pavement Resurfacing (2021 letting)
- North and South Grand Island Bridges: Retrofit / Repair Roller Bearings, Pins and Hangers and North Grand Island Bridges: Steel Repairs (2020 letting)
- East of Westfield (MP 483.0) to Pennsylvania State Line (MP 496.0) Eastbound: Pavement Resurfacing (2020 letting)
- North Avenue Bridge over I-95 (New England Thruway MP NE5.76): Replacement (2021 letting)
- South of Nyack (MP 16.2) to south of Spring Valley Toll Barrier: Pavement Resurfacing (2021 letting)



The Authority adopts its Capital Program on a rolling 5-year basis, amending it each year to include the next year. As the Authority progresses through the current Capital Program, it will continue to modernize and enhance its asset management and capital program management systems to ensure that changes to the program maintain the proper project mix, maximize investment value, and maintain good condition ratings as the economy and pricing environments change.

4.2 THE NEW NY BRIDGE PROJECT / GOVERNOR MARIO M. CUOMO BRIDGE

The Authority is nearing completion of a massive transportation project: the replacement of the Tappan Zee Bridge with the new Governor Mario M. Cuomo Bridge. In December 2012, the Authority selected Tappan Zee Constructors (TZC) as the winning team for the project with a bid of \$3.142 billion. The major TZC team members include Fluor Enterprises, Inc.; Granite Construction Northeast, Inc.; American Bridge Company and Traylor Brothers, Inc. TZC members both individually and together as a team have a proven track record of successfully delivering complex, high profile mega projects. Construction on the new bridge began in 2013.

The major features and design elements for The Governor Mario M. Cuomo Bridge consist of: twin bridge spans approximately three miles in total length with a 100-year design life; multi steel girder/composite deck approach spans at each end, with cable-stayed spans over the main Hudson River shipping channels and chamfered towers supporting the cables; four lanes of vehicle traffic per direction with AETC on the south span, continuing to collect tolls from southbound traffic only; bus rapid transit lanes; and a shared-use bike and pedestrian path with viewing areas on the north span.

AETC began on the Tappan Zee Bridge on April 23, 2016 and continues today on The Governor Mario M. Cuomo Bridge. Implementing this tolling technology has offered motorists many advantages, including reduced travel times, enhanced safety and improved traffic flow, and provides environmental benefits by limiting idling and reducing delays, as vehicles no longer have to stop at a toll plaza. AETC utilizes overhead gantries with readers to detect *E-ZPass* transponders and cameras to read license plates of non-*E-ZPass* customers who are later billed by mail. The implementation of AETC ensured uninterrupted toll collection during construction and through the completion of The Governor Mario M. Cuomo Bridge.

The north span of the new Governor Mario M. Cuomo Bridge opened in late August, 2017, at which point all northbound/westbound traffic was moved off of the old Tappan Zee Bridge and onto the new span. Southbound/eastbound traffic was temporarily moved to the north span in early October, 2017. The south span of the new bridge opened in September 2018, at which point the southbound/eastbound traffic was shifted to this span. Toll collection was uninterrupted throughout the entire construction period. The new bridge has a larger deck capacity than the old Tappan Zee Bridge, so full traffic-carrying capacity has been assured.

The total budget for the New NY Bridge Project is nearly \$4.0 billion, financed through (i) toll revenue bonds constituting Junior Indebtedness Obligations (including those securing the Authority payment obligations under the \$1.6 billion TIFIA Loan), as well as with (ii) pay-as-you-go funding, and (iii) proceeds of State Infrastructure Grant Contributions. As of July 2019, the project cost paid out to TZC was \$3.357 billion or 97.7 percent of the \$3.435 billion contract value. Remaining elements of the project include the completion of demolition activities on the old bridge, and the completion of a bicycle/pedestrian pathway with viewing areas.

Figure 12 is a photograph depicting the status of the bridge project as of early July 2019, showing that both spans of The Governor Mario M. Cuomo bridge are open to traffic, with a bicycle and pedestrian path currently under construction on the northbound span. Demolition activities continue on the old Tappan Zee Bridge foundations.



Figure 12: New NY Bridge Project



Source: <http://www.newnybridge.com>

Additional information on the project can be found at: <http://www.newnybridge.com>.

4.3 HISTORICAL AND PLANNED CAPITAL EXPENDITURES

Given the age of the Thruway System and the high percentage of its infrastructure that dates back to original construction, significant capital investments have been necessary to complement maintenance activities for the system to remain reliable and in a state of good repair.

Actual capital expenditures for 2008 through 2018 are shown in Table 3. Table 4 presents the 2019-2024 planned expenditures. Capital costs for system-wide AETC conversion are included in these numbers. With these planned capital expenditures, the Authority can continue to provide good service to its customers, meet the demands of future traffic growth, and ensure that the system is not adversely affected by deteriorating bridge and pavement conditions.



Table 3: Actual Capital Expenditures, 2008-2018 (millions)

Year	Thruway Highway and Bridges Capital Expenditures	Equipment Replacement and Other Facility Capital Needs ⁽¹⁾	Canal System and Other Authority Projects ⁽²⁾	Subtotal Capital Program Expenditures	New NY Bridge Project Capital Costs	Total Capital Program Expenditures
2008	288.7	36.2	30.3	355.2		355.2
2009	259.6	35.4	26.1	321.1		321.1
2010	311.0	39.9	26.8	377.7		377.7
2011	367.6	49.5	27.4	444.5		444.5
2012	322.4	22.9	45.7	390.9		390.9
2013	183.7	30.7	37.5	251.9	\$613.4	865.3
2014	170.7	33.7	76.7	281.0	594.2	875.3
2015	251.3	35.2	48.8	335.3	702.0	1,037.3
2016	200.1	36.5	30.3	266.9	790.7	1,057.7
2017	184.7	44.8	0.0	229.5	479.1	708.6
2018	222.9	104.7	0.0	327.7	264.1	591.8

Note: Numbers may not add due to rounding.

⁽¹⁾ Includes capital costs for system-wide AET conversion

⁽²⁾ These costs were payable only after Thruway operating and maintenance and debt service costs, and, as noted herein, jurisdiction for the Canal System was transferred to the NYPA effective January 2017.

Table 4: Projected 2019-2024 Total Capital Expenditures (millions)

Year	Thruway Highway and Bridges Capital Expenditures	Equipment Replacement and Other Facility Capital Needs ⁽¹⁾	Canal System and Other Authority Projects	Subtotal Capital Program Expenditures	New NY Bridge Project Capital Costs	Total Capital Program Expenditures
2019	\$222.1	\$187.6	\$0.0	\$409.7	\$220.0	\$629.7
2020	219.7	314.0	0.0	533.7	72.4	606.1
2021	231.1	129.4	0.0	360.5	245.0	605.5
2022	243.9	64.9	0.0	308.9	0.0	308.9
2023	259.7	50.3	0.0	310.0	0.0	310.0
2024	265.7	50.5	0.0	316.2	0.0	316.2
Total 2019-2024	\$1,442.3	\$796.7	\$0.0	\$2,239.0	\$537.4	\$2,776.3

Note: Numbers may not add due to rounding.

⁽¹⁾ Includes capital costs for system-wide AET conversion

Table 5 and Table 6 summarize actual funding sources for the previous Capital Programs and planned funding sources for the 2019-2024 Capital Program. Federal aid allocated by the NYSDOT to the Authority declined from \$30.9 million in 2007 to 0 in 2011, predominately the result of an agreement with NYSDOT expiring in 2005 which had previously authorized aid to the Authority to support its capital and operational needs. This declining federal aid plus relatively low toll revenue growth led to a reduction in the level of pay-as-you-go financing for the 2005-2011 Capital Program. An additional \$100 million of federal aid was allocated to the Authority's Capital Program in 2012-2016. In 2012, there was an increase of other funding sources for



the Capital Program, including some Canal storm-related repairs reimbursed by FEMA and to account for NYSDOT and MTA shares of the pre-design/environmental costs of the New NY Bridge Project. At this time no additional federal authorizations are assumed for the 2019-2024 Capital Program.

The Authority issued its Series 2013A Junior Indebtedness Obligations on December 18, 2013 in the principal amount of \$1.6 billion to finance a portion of the New NY Bridge Project capital costs. The Authority entered into a TIFIA Loan Agreement on December 19, 2013 with the United States Department of Transportation authorizing a loan for an amount up to \$1.6 billion which is secured by the Authority's issuance of the Series 2013B Junior Indebtedness Obligations. The Authority paid the Series 2013A Junior Indebtedness Obligations with the proceeds of the Series 2019A JIO Notes and available cash resources of the Authority. The Authority expects to pay the principal of the Series 2019A JIO Notes from a draw of the full \$1.6 billion amount under the TIFIA Loan (\$400 million of which were redeemed on September 17, 2019). In May 2016, the Authority issued an additional series of Junior Indebtedness Obligations (Series 2016A) in the amount of \$850 million to finance a portion of costs of the New NY Bridge Project.

The Authority plans to leverage the proceeds of the TIFIA Loan, Series M Bonds and Series 2019B JIOs to redeem the remaining 2019A JIO Notes, refund the TIFIA Loan, and refund select General Revenue Bonds. The Series 2019B JIOs will also fund \$75 million of new money proceeds to fund completion costs for the New NY Bridge Project.

Additionally, in 2015 New York State had appropriated grant money in the amount of \$1.285 billion to fund Thruway capital projects, including \$750 million for the New NY Bridge Project and \$535 million for Thruway System-wide projects. The State's 2016-2017 Enacted Budget included an additional appropriation of \$700 million for capital assistance to the Authority. The State gave a total of \$1.2 billion in grants to the Authority for the New NY Bridge Project.

Table 5: 2008-2018 Actual Funding Sources, Thruway Authority (millions)

Year	Funding Sources					
	Federal Aid	Other ⁽¹⁾	Bond / Note Proceeds	Subtotal Exclusive of Thruway Revenues on Pay-As-You-Go Basis	Revenues Required from Tolls, etc.	Pay-As-You-Go %
2008	\$17.6	\$1.3	\$299.5	\$318.4	\$36.8	15.7%
2009	10.0	2.7	258.4	271.1	50.1	19.6%
2010	8.7	4.9	305.8	319.4	58.3	19.0%
2011	0.0	6.4	366.0	372.4	72.1	17.7%
2012	11.2	54.2	268.7	334.1	56.8	31.3%
2013	22.8	24.1	725.4	772.2	93.1	16.2%
2014	51.3	9.9	721.6	782.8	92.7	17.6%
2015	51.2	396.6	491.8	939.5	97.7	52.6%
2016	5.8	536.9	415.9	958.6	99.0	60.7%
2017	0.1	181.6	464.2	645.9	62.8	34.5%
2018	0.0	504.1	3.0	507.0	84.8	99.5%

Note: Numbers may not add due to rounding.

⁽¹⁾ Incorporates portions of State grant assistance of \$1.285 billion from the 2015-2016 State Budget and \$700 million from the 2016-2017 State Budget. The remaining State grant funds will be drawn down in 2019.



Table 6: Projected 2019-2024 Funding Sources, Thruway Authority (millions)

Year	Funding Sources					
	Federal Aid	Other ⁽¹⁾	Bond / Note Proceeds	Subtotal Exclusive of Thruway Revenues on Pay-As-You-Go Basis	Revenues Required from Tolls, etc.	Pay-As-You-Go %
2019	\$0.0	\$406.9	\$0.0	\$406.9	\$222.7	100.0%
2020	-	47.5	498.0	545.5	60.6	17.8%
2021	-	2.4	542.5	544.8	60.7	10.4%
2022	-	0.8	251.2	252.0	56.9	18.7%
2023	-	0.2	236.3	236.5	73.5	23.8%
2024	-	0.2	237.1	237.4	78.8	25.0%
Total 2019-2024	\$0.0	\$457.9	\$1,765.1	\$2,223.1	\$553.3	36.4%

Note: Numbers may not add due to rounding.

⁽¹⁾ The remaining State grant funds will be drawn down in 2019.

4.4 THE IMPACT OF THE CAPITAL PROGRAM ON CONDITIONS

As previously noted, the main goals of the Authority’s capital and maintenance program are to preserve a high level of patron safety and service, maintain facilities in a state of good repair and ensure the overall reliability of the highway system. One measure of the effectiveness of these maintenance and capital programs is the condition ratings of highway and bridge facilities.

Figure 13 displays the historic average rating of Thruway pavement surface conditions since 2005 and the projected ratings as a result of the current capital program. During the life of the current capital program, it is projected that the pavement ratings for the Thruway facilities will range from “fair” to “good”, slightly better than recent years.

Similarly, the Authority maintains ratings for the 814 bridge structures for which it has maintenance responsibility. The Authority strictly complies with all State and federal bridge inspection requirements and the assessments in this report reflect the outcomes of such inspections. Figure 14 shows actual and projected bridge condition ratings from 1990 through 2024 and include a change in the bridge inspection methodology in 2016, which was mandated by the Federal Highway Administration (FHWA). As noted, the current capital program will maintain the average rating of all bridges in the “good” category.



Figure 13: Historical and Forecasted Thruway Pavement Distress Indices (PDI), 2005-2024

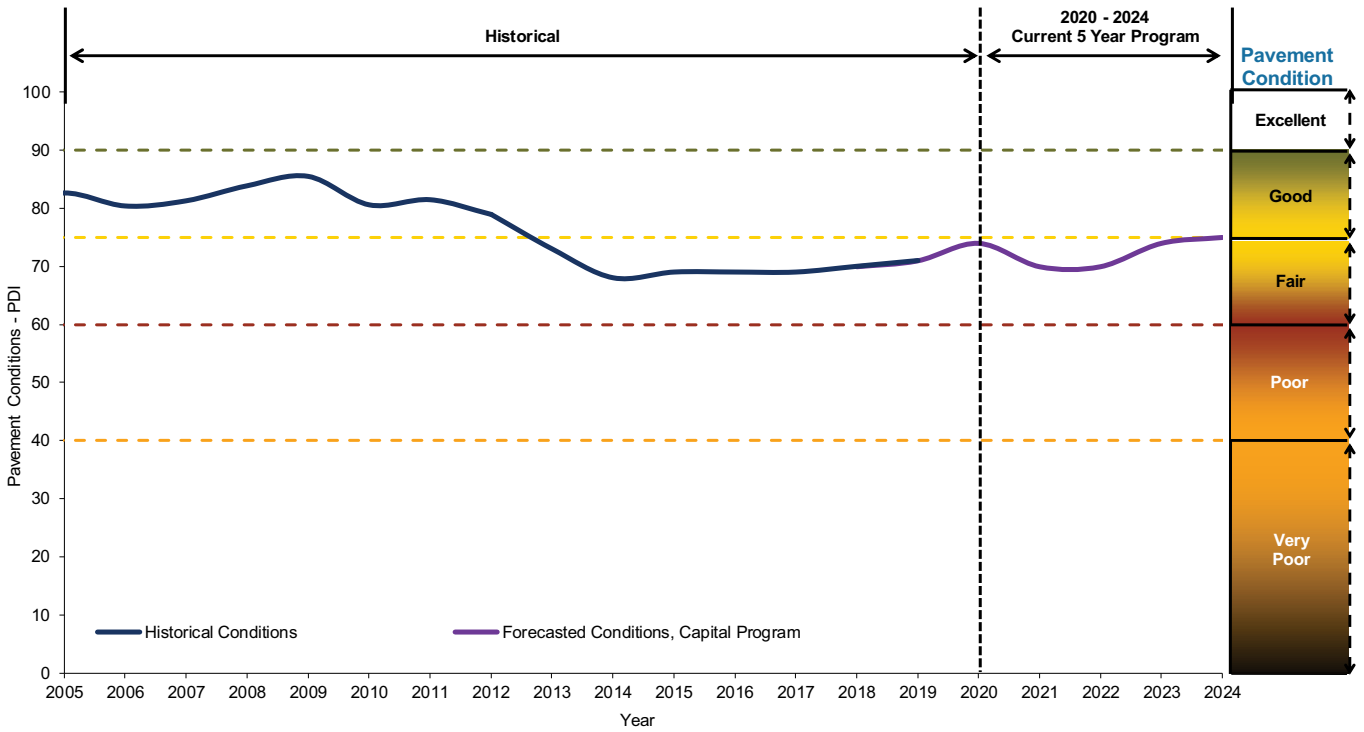
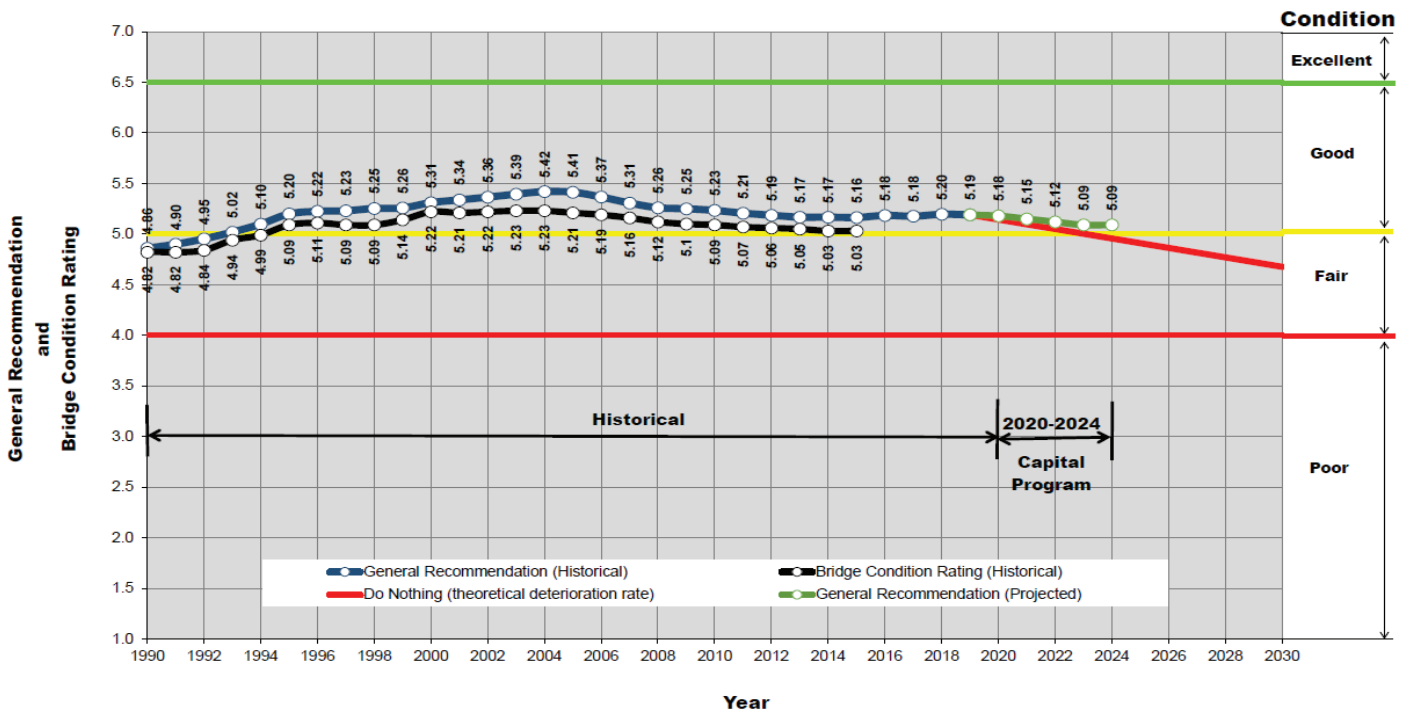


Figure 14: Historical and Forecasted Thruway Bridge Condition Ratings, 1990-2024



Note: Due to changes in the New York State Bridge Inspection System in 2016, the Bridge Condition Rating in 2016 through 2024 was projected based upon the 2015 data.



Prior to 2016, the bridge condition rating was calculated by a specific formula containing separate components for each of the bridge elements. For a multi-span structure, the lowest rated pier, deck span, bearing, etc., are used to calculate the condition rating. For example, if a bridge has eight bearings, seven of which are rated “good” and one of which is rated “fair,” the rating of “fair” would be applied as the rating for bearings in the calculation of the overall bridge condition. The new inspection methodology represents the condition of each element in terms of how much of the element is in a specific condition, called “condition state.”

Table 7 presents a summary of the general recommendation rating for bridges on the Thruway as of December 2018 compared to 2017. The general recommendation is the inspector’s assessment of the overall bridge condition. This rating was not affected by the inspection methodology change. The general recommendation ranges from 7 (bridge is in new condition) to 1 (bridge deterioration is so extensive that partial or total collapse is imminent). The lowest general recommendation for a Thruway bridge is 3 (considerable deterioration of some or all bridge components). There was overall a slight improvement in the Authority’s bridge rating between December 2017 and December 2018. Three of the nine bridges with a recommendation of 3 are currently being replaced. An additional four bridges with a general recommendation of 3 will be replaced in the 2019-2024 Capital Program.

Table 7: Bridge Conditions, December 2018 and December 2017

BRIDGE RATINGS		
CONDITION	NO. OF BRIDGES	
	Dec. 2017	Dec. 2018 ¹
GENERAL RECOMMENDATION 5-7 Bridges in generally good condition with only minor to moderate repairs required.	679	689
GENERAL RECOMMENDATION 4 Bridges in good to fair condition requiring reconditioning of some structural elements.	122	115
GENERAL RECOMMENDATION 2-3 Bridges in poor condition requiring major repairs or replacement.	8	9

¹In December 2018, the Authority had maintenance and inspection responsibility for 813 bridges. One new bridge was added in 2019 - the south span of The Gov. Mario M. Cuomo Bridge.

5.0 OPERATING AND MAINTENANCE EXPENSES

The Authority’s operating and maintenance (O&M) expenses include non-capitalized costs for the maintenance of highway and building facilities; equipment purchases; snow and ice removal; Thruway toll collection; administrative costs and fringe benefits; Thruway traffic operations; and provisions for funding environmental and other liability reserves. In past years the Authority was also responsible for the O&M for the New York State Canal System, however, effective January 1, 2017, the New York State Canal Corporation (NYSCC) became a subsidiary of the New York Power Authority, and the Authority was relieved of all responsibilities related to the Canal System.

In recent years the Authority was able to limit the level of growth in O&M costs primarily through staffing reductions and a stronger workforce management program. During this period, the Authority reduced its workforce by approximately 10 percent. In addition, the Authority reduced or eliminated expenditures for equipment and projects, cancelled or deferred scheduled salary increases and other employee benefits, relied more heavily upon part-time and seasonal workforces, reduced toll lane staffing hours, enhanced energy efficiency measures, reduced overtime and discretionary expenses, and a number of other actions. Combined with new actions planned to further modernize the management and streamline



operations, these ongoing initiatives will generate recurring savings and aid the Authority in maintaining fiscal balance in the future.

Table 8 summarizes the Authority’s actual 2008-2018 operating and maintenance expenses. A significant reduction in O&M costs is shown beginning in 2013, where as part of a State-supported initiative to reduce the Authority’s Operating Expenses, New York State relieved the Authority of \$85 million for certain fiscal responsibilities, including about \$56 million to fund the operations of New York State Police (Troop T) whose 320 members patrol the Thruway System.

At the Governor’s initiative, the State’s 2016-2017 Enacted Budget included the transfer of the NYSCC to the NYPA. This transfer of the NYSCC, and its related expenses and revenues, is offset by Thruway Authority reimbursement to the State for the State Police costs associated with Troop T expenses of the State. As noted previously, Troop T provides State Police patrol on the Thruway. This reimbursement is provided for from the General Reserve Fund (after supporting operating and debt service costs) and is not included under operations and maintenance related expenses of the Authority.

On April 23, 2016 AETC was implemented at The Governor Mario M. Cuomo Bridge (formerly Tappan Zee Bridge barrier). AETC began on Grand Island Bridges in March 2018, at the Harriman Barrier in September 2018, Yonkers Barrier in November 2018, and Spring Valley and New Rochelle Barriers in December 2018. Actual costs for account management of the Tolls by Mail program were included in the budgets and actual costs for 2016 through 2018.

Table 8: The Thruway System’s Actual Operating and Maintenance Expenses, 2008 – 2018 (millions)

Year	Thruway Operations	Reserves ⁽¹⁾	Total Operating Expenses ⁽²⁾
2008	\$334.8	\$2.5	\$337.3
2009	339.4	7.3	346.7
2010 ⁽³⁾	358.2	6.0	364.2
2011	365.4	4.6	370.0
2012	357.0	2.0	359.0
2013	279.6	3.5	283.1
2014	286.1	5.9	292.0
2015	287.4	1.8	289.1
2016 ⁽⁴⁾	311.6	1.8	313.3
2017	329.7	2.7	332.4
2018 ⁽⁵⁾	339.9	5.0	345.0

(1) Includes provisions for legal claims and indemnities and reserves for environmental remediation.
(2) Prior to 2017, the Authority was also responsible for the O&M for the New York State Canal System, however, effective January 1, 2017, the NYSCC became a subsidiary of the New York Power Authority, and the Authority was relieved of all responsibilities related to the Canal System. Canal O&M expenses are not included in this table.
(3) In 2010, operating expenses include \$13.3 million for the special early retirement surcharge (\$11.4 million for the Thruway and \$1.9 million for the Canal) and \$5.6 million in Federal Enhancement funds was received for Canal operations.
(4) AETC began at The Governor Mario M. Cuomo Bridge (formerly Tappan Zee Bridge barrier) on April 23, 2016.
(5) AETC began on Grand Island Bridges in March 2018, at the Harriman Barrier in September 2018, Yonkers Barrier in November 2018, and Spring Valley and New Rochelle Barriers in December 2018.



Table 9 shows the 2019 through 2024 projected O&M costs. The cost impacts (new costs related to the Tolls by Mail program, plus reductions in toll plaza staffing and plaza maintenance costs) have been included as facilities are converted to AETC.

Table 9: The Thruway System’s Projected 2019-2024 Operating and Maintenance Expenses (millions)

Year	Thruway Operations	Reserves ⁽¹⁾	Total Operating Expenses, 2019 Budget Forecast
2019	\$358.3	\$4.6	\$ 362.9
2020 ⁽²⁾	370.7	1.0	371.7
2021	374.8	1.0	375.8
2022	380.4	1.0	381.4
2023	386.1	1.0	387.1
2024	391.9	1.0	392.9
Total 2019-2024	\$2,262.2	\$9.6	\$2,271.8

⁽¹⁾ Includes provisions for legal claims and indemnities and reserves for environmental remediation.

⁽²⁾ It is assumed that AETC will begin on the entire controlled system in October 2020.

6.0 DEBT SERVICE EXPENSES

As a result of a higher level of capital investment and the reduced pay-as-you-go financing in recent years the Authority utilized additional bond/note proceeds to finance commitments made in the multi-year Capital Programs. As summarized in Table 10 and Table 11, the greater reliance on bonds and the issuance of short-term notes to finance programmed capital improvements resulted in annual debt service payments increasing from \$163.5 million in 2008 to \$299.5 million in 2018 and are projected to reach a maximum of \$430.9 million in 2024.

The Authority entered into a TIFIA Loan Agreement on December 19, 2013 with the United States Department of Transportation authorizing a loan for an amount up to \$1.6 billion which is secured by the Authority’s issuance of the Series 2013B Junior Indebtedness Obligations. The Authority paid the Series 2013A Junior Indebtedness Obligations with the proceeds of the Series 2019A JIO Notes and available cash resources of the Authority. The Authority expects to pay in full the principal of the Series 2019A JIO Notes from a draw of the full \$1.6 billion amount under the TIFIA Loan. In May 2016, the Authority issued an additional series of Junior Indebtedness Obligations (Series 2016A) in the amount of \$850 million to finance a portion of costs of the New NY Bridge Project.

The Authority plans to leverage the proceeds of the TIFIA Loan, Series M Bonds, and Series 2019B JIOs to redeem the 2019A JIO Notes, refund the TIFIA Loan, and refund select General Revenue Bonds. The Series 2019B JIOs will also fund \$75 million of new money proceeds to fund completion costs for the New NY Bridge Project.



Table 10: Actual Debt Service, Thruway System, 2008-2018 (millions)

Year	Senior Debt Service	Debt Defeasance	Bond Anticipation Note (BAN) or Line of Credit Interest	Junior Debt Service	Total Debt Service
2008	\$163.5	-	\$0.0	-	\$163.5
2009	166.3	-	10.6	-	176.9
2010	167.3	-	23.8	-	191.2
2011	167.4	-	14.4	-	181.8
2012	198.5	-	2.0	-	200.5
2013	239.8	-	0.3	-	240.1
2014	250.9	-	0.4	-	251.3
2015	235.4	-	0.4	-	235.7
2016	227.3	-	0.4	\$29.2	256.9
2017	234.6	-	0.0	43.7	278.2
2018	220.3	-	0.0	79.2	299.5

Note: Numbers may not add due to rounding.

Table 11: Projected 2019-2024 Debt Service, Thruway System (millions)

Year	Senior Debt Service ⁽¹⁾	Debt Defeasance ⁽²⁾	Bond Anticipation Note (BAN) or Line of Credit Interest	Junior Debt Service ⁽³⁾	Total Debt Service
2019	\$228.5	-	\$0.0	\$53.4	\$281.9
2020	244.6	(6.2)	0.0	44.1	282.4
2021	249.9	(9.9)	0.0	45.6	285.6
2022	286.6	-	0.0	73.7	360.3
2023	292.5	-	0.0	119.2	411.7
2024	309.9	-	0.0	120.9	430.9
Total 2019-2024	\$1,612.0	(\$16.1)	\$0.0	\$457.0	\$2,052.8

Note: Numbers may not add due to rounding. Projected debt service numbers are net of Debt Service Reserve Fund interest.

⁽¹⁾ Incorporates impact of proposed refunding on Senior Debt Service.

⁽²⁾ Incorporates \$700 million in State grant assistance, a portion of which defeases Senior Debt Service.

⁽³⁾ Incorporates impact of proposed refunding on Junior Debt Service.

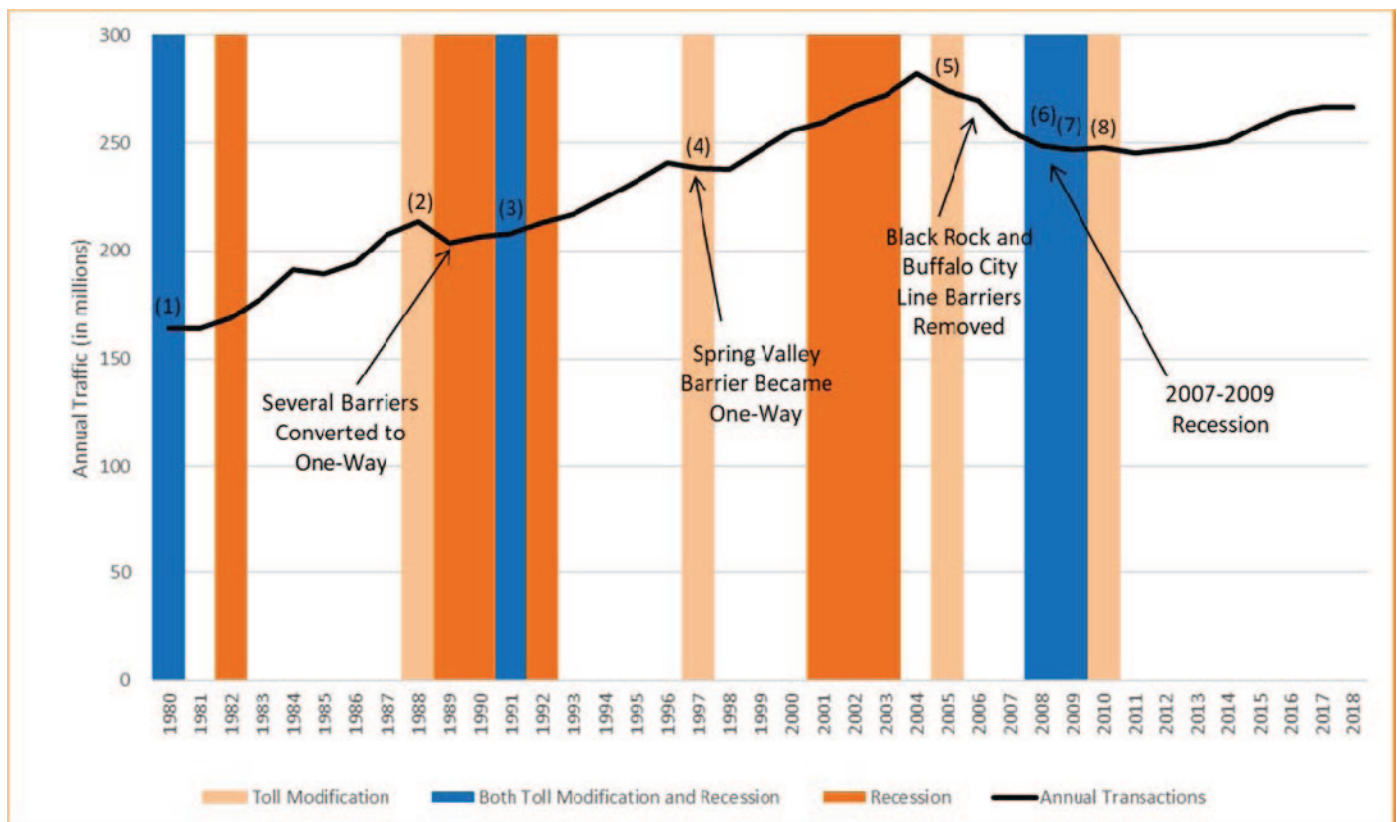


7.0 TRAFFIC AND REVENUES

7.1 HISTORICAL TOTAL THRUWAY TRAFFIC

Figure 15 presents historical total traffic on the Thruway since 1980. It is important to note that the volumes shown are not adjusted for the various toll collection changes that occurred on the Thruway. For example, the 2005 toll modification resulted in the elimination of several commercial vehicle classes that were based on a single vehicle receiving two toll tickets/transactions, resulting in an apparent decrease in commercial traffic counts. This was a one-time occurrence that did not represent a decrease in actual number of vehicle trips made on the Thruway. Similarly, in October 2006, tolls were removed from the Buffalo City Line and Black Rock toll barriers which reduced total toll transactions on the Thruway by approximately 17 million annually.

Figure 15: Historical Thruway Traffic Volumes



- (1) 1980 - Average Toll Increase of 25% Passenger Cars, 30% Commercial
- (2) 1988 - Average Toll Increase of 32% Passenger Cars, 38% Commercial
- (3) 1991 - Spring Valley Toll Adjustment, Passenger Cars Only
- (4) 1997 - Tappan Zee Corridor Relief (Congestion Pricing)
- (5) 2005 - System Reclassification, Average Toll Increase of 25% Passenger Cars, 35% Commercial
- (6) 2008 - Average Toll Increase of 10% for All Vehicles, Plus Reduction of E-ZPass Discount in July
- (7) 2009 - Average Toll Increase of 5% for All Vehicles
- (8) 2010 - Average Toll Increase of 5% for All Vehicles (not apparent in all toll schedules, due to rounding)



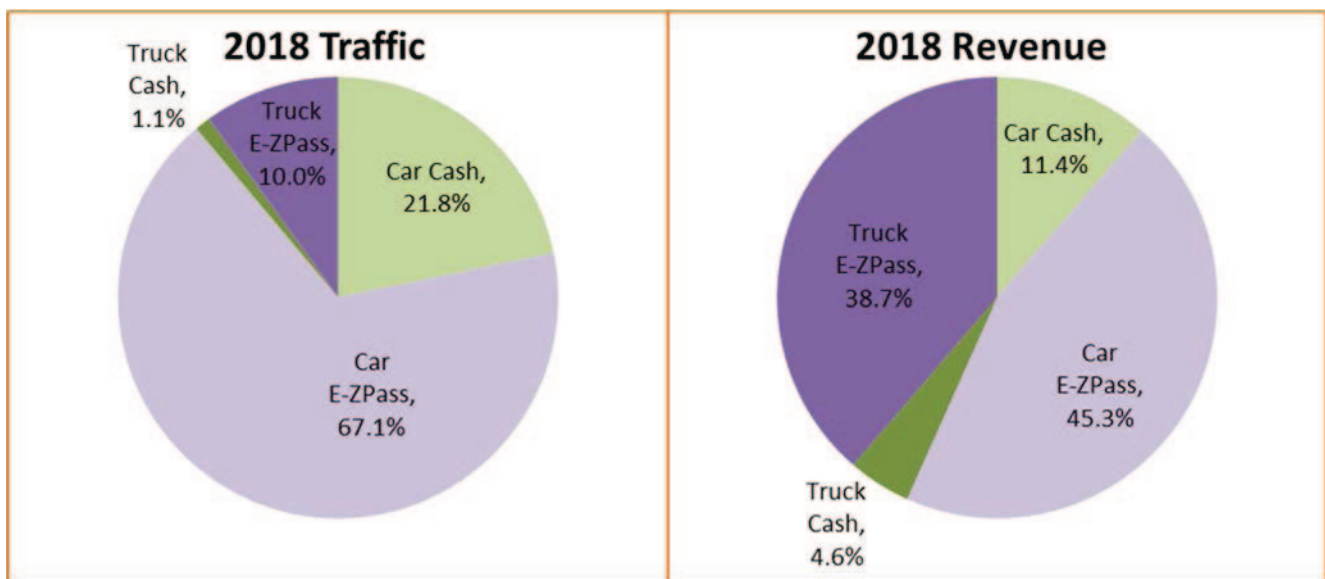
Historically, slow traffic growth and traffic losses have been associated with economic downturns, toll increases, high fuel costs, harsh weather conditions and/or traffic shifts due to construction. Since the end of the 2008-2009 recession, the national economy has improved, and gas prices have generally dropped. Additionally, at the George Washington Bridge – the biggest competitor to The Governor Mario M. Cuomo Bridge – tolls increased four times between December 2012 and December 2015, and construction closures occurred. The combination of these factors has led to moderate growth rates since 2011. Traffic growth in 2018 was flat, which follows the nationwide trend in vehicle miles traveled. More detail on the Thruway’s historical traffic volumes can be found in Table 14 on page 47 and in the Appendix, which presents historical traffic and revenue by facility.

7.2 DEMOGRAPHICS OF TOLL PAYING PATRONS

To better understand Thruway revenue trends and the impact toll policy may have on its patrons, it is important to appreciate the traffic make-up on the Thruway System and its customer base.

As shown in Figure 16, in 2018 roughly 89 percent of traffic on the Thruway System was composed of passenger cars, with the remaining 11 percent of traffic coming from variety of commercial vehicle types. In 2018, more than 77 percent of total vehicles paid tolls with an *E-ZPass* transponder (approximately 76 percent of passenger vehicles and 90 percent of commercial vehicles). It should be noted that while commercial vehicle traffic made up only 11 percent of system-wide traffic, it accounted for about 43 percent of all Thruway toll revenues.

Figure 16: 2018 System Wide Traffic and Revenue Distribution



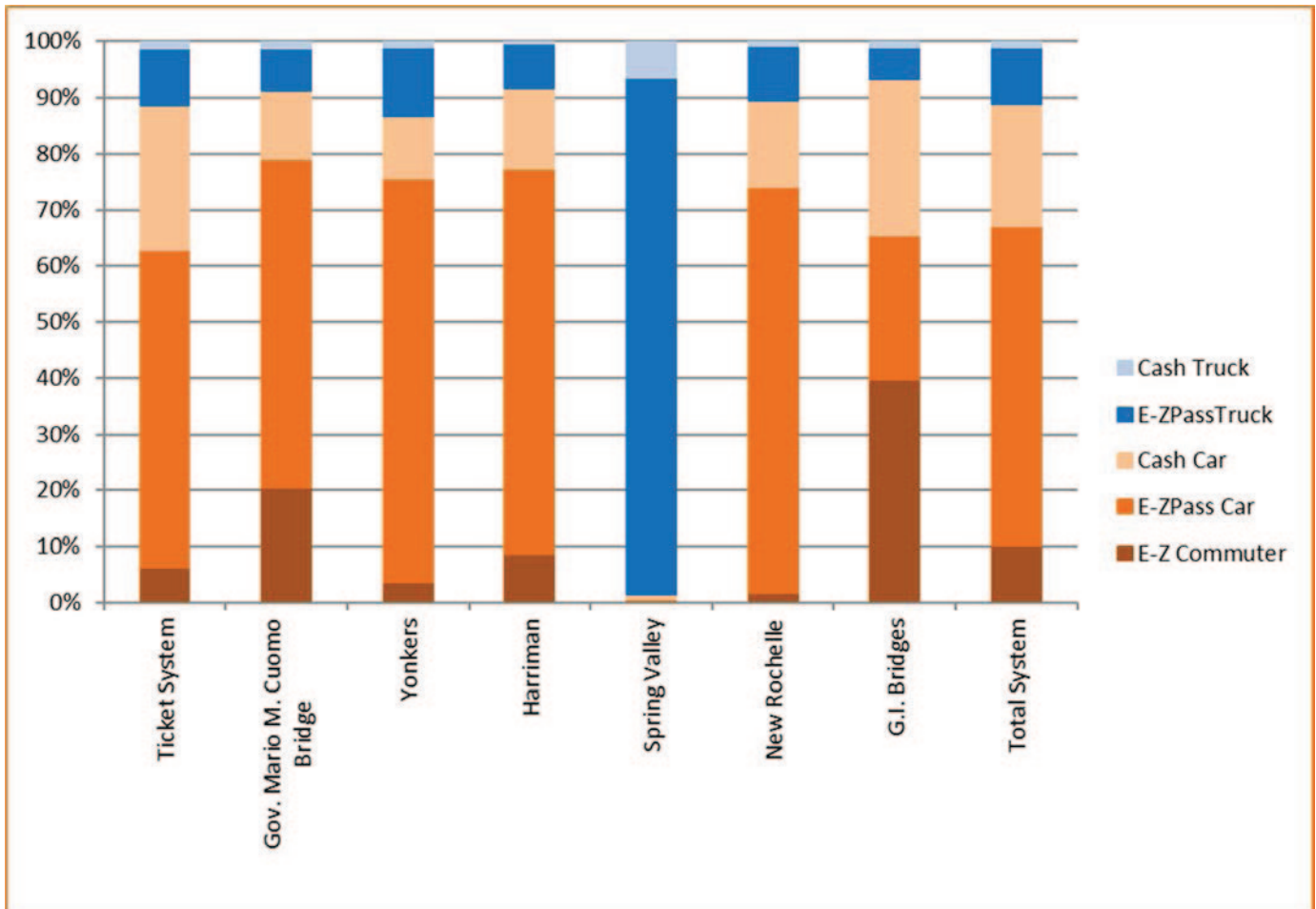
Note: “Cash” also includes Tolls by Mail Traffic and Revenue at the barrier locations after they were converted to AETC.

The distributions of vehicle class and payment types vary by facility, as shown in Figure 17. The highest passenger car participation in *E-ZPass* is seen at the Yonkers Barrier and Governor Mario M. Cuomo Bridge, while the highest truck participation rate in *E-ZPass* payment is seen at the Harriman and Spring Valley Barriers. It should be noted that although *E-*



ZPass transactions account for about 77 percent of annual transactions on the Thruway, the majority of actual individual customers using the Thruway over the course of a year travel infrequently and do not have E-ZPass.

Figure 17: 2018 Passenger Car and Commercial Vehicle Traffic Distribution by Facility



Note: "Cash" traffic at the barrier locations also includes Tolls by Mail after conversion to AETC

As noted in Figure 18, the controlled system and The Governor Mario M. Cuomo Bridge generate the most significant portions of the Thruway's traffic and revenue. In 2018, the controlled system generated a total of \$492.3 million or about 64 percent of all Thruway toll revenues and The Governor Mario M. Cuomo Bridge generated \$151.9 million or about 20 percent of total toll revenues. The New York City metropolitan area barrier tolls generated about \$102.5 million or a combined 13 percent of 2018 revenues, while the Grand Island Bridges generated about \$17.8 million or some 2 percent of revenues. 2018 total toll revenues were \$764.5 million collected in toll transactions minus \$28.0 million in commercial vehicle volume discounts (discussed on page 41), for a net amount of \$736.5 million.

Specific regions within the controlled (ticket) system that see the most traffic volume include the Albany area, the Buffalo mainline plazas, and the Woodbury mainline plaza. The top six plaza volumes for the controlled system in 2018 are shown in Table 12.



Figure 18: Distribution of 2018 Toll Revenues by Thruway Facility

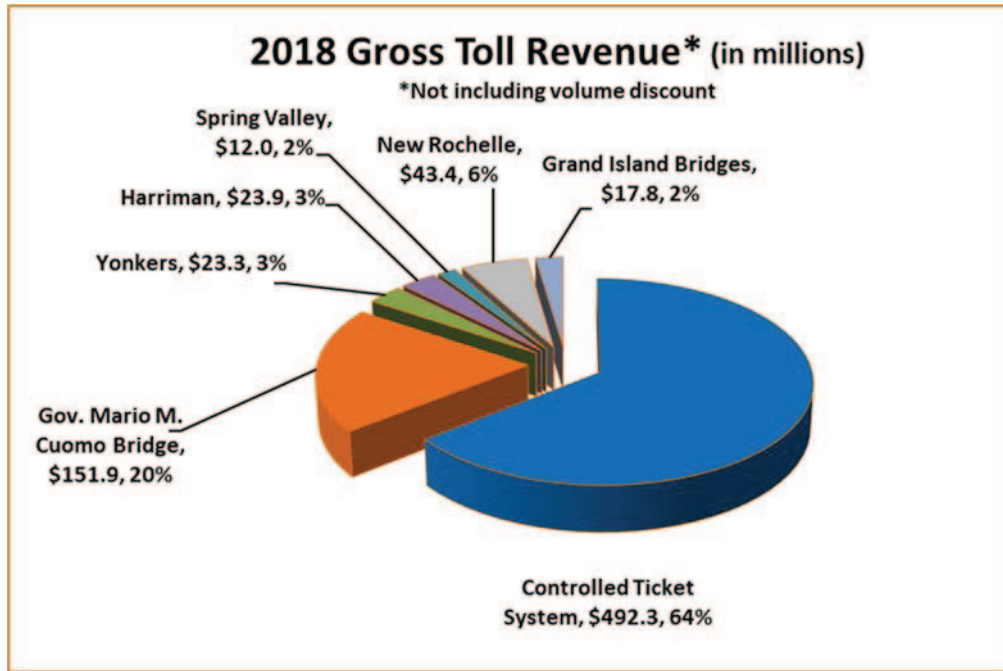


Table 12: Controlled System Toll Plazas with the Highest Volumes, 2018

Plaza / Interchange	Millions of Transactions
Exit 24: Albany, Montreal, I-90 East, I-87 North	14.1
Exit 50: Williamsville (Buffalo)	10.2
Exit 55: Lackawanna (Buffalo)	9.3
Exit 15: Woodbury	7.9
Exit 25: Schenectady, I-890, NY Routes 7 & 146	7.3
Exit 45: Rochester, Victor, I-490	6.9

Finally, in 2018, customers that had a transponder issued by a New York State toll agency (the Thruway Authority, Port Authority of NY & NJ or the Metropolitan Transportation Authority) accounted for about 77 percent of total *E-ZPass* toll revenues. As a result, 23 percent of *E-ZPass* toll revenues were collected from customers that had a non-New York issued transponder, underscoring the importance of the Thruway System in the regional and national economy.

7.3 TOLL RATES

With the exception of a small amount of federal aid and other funds, tolls collected on the controlled system and through toll barriers support an overwhelming majority of the Authority’s budget. The following provides a brief history of toll adjustments on the Thruway System and compares Thruway toll rates to those on other facilities in the northeast.



7.3.1 Recent History of Toll Adjustments on the Thruway System

In 2005, a two-stage toll adjustment was implemented by the Authority that generally increased toll rates by 25 percent for all passenger vehicles and 35 percent for all commercial vehicles, and increased cash tolls in 2008 for both passenger and commercial vehicles by 10 percent. Additionally, in 2005 the Authority also implemented a new vehicle classification system (reducing the number of classifications from 43 to 9), created a new *E-ZPass* discount program, continued a graduated volume discount program for commercial customers and expanded the availability of commuter plans to bridges and barriers on the Thruway System.

In response to the financial pressures brought on by high and volatile fuel prices and the state of the national economy, the Authority implemented another series of staged, smaller adjustments to toll rates in 2008. These adjustments were designed to provide additional funding to assist the Authority in financing operational, maintenance and capital commitments made in the 2005-2011 Capital Program period. The 2008 toll adjustments maintained a 5 percent *E-ZPass* discount for all patrons, but added two five-percent across-the-board increases, which took effect in 2009 and 2010. There have been no changes to toll rates on the Thruway System in the past nine years, with the exception of the recent discontinuation of discounts for vehicles with an out-of-state *E-ZPass*: both the 5 percent system-wide discount and the discounts for non-peak commercial vehicles (of up to 50 percent) at the Spring Valley Barrier and The Governor Mario M. Cuomo Bridge ceased as of January 1, 2017.

7.3.2 Current Toll Rates on the Thruway System

The Authority's current toll rate structure is presented in Table 13.

Table 13: Current Thruway Toll Structure (\$)

Vehicle Class ⁽¹⁾	Controlled (Cents/Mile)		Yonkers		Harriman		Spring Valley		New Rochelle		Gov. Mario M. Cuomo Bridge		Grand Island Bridges	
	Cash	E-Z Pass	TBM ⁽²⁾	E-Z Pass	TBM ⁽²⁾	E-Z Pass	TBM ⁽²⁾	E-Z Pass ⁽³⁾	TBM ⁽²⁾	E-Z Pass	TBM ⁽²⁾	E-Z Pass ⁽³⁾	TBM ⁽²⁾	E-Z Pass
Commuter	-	⁽⁴⁾	-	0.55	-	0.55	-	-	-	1.10	-	3.00	-	0.28
Motor-Cycle	-	0.0235	-	0.63	-	0.63	-	-	-	0.88	-	2.50	-	0.50
2L	0.0470	0.0447	1.25	1.19	1.25	1.19	-	-	1.75	1.66	5.00	4.75 / 4.75	1.00	0.95
3L	0.0728	0.0691	1.50	1.43	1.50	1.43	3.00	3.00 / 1.50	2.50	2.38	11.50	11.50 / 5.75	1.50	1.43
4L	0.0864	0.0821	1.75	1.66	1.75	1.66	4.50	4.50 / 2.25	3.00	2.85	13.75	13.75 / 6.88	1.75	1.66
2H	0.0933	0.0886	2.00	1.90	2.00	1.90	5.25	5.25 / 2.63	3.50	3.33	14.75	14.75 / 7.38	2.00	1.90
3H	0.1604	0.1524	2.25	2.14	2.75	2.61	8.25	8.25 / 4.13	4.25	4.04	20.75	20.75 / 10.38	2.25	2.14
4H	0.1768	0.1680	2.75	2.61	3.00	2.85	8.25	8.25 / 4.13	5.00	4.75	24.75	24.75 / 12.38	2.75	2.61
5H	0.2390	0.2271	4.25	4.04	4.25	4.04	13.50	13.50 / 6.75	8.00	7.60	32.75	32.75 / 16.38	4.25	4.04
6H	0.2963	0.2815	4.50	4.28	5.00	4.75	14.75	14.75 / 7.38	8.75	8.31	41.00	41.00 / 20.50	4.50	4.28
7H	0.3536	0.3359	5.00	4.75	5.75	5.46	16.50	16.50 / 8.25	9.75	9.26	49.25	49.25 / 24.63	5.00	4.75

⁽¹⁾ Classes are generally denoted by the number of axles (2 through 7) and the vehicle height. "L" represents vehicles under 7.5' and "H" represents vehicles over 7.5' in height. Customers in the commuter program pay \$60 a month, covering up to 20 passenger car trips, and \$3.00 for each additional trip.

⁽²⁾ TBM=Tolls by Mail, a payment type offered at AETC (cashless) facilities only

⁽³⁾ Peak/off peak *E-ZPass* rates

⁽⁴⁾ Controlled system permit plan customers pay \$88/year which covers the toll for the first 30 miles or less of a passenger car trip.

NOTE: *E-ZPass* customers with a non-NY Customer Service Center *E-ZPass* charged the cash rate starting January 1, 2017.



In order to receive *E-ZPass* discounts, a driver must have a transponder issued by a New York State toll agency (the Thruway Authority, Port Authority of NY & NJ or the Metropolitan Transportation Authority). In addition to the standard 5 percent discount with a NY-issued *E-ZPass*, the Authority offers several specialized *E-ZPass* discount programs. Among these are a series of commuter plans designed specifically for frequent users of the Thruway that use one or more of the barrier toll stations. *E-ZPass* customers can pre-pay a monthly minimum for each facility that they choose and then receive discounted travel for each trip taken in excess of the minimum charge. In addition to the barrier commuter discounts, the controlled system offers an annual permit that when purchased allows for the first 30 miles of each trip to be free of tolls.

Other specialized passenger car plans include a special resident discount for residents of Grand Island when crossing through either of the Grand Island toll barriers, and a system-wide green discount that is available to certain high mileage vehicles that both achieve MPG ratings greater than 45 MPG and meet certain emission standards. Motorcycles, motor homes and “5th wheel” or “gooseneck” vehicles or vehicle combinations are also eligible for discounts. These discounts are administered through the *E-ZPass* program and proof of residency or registration for the various plans and vehicle combinations must also be provided.

For commercial vehicles, there are currently two types of discount programs offered. The S-Discount is for non-tandem commercial vehicles less than or equal to 48 feet in length and requires a Thruway-issued *E-ZPass* transponder. The second discount program is a commercial volume discount for Thruway Charge Account customers that offers progressively higher discounts based on the monthly toll charges on an account basis:

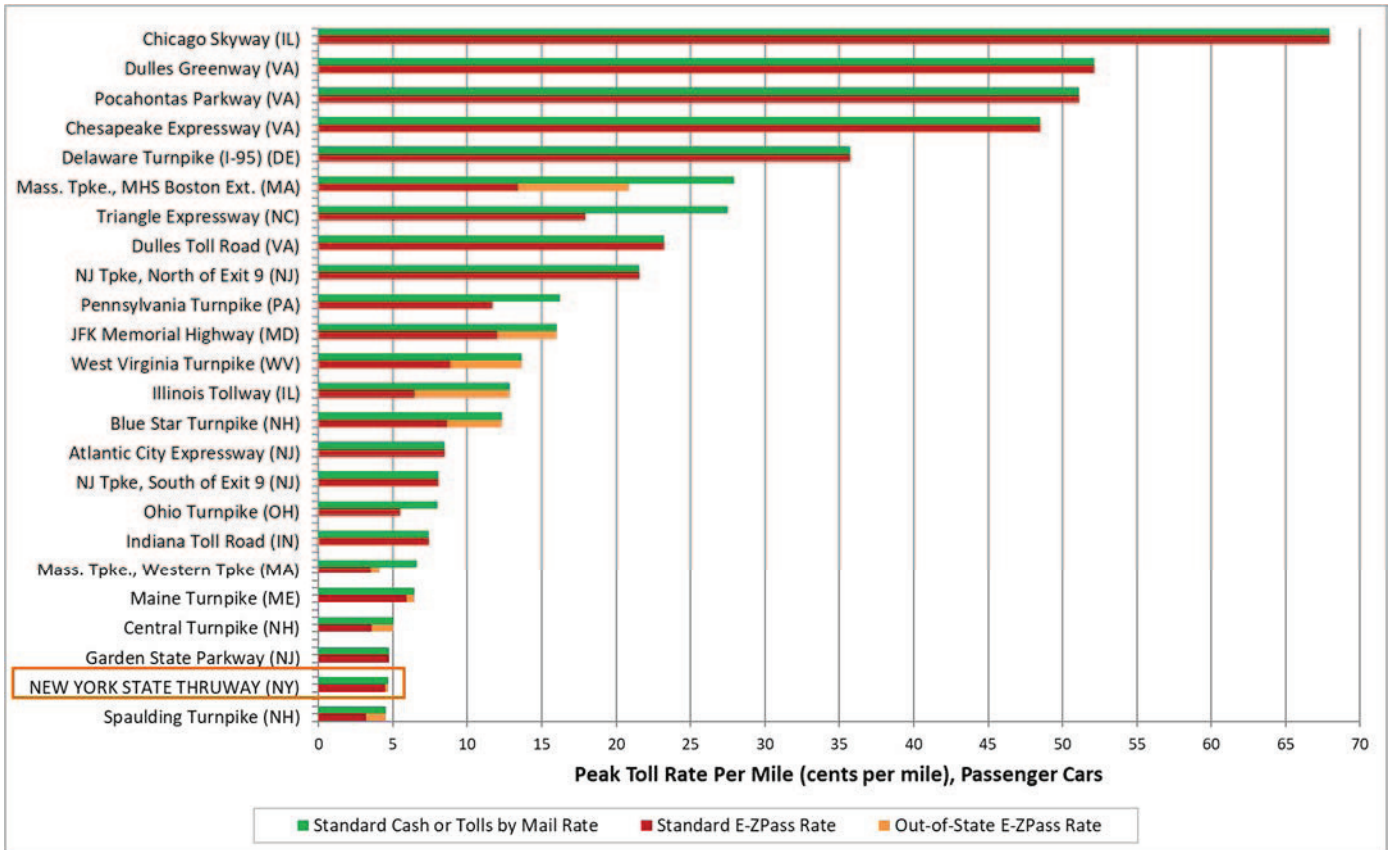
- \$1,001 to \$2,000 - 10%
- \$2,001 to \$3,000 - 15%
- Over \$3,000 - 20%

7.3.3 Comparison of Thruway Toll Rates to Other Regional Toll Facilities

Figure 19 and Figure 20 compare the toll rates per mile for a number of major toll roads in the northeastern quadrant of the United States. Rates for cash (or Tolls by Mail), standard *E-ZPass* (including any discounts for drivers with an in-state account), and out-of-state *E-ZPass* are shown. Of note is the comparatively low per-mile passenger car toll rate of the Thruway’s controlled system when compared to other toll facilities, as shown in Figure 19.



Figure 19: Peak Toll Rates Per-Mile on Toll Roads in the Northeastern Quadrant of U.S., Passenger Cars



The published 5-axle truck rate, as seen in Figure 20, is also comparatively low on the Thruway relative to other regional facilities and is effectively lower than the rate shown due to the commercial volume discount program.



Figure 20: Peak Toll Rates Per-Mile on Toll Roads in the Northeastern Quadrant of U.S, 5-Axle Trucks

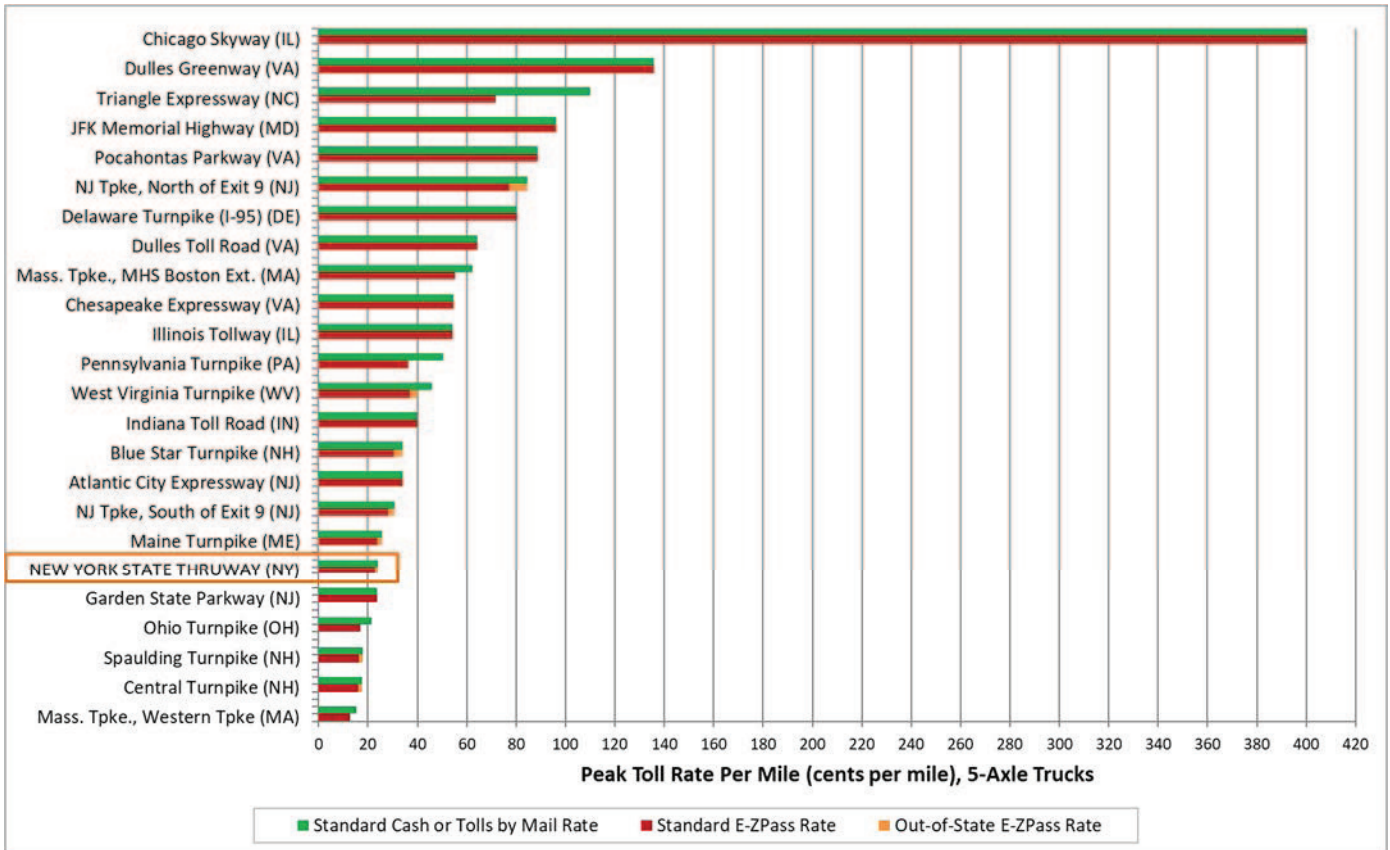


Figure 21 and Figure 22 compare toll rates on a number of major toll crossings in the northeast. Of note is that The Governor Mario M. Cuomo Bridge car tolls are below that of the other metro New York crossings and comparable to other major crossings on the interstate highway system, as shown in Figure 21. Similar to the controlled system, the peak 5-axle truck rate is also comparable to that of other regional facilities. A majority of The Governor Mario M. Cuomo Bridge commercial vehicles with a New York E-ZPass travel during off-peak periods, paying a reduced rate as low as half of the standard rate. In addition to the lower off-peak rates, many vehicles further reduce the average toll rate paid through participation in the volume discount program. These reductions in the effective rate make The Governor Mario M. Cuomo Bridge commercial toll rate significantly below that of other metro New York tolled crossings.



Figure 21: Round Trip Toll Rates on Major Toll Crossings in the Northeast, Passenger Cars

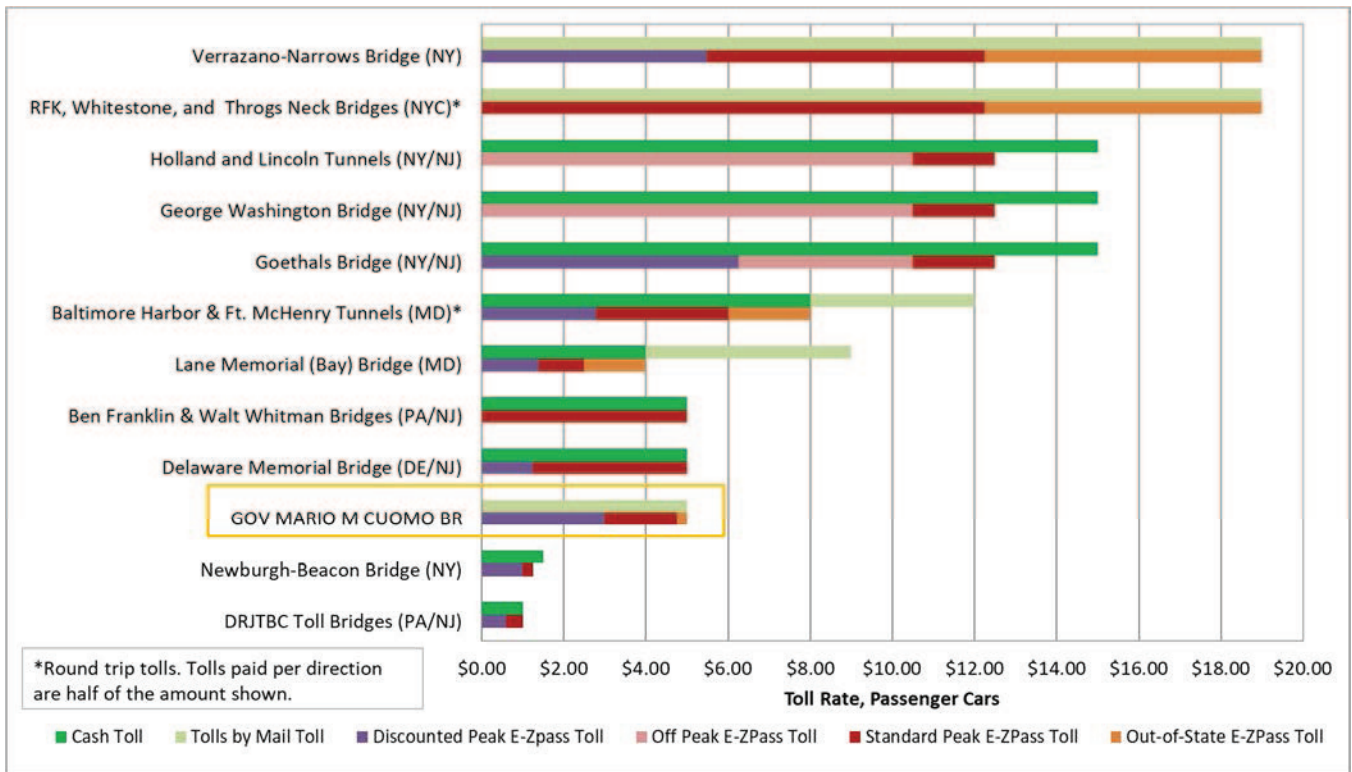
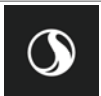
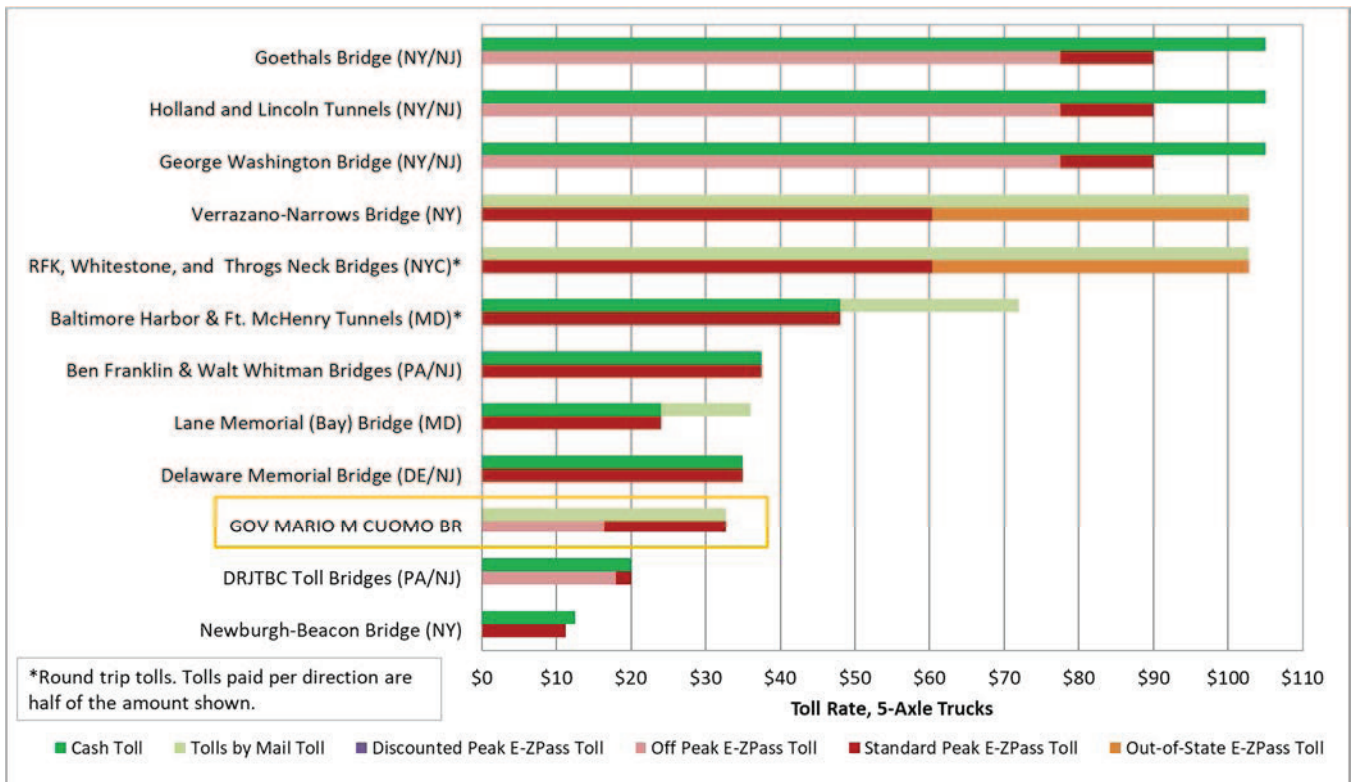


Figure 22: Round Trip Toll Rates on Major Toll Crossings in the Northeast, 5-Axle Trucks



7.4 FORECAST METHODOLOGY

The following sections provide some detail on the process involved in developing the traffic and toll revenue forecasts for the Thruway which are presented in Section 7.5.

7.4.1 Overview of Base Forecasting Methodology

We developed toll traffic and revenue forecasts with the aid of a computerized modeling platform created specifically for the Thruway System. The basic function of this model is to take current traffic volumes by general payment class (car, truck; cash or Tolls by Mail, *E-ZPass*, and commuter) for each Thruway facility (see the Appendix to this report) and adjust them for various factors such as underlying socio-economic/demographic growth in the project corridors. These result in forecasts of traffic volume growth for each year of the forecast period. Toll revenues are then calculated based on these traffic volumes by applying average toll rates to each payment class volume.

Inputs to our base case analysis include the historical distribution of traffic under the current toll structure. To develop base toll traffic projections for the Thruway for the period 2019-2024, historical traffic information through 2018 was analyzed and trends in growth were considered for different toll payment classes on the different geographic regions of the Thruway System.

Relevant socio-economic data were collected, including economic consensus forecasts and trends, and used as an aid in our assessment of future Thruway traffic trends. We estimated separate traffic growth rates for cars and trucks on each facility, as historical trends have pointed to correlations with different economic factors between the two: passenger car growth has been shown on many facilities to correlate reasonably well with the growth of Gross Domestic Product (GDP), whereas trucks have been shown to correlate reasonably well with the corresponding growth in the Industrial Production Index (IPI).

It should be noted that a new regulation enacted by the State on January 20, 2016 authorizes the Department of Motor Vehicles to suspend the registrations of New York State drivers with five or more toll violations in 18 months. In 2017 this was changed to three violations over a five-year period. The new regulation has been considered in the forecasts. This measure is of special importance as it relates to new and future AETC locations, to better ensure payment of toll bills by the non-*E-ZPass* customers who receive them.

7.4.2 Forecasting Methodology for Conversion to AETC

While the methodology described in the previous section was used for each of the Thruway's facilities, additional analysis was necessary for facilities converting to AETC, because there are some uncollectable revenues associated with Tolls by Mail. This is in addition to the lag in when Tolls by Mail revenues would be collected, as it can take several months after a trip is made to invoice and collect tolls from these customers. AETC began on April 23, 2016 at the southbound Governor Mario M. Cuomo Bridge (formerly Tappan Zee Bridge barrier); two years of traffic data and data on collectability of toll revenue from this facility were reviewed, in addition to months of data from the other barriers which converted to AETC at different times throughout the year 2018. Similar collectability of Tolls by Mail revenues was applied to future year forecasts and also to the Controlled System after it is converted to AETC.

We reviewed transaction data from The Governor Mario M. Cuomo Bridge and the other barriers and found that there was no discernable change in traffic that could be attributed to the implementation of AETC. Therefore, on the Controlled System, we are assuming no additional traffic growth due to AETC implementation. There was some growth in *E-ZPass* market share that occurred at the Bridge and other barriers following the conversion, therefore we are assuming a small "bump" in *E-ZPass*



market share on the Controlled System after AET conversion. Those cash customers that do not get E-ZPass will by default become Tolls by Mail customers.

Stantec reviewed the collectability of Tolls by Mail revenues experienced on The Governor Mario M. Cuomo and the other barriers and applied it to the projected Tolls by Mail revenues on the Controlled System after it is converted to AETC. A portion of Tolls by Mail revenue is not collected due to numerous independent variables, as described below:

Non-Usable Video Images: Not all license plates are readable due to various reasons such as weather or obstructions, or the plate may be a temporary one in the window of the vehicle, or it may be missing. In addition, there could be technical issues with the camera (image is too bright, dark, or blurry) or the plate may be out of view of the camera.

Business Rules: If the cost of collecting from certain customers is higher than the revenue that could potentially be collected, it is often not feasible to go after these customers. Agencies have business rules that determine which Tolls by Mail customers they will and will not pursue, which could change over time.

Invalid DMV record: A number of license plates do not match to valid DMV records, and therefore an invoice cannot be sent to these drivers.

Invalid Addresses: Many people who move do not change their address attached to their DMV vehicle registration and do not have mail forwarded; therefore, they would not be able to receive a video toll invoice. When the first invoice is returned to the Authority because of a bad address, another invoice would not be sent.

Nonpayment of Toll Bills / Violators: Of customers who receive toll bills, a certain share pay after receiving the first invoice. Those that do not pay receive a second invoice (“late invoice”) for the toll amount plus a \$5 per bill charge. If this is not paid, a violation notice is sent which currently includes a fine of \$50 per transaction. Beginning about two years ago (1/20/16) an enforcement measure was enacted whereby drivers of New York State registered vehicles with toll violations on five days over an 18-month period would have their registration suspended. In 2017 this was changed to three violations over a five-year period. While this measure has helped increase the collections from Tolls by Mail customers, there are still a number of customers who do not pay.

Dismissals/Forgiveness: The Thruway as well as other AETC facilities typically offer forgiveness of late fees or violations and dismissal of tolls for a very small share of customers. Reasons include incorrect identification of license plates, transponders mistakenly charged more than once for a trip, and other such errors or disputes.

7.5 HISTORICAL AND FORECASTED TRAFFIC AND TOLL REVENUE

Table 14 presents a recent history of tolled traffic on the various elements of the Thruway System. “Other Barriers” includes the barrier toll locations in Yonkers, New Rochelle, Spring Valley (trucks only), Harriman, and the Grand Island Bridges. The system experienced traffic losses throughout the 2007-2009 recession, followed by several years of nearly flat growth. From 2014 through 2016 there has been moderate growth, with traffic volumes exceeding the pre-recession 2007 volumes. Since 2016, traffic has remained relatively flat, following the nationwide trend in vehicle miles traveled as shown previously in Figure 4 (page 16).



Table 14: The Thruway System's Actual 2008-2018 Tolled Traffic (millions of trips)

Year	Passenger Cars			Commercial Vehicles			Total	Growth
	Controlled System	TZB/ Cuomo Br.	Other Barriers	Controlled System	TZB/ Cuomo Br.	Other Barriers		
2008 ⁽¹⁾	125.5	22.9	73.5	16.9	1.4	8.3	248.5	
2009 ⁽¹⁾	128.2	22.7	71.5	15.4	1.3	7.5	246.7	-0.7%
2010 ⁽¹⁾	129.0	23.1	70.7	15.7	1.4	7.7	247.6	0.4%
2011	126.6	22.6	70.9	15.8	1.4	7.9	245.2	-1.0%
2012	127.3	22.9	71.1	15.9	1.5	7.9	246.5	0.5%
2013	128.2	23.3	71.1	16.0	1.7	8.1	248.4	0.7%
2014	129.5	23.4	71.4	16.5	1.9	8.3	250.8	1.0%
2015	134.2	23.6	72.7	17.0	2.0	8.8	258.2	3.0%
2016 ⁽²⁾	137.8	24.4	73.5	17.4	2.2	9.0	264.2	2.3%
2017	139.6	24.6	73.3	17.6	2.4	9.1	266.6	0.9%
2018 ⁽³⁾	139.5	24.8	72.5	18.0	2.4	9.3	266.4	-0.1%

Notes: Totals may not add due to rounding. Traffic classified as non-revenue is not included.

⁽¹⁾ Toll Adjustments were implemented in 2008, 2009, and 2010.

⁽²⁾ AETC began at The Governor Mario M. Cuomo Bridge (formerly Tappan Zee Bridge barrier) April 23, 2016.

⁽³⁾ AETC began on Grand Island Bridges in March 2018, at the Harriman Barrier in September 2018, Yonkers Barrier in November 2018, and Spring Valley and New Rochelle Barriers in December 2018.

The biggest change during this timeframe was the construction of The Governor Mario M. Cuomo Bridge which began in 2013. AETC began on the bridge in April 2016. The northern span of The Governor Mario M. Cuomo Bridge opened to northbound traffic in late August 2017, and in early October 2017 southbound traffic also shifted from the Tappan Zee Bridge to the north span of the new bridge, operating with four lanes of traffic per direction. In September 2018, the south span of The Governor Mario M. Cuomo Bridge opened, and the four lanes of southbound traffic were shifted from the north to the south span.

Table 15 shows Stantec's forecast of traffic through 2024 considering the economic information and expectations summarized earlier in this study. As in previous forecasts, moderate traffic growth is projected.



Table 15: The Thruway System’s Forecasted 2019-2024 Tolled Traffic (millions of trips)

Year	Passenger Cars			Commercial Vehicles			Total	Growth
	Controlled System	Gov. Mario M. Cuomo Br.	Other Barriers	Controlled System	Gov. Mario M. Cuomo Br.	Other Barriers		
2019	140.2	25.6	71.5	18.2	2.4	9.4	267.2	0.3%
2020 ⁽¹⁾	141.6	25.9	71.8	18.3	2.5	9.5	269.6	0.9%
2021	143.0	26.3	72.4	18.4	2.5	9.6	272.2	1.0%
2022	144.4	26.7	73.2	18.5	2.5	9.7	275.0	1.0%
2023	145.8	27.0	73.6	18.6	2.6	9.8	277.4	0.8%
2024	147.1	27.4	74.0	18.7	2.6	9.8	279.6	0.8%

Notes: Totals may not add due to rounding. Traffic classified as non-revenue is not included. No future toll rate adjustments are assumed in the forecasts.

⁽¹⁾ AETC assumed to begin on the entire controlled system in October 2020.

Table 16 presents a recent history of toll revenue on the Thruway System. Revenue from cars and trucks are shown separately for the Controlled System, The Governor Mario M. Cuomo Bridge, and the remaining toll barriers. Adjustments for commercial vehicle volume discounts are also included. There is a slight reduction in revenue at The Governor Mario M. Cuomo Bridge in 2016; this is due to its conversion to AETC and the inability to bill or collect revenue from some Tolls by Mail customers, as described in the previous section of this report. Additionally, there was a \$6.2M adjustment to cash basis which relates to the lag in invoicing and collection of Tolls by Mail revenues (i.e., some Tolls by Mail tolls for trips made in 2016 were not collected until 2017). Note that in January 2017 the *E-ZPass* discount for customers with non-NY *E-ZPass* was discontinued, which is why the revenue growth for 2017 (3.3 percent) was noticeably higher than the traffic growth (0.9 percent) shown previously in Table 14. All of the remaining toll barriers were converted to AETC in 2018: Grand Island Bridges in March 2018, Harriman Barrier in September 2018, Yonkers Barrier in November 2018, and Spring Valley and New Rochelle Barriers in December 2018, which, due to some uncollectable Tolls by Mail revenue, led to a small reduction in revenue at these barriers in 2018. Even with the conversion, 2018 saw positive system-wide toll revenue growth over 2017.

Table 17 presents the gross toll revenue forecasts for the Thruway System through 2024. Implementation of AETC is assumed to begin on the entire controlled system in October 2020. In the forecasts, Tolls by Mail revenue collectability and lag adjustments similar to what has been experienced on The Governor Mario M. Cuomo Bridge the other barriers were applied to the Controlled System as it is converted to AETC. In general, moderate growth in toll revenue is expected, with some small losses in toll revenue estimated when AETC begins on the controlled system, due to uncollectable tolls from some Tolls by Mail customers. **Note that the forecasts in this study for 2019 through 2024 do not include any toll rate adjustments.**



Table 16: The Thruway System's Actual 2008-2018 Toll Revenues (millions)

Year	Passenger Cars			Commercial Vehicles				Total	Growth	Adj. to Cash Basis for Tolls by Mail
	Controlled System	TZB/ Cuomo Br.	Other Barriers	Controlled System	TZB/ Cuomo Br.	Other Barriers	CV Disc			
2007	\$183.4	\$82.1	\$59.2	\$187.0	\$21.5	\$28.2	\$(21.1)	\$540.3		
2008 ⁽¹⁾	193.8	85.4	67.9	187.0	21.2	29.1	(21.7)	562.7	4.1%	
2009 ⁽¹⁾	215.0	103.5	82.4	180.7	21.3	30.0	(21.2)	611.6	8.7%	
2010 ⁽¹⁾	226.6	104.7	81.8	194.9	24.6	31.4	(22.8)	641.2	4.8%	
2011	220.2	102.4	81.3	196.3	24.1	32.4	(22.7)	634.1	-1.1%	
2012	220.7	103.4	81.2	196.9	26.2	32.1	(22.8)	637.7	0.6%	
2013	225.6	105.1	81.3	199.1	28.8	32.8	(23.8)	648.9	1.8%	
2014	226.5	105.1	81.6	209.6	32.2	33.6	(24.6)	664.1	2.3%	
2015	237.8	106.5	83.5	219.3	34.4	35.6	(25.5)	691.7	4.2%	
2016 ⁽²⁾	245.2	103.4	84.0	227.6	38.2	36.4	(26.6)	708.3	2.4%	\$(6.2)
2017 ⁽³⁾	251.6	103.4	84.1	233.3	47.8	38.7	(27.4)	731.5	3.3%	
2018 ⁽⁴⁾	250.3	104.2	81.3	242.0	47.8	39.1	(28.0)	736.5	0.7%	(\$0.7)

Notes: Totals may not add due to rounding.

⁽¹⁾ Toll Adjustments were implemented in 2008, 2009, and 2010.

⁽²⁾ AETC began at The Governor Mario M. Cuomo Bridge April 23, 2016.

⁽³⁾ Removal of discounts for vehicles with out-of-state E-ZPass began on 1/1/17.

⁽⁴⁾ AETC began on Grand Island Bridges in March 2018, at the Harriman Barrier in September 2018, Yonkers Barrier in November 2018, and Spring Valley and New Rochelle Barriers in December 2018.

Table 17: The Thruway System's Forecasted 2019-2024 Toll Revenues (millions)

Year	Passenger Cars			Commercial Vehicles				Total	Growth	Adj. to Cash Basis for Tolls by Mail
	Controlled System	Gov. Mario M. Cuomo Br.	Other Barriers	Controlled System	Gov. Mario M. Cuomo Br.	Other Barriers	CV Disc			
2019	\$251.8	\$108.8	\$75.7	\$244.5	\$49.1	\$38.4	\$(28.6)	\$739.6		\$(1.1)
2020 ⁽¹⁾	246.2	110.8	75.5	243.6	49.8	38.9	(29.0)	735.8	-0.5%	(12.7)
2021	225.9	113.0	76.6	238.0	50.4	39.3	(29.3)	713.8	-3.0%	
2022	229.2	115.0	77.9	239.9	51.0	39.6	(29.6)	722.9	1.3%	
2023	232.1	116.7	78.4	241.6	51.5	39.9	(29.9)	730.4	1.0%	
2024	234.8	118.3	78.9	243.2	51.9	40.2	(30.2)	737.1	0.9%	

Notes: Totals may not add due to rounding. No toll rate adjustments are assumed in the forecasts.

⁽¹⁾ AETC assumed to begin on the entire controlled system in October 2020.

7.6 OTHER REVENUES/TOTAL REVENUES

In addition to toll revenues, the Authority collects a variety of non-toll revenues derived from payments received from concessionaires at the Thruway service areas' restaurant and gasoline stations, sales of surplus property, revenues from special hauling permits, E-ZPass violations and other E-ZPass fees, fiber optic agreements, interest on various invested funds,



and other miscellaneous sources. In addition, after the start of AETC at The Governor Mario M. Cuomo Bridge in April 2016, “other revenues” also include fines and late fees collected from Tolls by Mail customers who do not pay their toll bills on time. One of these fees is a \$5 per bill late fee which is charged on the second bill sent to Tolls by Mail customers if payment has not been received for the first toll bill. This fee is split among all the New York *E-ZPass* agencies whose transactions appear on a single late toll bill. In addition, on the third bill – a violation notice – a fine is charged *per transaction*. Violations also continue to be charged to *E-ZPass* customers who travel through a toll location without sufficient funds in their accounts, and cash customers who evade the toll. Some changes were made in recent years to violation fees charged on the Thruway System:

- On January 20, 2016 an enforcement measure was enacted whereby drivers of New York-state registered vehicles with toll violations on five days over an 18-month period would have their registration suspended. In 2017 this was changed to three violations over a five-year period. This enforcement measure was applied to all past unpaid tolls and violations from prior years.
- Starting January 1, 2017, violations for system-wide *E-ZPass* vehicles and Governor Mario M. Cuomo Bridge Tolls by Mail customers that did not pay their toll bills increased from \$25 to \$50.
- On January 17, 2017, this Tolls by Mail violation fee increased again to \$100 at The Governor Mario M. Cuomo Bridge.
- On January 9, 2018, the Authority announced a short-term amnesty program that allowed Tolls by Mail customers with open toll violations to pay their outstanding tolls and have all violations and late fees waved. This program ran from January 22, 2018 through February 26, 2018 and resulted in \$1.1 million in additional toll revenue for The Governor Mario M. Cuomo Bridge.
- Starting May 15, 2018, the Tolls by Mail violation fee was reduced to \$50 per transaction at The Gov. Mario M. Cuomo Bridge. This Tolls by Mail \$50 violation fee applies to all the other barriers that have converted to AETC.

In 2016, the first year with AETC, \$5.3 million was collected in *E-ZPass* violation fees, which was about \$1.5 million more than the amount collected in 2015. This grew to \$7.7 million in 2017 and \$10.6 million in 2018. The increases can be attributed to enforcement measures and included a significant amount of delayed violation payments (i.e., violations from trips made in prior years). In addition, all *E-ZPass* violation trips made in 2017 and after were charged the increased *E-ZPass* violation fee of \$50.

Also in 2016, \$0.3 million was collected in \$5 per bill late fee charges which appear on the second bill sent to Tolls by Mail customers, and \$2.2 million was collected in Tolls by Mail violation fees which are charged per transaction on the third bill sent to Tolls by Mail customers. These collected revenues grew significantly to \$1.0 million and \$14.6 million in Tolls by Mail late fees and violations, respectively, in 2017. This growth is because 2017 was the first full year with Tolls by Mail at The Governor Mario M. Cuomo Bridge, and because the Tolls by Mail violation fee increased from \$25 to \$50 to \$100. In 2018, the amnesty program and the reduction in Tolls by Mail violation fees to \$50 at the Bridge resulted in a reduction of late fees from Tolls by Mail customers: the Authority collected \$0.9 million in second bill late fees plus \$10.6 million in violations.

Historical gross total revenues, including both toll revenues and other revenues between 2008 and 2018, are summarized in Table 18.



Table 18: Summary of 2008 – 2018 Actual Thruway System Gross Total Revenues (millions)

Year	Toll Revenues	Other Revenues	Total Revenues
2008 ⁽¹⁾	\$562.7	\$33.5	\$596.2
2009 ⁽¹⁾	611.6	26.7	638.3
2010 ⁽¹⁾	641.2	31.3	672.5
2011	634.1	31.4	665.5
2012	637.7	31.5	669.2
2013	648.9	31.8	680.7
2014	664.1	32.4	696.4
2015	691.7	34.6	726.3
2016 ⁽²⁾	708.3	41.0 ⁽³⁾	749.4
2017 ⁽⁴⁾	731.5	60.6 ⁽³⁾	792.1
2018 ⁽⁵⁾	736.5	62.3 ⁽³⁾	798.8

Note: Totals may not add due to rounding

⁽¹⁾ Toll Adjustments were implemented in 2005, 2008, 2009, and 2010.

⁽²⁾ AETC began at The Governor Mario M. Cuomo Bridge April 23, 2016.

⁽³⁾ Includes fines and late fees collected from Tolls by Mail customers at AETC facilities who do not pay their toll bills on time.

⁽⁴⁾ E-ZPass discount discontinued for vehicles with non-NY E-ZPass accounts.

⁽⁵⁾ AETC began on Grand Island Bridges in March 2018, at the Harriman Barrier in September 2018, Yonkers Barrier in November 2018, and Spring Valley and New Rochelle Barriers in December 2018.

Table 19 presents the forecasts of 2019-2024 total gross revenues. An estimated three-month lag in collection of the \$5 per bill late fees and five-month lag in collection of violation fees has been built into the forecasts, as it takes time after a trip is made to bill and collect any fees that are charged. The current Tolls by Mail violation fee of \$50 has been assumed at all facilities throughout the forecast period. As the AETC implementation progresses on the Thruway System, these schedules of fees and penalties, as well as enforcement capabilities may change, which could have an impact on the currently projected levels of “other revenues”. Note that there is the need for additional revenues starting in 2022.

Table 19: Forecasted 2019-2024 Thruway System Total Gross Revenues (millions)

Year	Toll Revenues	Other Revenues ⁽¹⁾	Additional Revenue Need	Total Revenues
2019	\$739.6	\$61.3		\$800.9
2020 ⁽²⁾	735.8	58.2		793.9
2021	713.8	76.2		790.0
2022	722.9	91.8	\$53.1	867.8
2023	730.4	88.1	124.5	943.0
2024	737.1	88.3	149.2	974.6

Note: Totals may not add due to rounding. No toll rate adjustments are assumed in the forecasts.

⁽¹⁾ Includes fines and late fees collected from Tolls by Mail customers at AETC facilities who do not pay their toll bills on time.

⁽²⁾ AETC assumed to begin on the entire controlled system in October 2020.



8.0 FLOW OF FUNDS

8.1 HISTORICAL

Table 20 includes both historical and projected total revenue and expenses in a format that is consistent with the flow of funds required by the Authority's General Revenue Bond Resolution. As noted in this table, from 2012 through 2018 the Authority was able to maintain fiscal stability and a debt service coverage ratio that warranted its current favorable investment grade credit rating. This was accomplished primarily by the aforementioned operational cost containment efforts, capital program modifications, and implemented toll rate adjustments.

8.2 MEETING THE AUTHORITY'S FUTURE REVENUE NEEDS

The Authority and its independent financial advisors have determined that there will be additional revenues needed for the Authority to successfully complete the New NY Bridge project and fulfill its system-wide operating, debt service, and capital needs through the forecast period. Future funding needs through 2024 were established by the Authority at amounts necessary to continue its high levels of safety and service, maintain good infrastructure conditions, support Thruway operations, and maintain debt service coverage levels appropriate for its current high "A" credit rating.

The projected flow of funds included in Table 20 shows the future revenue needs and debt service coverage ratios through 2024. The funding for the Capital Program and estimated debt to be refunded are also displayed in the table. In determining future funding needs, it is important to note that the Authority has a management commitment to a future minimum debt service coverage ratio of 1.55x for the Senior Lien, above the Board-adopted guideline of 1.50x. Additionally, the Authority has a management commitment to a minimum debt service coverage ratio for combined Senior Bonds and Junior Indebtedness Obligations of 1.35x, higher than the Junior Indebtedness Resolution requirement of 1.2x coverage for the combined annual Senior Bond debt service and annual Junior Indebtedness Obligation debt service. These Board-adopted minimum coverage ratio guidelines are met or exceeded every year of the forecast through 2021; to meet minimum coverage requirements in 2022, 2023, and 2024, an additional \$53.1 million, \$124.5 million, and \$149.2 million, respectively, are needed. The Authority has independent authority to adjust toll rates to meet this fiscal management guideline.

The forecasts in this study assume no toll increases or adjustments to fees through the 2019-2024 forecast period, however, in the absence of any proposed additional funding amounts, the Authority has the power, without approval by the Legislature or the Governor, to increase toll rates to maintain its high level of operating safety and services on the Thruway System, to maintain and rehabilitate the Thruway System, to pay debt service, to meet toll covenants and to maintain the balance of revenues and expenses. Based on our experience and knowledge of the Thruway System, it is our opinion that the essentiality of the Thruway System, its currently low relative toll rates, and the size of future rate adjustments that may be needed to produce these additional revenues can be achieved. Those adjustments, if required, would likely result in only small adverse changes to traffic patterns.



Table 20: Historical and Projected Thruway Flow of Funds and Debt Service Coverage (millions)

	ACTUAL			FORECAST						2019-2024 Total
	2016	2017	2018	2019	2020	2021	2022	2023	2024	
Total Revenues	\$ 749.4	\$ 792.1	\$ 798.8	\$ 800.9	\$ 793.9	\$ 790.0	\$ 814.7	\$ 818.5	\$ 825.4	\$ 4,843.4
Gap Closing Revenues ⁽¹⁾	-	-	-	-	-	-	53.1	124.5	149.2	\$ 326.7
Available Revenues	749.4	792.1	798.8	800.9	793.9	790.0	867.8	943.0	974.6	\$ 5,170.1
Less:										
Operating Expenses	311.6	329.7	339.9	358.3	370.7	374.8	380.4	386.1	391.9	\$ 2,262.3
Operating Reserves	1.8	2.7	5.0	4.6	1.0	1.0	1.0	1.0	1.0	\$ 9.6
Total	313.3	332.4	345.0	362.9	371.7	375.8	381.4	387.1	392.9	\$ 2,271.9
Net Revenues	436.0	459.7	453.8	437.9	422.3	414.1	486.4	555.8	581.7	\$ 2,898.2
Less: Sr. Debt Service	227.3	234.6	220.3	228.5	238.4	240.0	286.6	292.5	309.9	\$ 1,595.9
Net Revenues After Debt Service	208.7	225.1	233.5	209.4	183.9	174.2	199.8	263.3	271.7	\$ 1,302.3
Less: Reserve Maintenance Provisions	68.8	103.2	74.1	104.7	60.6	60.7	56.9	73.5	78.8	\$ 435.3
Less: Junior Bond Debt Service	29.2	43.7	79.2	53.4	44.1	45.6	73.7	119.2	120.9	\$ 457.0
Less: Retained for Operating Reserves/AETC Lag/ Working Capital provision	(8.5)	(19.3)	(24.6)	(1.1)	(12.7)	-	-	-	-	\$ (13.8)
Less: Facil Cap Imp Fund	14.0	5.0	12.0	8.0	-	-	-	-	-	\$ 8.0
Other Authority Projects	13.8	-	-	-	-	-	-	-	-	\$ -
General Reserve Fund ⁽²⁾	74.0	54.0	43.6	42.2	66.5	67.8	69.2	70.6	72.0	\$ 388.3
Gen Res Fund - Subordinate Debt	0.4	-	-	-	-	-	-	-	-	\$ -
Balance After Reserve Maintenance Provisions, Other Authority Projects	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Senior Debt Service Coverage	1.92	1.96	2.06	1.92	1.77	1.73	1.70	1.90	1.88	
Junior & Senior Coverage	1.70	1.65	1.52	1.55	1.50	1.45	1.35	1.35	1.35	
Pay go % ROS Capital	60.7%	34.5%	99.5%	100.0%	17.8%	10.4%	18.7%	23.8%	25.0%	

Notes: Totals may not add due to rounding.

Numbers incorporate a total of \$1.985 billion in State capital assistance provided in the 2015-2016 and 2016-2017 Enacted State Budgets. No toll rate adjustments are assumed in the forecasts. Totals may not add due to rounding. Total Revenues include Tolls by Mail revenues that are earned in a fiscal year but not collected until later fiscal years. The amounts earned but not collected until later years are projected to be \$1.1 million in 2019 and \$12.7 million in 2020. Without these revenues included, Senior Bonds debt service coverage is 1.91 times in 2019 and 1.72 times in 2020. The combined Senior Bonds and Junior Indebtedness Obligations debt service coverage without these revenues is projected to be 1.55 times in 2019 and 1.45 times in 2020. The 2018 Retained for Operating Reserves/AETC Lag figure of (\$24.6 million) is comprised of the following: (\$683,167) associated with an Adjustment to Cash Basis due to Tolls by Mail revenues that are earned in 2018 but not collected until later fiscal years; \$20.5 million in revenues retained from 2017; (\$15 million) retained for Working Capital; and (\$29.4 million) retained for 2019 Operating Reserves.

⁽¹⁾ In 2022 through 2024 additional revenues are needed to meet the minimum coverage requirements for both the Senior Lien and combined Senior Bonds and Junior Indebtedness Obligations. The Authority has a management commitment to a future minimum debt service coverage ratio of 1.55x for the Senior Lien, above the Board-adopted guideline of 1.50x. The Authority has a management commitment to a minimum debt service coverage ratio for combined Senior Bonds and Junior Indebtedness Obligations of 1.35x, higher than the Junior Indebtedness Resolution requirement of 1.2x coverage for the combined annual Senior Bond debt service and annual Junior Indebtedness Obligation debt service.

⁽²⁾ The General Reserve Fund figures from April 2016 through 2024 reflect Thruway revenues required to reimburse the State of New York for costs associated with the New York State Police Troop T patrolling of the Thruway system.



9.0 CONCLUSION

The Authority's Board has the independent statutory authority to set toll rates and has the obligation to adjust rates (as set forth in both the General Revenue Bond Resolution and the Junior Indebtedness Resolution) to the levels required to satisfy covenants pledged to its debt holders. In our opinion, the Thruway Authority has the capacity to generate the required additional revenues through periodic toll adjustments. If needed to fill noted revenue shortfalls, the periodic adjustments will result in only small changes to traffic patterns. In addition, either through the proposed actions or through periodic toll adjustments, we believe through the final maturity of the Series 2019B JIOs and the Series M Bonds that these will allow the Authority to:

- Fund necessary operations, maintenance and capital expenses;
- Meet the covenants of the General Revenue Bond Resolution and the Junior Indebtedness Resolution;
- Fully complete the New NY Bridge Project – the replacement of the Tappan Zee Bridge with The Governor Mario M. Cuomo Bridge (all spans are open; remaining construction is on the shared use path and new maintenance and State Police buildings, and demolition of the old bridge continues);
- Preserve good overall infrastructure conditions of the Thruway System and complete its current 5-Year Capital Program;
- Comply with the Authority's Fiscal Management Guidelines by maintaining targeted levels of debt service coverage; and
- Fully implement Thruway System-wide AETC within the parameters described in the forecasting methodology for conversion to AETC in this study.

We believe the Authority will continue to be able to provide good service to its customers and will continue to fulfill its critical role in supporting the State's economy through the forecast period.



10.0 LIMITS AND DISCLAIMERS

It is Stantec's opinion that the traffic and toll revenue estimates provided herein represent reasonable and achievable levels of traffic and toll revenues that can be expected to accrue at the Authority's toll facilities over the forecast period and that they have been prepared in accordance with accepted industry-wide practice. However, as should be expected with any forecast, and given the uncertainties within the current economic climate, it is important to note the following assumptions which, in our opinion, are reasonable:

- This limited synopsis presents the highlighted results of Stantec's consideration of the information available as of the date hereof and the application of our experience and professional judgment to that information. It is not a guarantee of any future events or trends.
- The traffic and toll revenue estimates will be subject to future economic and social conditions, demographic developments and regional transportation construction activities that cannot be predicted with certainty.
- The estimates contained in this document, while presented with numeric specificity, are based on a number of estimates and assumptions which, though considered reasonable to us, are inherently subject to economic and competitive uncertainties and contingencies, most of which are beyond the control of the Authority and cannot be predicted with certainty. In many instances, a broad range of alternative assumptions could be considered reasonable with the availability of alternative toll schedules, and any changes in the assumptions used could result in material differences in estimated outcomes.
- The standards of operation and maintenance on all of the Thruway System will be maintained as planned within the business rules and practices.
- The general configuration and location of the Thruway System and its interchanges will remain as discussed in the report.
- Access to and from the Thruway System will remain as discussed in the report.
- No other new competing highway projects are assumed to be constructed or significantly improved in the project corridor during the project period, except those identified within the report.
- Major highway improvements that are currently underway or fully funded will be completed as planned.
- The Thruway System will be well maintained, efficiently operated, and effectively signed to encourage usage.
- No reduced growth initiatives or related controls that would significantly inhibit normal development patterns will be introduced during the forecast period.
- There will be no future serious protracted recession during the forecast period.
- There will be no protracted fuel shortage during the forecast period.
- No local, regional, or national emergency will arise that will abnormally restrict the use of motor vehicles.

In Stantec's opinion, the assumptions underlying the study provide a reasonable basis for the analysis. However, any financial projection is subject to uncertainties. Inevitably, some assumptions used to develop the projections will not be realized, and unanticipated events and circumstances may occur. There are likely to be differences between the projections and actual results, and those differences may be material. Because of these uncertainties, Stantec makes no guaranty or warranty with respect to the projections in this study.



This document, and the opinions, analysis, evaluations, or recommendations contained herein are for the sole use and benefit of the contracting parties. There are no intended third-party beneficiaries, and Stantec Consulting Services Inc. (and its affiliates) shall have no liability whatsoever to any third parties for any defect, deficiency, error, omission in any statement contained in or in any way related to this document or the services provided.

Neither this document nor any information contained therein or otherwise supplied by Stantec Consulting Services Inc. in connection with the study and the services provided to our client shall be used in connection with any financing solicitation, proxy, and proxy statement, proxy soliciting materials, prospectus, Securities Registration Statement or similar document without the express written consent of Stantec Consulting Services Inc.

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We would like to thank the Authority staff for their assistance in the preparation of this report.

Sincerely,



Richard J. Gobeille, P.E.
Senior Principal
Stantec Consulting, Inc.

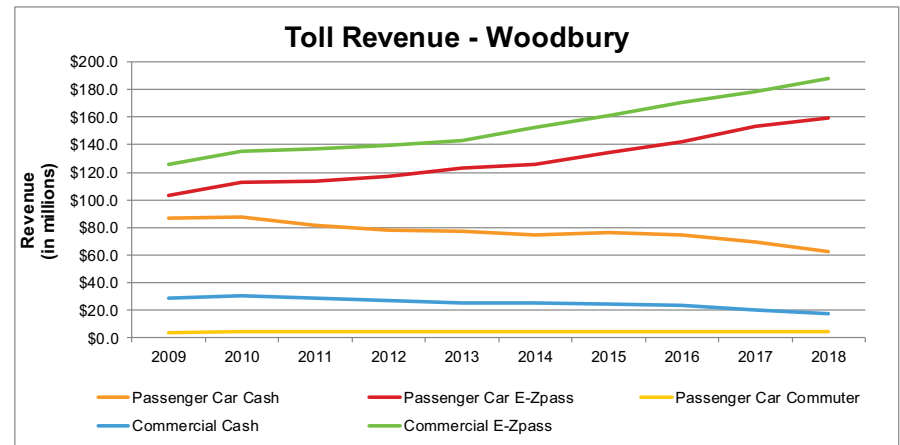
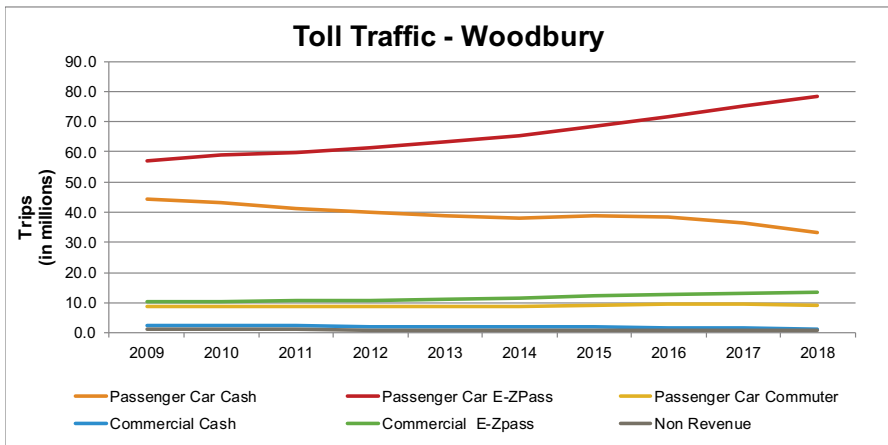


APPENDIX: HISTORICAL TRAFFIC AND REVENUE BY FACILITY

Traffic and Revenue - Woodbury Section

Toll Traffic - Woodbury							
Year	Passenger Car Cash	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	44.5	57.1	8.6	2.5	10.2	1.1	124.0
2010	43.3	59.0	8.8	2.5	10.4	1.2	125.2
2011	41.0	59.8	8.6	2.4	10.7	1.1	123.6
2012	40.1	61.4	8.6	2.2	10.9	1.0	124.2
2013	38.9	63.4	8.7	2.0	11.2	0.9	125.1
2014	38.1	65.2	8.8	2.0	11.6	1.0	126.7
2015	38.7	68.4	9.1	1.9	12.2	1.0	131.2
2016	38.5	71.5	9.4	1.8	12.6	1.0	134.8
2017	36.3	75.3	9.4	1.6	13.0	1.0	136.5
2018	33.3	78.4	9.1	1.4	13.4	1.0	136.6

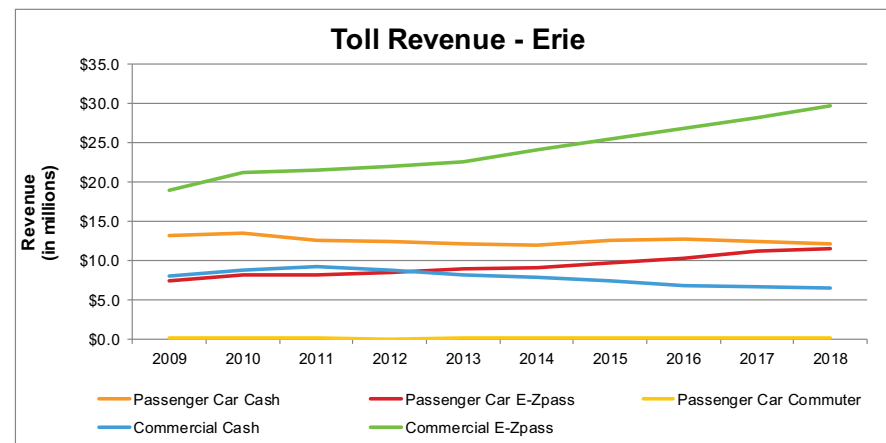
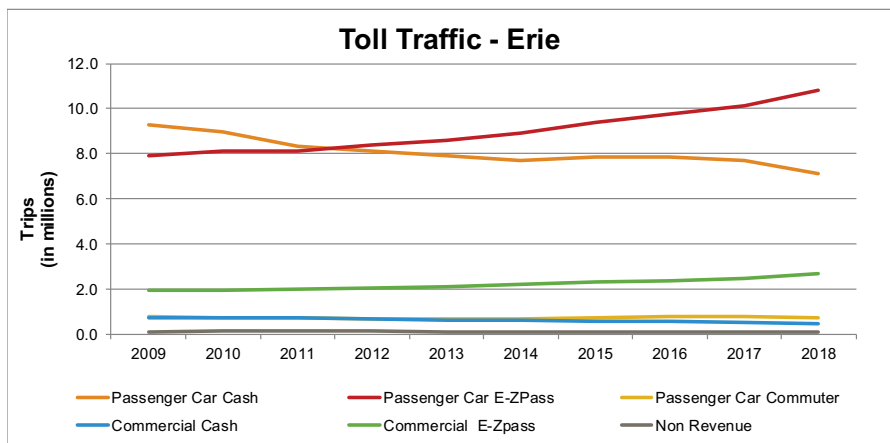
Toll Revenue - Woodbury							
Year	Passenger Car Cash	Passenger Car E-Zpass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	\$86.6	\$103.5	\$4.1	\$28.5	\$125.3	\$0.0	\$347.9
2010	\$87.4	\$112.9	\$4.4	\$30.1	\$134.7	\$0.0	\$369.6
2011	\$81.2	\$113.7	\$4.3	\$28.9	\$136.6	\$0.0	\$364.6
2012	\$78.4	\$116.8	\$4.2	\$27.0	\$139.2	\$0.0	\$365.7
2013	\$77.1	\$122.8	\$4.3	\$25.2	\$143.1	\$0.0	\$372.6
2014	\$74.8	\$125.8	\$4.5	\$25.0	\$152.5	\$0.0	\$382.7
2015	\$76.5	\$134.1	\$4.6	\$24.8	\$161.5	\$0.0	\$401.5
2016	\$75.1	\$141.9	\$4.9	\$23.6	\$170.3	\$0.0	\$415.8
2017	\$69.2	\$153.6	\$4.8	\$20.0	\$178.5	\$0.0	\$426.1
2018	\$62.6	\$159.0	\$4.7	\$17.6	\$188.1	\$0.0	\$432.0



Traffic and Revenue - Erie Section

Toll Traffic - Erie							
Year	Passenger Car Cash	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	9.3	7.9	0.8	0.7	1.9	0.1	20.8
2010	9.0	8.1	0.8	0.8	2.0	0.2	20.8
2011	8.4	8.1	0.7	0.8	2.0	0.2	20.2
2012	8.1	8.4	0.7	0.7	2.1	0.1	20.1
2013	7.9	8.6	0.7	0.7	2.1	0.1	20.1
2014	7.7	8.9	0.7	0.6	2.2	0.1	20.3
2015	7.9	9.4	0.7	0.6	2.3	0.1	21.1
2016	7.9	9.8	0.8	0.6	2.4	0.1	21.6
2017	7.7	10.1	0.8	0.5	2.5	0.1	21.8
2018	7.1	10.8	0.8	0.5	2.7	0.1	22.0

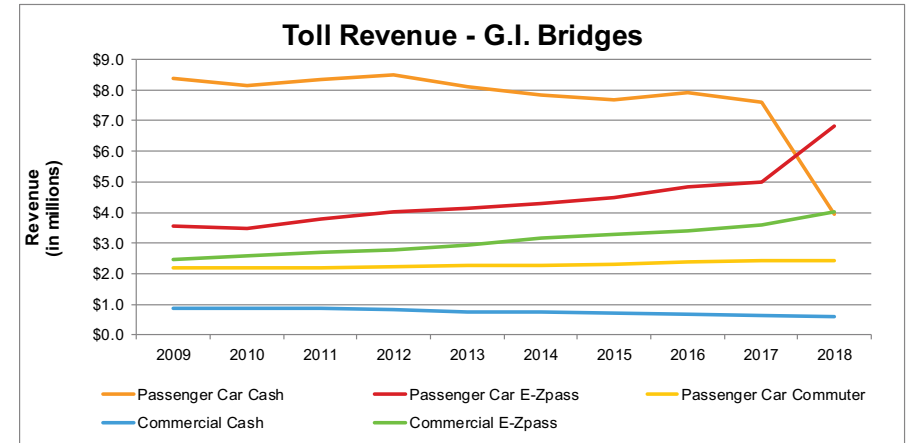
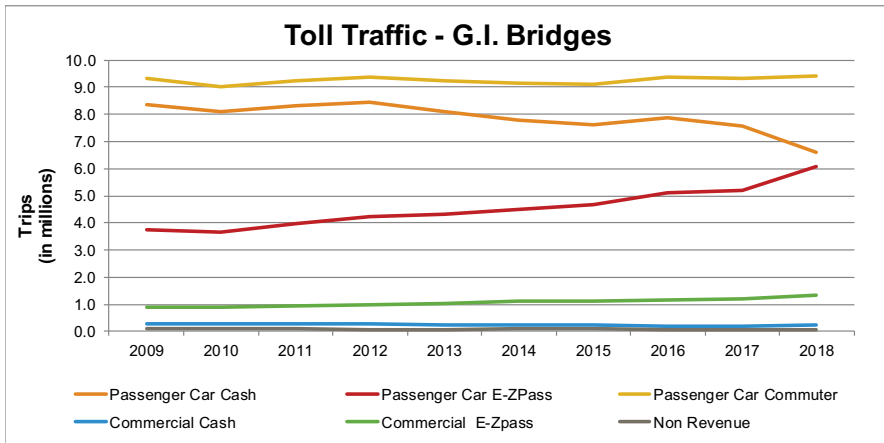
Toll Revenue - Erie							
Year	Passenger Car Cash	Passenger Car E-Zpass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	\$13.2	\$7.4	\$0.2	\$8.0	\$18.9	\$0.0	\$47.8
2010	\$13.5	\$8.2	\$0.2	\$8.8	\$21.3	\$0.0	\$51.9
2011	\$12.6	\$8.3	\$0.2	\$9.2	\$21.6	\$0.0	\$51.9
2012	\$12.5	\$8.5	\$0.2	\$8.8	\$22.0	\$0.0	\$51.9
2013	\$12.2	\$8.9	\$0.2	\$8.2	\$22.6	\$0.0	\$52.2
2014	\$12.1	\$9.2	\$0.2	\$8.0	\$24.1	\$0.0	\$53.5
2015	\$12.7	\$9.8	\$0.2	\$7.5	\$25.5	\$0.0	\$55.6
2016	\$12.8	\$10.3	\$0.2	\$6.8	\$26.9	\$0.0	\$57.0
2017	\$12.5	\$11.2	\$0.2	\$6.7	\$28.2	\$0.0	\$58.7
2018	\$12.2	\$11.6	\$0.2	\$6.6	\$29.7	\$0.0	\$60.2



Traffic and Revenue - Grand Island Bridges

Toll Traffic - G.I. Bridges							
Year	Passenger Car Cash	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	8.4	3.7	9.3	0.3	0.9	0.1	22.7
2010	8.1	3.7	9.0	0.3	0.9	0.1	22.0
2011	8.3	4.0	9.2	0.3	0.9	0.1	22.8
2012	8.5	4.2	9.4	0.3	1.0	0.1	23.4
2013	8.1	4.3	9.2	0.2	1.0	0.1	23.0
2014	7.8	4.5	9.2	0.2	1.1	0.1	22.9
2015	7.6	4.7	9.1	0.2	1.1	0.1	22.9
2016	7.9	5.1	9.4	0.2	1.1	0.1	23.8
2017	7.6	5.2	9.3	0.2	1.2	0.1	23.6
2018	6.6	6.1	9.4	0.2	1.4	0.1	23.8

Toll Revenue - G.I. Bridges							
Year	Passenger Car Cash	Passenger Car E-Zpass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	\$8.4	\$3.5	\$2.2	\$0.9	\$2.5	\$0.0	\$17.5
2010	\$8.1	\$3.5	\$2.2	\$0.9	\$2.6	\$0.0	\$17.2
2011	\$8.3	\$3.8	\$2.2	\$0.9	\$2.7	\$0.0	\$17.9
2012	\$8.5	\$4.0	\$2.2	\$0.8	\$2.8	\$0.0	\$18.3
2013	\$8.1	\$4.1	\$2.3	\$0.8	\$2.9	\$0.0	\$18.2
2014	\$7.8	\$4.3	\$2.3	\$0.8	\$3.2	\$0.0	\$18.3
2015	\$7.7	\$4.5	\$2.3	\$0.7	\$3.3	\$0.0	\$18.4
2016	\$7.9	\$4.9	\$2.4	\$0.7	\$3.4	\$0.0	\$19.2
2017	\$7.6	\$5.0	\$2.4	\$0.7	\$3.6	\$0.0	\$19.3
2018	\$3.9	\$6.8	\$2.4	\$0.6	\$4.0	\$0.0	\$17.8

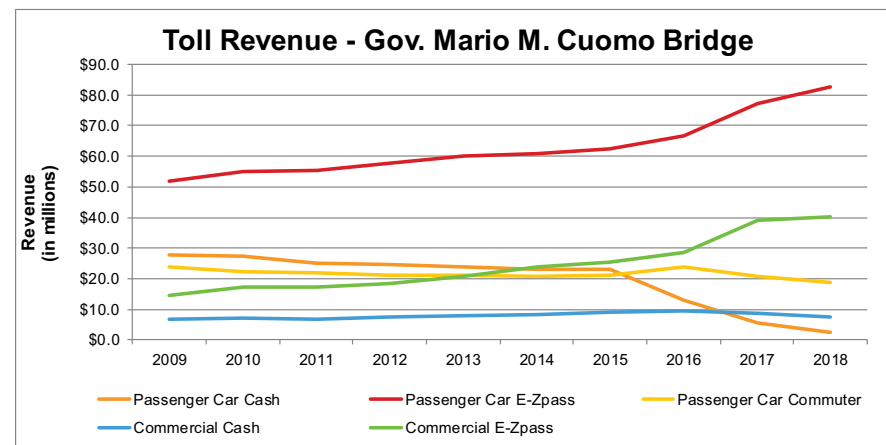
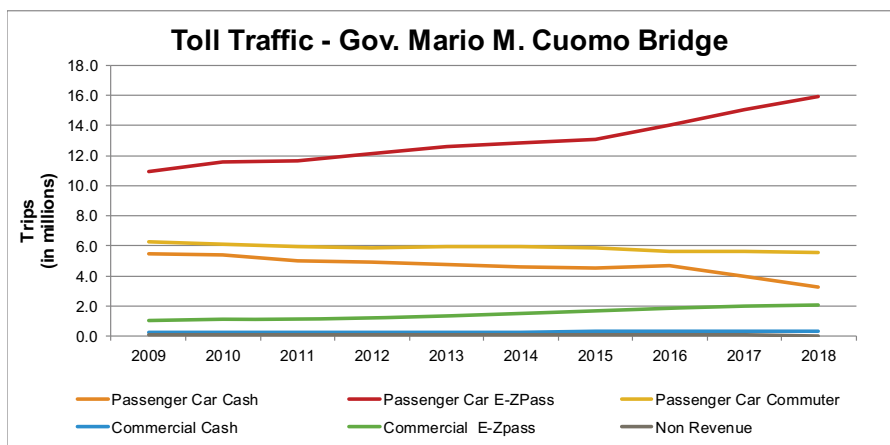


Note: "Cash" also includes Tolls by Mail

Traffic and Revenue - Governor Mario M. Cuomo Bridge

Toll Traffic - Gov. Mario M. Cuomo Bridge							
Year	Passenger Car Cash	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	5.5	10.9	6.3	0.3	1.0	0.1	24.1
2010	5.4	11.6	6.1	0.3	1.2	0.1	24.6
2011	5.0	11.7	5.9	0.2	1.2	0.1	24.1
2012	4.9	12.1	5.9	0.3	1.3	0.1	24.5
2013	4.7	12.6	6.0	0.3	1.4	0.1	25.1
2014	4.6	12.8	5.9	0.3	1.6	0.1	25.3
2015	4.6	13.1	5.9	0.3	1.7	0.1	25.6
2016	4.7	14.0	5.7	0.4	1.9	0.1	26.7
2017	4.0	15.0	5.6	0.3	2.0	0.1	27.1
2018	3.3	16.0	5.6	0.3	2.1	0.1	27.2

Toll Revenue - Gov. Mario M. Cuomo Bridge							
Year	Passenger Car Cash	Passenger Car E-Zpass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	\$27.7	\$51.9	\$23.8	\$6.7	\$14.6	\$0.0	\$124.8
2010	\$27.3	\$55.1	\$22.3	\$7.3	\$17.3	\$0.0	\$129.3
2011	\$25.1	\$55.5	\$21.8	\$6.8	\$17.3	\$0.0	\$126.6
2012	\$24.7	\$57.6	\$21.1	\$7.6	\$18.5	\$0.0	\$129.6
2013	\$23.9	\$59.9	\$21.3	\$8.0	\$20.8	\$0.0	\$133.9
2014	\$23.2	\$60.9	\$20.9	\$8.4	\$23.8	\$0.0	\$137.3
2015	\$23.0	\$62.2	\$21.3	\$9.0	\$25.4	\$0.0	\$140.9
2016	\$13.0	\$66.7	\$23.8	\$9.5	\$28.7	\$0.0	\$141.6
2017	\$5.5	\$77.2	\$20.7	\$8.6	\$39.2	\$0.0	\$151.3
2018	\$2.5	\$82.8	\$18.9	\$7.5	\$40.3	\$0.0	\$151.9

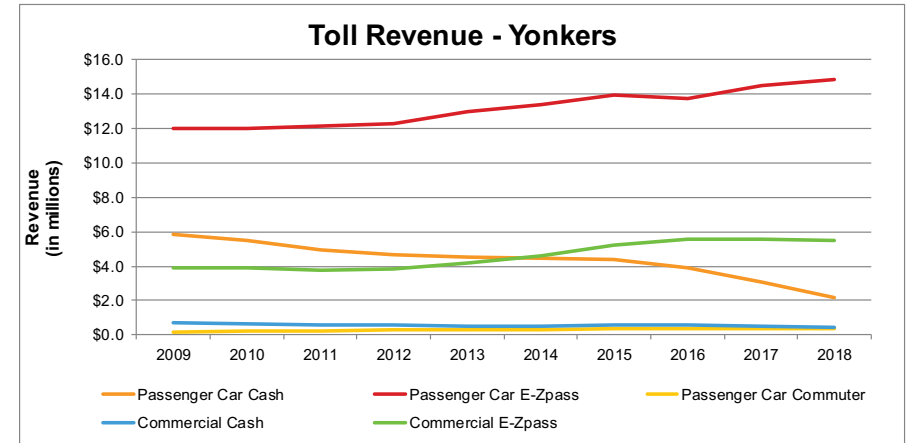
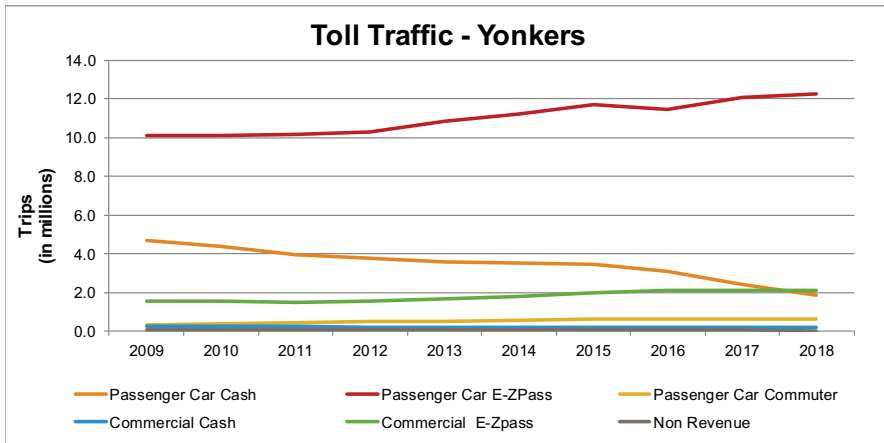


Note: "Cash" also includes Tolls by Mail

Traffic and Revenue - Yonkers Barrier

Toll Traffic - Yonkers							
Year	Passenger Car Cash	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	4.7	10.1	0.3	0.3	1.6	0.1	17.1
2010	4.4	10.1	0.4	0.3	1.6	0.1	16.8
2011	4.0	10.2	0.5	0.2	1.5	0.1	16.4
2012	3.7	10.3	0.5	0.2	1.5	0.1	16.3
2013	3.6	10.9	0.5	0.2	1.7	0.1	16.9
2014	3.5	11.2	0.6	0.2	1.8	0.1	17.4
2015	3.5	11.7	0.6	0.2	2.0	0.1	18.1
2016	3.1	11.5	0.6	0.2	2.1	0.1	17.6
2017	2.4	12.1	0.6	0.2	2.1	0.1	17.5
2018	1.9	12.3	0.6	0.2	2.1	0.1	17.1

Toll Revenue - Yonkers							
Year	Passenger Car Cash	Passenger Car E-Zpass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	\$5.9	\$12.0	\$0.2	\$0.7	\$3.9	\$0.0	\$22.7
2010	\$5.5	\$12.0	\$0.2	\$0.7	\$3.9	\$0.0	\$22.3
2011	\$5.0	\$12.1	\$0.3	\$0.6	\$3.8	\$0.0	\$21.7
2012	\$4.7	\$12.2	\$0.3	\$0.5	\$3.8	\$0.0	\$21.6
2013	\$4.5	\$12.9	\$0.3	\$0.5	\$4.2	\$0.0	\$22.4
2014	\$4.4	\$13.3	\$0.3	\$0.5	\$4.6	\$0.0	\$23.2
2015	\$4.4	\$13.9	\$0.3	\$0.6	\$5.2	\$0.0	\$24.4
2016	\$3.9	\$13.7	\$0.4	\$0.6	\$5.6	\$0.0	\$24.1
2017	\$3.1	\$14.5	\$0.4	\$0.5	\$5.6	\$0.0	\$24.0
2018	\$2.1	\$14.8	\$0.4	\$0.5	\$5.5	\$0.0	\$23.3

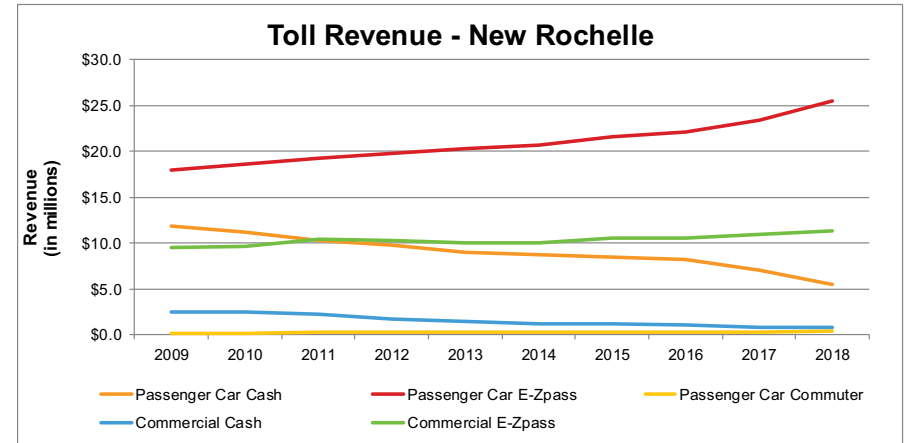
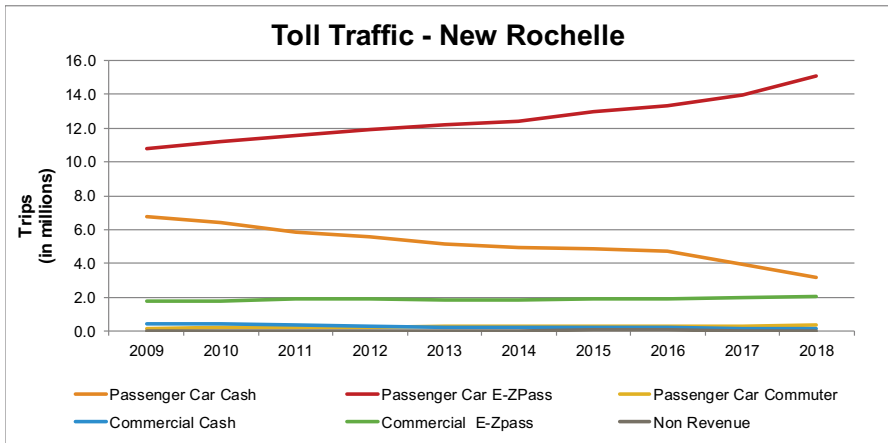


Note: "Cash" also includes Tolls by Mail

Traffic and Revenue - New Rochelle Barrier

Toll Traffic - New Rochelle							
Year	Passenger Car Cash	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	6.8	10.8	0.2	0.4	1.8	0.0	20.0
2010	6.4	11.2	0.2	0.4	1.8	0.0	20.1
2011	5.8	11.6	0.2	0.4	1.9	0.0	20.0
2012	5.6	11.9	0.3	0.3	1.9	0.0	20.0
2013	5.1	12.2	0.3	0.3	1.9	0.0	19.8
2014	5.0	12.4	0.3	0.2	1.8	0.0	19.8
2015	4.9	12.9	0.3	0.2	1.9	0.1	20.4
2016	4.7	13.3	0.3	0.2	1.9	0.1	20.6
2017	4.0	14.0	0.3	0.2	2.0	0.0	20.5
2018	3.2	15.1	0.3	0.2	2.0	0.0	20.9

Toll Revenue - New Rochelle							
Year	Passenger Car Cash	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	\$11.9	\$17.9	\$0.2	\$2.6	\$9.5	\$0.0	\$42.0
2010	\$11.2	\$18.6	\$0.2	\$2.5	\$9.7	\$0.0	\$42.3
2011	\$10.2	\$19.2	\$0.3	\$2.3	\$10.4	\$0.0	\$42.3
2012	\$9.8	\$19.7	\$0.3	\$1.7	\$10.3	\$0.0	\$41.7
2013	\$9.0	\$20.3	\$0.3	\$1.4	\$10.1	\$0.0	\$41.1
2014	\$8.7	\$20.6	\$0.3	\$1.2	\$10.0	\$0.0	\$40.9
2015	\$8.5	\$21.5	\$0.4	\$1.2	\$10.5	\$0.0	\$42.1
2016	\$8.3	\$22.2	\$0.4	\$1.1	\$10.5	\$0.0	\$42.4
2017	\$7.0	\$23.4	\$0.4	\$0.9	\$10.9	\$0.0	\$42.6
2018	\$5.5	\$25.4	\$0.4	\$0.8	\$11.3	\$0.0	\$43.4

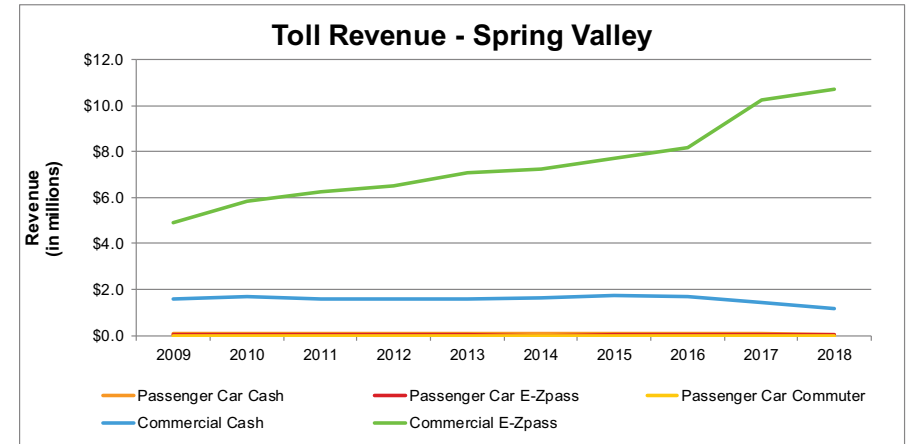
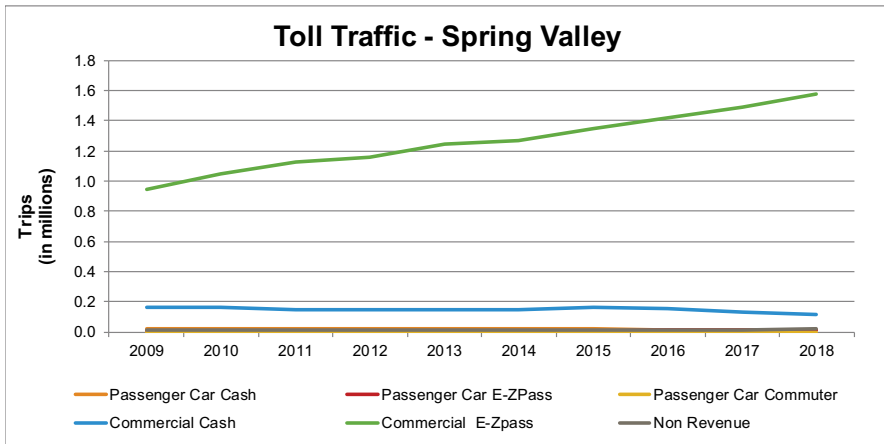


Note: "Cash" also includes Tolls by Mail

Traffic and Revenue - Spring Valley Barrier

Toll Traffic - Spring Valley							
Year	Passenger Car Cash	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	0.0	0.0	0.0	0.2	0.9	0.0	1.1
2010	0.0	0.0	0.0	0.2	1.1	0.0	1.3
2011	0.0	0.0	0.0	0.1	1.1	0.0	1.3
2012	0.0	0.0	0.0	0.1	1.2	0.0	1.3
2013	0.0	0.0	0.0	0.1	1.2	0.0	1.4
2014	0.0	0.0	0.0	0.1	1.3	0.0	1.5
2015	0.0	0.0	0.0	0.2	1.3	0.0	1.5
2016	0.0	0.0	0.0	0.2	1.4	0.0	1.6
2017	0.0	0.0	0.0	0.1	1.5	0.0	1.7
2018	0.0	0.0	0.0	0.1	1.6	0.0	1.7

Toll Revenue - Spring Valley							
Year	Passenger Car Cash	Passenger Car E-Zpass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	\$0.1	\$0.0	\$0.0	\$1.6	\$4.9	\$0.0	\$6.6
2010	\$0.1	\$0.0	\$0.0	\$1.7	\$5.8	\$0.0	\$7.6
2011	\$0.1	\$0.0	\$0.0	\$1.6	\$6.3	\$0.0	\$7.9
2012	\$0.1	\$0.0	\$0.0	\$1.6	\$6.5	\$0.0	\$8.2
2013	\$0.1	\$0.0	\$0.0	\$1.6	\$7.1	\$0.0	\$8.8
2014	\$0.1	\$0.0	\$0.0	\$1.6	\$7.2	\$0.0	\$8.9
2015	\$0.1	\$0.0	\$0.0	\$1.8	\$7.7	\$0.0	\$9.6
2016	\$0.1	\$0.0	\$0.0	\$1.7	\$8.2	\$0.0	\$9.9
2017	\$0.1	\$0.0	\$0.0	\$1.5	\$10.2	\$0.0	\$11.8
2018	\$0.0	\$0.0	\$0.0	\$1.1	\$10.7	\$0.0	\$12.0

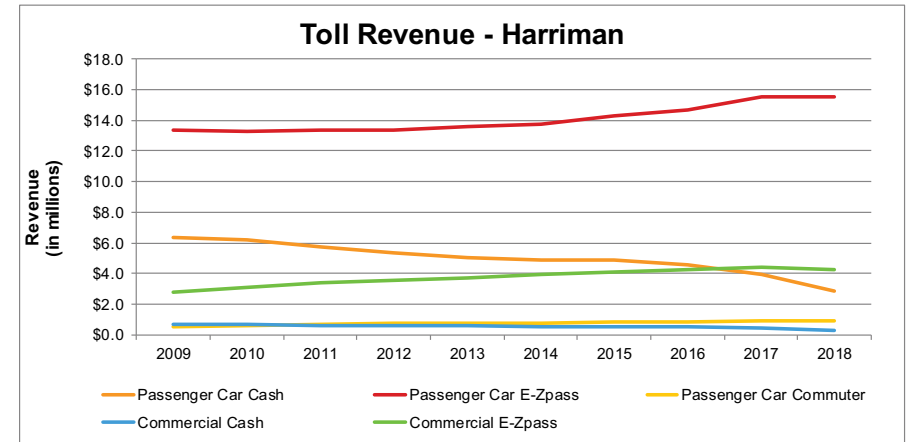
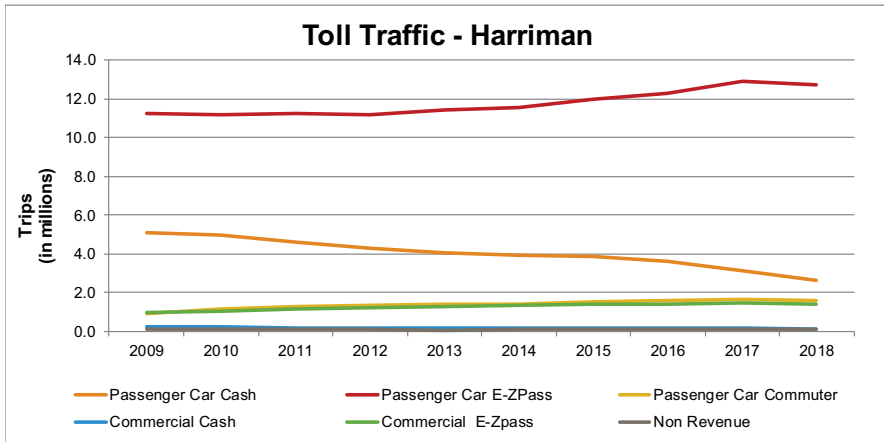


Note: "Cash" also includes Tolls by Mail

Traffic and Revenue - Harriman Barrier

Toll Traffic - Harriman							
Year	Passenger Car Cash	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	5.1	11.2	0.9	0.2	1.0	0.1	18.6
2010	4.9	11.2	1.1	0.2	1.1	0.1	18.6
2011	4.6	11.2	1.3	0.2	1.1	0.1	18.5
2012	4.3	11.2	1.3	0.2	1.2	0.1	18.2
2013	4.0	11.4	1.4	0.2	1.2	0.1	18.3
2014	3.9	11.5	1.4	0.2	1.3	0.1	18.4
2015	3.9	12.0	1.5	0.2	1.4	0.1	19.0
2016	3.6	12.3	1.6	0.2	1.4	0.1	19.2
2017	3.1	12.9	1.6	0.1	1.5	0.1	19.3
2018	2.7	12.7	1.6	0.1	1.4	0.1	18.5

Toll Revenue - Harriman							
Year	Passenger Car Cash	Passenger Car E-Zpass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	\$6.4	\$13.3	\$0.5	\$0.7	\$2.8	\$0.0	\$23.7
2010	\$6.2	\$13.3	\$0.6	\$0.7	\$3.1	\$0.0	\$23.8
2011	\$5.7	\$13.4	\$0.7	\$0.6	\$3.4	\$0.0	\$23.8
2012	\$5.3	\$13.3	\$0.7	\$0.6	\$3.5	\$0.0	\$23.5
2013	\$5.0	\$13.6	\$0.8	\$0.6	\$3.7	\$0.0	\$23.7
2014	\$4.9	\$13.7	\$0.8	\$0.6	\$3.9	\$0.0	\$23.9
2015	\$4.9	\$14.3	\$0.8	\$0.5	\$4.1	\$0.0	\$24.6
2016	\$4.6	\$14.7	\$0.9	\$0.5	\$4.3	\$0.0	\$24.9
2017	\$3.9	\$15.5	\$0.9	\$0.4	\$4.4	\$0.0	\$25.2
2018	\$2.8	\$15.5	\$0.9	\$0.3	\$4.3	\$0.0	\$23.9

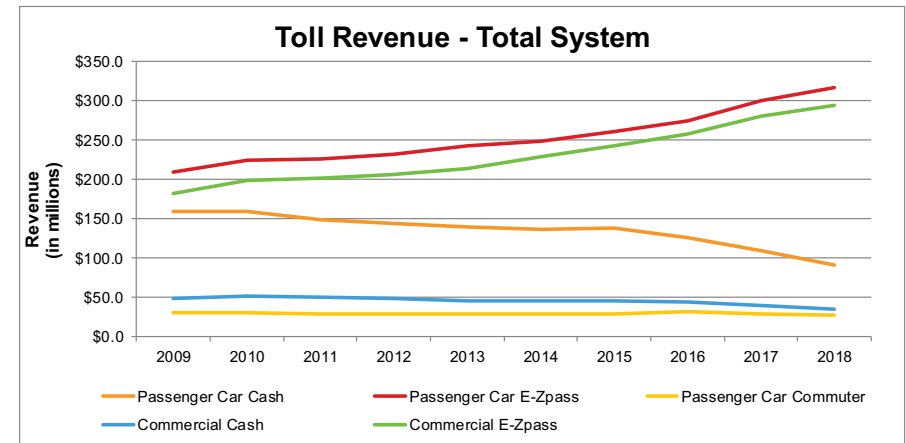
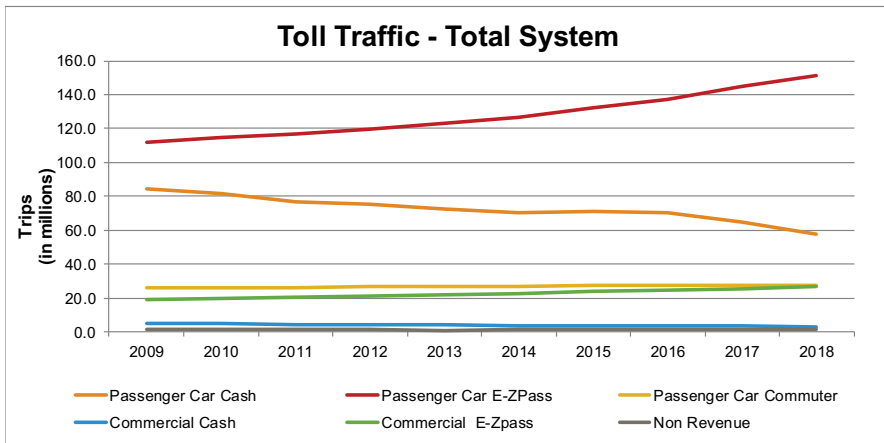


Note: "Cash" also includes Tolls by Mail

Traffic and Revenue - Total System

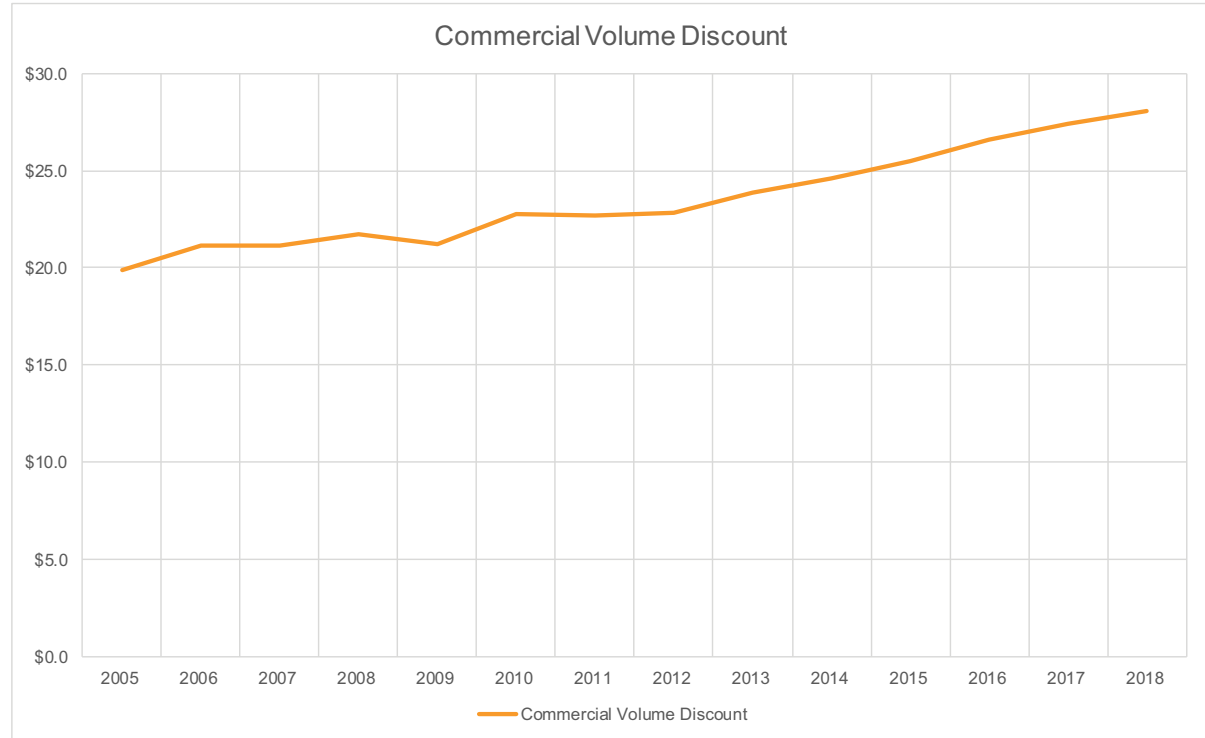
Toll Traffic - Total System							
Year	Passenger Car Cash	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	84.3	111.8	26.5	4.8	19.4	1.8	248.5
2010	81.5	114.8	26.4	4.8	20.0	1.8	249.4
2011	77.1	116.5	26.5	4.6	20.6	1.7	246.9
2012	75.1	119.5	26.7	4.3	21.0	1.5	248.1
2013	72.4	123.4	26.8	4.0	21.7	1.4	249.8
2014	70.7	126.5	27.0	3.9	22.7	1.5	252.3
2015	71.0	132.2	27.3	3.9	23.9	1.5	259.7
2016	70.4	137.5	27.8	3.7	24.8	1.5	265.7
2017	65.1	144.7	27.7	3.4	25.7	1.5	268.0
2018	58.0	151.3	27.5	3.0	26.6	1.5	267.9

Toll Revenue - Total System							
Year	Passenger Car Cash	Passenger Car E-Zpass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	\$160.1	\$209.6	\$31.1	\$49.7	\$182.3	\$0.0	\$632.8
2010	\$159.3	\$223.7	\$30.1	\$52.6	\$198.3	\$0.0	\$664.0
2011	\$148.3	\$226.0	\$29.6	\$50.8	\$202.0	\$0.0	\$656.8
2012	\$144.0	\$232.3	\$29.0	\$48.6	\$206.6	\$0.0	\$660.5
2013	\$140.0	\$242.6	\$29.4	\$46.3	\$214.5	\$0.0	\$672.8
2014	\$136.0	\$247.9	\$29.3	\$46.2	\$229.3	\$0.0	\$688.7
2015	\$137.6	\$260.3	\$29.9	\$46.2	\$243.2	\$0.0	\$717.2
2016	\$125.5	\$274.3	\$32.9	\$44.5	\$257.8	\$0.0	\$734.9
2017	\$108.9	\$300.4	\$29.8	\$39.2	\$280.6	\$0.0	\$758.9
2018	\$91.7	\$316.0	\$28.0	\$34.9	\$293.9	\$0.0	\$764.5



Note: "Cash" also includes Tolls by Mail

Year	Vol. Discount
2005	\$19.9
2006	\$21.1
2007	\$21.1
2008	\$21.7
2009	\$21.2
2010	\$22.8
2011	\$22.7
2012	\$22.8
2013	\$23.8
2014	\$24.6
2015	\$25.5
2016	\$26.6
2017	\$27.4
2018	\$28.0



**Audited Financial Statements of the Authority for the
Years Ended December 31, 2018 and 2017**

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New York State Thruway Authority
(A Component Unit of the State of New York)

Financial Statements

December 31, 2018 and 2017

New York State Thruway Authority
(A Component Unit of the State of New York)

Financial Statements

December 31, 2018 and 2017

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Independent Auditor's Report

Members of the Board
New York State Thruway Authority
Albany, New York

Report on the Financial Statements

We have audited the accompanying financial statements of the New York State Thruway Authority (the Authority), a component unit of the State of New York, as of and for the years ended December 31, 2018 and 2017, 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

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.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits 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 the 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 opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Authority as of December 31, 2018 and 2017, and the changes in its financial position and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matters

General Revenue Junior Indebtedness Obligations - Series 2013A

As disclosed in Note 5, the Authority's 2013A Junior Indebtedness Obligations (JIO) mature on May 1, 2019. The Authority's plans to satisfy this obligation are described in Note 12.

Adoption of GASB Statement No. 75

As disclosed in Note 1u, in 2018 the Authority adopted Governmental Accounting Standards Board (GASB) Statement No. 75, *Accounting and Reporting for Postemployment Benefits Other Than Pensions*.

Our opinion is not modified with respect to these matters.

Other Matter

Accounting principles generally accepted in the United States of America require that management's discussion and analysis on pages 3 through 13 and the schedules of other postemployment benefits liability and OPEB as a percentage of covered payroll, proportionate share of the net pension liability, and pension contributions on pages 45 through 47 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 inquiries 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 Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated April 4, 2019, 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.

BST & CO. CPAs, LLP

Albany, New York
April 4, 2019



New York State Thruway Authority

(A Component Unit of the State of New York)

Management's Discussion and Analysis December 31, 2018 and 2017

The following discussion and analysis of the New York State Thruway Authority's (Authority) financial performance provides an overview of the Authority's activities for the years ended December 31, 2018 and 2017. Please read it in conjunction with the Authority's financial statements that follow this section. This discussion and analysis is intended to serve as an introduction to the Authority's financial statements which are comprised of the basic financial statements and the notes to the financial statements.

2018 Financial Highlights

- Total operating revenue was \$799.4 million, an increase of \$7.2 million, or 0.9% compared to 2017. Toll revenue for the year was \$736.5 million, an increase of \$5.0 million, or 0.7% compared to 2017.
- Total operating expenses, excluding depreciation and amortization, were \$457.4 million, an increase of \$14.7 million, or 3.3% compared to 2017.
- Net position as of December 31, 2018 was \$1.11 billion, an increase of \$316.7 million, or 39.9% compared to December 31, 2017.
- Total capital assets (net of depreciation) as of December 31, 2018 were \$7.31 billion, an increase of \$267.8 million, or 3.8% compared to December 31, 2017.
- Construction of the Governor Mario M. Cuomo Bridge continued into 2018 with the second span being opened to traffic in September of 2018. A total of \$3.84 billion has been invested in the project through December 31, 2018, of which \$275.7 million was invested during 2018.
- The State of New York has committed \$1.99 billion to fund the Governor Mario M. Cuomo Bridge and other Thruway capital projects via the Thruway Stabilization Program. Since the inception of the program in 2015, the State of New York has contributed \$1.62 billion to the Authority, including \$441.8 million in 2018.

2017 Financial Highlights

- Total operating revenue was \$792.2 million, an increase of \$40.2 million, or 5.3% compared to 2016. Toll revenue for the year was \$731.5 million, an increase of \$23.2 million, or 3.3% compared to 2016.
- Total operating expenses, excluding depreciation and amortization, were \$442.8 million, a decrease of \$36.5 million, or 7.6% compared to 2016.
- Net position as of December 31, 2017 was \$794.1 million, a decrease of \$1.00 billion, or 55.9% compared to December 31, 2016.
- Total capital assets (net of depreciation) as of December 31, 2017 were \$7.04 billion, a decrease of \$295.6 million, or 4% compared to December 31, 2016.
- Construction of the Governor Mario M. Cuomo Bridge continued through 2017 with the first span opened to traffic in August of 2017. \$539.7 million was invested in the project during 2017.

New York State Thruway Authority

(A Component Unit of the State of New York)

Management's Discussion and Analysis December 31, 2018 and 2017

2017 Financial Highlights - Continued

- The State of New York has committed \$1.99 billion to fund the Governor Mario M. Cuomo Bridge and other Thruway capital projects via the Thruway Stabilization Program. Since the inception of the program in 2015, the State of New York has contributed \$1.18 billion to the Authority.
- On January 1, 2017, control of the Canal Corporation and Canal System was transferred to the New York State Power Authority (Power Authority) pursuant to enacted legislation of the State of New York. On this date, Canal Corporation assets of \$653.7 million and liabilities of \$114.2 million were transferred to the Power Authority. The Authority's Statement of Revenue, Expenses and Changes in Net Position includes a special item of \$539.5 million representing the net position of the Canal Corporation transferred to the Power Authority.

Overview of the Financial Statements

This report consists of three parts: management's discussion and analysis, the basic financial statements, and the notes to the financial statements.

The financial statements provide summary information about the Authority's overall financial condition, including the Authority's net position and related changes. The notes provide explanation and additional disclosures about the financial statements.

The Authority is considered a special-purpose government engaged in business-type activities and follows financial reporting for enterprise funds. The Authority's financial statements are prepared in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP). Revenues are recognized in the period in which they are earned, and expenses are recognized in the period in which they are incurred.

On January 1, 2017, the New York State Canal Corporation was transferred from the Authority to the New York State Power Authority (Note 13). Additionally, during 2017, the Authority adopted Governmental Accounting Standards Board (GASB) Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions* (Note 1u). The effect of the transfer of the New York State Canal Corporation to the New York State Power Authority and adoption of GASB Statement No. 75 must be considered when comparing the Authority's financial results as of and for the years ended December 31, 2018, 2017 and 2016.

Financial Analysis of the Authority

Net Position

The Authority's net position at December 31, 2018 was approximately \$1.11 billion, a 39.9% increase compared to December 31, 2017 (see Table A-1). In 2018, total assets increased 2.8% to \$8.51 billion and total liabilities decreased 0.9% to \$7.47 billion. The Authority's net position at December 31, 2017 was approximately \$794.1 million, a 55.9% decrease compared to December 31, 2016. In 2017, total assets decreased 7.8% to \$8.28 billion, and total liabilities increased 3.4% to \$7.54 billion.

New York State Thruway Authority
(A Component Unit of the State of New York)

Management's Discussion and Analysis
December 31, 2018 and 2017

Financial Analysis of the Authority - Continued

Net Position - Continued

Table A-1

Net Position
December 31, 2018, 2017, and 2016
(In millions of dollars)

	<u>2018</u>	<u>2017</u> (Restated)	<u>2016</u>	Percentage Change 2018-2017
Unrestricted current assets	\$ 480.3	\$ 453.0	\$ 458.2	6.0
Restricted assets	719.7	782.5	1,178.8	(8.0)
Capital assets	<u>7,311.2</u>	<u>7,043.4</u>	<u>7,339.0</u>	<u>3.8</u>
Total assets	<u>8,511.2</u>	<u>8,278.9</u>	<u>8,976.0</u>	<u>2.8</u>
Deferred outflows	<u>144.7</u>	<u>61.6</u>	<u>125.0</u>	<u>134.9</u>
Current liabilities	2,204.6	628.1	639.1	251.0
Noncurrent liabilities	<u>5,264.1</u>	<u>6,909.7</u>	<u>6,650.8</u>	<u>(23.8)</u>
Total liabilities	<u>7,468.7</u>	<u>7,537.8</u>	<u>7,289.9</u>	<u>(0.9)</u>
Deferred inflows	<u>76.4</u>	<u>8.6</u>	<u>12.4</u>	<u>788.4</u>
Total net position	<u>\$ 1,110.8</u>	<u>\$ 794.1</u>	<u>\$ 1,798.7</u>	<u>39.9</u>

Restricted assets decreased \$62.8 million, or 8.0% compared to 2017. The decrease is primarily due to the use of debt proceeds to pay interest costs. In 2018, proceeds generated from the issuance of General Revenue Junior Indebtedness Obligations, Series 2013A were used to pay \$39.8 million of interest and proceeds generated from the issuance of General Revenue Junior Indebtedness Obligations, Series 2016A were used to pay \$20.5 million of interest. Additional information regarding restricted assets and General Revenue Junior Indebtedness Obligations, Series 2013A and Series 2016A is presented in Notes 4 and 5, respectively.

Capital assets increased \$267.8 million, or 3.8% compared to 2017. This increase is primarily due to the Authority's continued investment in the Governor Mario M. Cuomo Bridge, as well as ongoing investments to preserve existing infrastructure across the Thruway System. Additional information regarding capital assets is presented in Notes 3.

Current liabilities increased \$1.58 billion, or 251.0%, and noncurrent liabilities decreased \$1.65 billion, or 23.8% compared to 2017. General Revenue Junior Indebtedness Obligations - Series 2013A in the amount of \$1.6 billion mature on May 1, 2019 and are reflected as a current liability as of December 31, 2018. Additional information regarding the Authority's debt and repayment of the General Revenue Junior Indebtedness Obligations - Series 2013A is presented in Notes 5 and 12, respectively.

New York State Thruway Authority
(A Component Unit of the State of New York)

Management's Discussion and Analysis
December 31, 2018 and 2017

Financial Analysis of the Authority - Continued

Net Position - Continued

The Authority's Statement of Net Position as of December 31, 2017 was restated for the adoption of GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other than Pensions*. This statement establishes new financial reporting standards for other postemployment benefits (OPEB) plans for state and local governments. Non-current liabilities were restated from \$6,401.5 million to \$6,909.7 million, an increase of \$508.2 million and net position was restated from \$1,302.3 million to \$794.1 million, a corresponding decrease of \$508.2 million. Additional information regarding the adoption of GASB Statement No. 75 and other postemployment benefit obligations can be found in Notes 1u and 9, respectively.

Changes In Net Position

Net position increased by \$316.7 million in 2018 (see Table A-2). The Authority's total operating revenues for 2018 were \$799.4 million, an increase of \$7.2 million, or 0.9% compared to 2017. Total operating expenses, including depreciation and amortization for 2018 were \$811.2 million, a decrease of \$70.6 million, or 8.0% compared to 2017. Net position decreased by \$1.00 billion in 2017 compared to 2016. The Authority's total operating revenues for 2017 were \$792.2 million, an increase of \$40.2 million, or 5.3% compared to 2016. Total operating expenses including depreciation and amortization for 2017 were \$881.8 million, a decrease of \$142.2 million, or 13.9% compared to 2016.

Table A-2

Changes in Net Position
Years ended December 31, 2018, 2017, and 2016
(In millions of dollars)

	2018	2017	2016	Percentage Change 2018-2017
OPERATING REVENUE				
Tolls	\$ 736.5	\$ 731.5	\$ 708.3	0.7
Concessions	14.9	14.9	14.8	-
Other	48.0	45.8	28.9	4.8
Total operating revenue	<u>799.4</u>	<u>792.2</u>	<u>752.0</u>	<u>0.9</u>
OPERATING EXPENSES				
Salaries	146.0	140.8	158.3	3.7
Post employment obligations	83.3	69.3	89.7	20.2
Employee benefits	64.6	67.4	82.1	(4.2)
State Police - Troop T services	58.1	60.6	45.8	(4.1)
Professional and other services	51.1	45.5	43.6	12.3
Supplies, materials and rentals	25.1	21.6	19.8	16.2
Maintenance and repairs	17.6	18.7	23.1	(5.9)
Utilities	6.3	5.6	6.1	12.5
Insurance and claims	4.3	5.0	5.5	(14.0)
Equipment	1.0	1.2	0.8	(16.7)
Other	0.1	7.1	4.5	(98.6)
Depreciation and amortization	353.7	439.0	544.7	(19.4)
Total operating expenses	<u>811.2</u>	<u>881.8</u>	<u>1,024.0</u>	<u>(8.0)</u>
Operating loss	<u>(11.8)</u>	<u>(89.6)</u>	<u>(272.0)</u>	<u>(86.8)</u>

New York State Thruway Authority
(A Component Unit of the State of New York)

Management's Discussion and Analysis
December 31, 2018 and 2017

Financial Analysis of the Authority - Continued

Changes in Net Position - Continued

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>Percentage Change 2018-2017</u>
NON-OPERATING ITEMS				
Interest expense	(178.9)	(161.4)	(155.3)	10.8
Debt issuance expense	(2.9)	-	(5.1)	-
Non-operating revenue	13.9	6.7	44.8	107.5
Gain (loss) on disposals and other	(0.5)	(0.3)	(10.3)	66.7
Net non-operating items	<u>(168.4)</u>	<u>(155.0)</u>	<u>(125.9)</u>	<u>8.6</u>
Loss before capital contributions and special item	<u>(180.2)</u>	<u>(244.6)</u>	<u>(397.9)</u>	<u>(26.3)</u>
Capital contributions	496.9	287.7	388.9	72.7
Special item - Transfer of Canal Corporation	-	<u>(539.5)</u>	-	<u>(100.0)</u>
CHANGE IN NET POSITION	316.7	(496.4)	(9.0)	(163.8)
NET POSITION, beginning of year	<u>794.1</u>	<u>1,798.7</u>	<u>1,807.7</u>	<u>(55.9)</u>
NET POSITION, end of year prior to restatement	1,110.8	1,302.3	1,807.7	(14.7)
Effect of adoption of GASB 75	-	<u>(508.2)</u>	-	<u>(100.0)</u>
NET POSITION, end of year, as restated	<u>\$ 1,110.8</u>	<u>\$ 794.1</u>	<u>\$ 1,798.7</u>	<u>39.9</u>

Toll revenue increased \$5.0 million, or 0.7% compared to 2017. This increase is primarily due to a system wide increase in commercial truck traffic.

Salary costs increased \$5.2 million, or 3.7% compared to 2017. This increase is primarily due to incentives aimed at retaining toll collection employees during the Authority's transition to cashless tolling. Additional information regarding the Authority's transition to cashless tolling is presented in the Other Significant Matters section of the Management's Discussion and Analysis.

Postemployment obligations consist primarily of health insurance benefits provided to retirees. In 2018, the Authority adopted the provisions of a new accounting standard related to postemployment obligations - GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pension*. Additional information regarding GASB Statement No. 75 and Postemployment Benefits Other Than Pension can be found in Notes 1u and 9, respectively.

Professional and other services increased \$5.6 million, or 12.3% compared to 2017. This increase is primarily due to the Authority's ongoing shift from cash based toll collection to cashless tolling. The Authority's cashless tolling programs, E-ZPass and Tolls by Mail, are administered by a third-party vendor. Additional information regarding the Authority's transition to cashless tolling is presented in the Other Significant Matters section of the Management's Discussion and Analysis.

Other costs decreased \$7.0 million, or 98.3% compared to 2017. In 2017, the Authority incurred costs of \$6.5 million for an administrative cost recovery fee charged by the State of New York. In 2018, the State of New York waived this fee.

New York State Thruway Authority
(A Component Unit of the State of New York)

Management's Discussion and Analysis
December 31, 2018 and 2017

Financial Analysis of the Authority - Continued

Changes in Net Position - Continued

Depreciation and amortization decreased \$85.3 million, or 19.4% compared to 2017. The removal of the Tappan Zee Bridge from service and the opening Governor Mario M. Cuomo Bridge are the primary factors contributing to this decrease.

In December 2015, the useful life of the Tappan Zee Bridge was adjusted to align with the anticipated date it would be taken out of service (August 2017). From December 2015 through August 2017, the Authority recognized the remaining book value of the Tappan Zee Bridge through depreciation expense approximating \$22 million per month. As a result, 2017 depreciation expense on the Tappan Zee Bridge was \$176 million. In August 2017, the westbound span of the Governor Mario M. Cuomo Bridge, with a cost to date of approximately \$1.8 billion, was placed in service carrying both eastbound and westbound traffic. Based on a 100-year useful life, 2017 and 2018 depreciation expense on the westbound span were \$6.9 million and \$19.2 million, respectively. In September 2018, the eastbound span of the Governor Mario M. Cuomo Bridge, with a cost to date of approximately \$1.6 billion, was put into service. 2018 depreciation expense on the eastbound span was \$5.6 million. The replacement of the Tappan Zee Bridge with the Governor Mario M. Cuomo Bridge resulted in a year-to-date decrease of \$158.1 million.

Effective January 1, 2018, the Authority changed its estimated useful life for pavement resurfacing projects on the mainline of the Thruway System. This change is based on evidence indicating that the average life for this type of project has diminished. In 2018, the Authority recognized \$59 million of additional depreciation expense related to reducing the estimated useful life for this type of project.

The increased depreciation expense due to changing the estimated useful life of certain pavement resurfacing projects partially offset the decrease related to the removal of the Tappan Zee Bridge and the opening of the Governor Mario M. Cuomo Bridge.

Interest expense increased \$17.5 million, or 10.8% compared to 2017. This increase is primarily due to a reduction in the amount of interest costs capitalized on the Governor Mario M. Cuomo Bridge project. Financing costs associated with a project are only allowed to be capitalized while assets are being constructed. Based on the westbound and eastbound spans of the Governor Mario M. Cuomo Bridge being placed into service in August 2017 and September 2018, respectively, the amount of interest cost the Authority was allowed to capitalize in 2018 decreased \$29.9 million, or 55.6% compared to 2017, which increased 2018 interest expense. The increase due to the change in interest costs capitalized was partially offset by lower overall interest costs on the Authority's General Revenue Bonds.

Capital contributions increased \$209.2 million, or 72.7% compared to 2017. This increase is primarily due to the timing of when the Authority used Thruway Stabilization Program contributions from the State of New York to fund capital projects including the Governor Mario M. Cuomo Bridge project. Additional information regarding the Thruway Stabilization Program can be found in Note 10. Reimbursements from the State of New York for construction of Welcome Centers in New Baltimore and Grand Island also contributed to this increase.

In 2017, the Authority recognized a special expense of \$539.5 million related to the January 1, 2017 transfer of the Canal Corporation and Canal System to the Power Authority. Additional information regarding the Power Authority assuming financial and operational responsibility for the Canal Corporation and Canal System can be found in Note 13.

New York State Thruway Authority
(A Component Unit of the State of New York)

Management's Discussion and Analysis
December 31, 2018 and 2017

Capital Assets and Debt Administration

Capital Assets

As of December 31, 2018, the Authority had invested approximately \$12.31 billion in capital assets, including roads, bridges, buildings, land and equipment. Net of accumulated depreciation, the Authority's capital assets totaled approximately \$7.31 billion (see Table A-3) representing a net increase (including additions, disposals and depreciation) of approximately \$267.8 million, or 3.8% compared to December 31, 2017.

As of December 31, 2017, the Authority had invested approximately \$12.74 billion in capital assets, including roads, bridges, buildings, land and equipment. Net of accumulated depreciation, the Authority's capital assets totaled approximately \$7.04 billion (see Table A-3) representing a net decrease (including additions, disposals and depreciation) of approximately \$295.6 million or 4.0% compared to December 31, 2016.

Table A-3
Capital Assets
December 31, 2018, 2017, and 2016
(In millions of dollars)

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>Percentage Change 2018-2017</u>
Land and land improvements	\$ 806.1	\$ 801.8	\$ 830.0	0.5
Construction work in progress	363.3	2,102.0	3,267.7	(82.7)
Thruway System	10,900.0	9,603.7	8,112.4	13.5
Canal System	-	-	655.4	-
Equipment	241.2	233.5	259.1	3.3
Less accumulated depreciation	<u>(4,999.4)</u>	<u>(5,697.6)</u>	<u>(5,785.6)</u>	<u>(12.3)</u>
Total net capital assets	<u>\$ 7,311.2</u>	<u>\$ 7,043.4</u>	<u>\$ 7,339.0</u>	<u>3.8</u>

In 2018, construction work in progress decreased \$1.74 billion, or 82.7%. This decrease is primarily due to the eastbound span of the Governor Mario M. Cuomo Bridge being placed in service. Significant projects in progress as of December 31, 2018 include the ongoing construction of new maintenance and police buildings at the Governor Mario M. Cuomo Bridge and a project south of Buffalo to replace one bridge, rehabilitate several other bridges and repave the highway in the same area.

Net additions to the Thruway System during 2018 were \$1.3 billion. This increase was primarily due to the eastbound span of the Governor Mario M. Cuomo Bridge being placed in service, the completion of the Capital Region and Western New York Welcome Centers, the implementation of cashless tolling at the New Rochelle, Harriman, Spring Valley and Yonkers barriers in the lower Hudson Valley region and at the Grand Island Bridges in western New York, pavement rehabilitations completed between Exits 31 and 38 and Exits 42 and 44, as well as the replacement of the Route 32 bridge over the Thruway mainline near milepost 68. These increases were partially offset by the retirement of the Tappan Zee Bridge.

New York State Thruway Authority
(A Component Unit of the State of New York)

Management's Discussion and Analysis
December 31, 2018 and 2017

Capital Assets and Debt Administration - Continued

Capital Assets - Continued

On January 1, 2017, the following Canal Corporation capital assets were transferred to the Power Authority (in millions).

Land	\$ 29.2
Construction work in progress	44.1
Canal System	655.4
Equipment	42.1
Accumulated Depreciation	<u>(140.9)</u>
Total	<u>\$ 629.9</u>

In 2017, construction work in progress decreased \$1.17 billion, or 35.7%. This decrease is primarily due to the westbound span of the Governor Mario M. Cuomo Bridge being placed in service, as well as the Canal Corporation transfer noted above. Significant projects in progress as of December 31, 2017 include the eastbound span of the Governor Mario M. Cuomo Bridge; pavement resurfacing between Exits 31-33, Exits 34-35 and Exits 42-44; and bridge rehabilitations over Vine Street and over the CSX railroad near mileposts 285 and 288.

Net additions to the Thruway System during 2017 were \$1.49 billion. This increase was primarily due to the westbound span of the Governor Mario M. Cuomo Bridge being placed in service, completion of Interstate 95 pavement rehabilitation, pavement resurfacing from Exits 24-25, Exits 26-27 and Exits 45-47, and bridge rehabilitations at Pascack Road, Scotland Hill Road, and Saddle River Road.

Debt Administration

Bond and note sales must be approved by the Authority's Board, members of which are appointed by the Governor with the advice and consent of the New York State Senate. These sales must comply with rules and regulations of the United States Treasury Department and the United States Securities and Exchange Commission. Authority bond and note sales may be negotiated or sold competitively. The terms and conditions of Authority negotiated bond and note sales must also be approved by the New York State Office of the State Comptroller.

General revenue bonds are issued pursuant to the Authority's General Revenue Bond Resolution, adopted August 3, 1992, as amended on January 5, 2007. General revenue bonds may be issued for the purposes described in the General Revenue Bond Resolution, as amended, including funding the Authority's Multi-Year Capital Plan, exclusive of the New NY Bridge project. Junior indebtedness obligations are issued pursuant to the Authority's Resolution Authorizing General Revenue Junior Indebtedness Obligations, adopted November 7, 2013, as amended August 6, 2014. Junior indebtedness obligations are subordinate to the senior general revenue bonds and are special obligations of the Authority secured by a pledge of certain funds and accounts established in the Junior Indebtedness Fund. Proceeds from junior indebtedness obligations issued, and to be issued, will be used solely to fund New NY Bridge project costs incurred through project completion.

New York State Thruway Authority

(A Component Unit of the State of New York)

Management's Discussion and Analysis December 31, 2018 and 2017

Capital Assets and Debt Administration - Continued

Debt Administration - Continued

Long-term debt includes general revenue bonds and junior indebtedness obligations of varying rates and maturities issued primarily to fund a portion of the Authority's Multi-Year Capital Plan and New NY Bridge Project costs for construction of the Governor Mario M. Cuomo Bridge. At December 31, 2018, the Authority had approximately \$5.86 billion in general revenue bonds and junior indebtedness obligations outstanding, a decrease of \$178.9 million or approximately 2.96% compared to the amount of general revenue bonds and junior indebtedness obligations outstanding as of December 31, 2017 (see Table A-4).

In March 2018, the Authority issued General Revenue Bonds, Series L which generated proceeds of \$667.3 million. These proceeds were used to refund outstanding General Revenue Bonds, Series H. General Revenue Bonds, Series L mature in various amounts through January 1, 2037.

Of the \$3.27 billion in general revenue bonds outstanding, approximately \$25.1 million are insured by Assured Guaranty Municipal (formerly Financial Security Assurance Inc.) and are rated A1 by Moody's and AA by Standard and Poor's (S&P). The Authority's remaining general revenue bonds are rated A1 by Moody's and A by S&P. Of the \$2.58 billion in junior indebtedness obligations outstanding, approximately \$45.7 million are insured by Assured Guaranty Municipal Corp and are rated A2 by Moody's and AA by S&P. The remaining junior indebtedness obligations are rated A2 by Moody's and A- by S&P.

In December 2013, the Authority entered into a \$1.6 billion loan agreement (TIFIA Loan) with the United States Department of Transportation, acting through the Federal Highway Administration. The conditions of the TIFIA Loan preclude the use of General Revenue Bond proceeds for New NY Bridge Project costs; as a result, the Authority created the General Revenue Junior Resolution to provide for the issuance of junior indebtedness obligations to fund these costs. The TIFIA Loan was secured by a junior indebtedness obligation issued under the Junior Resolution. The proceeds of the TIFIA Loan are required to be drawn no later than one year after substantial completion of the New NY Bridge Project (defined as the date on which both spans of the bridge were open to vehicular traffic), which occurred on September 12, 2018.

Also in December 2013, and in conjunction with the TIFIA loan, the Authority issued \$1.6 billion of Junior Indebtedness Obligations, Series 2013A, to fund initial costs of the New NY Bridge Project. The Series 2013A JIO's are term bonds, payable in a single bullet maturity of May 1, 2019, with varying interest rates from 3% to 5%.

At December 31, 2017, the Authority had approximately \$6,037.0 billion in general revenue bonds and junior indebtedness obligations, a decrease of \$130.9 million, or 2.1% from December 31, 2016.

Table A-4

Outstanding Debt
Years ended December 31, 2018 and 2017
(In millions of dollars)

	Year Ended December 31, 2018			Ending Balance
	Beginning Balance	Additions	Reductions	
General Revenue Bonds	\$ 3,408.2	\$ 667.3	\$ (801.3)	\$ 3,274.2
Junior Indebtedness Obligations	2,628.8	-	(44.9)	2,583.9
Total bonds and notes	<u>\$ 6,037.0</u>	<u>\$ 667.3</u>	<u>(846.2)</u>	<u>\$ 5,858.1</u>

New York State Thruway Authority
(A Component Unit of the State of New York)

Management's Discussion and Analysis
December 31, 2018 and 2017

Capital Assets and Debt Administration - Continued

Debt Administration - Continued

	Year Ended December 31, 2017			Ending Balance
	Beginning Balance	Additions	Reductions	
General Revenue Bonds	\$ 3,494.2	\$ -	\$ (86.0)	\$ 3,408.2
Junior Indebtedness Obligations	2,673.7	-	(44.9)	2,628.8
Total bonds and notes	<u>\$ 6,167.9</u>	<u>\$ -</u>	<u>\$ (130.9)</u>	<u>\$ 6,037.0</u>

More detailed information regarding the Authority's debt and repayment of the General Revenue Junior Indebtedness Obligations - Series 2013A is presented in Notes 5 and 12, respectively.

Other Significant Matters

Governor Mario M. Cuomo Bridge

In January 2013, the Authority entered into a design-build agreement to construct what was then known as the New NY Bridge to replace the existing Tappan Zee Bridge. The New NY Bridge, now known as the Governor Mario M. Cuomo Bridge, is a twin-span structure crossing the Hudson River between Rockland and Westchester counties. The bridge has a 100-year design life and consists of eight general purpose lanes, as well as emergency access lanes. The bridge conforms to current seismic, safety, and geometric requirements; has adequate shoulders to manage traffic incidents and emergencies; and will soon be able to accommodate bicycle and pedestrian use. The westbound span of the Governor Mario M. Cuomo Bridge was placed in service in August of 2017 and the eastbound span was placed in service in September of 2018. Through December 31, 2018, costs of \$3.84 billion have been incurred on the project, \$275.7 million of which was spent in 2018.

Additional information regarding the Governor Mario M. Cuomo Bridge is available at www.newnybridge.com.

Thruway Stabilization Program

In 2015, the State of New York created the \$1.285 billion Thruway Stabilization Program to partially fund the Governor Mario M. Cuomo Bridge, as well as other Thruway capital projects. In 2016, the State committed an additional \$700 million to the program bringing the total commitment to \$1.985 billion. The Authority intends to use \$1.2 billion from this program on the Governor Mario M. Cuomo Bridge and \$785 million on other Thruway capital projects and needs. Through December 31, 2018, the program has provided \$1.62 billion to the Authority, consisting of \$1.09 billion related to the Governor Mario M. Cuomo Bridge and \$527.9 million related to other Thruway capital projects.

New York State Thruway Authority
(A Component Unit of the State of New York)

Management's Discussion and Analysis
December 31, 2018 and 2017

Other Significant Matters - Continued

Cashless Tolling

The Authority has committed to implementing cashless tolling system-wide by the end of 2020 and made significant progress toward this goal in 2018. Cashless tolling allows customers to pay their tolls without stopping at a toll booth. Customers with an E-ZPass account have their toll information collected via an E-ZPass tag installed in their vehicles. Customers without E-ZPass have an image of their license plate captured and the registered owner of the vehicle is sent an invoice for their tolls (Tolls by Mail). In 2018, the Authority implemented cashless tolling at the North and South Grand Island Bridges, and at tolling stations in Harriman, Yonkers, New Rochelle and Spring Valley. Cashless tolling at the Governor Mario M. Cuomo Bridge was previously implemented in 2016.

Postemployment Benefit Obligations

Effective December 31, 2017, the Authority implemented the provisions of GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other than Pensions*. This statement establishes new financial reporting standards for other postemployment benefits (OPEB) plans for state and local governments. The adoption of this statement was applied retroactively, requiring a restatement of the Authority's Statement of Net Position as of December 31, 2017. Additional information regarding the adoption of GASB Statement No. 75 and other postemployment benefit obligations can be found in Notes 1u and 9, respectively.

Canal Corporation

In 2016, the State of New York enacted legislation establishing the Canal Corporation as a subsidiary of the Power Authority effective January 1, 2017. On this date, the Power Authority assumed control of the Canal Corporation and Canal System. Canal Corporation assets of \$653.7 million and liabilities of \$114.2 million were transferred to the Power Authority. A special expense of \$539.5 million was included on the Authority's Statement of Revenues, Expense and Changes in Net Position representing the net position of the Canal Corporation transferred to the Power Authority.

Additional information regarding the transfer of the Canal Corporation is available in Note 13.

Contacting the New York State Thruway Authority's Financial Management

This financial report is designed to provide our bondholders, customers, and other interested parties with a general overview of the Authority's finances and to demonstrate its accountability for the money it receives. If you have questions about this report, or need additional information, contact the New York State Thruway Authority's Department of Finance and Accounts, P.O. Box 189, Albany, New York 12201-0189 or visit our website at www.thruway.ny.gov.

New York State Thruway Authority
(A Component Unit of the State of New York)

Statements of Net Position
(in thousands of dollars)

	December 31,	
	2018	2017
		(Restated)
ASSETS AND DEFERRED OUTFLOWS OF RESOURCES		
CURRENT ASSETS		
Cash and cash equivalents	\$ 377,073	\$ 312,157
Investments	6,015	21,366
Receivables, net	76,181	100,574
Material and other supplies	18,982	17,224
Prepaid items	2,057	1,679
Restricted assets	347,227	355,439
Total current assets	827,535	808,439
NON-CURRENT ASSETS		
Restricted assets	372,480	427,028
Capital assets, not being depreciated	1,169,500	2,903,797
Capital assets, net of accumulated depreciation	6,141,732	4,139,562
Total non-current assets	7,683,712	7,470,387
Total assets	8,511,247	8,278,826
DEFERRED OUTFLOWS OF RESOURCES		
Loss on bond refunding	9,165	11,760
OPEB resources	71,093	-
Pension resources	64,480	49,858
Total deferred outflows of resources	144,738	61,618
LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION		
CURRENT LIABILITIES		
Accounts payable and accrued expenses	268,245	265,006
Unearned revenue	97,984	83,357
Accrued interest payable	132,583	137,011
Bonds payable due within one year	1,705,783	142,735
Total current liabilities	2,204,595	628,109
NON-CURRENT LIABILITIES		
Bonds payable	4,152,274	5,894,250
Other long-term liabilities	1,111,855	1,015,419
Total non-current liabilities	5,264,129	6,909,669
Total liabilities	7,468,724	7,537,778
DEFERRED INFLOWS OF RESOURCES		
Gain on bond refunding	25,568	-
Pension resources	50,890	8,604
Total deferred inflows of resources	76,458	8,604
NET POSITION		
Net investment in capital assets	1,694,741	1,319,243
Restricted for		
Debt service	71,759	83,189
Capital	126,713	144,224
Unrestricted (deficit)	(782,410)	(752,594)
Total net position	\$ 1,110,803	\$ 794,062

See accompanying Notes to Financial Statements.

New York State Thruway Authority

(A Component Unit of the State of New York)

Statements of Revenues, Expenses, and Changes in Net Position (in thousands of dollars)

	Years Ended December 31,	
	2018	2017
OPERATING REVENUES		
Tolls	\$ 736,504	\$ 731,505
Concessions	14,880	14,883
Other	48,017	45,821
Total operating revenues	799,401	792,209
OPERATING EXPENSES		
Salaries	146,000	140,812
Postemployment obligations	83,251	69,318
Employee benefits	64,602	67,418
State Police - Troop T services	58,143	60,572
Professional and other services	51,062	45,452
Supplies, materials and rentals	25,105	21,615
Maintenance and repairs	17,589	18,709
Utilities	6,317	5,580
Insurance and claims	4,285	4,959
Equipment	943	1,176
Other	120	7,118
Depreciation and amortization	353,732	439,047
Total operating expenses	811,149	881,774
Operating loss	(11,748)	(89,565)
NON-OPERATING REVENUES AND EXPENSES		
Investment income	5,493	2,866
Interest expense	(178,894)	(161,413)
Debt issuance cost	(2,932)	(9)
Federal, state and other aid	8,393	3,766
Loss on disposal of assets	(469)	(267)
Net non-operating items	(168,409)	(155,057)
Loss before capital contributions and special item	(180,157)	(244,622)
CAPITAL CONTRIBUTIONS	496,898	287,713
SPECIAL ITEM, transfer of Canal Corporation to NYS Power Authority	-	(539,518)
Total capital contributions and special item	496,898	(251,805)
CHANGE IN NET POSITION	316,741	(496,427)
NET POSITION, <i>beginning of year</i>	794,062	1,798,699
NET POSITION, <i>end of year prior to restatement</i>	1,110,803	1,302,272
Effect of adoption of GASB 75	-	(508,210)
NET POSITION, <i>end of year, as restated</i>	\$ 1,110,803	\$ 794,062

See accompanying Notes to Financial Statements.

New York State Thruway Authority

(A Component Unit of the State of New York)

Statements of Cash Flows (in thousands of dollars)

	Years Ended December 31,	
	2018	2017
CASH PROVIDED (USED) BY OPERATING ACTIVITIES		
Cash received from toll collections	\$ 746,364	\$ 728,778
Cash received from concession sales	15,065	14,848
Other operating cash receipts	44,646	43,057
Personal service payments	(150,486)	(137,208)
Fringe benefits payments	(103,686)	(94,130)
E-ZPass and Tolls by Mail account management payments	(42,454)	(42,034)
Cash payments to vendors and contractors	(133,275)	(128,939)
	<u>376,174</u>	<u>384,372</u>
CASH FLOWS PROVIDED BY NON-CAPITAL FINANCING ACTIVITIES		
Federal, state and other aid	<u>47,988</u>	<u>18,554</u>
CASH FLOWS PROVIDED (USED) FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Proceeds from issuance of debt	667,293	-
Federal, state and other capital contributions	222,181	167,836
Acquisition/construction of capital assets	(342,785)	(682,085)
Principal paid on debt	(752,735)	(70,990)
Interest and issuance costs paid on debt	(275,427)	(281,507)
Proceeds from sale of capital assets	985	301
	<u>(480,488)</u>	<u>(866,445)</u>
CASH FLOWS PROVIDED (USED) BY INVESTING ACTIVITIES		
Purchase of investments	(699,294)	(761,247)
Proceeds from sales and maturities of investments	739,856	1,193,989
Interest and dividends on investments	5,779	5,798
	<u>46,341</u>	<u>438,540</u>
Net decrease in cash and cash equivalents	(9,985)	(24,979)
CASH AND CASH EQUIVALENTS, <i>beginning of year</i>	<u>686,308</u>	<u>711,287</u>
CASH AND CASH EQUIVALENTS, <i>end of year</i>	<u>\$ 676,323</u>	<u>\$ 686,308</u>

See accompanying Notes to Financial Statements.

	Years Ended December 31,	
	2018	2017
RECONCILIATION OF OPERATING LOSS TO NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES		
Operating loss	\$ (11,748)	\$ (89,565)
Adjustments to reconcile operating loss to net cash provided by operating activities		
Depreciation and amortization	353,732	439,047
Capitalized interest	1	880
Net changes in assets, liabilities, deferred outflows and deferred inflows		
Receivables	(15,202)	1,982
Material and supplies	(1,758)	124
Other assets	(378)	(834)
Accounts payables and accrued expenses	80,328	(9,513)
Deferred outflows	(85,714)	46,793
Deferred inflows	42,286	(1,920)
Unearned revenue	14,627	(2,622)
	<u>\$ 376,174</u>	<u>\$ 384,372</u>
RECONCILIATION TO STATEMENTS OF NET POSITION		
Cash and cash equivalents	\$ 377,073	\$ 312,157
Restricted cash and cash equivalents (Note 2)	<u>299,250</u>	<u>374,151</u>
	<u>\$ 676,323</u>	<u>\$ 686,308</u>
NON-CASH CAPITAL ACTIVITIES		
Payments made to vendors by the State of New York under Thruway Stabilization Program	<u>\$ 243,270</u>	<u>\$ 25,000</u>

New York State Thruway Authority

(A Component Unit of the State of New York)

Notes to Financial Statements

December 31, 2018 and 2017

Note 1 - Organization and Summary of Significant Accounting Policies

The accompanying financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP) as applied to governmental units. The Government Accounting Standards Board (GASB) is the accepted standard-setting body for establishing governmental accounting and financial reporting principles. An overview of the more significant accounting policies is described below:

a. Financial Reporting Entity

The New York State Thruway Authority (Authority) is a Public Benefit Corporation created by the New York State Legislature in 1950 to build, operate, and maintain the Thruway System. The Board of the Authority consists of seven members, appointed by the Governor, with the consent of the New York State Senate.

The Authority is responsible for a 570-mile system of highways crossing New York State, the longest toll highway system in the United States. The Authority's 426-mile Thruway mainline connects New York City and Buffalo, the State's two largest cities. Other Thruway sections provide for connections with Connecticut, Massachusetts, Pennsylvania, New Jersey, and to highways that lead to the Midwest and Canada. In accordance with legislation passed by the State Legislature, the Cross-Westchester Expressway (CWE) was added to the Thruway in 1991, and the Authority is prohibited from imposing any tolls or other charges for the use of the CWE.

The State may, from time to time, also authorize the Authority by statute to undertake additional financing activities to finance primarily non-Authority transportation projects in the State. The Authority is responsible for administering these special bond programs as discussed in Note 6.

The Authority is a legally and fiscally separate and distinct organization solely responsible for its finances, and the credit of the State of New York is not pledged to the operation of the Authority. The Authority is empowered to issue revenue bonds backed solely from Authority revenues. However, under the criteria specified in GASB Statement No. 14, as amended by GASB Statement No. 61, the Authority is considered a component unit of the State of New York because the Governor appoints all members of the Authority's Governing Board.

b. Basis of Accounting

The Authority's activities are accounted for similar to those often found in the private sector using the flow of economic resources measurement focus and the accrual basis of accounting. All assets, liabilities, deferred outflows of resources, deferred inflows of resources, net position, revenues, and expenses are accounted for through a single enterprise fund with revenue recorded when earned and expenses recorded at the time liabilities are incurred.

The principal revenue of the Authority is toll revenue received from customers. The Authority also recognizes as operating revenue toll related fees, rent received from concessionaires from operating leases on concession property, special hauling fees charged to overweight or oversize vehicles, and certain revenue collected from the lease of property. Operating expenses include all costs required to operate, maintain, and administer the Thruway. All revenue and expenses not meeting this definition are reported as non-operating items.

New York State Thruway Authority

(A Component Unit of the State of New York)

Notes to Financial Statements December 31, 2018 and 2017

Note 1 - Organization and Summary of Significant Accounting Policies - Continued

b. Basis of Accounting - Continued

The Authority's bond resolution requires that certain funds and accounts be established and maintained. The Authority consolidates these funds and accounts for the purpose of providing its basic financial statements in accordance with U.S. GAAP.

c. Cash, Cash Equivalents, and Investments

Cash includes amounts in demand deposits. Cash equivalents include all highly liquid investments with original maturities of three months or less when purchased. All cash deposits and repurchase agreements are fully collateralized or covered by federal deposit insurance.

Investments include financial instruments with original maturities of more than three months and are recorded at amortized cost, which approximates fair value. Fair value is defined as the price that would be received to sell an asset in an orderly transaction between market participants at the measurement date. These investments are not included in cash and cash equivalents in the statements of cash flows.

d. Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, deferred outflows, deferred inflows, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

e. Receivables

Receivables consist primarily of receivables from commercial transportation companies and Federal and State governments under various grant programs. All commercial accounts receivable are guaranteed by surety bonds and/or cash deposits. Receivables also include amounts attributable to the Authority's cashless tolling system. Receivables are reported net of an allowance for uncollectible amounts. The allowance for doubtful receivables amounted to \$10,284,000 and \$11,163,000 at December 31, 2018 and 2017, respectively.

f. Materials and Other Supplies

Materials and other supplies are principally valued at weighted average cost. The cost of such items is recognized as an expense when used.

g. Unearned Revenue

Unearned revenue consists of prepaid deposits made by private and commercial customers into E-ZPass accounts held by the Authority and annual permit revenues collected in advance. E-ZPass customer accounts with negative balances (amounts due to the Authority) are reported as an offset to unearned revenue. At December 31, 2018 and 2017, E-ZPass accounts with negative balances, net of allowances for doubtful accounts, amount to \$1,460,000 and \$977,000, respectively.

New York State Thruway Authority

(A Component Unit of the State of New York)

Notes to Financial Statements December 31, 2018 and 2017

Note 1 - Organization and Summary of Significant Accounting Policies - Continued

h. Restricted Assets

Certain proceeds of the Thruway revenue bonds and notes are restricted by applicable bond covenants for construction or set aside as reserves to ensure repayment of the Authority's bonds. Certain other assets are accumulated and restricted in accordance with the bond resolutions for the purpose of paying interest and principal debt payments that are due on a semi-annual and annual basis, respectively, and for the purpose of maintaining reserve funds at required levels.

i. Toll Revenues

Toll revenues are stated net of volume and other discounts approximating \$28.0 million and \$27.4 million in 2018 and 2017, respectively.

j. Pensions

The Authority is a participating employer in the New York State and Local Retirement System (ERS). Employees in permanent positions are required to enroll in ERS, and employees in part-time or seasonal positions have the option of enrolling in ERS. ERS is a cost sharing, multiple employer, public employee defined benefit retirement system. The impact on the Authority's financial position and results of operations due to its participation in ERS is more fully disclosed in Note 7.

k. Other Postemployment Benefits

The Authority recognizes in its financial statements the financial impact of other postemployment benefits, principally employer funded health care costs. The impact on the Authority's financial position and results of operations is more fully disclosed in Note 9.

l. Compensated Absences

Permanent employees of the Authority accrue vacation leave as part of their benefit package. Unused vacation days up to a maximum of 30 days are considered vested and paid upon retirement or termination. The liability for vested vacation leave approximates \$8,970,000 and \$9,201,000 at December 31, 2018 and 2017, respectively, and is recorded as a long-term liability.

Permanent employees of the Authority also accrue sick leave as part of their benefit package. Upon retirement, unused sick days up to a maximum of 200 days are converted to a monthly credit that is used to offset the employee's share of postemployment benefit costs. The Authority's liability for postemployment benefits is discussed further in Note 9.

m. Bond and Note Premiums

Bond and note premiums are presented as components of bonds payable. The premiums are amortized over the life of the bonds and notes on a method that approximates the effective interest method. Net amortization related to bond and note premiums were approximately \$62,003,000 and \$59,920,000 for 2018 and 2017, respectively, and are included as an offset to interest expense.

n. Deferred Outflows and Deferred Inflows of Resources

Deferred outflows of resources represent a consumption of net position that applies to a future period and so will not be recognized as an outflow of resources (expense/expenditure) until that time. Likewise, deferred inflows of resources represent an acquisition of net position that applies to a future period and so will not be recognized as an inflow of resources (revenue) until that time.

New York State Thruway Authority

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Notes to Financial Statements December 31, 2018 and 2017

Note 1 - Organization and Summary of Significant Accounting Policies - Continued

o. Net Position

Net position is classified as follows:

- *Net investment in capital assets* consists of capital assets, net of accumulated depreciation reduced by the net outstanding debt balances attributable to the acquisition of capital assets.
- *Restricted net position* has externally placed constraints on use.
- *Unrestricted net position* consists of assets, liabilities, deferred outflows and deferred inflows that do not meet the definition of "net investment in capital assets" or "restricted net position."

p. Capital Contributions

Capital contributions consist primarily of funds provided by the State of New York (Note 10).

q. Arbitrage

The Tax Reform Act of 1986 imposed additional restrictive regulations, reporting requirements, and an arbitrage rebate liability on issuers of tax-exempt debt. This Act requires the remittance to the IRS of 90% of the cumulative rebatable arbitrage within 60 days of the end of each five-year reporting period following the issuance of governmental bonds. The Authority's policy is to annually record a liability representing the estimated amount owed. The Authority actively manages its invested bond proceeds to minimize any arbitrage liability. The Authority had no cumulative arbitrage rebate liability for the years ended December 31, 2018 and 2017.

r. Income Taxes

The Authority is a public benefit corporation of the State of New York. As such, income earned in the exercise of its essential government functions is exempt from state and federal income taxes.

s. Non-Exchange Transactions

The Authority's non-exchange transactions include fees charged to customers as violation fees, late fees and administrative fees. The distinguishing characteristic of these non-exchange fees charged by the Authority is they are assessed against customers who have failed to pay their toll and/or follow the terms of their E-ZPass account agreement. The Authority's policy for recognizing revenue associated with non-exchange fees is to record the revenue at the time the fee is collected.

Operating revenues include fees of \$29.9 million and \$31.9 million for the years ended December 31, 2018 and December 31, 2017, respectively.

Other non-exchange transactions of the Authority are disclosed in Note 10.

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Notes to Financial Statements December 31, 2018 and 2017

Note 1 - Organization and Summary of Significant Accounting Policies - Continued

t. Subsequent Events

The Authority has evaluated subsequent events for potential recognition or disclosure through April 4, 2019, the date the financial statements were available to be issued (Note 12).

u. Adoption of Accounting Standard

During 2018, the Authority implemented the provisions of GASB Statement No. 75 (GASB 75), *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. GASB 75 establishes financial reporting standards for other postemployment benefits (OPEB) plans for state and local governments. GASB 75 replaces the requirements of GASB Statement 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*, as amended. GASB 75 establishes standards for recognizing and measuring liabilities, deferred inflows and outflows of resources, and expense/expenditures, as well as identifying the methods and assumptions required to project benefit payments, discount projected benefit payments to their actuarial present value, and attribute that present value to periods of employee service. Additionally, GASB 75 lays out requirements for additional note disclosures and required supplementary information.

The adoption of GASB 75 was applied retroactively. As a result of the adoption of GASB 75, the Authority measured and recognized OPEB amounts in accordance with GASB 75, included additional disclosures in Note 9, presented a schedule of other postemployment benefits liability and OPEB as a percentage of covered payroll as required supplementary information, and restated the postemployment benefit obligation and net position by \$508,210,000 each to \$959,969,000 and \$794,062,000 at December 31, 2017, respectively.

Note 2 - Cash and Investments

The Authority's cash and investments as of December 31, 2018 and 2017, were as follows (in thousands):

	Carrying Value	
	2018	2017
Unrestricted		
Cash		
Demand deposits	\$ 92,632	\$ 96,279
Toll change funds	190	150
Total unrestricted cash	92,822	96,429
Cash equivalents		
U.S. government discount notes	9,573	29,963
U.S. treasury securities	211,577	87,781
Time Deposits	219	
Commercial paper	62,882	97,984
Total unrestricted cash equivalents	284,251	215,728
Total unrestricted cash and cash equivalents	\$ 377,073	\$ 312,157

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Notes to Financial Statements December 31, 2018 and 2017

Note 2 - Cash and Investments - Continued

	Carrying Value	
	2018	2017
Restricted		
Cash		
Demand deposits	\$ 70,152	\$ 60,707
Other deposits	2,501	2,630
Total restricted cash	72,653	63,337
Cash equivalents		
U.S. government discount notes	80,138	-
U.S. treasury securities	96,479	130,015
Commercial paper	49,980	180,799
Total restricted cash equivalents	226,597	310,814
Total restricted cash and cash equivalents	\$ 299,250	\$ 374,151
	Carrying Value	
	2018	2017
Investments		
Unrestricted		
Commercial paper	\$ -	\$ 4,962
U.S. treasury securities	5,063	15,414
Time deposits	952	990
Total unrestricted investments	\$ 6,015	\$ 21,366
Restricted		
U.S. government discount notes	\$ 26,047	\$ -
Commercial paper	100,751	111,298
U.S. treasury securities	171,639	212,201
Total restricted investments	\$ 298,437	\$ 323,499

At December 31, 2018 and 2017, the fair value of the Authority's cash and investments approximated the carrying value (amortized cost).

The Authority requires collateral, in the form of federal government obligations or agency instruments guaranteed by the federal government, for all investments in repurchase agreements. The Authority also requires delivery to its trustee/custodian of all securities purchased and collateral for repurchase agreements, regardless of the seller institution. All Authority investment securities are classified as securities acquired by a financial institution for the Authority and held by the Authority's trustee/custodian in the Authority's name. Bank balances, which are comprised of demand and other deposits, are fully insured or collateralized as of December 31, 2018 and 2017. Amounts are collateralized with securities transferred to and held by the Authority's trustee/custodian in the Authority's name.

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Notes to Financial Statements December 31, 2018 and 2017

Note 2 - Cash and Investments - Continued

The Authority manages its investments pursuant to the respective bond resolutions, Public Authorities Law, and the Authority's Investment Policy approved annually by the Authority's Board. Permitted investments are defined as obligations in which the State Comptroller may invest pursuant to Section 98(a) of the State Finance Law, including obligations of the United States and its Federal agencies, collateralized time deposits, commercial paper, bankers' acceptances, and repurchase agreements.

The Authority's investment policy has established criteria that mitigate certain credit risks and interest rate risks. The policy has established investment concentration limits for each of the Authority's investment portfolios. The policy also requires that deposits and investments be held by a third-party custodian who may not otherwise be counter-party to the transactions, and that securities are held in the name of the Authority.

Custodial credit risk for deposits is the risk that, in the event of a bank failure, the Authority's deposits may not be returned. The Authority's policy to address this risk requires the custodian or depository bank to provide collateral in an amount equal to or greater than the amount on deposit, with a third-party custodian in the Authority's name.

Interest rate risk is also addressed in the Authority's policy which requires the purchase of securities with the intention of holding them to maturity and does not limit the term of any investment. It is the Authority's practice to invest funds to the date of the anticipated need of the funds. The Authority does not own any investments at December 31, 2018 that mature in 2020 or beyond.

As of December 31, 2018, the Authority had the following concentrations of investments:

<u>Investments</u>	<u>Credit Exposure Security</u>	<u>% of Total</u>
<u>Agency Obligations</u>		
Federal Home Loan Banks	A-1+/P-1/na	14.2%
<u>Commercial Paper</u>		
Koch Resources LLC	A-1+/P-1/na	7.0%
Toronto Dominion HDG USA, INC	A-1+/P-1/na	10.1%
Toyota Motor Credit Corporation	A-1+/P-1/F1	9.1%
<u>U.S. Government Securities</u>		
Treasury Bills	A-1+/P-1/F1+	59.6%

Note 3 - Capital Assets

The Authority's capital assets principally include the Thruway System and equipment. The Thruway System includes infrastructure assets consisting of bridges, highways, buildings, toll equipment, and intelligent transportation systems. Equipment includes vehicles, machinery, software systems, and E-ZPass tags.

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Notes to Financial Statements December 31, 2018 and 2017

Note 3 - Capital Assets - Continued

All capital assets are stated at cost. Capital assets are defined as assets with initial, individual costs exceeding capitalization thresholds of \$5,000 to \$50,000. Depreciation is computed on the straight-line method over the following estimated useful lives:

<u>Category</u>	<u>Useful Life</u>	<u>Capitalization Threshold</u>
Bridges	45-100 years	\$ 50,000
Bridge improvements	15 years	50,000
Highways	30 years	50,000
Highway improvements	8-10 years	50,000
Buildings	30 years	50,000
Fiber optic system	17 years	50,000
Equipment	2-12 years	5,000 - 50,000

The following schedules summarize the capital assets of the Authority and related changes for the years ended December 31, 2018 and 2017 (in thousands):

	<u>December 31, 2017</u>	<u>Additions</u>	<u>Reductions</u>	<u>December 31, 2018</u>
Capital assets, not being depreciated				
Land and land improvements	\$ 801,832	\$ 5,520	\$ (1,187)	\$ 806,165
Construction in progress	2,101,965	588,097	(2,326,727)	363,335
Total capital assets, not being depreciated	<u>2,903,797</u>	<u>593,617</u>	<u>(2,327,914)</u>	<u>1,169,500</u>
Capital assets, being depreciated				
Thruway System	9,603,712	2,327,041	(1,030,793)	10,899,960
Equipment	233,538	30,259	(22,586)	241,211
Total capital assets, being depreciated	<u>9,837,250</u>	<u>2,357,300</u>	<u>(1,053,379)</u>	<u>11,141,171</u>
Less accumulated depreciation for				
Thruway System	(5,563,209)	(333,371)	1,030,793	(4,865,787)
Equipment	(134,479)	(20,305)	21,132	(133,652)
Total accumulated depreciation	<u>(5,697,688)</u>	<u>(353,676)</u>	<u>1,051,925</u>	<u>(4,999,439)</u>
Net value of capital assets, being depreciated	<u>4,139,562</u>	<u>2,003,624</u>	<u>(1,454)</u>	<u>6,141,732</u>
Capital assets, net	<u>\$ 7,043,359</u>	<u>\$ 2,597,241</u>	<u>\$ (2,329,368)</u>	<u>\$ 7,311,232</u>

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Notes to Financial Statements December 31, 2018 and 2017

Note 3 - Capital Assets - Continued

	December 31, 2016	Additions	Reductions	December 31, 2017
Capital assets, not being depreciated				
Land and land improvements	\$ 829,970	\$ 1,110	\$ (29,248)	\$ 801,832
Construction in progress	<u>3,267,671</u>	<u>751,168</u>	<u>(1,916,874)</u>	<u>2,101,965</u>
Total capital assets, not being depreciated	<u>4,087,641</u>	<u>752,278</u>	<u>(1,946,122)</u>	<u>2,903,797</u>
Capital assets, being depreciated				
Thruway System	8,112,437	1,857,872	(366,597)	9,603,712
Canal System (Note 13)	655,418	-	(655,418)	-
Equipment	<u>259,125</u>	<u>36,553</u>	<u>(62,140)</u>	<u>233,538</u>
Total capital assets, being depreciated	<u>9,026,980</u>	<u>1,894,425</u>	<u>(1,084,155)</u>	<u>9,837,250</u>
Less accumulated depreciation for				
Thruway System	(5,510,689)	(419,184)	366,664	(5,563,209)
Canal System (Note 13)	(113,831)	-	113,831	-
Equipment	<u>(161,102)</u>	<u>(19,807)</u>	<u>46,430</u>	<u>(134,479)</u>
Total accumulated depreciation	<u>(5,785,622)</u>	<u>(438,991)</u>	<u>526,925</u>	<u>(5,697,688)</u>
Net value of capital assets, being depreciated	<u>3,241,358</u>	<u>1,455,434</u>	<u>(557,230)</u>	<u>4,139,562</u>
Capital assets, net	<u>\$ 7,338,999</u>	<u>\$ 2,207,712</u>	<u>\$ (2,503,352)</u>	<u>\$ 7,043,359</u>

Depreciation expense related to capital assets was \$353,676,000 and \$438,991,000 for the years ended December 31, 2018 and 2017, respectively. The Authority periodically reviews and, when deemed necessary, adjusts the estimated useful lives of its capital assets. Effective January 1, 2018, the Authority changed its estimated useful life for pavement resurfacing projects on the mainline of the Thruway System from 10 years to 8 years.

The Authority incurred \$202.8 million in total interest expense in 2018, of which \$23.6 million was capitalized, and an additional \$0.3 million was offset against interest earned on the proceeds from various debt issuances. The Authority incurred \$215.3 million in total interest expense in 2017, of which \$51.4 million was capitalized and an additional \$2.5 million was offset against interest earned on the proceeds from various debt issuances.

The Authority monitors events and circumstances that cause significant and unexpected declines to the useful life of capital assets. When required, a loss is recognized to reduce the carrying value of an impaired capital asset. Impairment loss is reflected as a component of depreciation expense.

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Notes to Financial Statements December 31, 2018 and 2017

Note 4 - Restricted Assets

Restricted assets are established pursuant to bond resolutions and other agreements and are classified as current or non-current based upon the underlying restrictions. Restricted assets are comprised of the following as of December 31 (in thousands):

	<u>2018</u>	<u>2017</u>
Restricted current		
Cash and cash equivalents	\$ 165,767	\$ 226,314
Investments	91,892	46,623
Receivables	89,568	82,502
Total	<u>347,227</u>	<u>355,439</u>
Restricted non-current		
Cash and cash equivalents	133,483	147,837
Investments	206,545	276,876
Interest receivable	-	80
Receivables	24,241	-
Other	8,211	2,235
Total	<u>372,480</u>	<u>427,028</u>
Total restricted assets	<u>\$ 719,707</u>	<u>\$ 782,467</u>

The related balances at December 31, 2018 and 2017 are as follows:

Senior Debt Service Fund: Established to receive funds from Authority revenues to make periodic payments of interest and principal. Amounts held in this restricted fund at December 31, 2018 and 2017 were \$144,110,000 and 159,838,000, respectively.

Senior Debt Service Reserve Fund: Established to retain funds equal to the maximum amount of aggregate debt service for any twelve-month period on all outstanding General Revenue Bonds secured by the Senior Debt Service Reserve Fund. Amounts held in this restricted fund at December 31, 2018 and 2017 were \$180,973,000 and \$181,093,000, respectively.

Construction Fund: Established to hold moneys paid into it from the sale of bonds and notes to pay for costs of the "Facilities" and "Other Authority Projects" as defined in the bond resolutions. Amounts remaining upon completion or abandonment of such projects is required to be transferred to other funds in accordance with the terms outlined in the bond resolutions. The fund also holds in escrow monies received from the State of New York to fund the Authority's Multi-Year Capital Program. The amounts held in this restricted fund at December 31, 2018 and 2017 were \$37,251,000 and \$28,887,000, respectively.

Reserve Maintenance Fund: Established to hold funds required to be deposited each year into the Reserve Maintenance Fund. Funds held in the Reserve Maintenance Fund can be disbursed for specific costs relating to the "Facilities," as defined in the bond resolution and certain highway and railroad grade crossings. Amounts held in this restricted fund at December 31, 2018 and 2017 were \$113,553,000 and \$109,905,000, respectively.

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Notes to Financial Statements
December 31, 2018 and 2017

Note 4 - Restricted Assets - Continued

Junior Indebtedness Fund: Established to hold moneys received from the sale of Junior Indebtedness Obligations. Amounts in the Junior Indebtedness Fund are used to: 1) fund the Facilities Capital Improvement Fund for a portion of the cost of the Authority's New NY Bridge Project as defined in the Junior Indebtedness Bond Resolution; 2) fund certain debt service payments on the Series 2013A and Series 2016A Junior Indebtedness Obligations; and 3) satisfy the Junior Indebtedness Debt Service Reserve requirements on the Series 2016A Junior Indebtedness Obligations. The amounts held in this restricted fund at December 31, 2018 and 2017 were \$137,560,000 and \$180,379,000, respectively.

Facilities Capital Improvement Fund: Established to hold funds determined to be necessary or appropriate by the Authority Board to fund project costs of facilities or to set up reserves to fund such costs. The Authority has elected to use this fund to hold certain revenues, debt proceeds, and other monies dedicated to the Governor Mario M. Cuomo Bridge. The amounts held in this restricted fund at December 31, 2018 and 2017, were \$103,758,000 and \$119,735,000, respectively.

Commercial Charge Surety Account: Established to receive cash surety deposits from Commercial Charge Account customers which are to be used only if the customer does not meet their obligations under the Commercial Charge Account Credit Agreement. The amounts held in the account at December 31, 2018 and 2017 were \$2,502,000 and \$2,630,000, respectively.

Note 5 - Long-Term Liabilities

The Authority's bond indebtedness and other long-term liabilities as of December 31, 2018 and 2017, are comprised of the following obligations (in thousands):

	Date of Issuance	December 31, 2017 Balance	Additions	Reductions	December 31, 2018 Balance	Due Within One Year
General revenue bonds						
2007 Series H	10/07	\$ 717,025	\$ -	\$ (717,025)	\$ -	\$ -
2012 Series I	7/12	1,041,835	-	(22,335)	1,019,500	23,310
2014 Series J	2/14	650,625	-	(13,375)	637,250	14,030
2014 Series K	12/14	743,885	-	-	743,885	4,825
2018 Series L	3/18	-	596,220	-	596,220	29,595
Unamortized bond premiums		254,829	71,073	(48,552)	277,350	17,070
General revenue bonds and unamortized premiums		3,408,179	667,293	(801,287)	3,274,185	88,830
Junior indebtedness obligations						
Series 2013 A	12/13	1,600,000	-	-	1,600,000	1,600,000
Series 2016 A	5/16	850,000	-	-	850,000	-
Unamortized bond premiums		178,606	-	(44,934)	133,672	16,953
Junior indebtedness obligations and unamortized premiums		2,628,606	-	(44,934)	2,583,672	1,616,953
Total bonds and unamortized premiums		\$ 6,036,985	\$ 667,293	\$ (846,221)	\$ 5,858,057	\$ 1,705,783
Other long-term liabilities						
Postemployment benefit obligation		\$ 959,969	\$ 154,344	\$ (30,553)	\$ 1,083,760	\$ -
Net pension liability		46,249	-	(30,630)	15,619	-
Compensated absences		9,201	-	(231)	8,970	-
Service based retention- incentive		-	3,506	-	3,506	-
Total other long-term liabilities		\$ 1,015,419	\$ 157,850	\$ (61,414)	\$ 1,111,855	\$ -

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Notes to Financial Statements
December 31, 2018 and 2017

Note 5 - Long-Term Liabilities - Continued

	Date of Issuance	December 31, 2016 Balance	Additions	Reductions	December 31, 2017 Balance	Due Within One Year
General revenue bonds						
2007 Series H	10/07	\$ 757,845	\$ -	\$ (40,820)	\$ 717,025	\$ 47,105
2012 Series I	7/12	1,059,220	-	(17,385)	1,041,835	22,335
2014 Series J	2/14	663,410	-	(12,785)	650,625	13,375
2014 Series K	12/14	743,865	-	-	743,865	-
Unamortized bond premiums		269,815	-	(14,986)	254,829	14,987
		<u>3,494,155</u>	<u>-</u>	<u>(85,976)</u>	<u>3,408,179</u>	<u>97,802</u>
General revenue bonds and unamortized premiums						
Junior indebtedness obligations						
Series 2013 A	12/13	1,600,000	-	-	1,600,000	-
Series 2016 A	5/16	850,000	-	-	850,000	-
Unamortized bond premiums		223,739	-	(44,933)	178,806	44,933
		<u>2,673,739</u>	<u>-</u>	<u>(44,933)</u>	<u>2,628,806</u>	<u>44,933</u>
		Junior indebtedness obligations and unamortized premiums				
		<u>\$ 6,187,894</u>	<u>\$ -</u>	<u>\$ (130,909)</u>	<u>\$ 6,036,985</u>	<u>\$ 142,735</u>
		Total bonds and unamortized premiums				
Other long-term liabilities						
		December 31, 2016 Balance	Additions	Reductions	GASB 75 Restatement	December 31, 2017 (Restated)
Postemployment benefit obligation		\$ 504,480	\$ 69,316	\$ (122,037)	\$ 508,210	\$ 959,969
Net pension liability		99,135	-	(52,886)	-	46,249
Compensated absences		10,236	-	(1,035)	-	9,201
		<u>\$ 613,851</u>	<u>\$ 69,316</u>	<u>\$ (175,958)</u>	<u>\$ 508,210</u>	<u>\$ 1,015,419</u>
		Total other long-term liabilities				

The debt service requirements for the Authority's senior bonds as of December 31, 2018 are as follows (in thousands):

Due	Principal	Interest	Total
2019	\$ 71,760	\$ 143,208	\$ 214,968
2020	100,945	139,326	240,271
2021	105,725	134,352	240,077
2022	104,005	129,225	233,230
2023	131,705	123,468	255,173
2024 - 2028	773,120	509,511	1,282,631
2029 - 2033	864,280	296,809	1,161,089
2034 - 2038	468,465	143,886	612,351
2039 - 2043	354,775	42,547	397,322
2044	22,055	510	22,565
Unamortized premiums	277,350	-	277,350
	<u>\$ 3,274,185</u>	<u>\$ 1,662,842</u>	<u>\$ 4,937,027</u>

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Notes to Financial Statements December 31, 2018 and 2017

Note 5 - Long-Term Liabilities - Continued

The debt service requirements for the Authority's junior indebtedness obligations as of December 31, 2018 are as follows (in thousands):

Due	Principal	Interest	Total
2019	\$ 1,600,000	\$ 107,214	\$ 1,707,214
2020	-	40,950	40,950
2021	250	40,946	41,196
2022	250	40,937	41,187
2023	250	40,927	41,177
2024 - 2028	20,250	203,066	223,316
2029 - 2033	69,330	191,828	261,158
2034 - 2038	100,335	170,582	270,917
2039 - 2043	125,900	144,170	270,070
2044 - 2048	160,585	108,719	269,304
2049 - 2053	202,845	65,587	268,432
2054 - 2056	170,005	12,542	182,547
Unamortized premiums	133,872	-	133,872
	<u>\$ 2,583,872</u>	<u>\$ 1,167,468</u>	<u>\$ 3,751,340</u>

General Revenue Bonds - Series H: During October 2007, the Authority issued \$1,008,910,000 in General Revenue Bonds - Series H which provided funds to: (1) refund \$450,045,000 in then outstanding Series E Bonds (for a net present value savings of \$18,429,000); (2) fund a portion of the Authority's Multi-Year Capital Plan; (3) make a deposit to the Reserve Maintenance Fund; (4) make a deposit to the Senior Debt Service Reserve Fund; and (5) pay bond issuance costs.

The Series H Bonds were comprised of both Serial Bonds and Term Bonds, with varying rates and maturities.

Principal payments under the Series H Serial Bonds began in January 2009. The Series H Term Bonds required sinking fund installments, beginning in the year 2031 through the year 2037, of amounts ranging from \$25,740,000 to \$34,495,000 annually. The Series H Bonds maturing on or after January 1, 2019, were callable at the option of the Authority, in whole or in part, beginning January 1, 2018, at par plus accrued interest.

The Series H Bonds were fully defeased in March 2018 using the proceeds of General Revenue Bonds - Series L. There are no outstanding Series H Bonds as of December 31, 2018.

General Revenue Bonds - Series I: During July 2012, the Authority issued \$1,122,560,000 in General Revenue Bonds - Series I which provided funds to: (1) retire \$868,045,000 in General Revenue Bond Anticipation Notes - Series 2011A; (2) fund a portion of the Authority's Multi-Year Capital Plan; (3) make a deposit to the Senior Debt Service Reserve Fund; and (4) pay bond issuance costs.

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Notes to Financial Statements December 31, 2018 and 2017

Note 5 - Long-Term Liabilities - Continued

The Series I Bonds are comprised of both Serial Bonds and Term Bonds with varying rates and maturities. The amounts outstanding at December 31, 2018, are as follows:

Type	Rates	Maturity	Amount (in thousands)
Serial Bonds	4.0% to 5.0%	2019 - 2032	\$ 453,205
Term Bonds	4.13%	2037	64,570
Term Bonds	5.00%	2037	185,620
Term Bonds	4.13%	2042	70,000
Term Bonds	5.00%	2042	246,105
			<u>\$ 1,019,500</u>

Principal payments under the Series I Serial Bonds began in 2014. The Series I Term Bonds require sinking fund installments in 2033 through 2042, in amounts ranging from \$11,865,000 to \$53,920,000 annually. The Series I Bonds maturing on or after January 1, 2023, are callable at the option of the Authority, in whole or in part, beginning January 1, 2022, at par plus accrued interest.

General Revenue Bonds - Series J: During February 2014, the Authority issued \$677,460,000 in General Revenue Bonds - Series J which provided funds to: (1) fund a portion of the Authority's Multi-Year Capital Plan; (2) provide funds to refund a portion of the Authority's General Revenue Bonds, Series F and General Revenue Bonds, Series G (for a net present value savings of \$19,184,000) (3) make a deposit to the Senior Debt Service Reserve Fund; and (4) pay bond issuance costs.

The Series J Bonds are comprised of both Serial Bonds and Term Bonds with varying rates and maturities. The amounts outstanding at December 31, 2018, are as follows:

Type	Rates	Maturity	Amount (in thousands)
Serial Bonds	3.0% to 5.0%	2019 - 2036	\$ 486,730
Term Bonds	5.00%	2041	87,235
Term Bonds	4.63%	2044	63,285
			<u>\$ 637,250</u>

Principal payments under the Series J Serial Bonds began in 2015. The Series J Term Bonds require sinking fund installments in 2037 through 2044, in amounts ranging from \$15,790,000 to \$22,055,000 annually. The Series J Bonds maturing on or after January 1, 2025, are callable at the option of the Authority, in whole or in part, beginning January 1, 2024, at par plus accrued interest.

General Revenue Bonds - Series K: During December 2014, the Authority issued \$743,865,000 in General Revenue Bonds - Series K which provided funds to: (1) refund a portion of the Authority's General Revenue Bonds, Series F, Series G and Series I (for a net present value savings of \$101,044,000) and (2) and pay bond issuance costs.

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Note 5 - Long-Term Liabilities - Continued

The Series K Bonds are comprised of Serial Bonds with varying rates and maturities. The amounts outstanding at December 31, 2018, are as follows:

<u>Type</u>	<u>Rates</u>	<u>Maturity</u>	<u>Amount (in thousands)</u>
Serial Bonds	3.0% to 5.0%	2019 - 2032	<u>\$ 743,865</u>

Principal payments under the Series K Serial Bonds begin in 2019. The Series K Bonds maturing on or after January 1, 2026, are callable at the option of the Authority, in whole or in part, beginning January 1, 2025, at par plus accrued interest.

General Revenue Bonds - Series L: In March 2018, the Authority issued \$596,220,000 of Series L General Revenue Refunding Bonds to: (1) refund the Authority's outstanding General Revenue Bonds, Series H (for a net present value savings of \$83,145,000) and (2) pay bond issuance costs. Series L Bonds maturing on or after January 1, 2028, are callable at the option of the Authority, in whole or in part, beginning January 1, 2029, at par plus accrued interest.

The Series L Bonds are comprised of Serial Bonds with varying rates and maturities. The amounts outstanding at December 31, 2018 are as follows:

<u>Type</u>	<u>Rates</u>	<u>Maturity</u>	<u>Amount (in thousands)</u>
Serial Bonds	3.0% to 5.0%	2019 - 2037	<u>\$ 596,220</u>

General Revenue Senior Bonds - Revenue Pledge and Security: The General Revenue Bonds (Series I through L) are all direct obligations of the Authority, secured by a pledge of tolls and other revenue as established under the Bond Resolution. In accordance with the Bond Resolution, a Senior Debt Service Reserve Fund was established to be funded with cash and/or surety in an amount equal to the maximum aggregate debt service for any 12-month period. At both December 31, 2018 and 2017, the Senior Debt Service Reserve Fund, which may be used should amounts in the Senior Debt Service Fund be insufficient to pay debt service payments, was fully funded.

General Revenue Junior Indebtedness Obligations (JIO) - Series 2013A: During December 2013, the Authority issued \$1,600,000,000 of Series 2013A Junior Indebtedness Obligations to: 1) fund a portion of the cost of the Authority's New NY Bridge Project, a twin-span replacement of the Tappan Zee Bridge, (2) provide funds to refinance the principal and interest on the Authority's General Revenue Bond Anticipation Notes, Series 2013B, (3) pay capitalized interest on the Series 2013A Junior Indebtedness Obligations through December 31, 2018, and (4) pay the costs of issuance.

Series 2013A JIO's are term bonds, payable in a single bullet maturity of May 1, 2019, with varying interest rates from 3% to 5% and are not subject to redemption prior to maturity. Additional information regarding the Series 2013A JIO's is presented in Note 12.

General Revenue Junior Indebtedness Obligations (JIO) - Series 2016A: During May 2016, the Authority issued \$850,000,000 of Series 2016A Junior Indebtedness Obligations to: 1) fund a portion of the cost of the Authority's New NY Bridge Project, (2) pay capitalized interest on the Series 2016A Junior Indebtedness Obligations (3) make a deposit to the Series 2016A Subaccount of the Junior Indebtedness Debt Service Reserve Account, and (4) pay the costs of issuance.

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Notes to Financial Statements December 31, 2018 and 2017

Note 5 - Long-Term Liabilities - Continued

Series 2016A JIO's are comprised of both Serial and Term Bonds with varying rates and maturities. The amounts outstanding at December 31, 2018 are as follows:

Type	Rates	Maturity	Amount (in thousands)
Serial Bonds	3.0% to 5.0%	2021 - 2038	\$ 190,665
Term Bonds	5.0%	2041	71,830
Term Bonds	5.0%	2046	145,745
Term Bonds	4.0% to 5.0%	2051	184,960
Term Bonds	4.0% to 5.25%	2056	256,800
			<u>\$ 850,000</u>

The Authority's General Revenue Junior Indebtedness Obligations are subordinate to the Authority's General Revenue Bonds.

Note 6 - Special Bond Programs

The Authority's special bond programs, and the related projects and activities, are entirely separate from the Authority's financing, operation, and maintenance of the Thruway System. As such, these special bond programs are not reflected in the accompanying financial statements. The special bond programs require varying debt service payments which are funded under contractual agreements with the State of New York. The obligation of the State to make such payments is subject to, and dependent upon, annual appropriations by the State Legislature. These bond programs, however, result in no cost to the Authority and provide for no lien on Authority revenues or assets. The Authority is an authorized issuer of the following special bond programs: Local Highway and Bridge Service Contract Bonds, Highway and Bridge Trust Fund Bonds, State Personal Income Tax Revenue Bonds (Transportation) and State Sales Tax Revenue Bonds. The Authority has yet to issue State Sales Tax Revenue Bonds.

The following describes the Authority's outstanding debt under the special bond programs:

Local Highway and Bridge Service Contract Special Bond Program - The Legislature of the State of New York empowered the Authority to issue Local Highway and Bridge Service Contract Bonds, also known as the Consolidated Local Street and Highway Improvement Program (often referred to as the CHIPS Program) to provide funds to reimburse municipalities and other project sponsors throughout the State for qualifying local highway, bridge, and multi-modal capital project expenditures under established State programs. The Authority did not issue Local Highway and Bridge Service Contract Bonds in 2018. The Authority receives funds from New York State for debt service on these bonds and related administrative costs. Bonds outstanding under this program were \$121,400,000 and \$218,930,000 at December 31, 2018 and 2017, respectively.

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Notes to Financial Statements December 31, 2018 and 2017

Note 6 - Special Bond Programs - Continued

Highway and Bridge Trust Fund Bond Program - The Legislature of the State of New York empowered the Authority to issue Highway and Bridge Trust Fund Bonds to reimburse the State for expenditures made by the State's Department of Transportation in connection with the State's Multi-Year Highway and Bridge Capital Program. The Authority did not issue Highway and Bridge Trust Fund Bonds in 2018. The Authority receives funds from New York State for debt service on these bonds and related administrative costs. Bonds outstanding under this program were \$1,389,245,000 and \$1,622,115,000 at December 31, 2018 and 2017, respectively.

State Personal Income Tax Revenue Bonds (Transportation) - The Legislature of the State of New York empowered the Authority to issue Personal Income Tax (PIT) Revenue Bonds to provide funds to municipalities and other project sponsors throughout the State for qualifying local highway, bridge, and multi-modal capital project expenditures under established State programs. The Authority did not issue PIT Revenue Bonds in 2018. The Authority receives funds from New York State for debt service on these bonds and related administrative costs. Bonds outstanding under this program were \$1,262,500,000 and \$1,382,900,000 at December 31, 2018 and 2017, respectively.

Note 7 - Retirement Benefits

a. Plan Description and Benefits Provided

The Authority participates in the New York State and Local Employees' Retirement System (ERS), which is a cost-sharing multiple employer, public employee retirement system. ERS provides retirement benefits as well as death and disability benefits. New York State Retirement and Social Security Law govern obligations of employers and employees to contribute and provide benefits to employees. ERS issues a publicly available financial report that includes financial statements and required supplementary information. This report may be obtained from ERS at www.osc.state.ny.us/retire.

ERS provides retirement, disability, and death benefits for eligible members, including an automatic cost of living adjustment. In general, retirement benefits are determined based on an employee's individual circumstances using a pension factor, age factor, and final average salary. The benefits vary depending on the individual's employment tier. Pension factors are determined based on tier and an employee's years of service, among other factors.

b. Contributions

Employees in ERS Tier I through IV are noncontributory except for employees with less than 10 years of service who contribute 3% of their salary, Tier V employees who contribute 3% of their salary, and Tier VI employees who contribute between 3% and 6% of their salary. The Comptroller annually certifies the rates, expressed as proportions of payroll of members, which are used in computing the contributions required to be made by employers. The Authority's contributions for the preceding ten years can be found in the schedule of pension contributions on page 48.

c. Pension Liabilities, Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

The Authority reported liabilities of \$15,619,000 and \$46,249,000 at December 31, 2018 and 2017, respectively. The net pension liability was measured as of March 31, 2018 and 2017, respectively, and the total pension liability was determined by actuarial valuations as of April 1, 2017 and 2016, respectively. The proportion of the net pension liability was based on the ratio of its actuarially determined employer contribution to ERS's total actuarially determined employer contribution for the fiscal year ended on the measurement dates. The Thruway Authority's proportionate share was .48% and .49% as of March 31, 2018 and 2017, respectively.

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Notes to Financial Statements
December 31, 2018 and 2017

Note 7 - Retirement Benefits - Continued

c. Pension Liabilities, Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions - Continued

The Authority recognized pension expense of \$19,488,000 and \$26,799,000 for the years ended December 31, 2018 and 2017, respectively. The Authority reported deferred outflows of resources and deferred inflows of resources for 2018 and 2017 as follows (in thousands):

	2018		2017	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 5,571	\$ 4,603	\$ 1,159	\$ 7,023
Changes of assumptions	10,356	-	15,800	-
Net differences between projected and actual investment earnings on pension plan investments	22,685	44,778	9,238	-
Changes in proportion and differences between employer contributions and proportionate share of contributions	3,414	1,509	2,636	1,581
Authority contributions subsequent to the measurement date	<u>22,454</u>	<u>-</u>	<u>21,028</u>	<u>-</u>
Totals	<u>\$ 64,480</u>	<u>\$ 50,890</u>	<u>\$ 49,859</u>	<u>\$ 8,604</u>

Authority contributions subsequent to the measurement date are recognized as a reduction of the net pension liability in the subsequent fiscal year. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows (in thousands):

Year ending December 31,	
2019	\$ 3,950
2020	3,158
2021	(11,008)
2022	<u>(4,964)</u>
Total	<u>\$ (8,864)</u>

d. Actuarial Assumptions

The pension liabilities at March 31, 2018 and 2017 were determined by using actuarial valuations as of April 1, 2017 and April 1, 2016, respectively, with updated procedures used to roll forward the total pension liability to March 31, 2018 and March 31, 2017. The actuarial valuation used the actuarial experience study for the period April 2010 - March 2015 and the following actuarial assumptions, which were consistent from year to year:

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Notes to Financial Statements December 31, 2018 and 2017

Note 7 - Retirement Benefits - Continued

d. Actuarial Assumptions - Continued

Actuarial Cost Method	Entry age normal
Inflation Rate	2.5 percent
Salary Scale	3.8 percent, indexed by service
Investment rate of return, including inflation	7.0 percent compounded annually, net of expenses
Cost of Living Adjustment	1.3 percent
Decrement	Based on FY 2010-2015 experience
Mortality improvement	Society of Actuaries' Scale MP-2014

The long-term expected rate of return on ERS's pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected return, net of investment expenses 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 the target asset allocation percentage and by adding expected inflation.

e. Investment Asset Allocation

Best estimates of arithmetic real rates of return for each major asset class and ERS's target asset allocation as of the applicable valuation dates are summarized as follows:

Asset Type	Target Allocation	Long-Term Expected Real Rate
Domestic equity	36.00%	4.6%
International equity	14.00%	6.4%
Private equity	10.00%	7.5%
Real estate	10.00%	5.6%
Bonds and mortgages	17.00%	1.3%
Other	13.00%	0.0%-5.7%
	<u>100.00%</u>	

f. Discount Rate

The discount rate projection of cash flows assumed that contributions from members will be made at the current member contribution rates and that contributions from employers will be made at statutorily required rates, actuarially determined. Based on those assumptions, ERS'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.

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Notes to Financial Statements December 31, 2018 and 2017

Note 7 - Retirement Benefits - Continued

g. Sensitivity of the Proportionate Share of the Net Pension Liability to the Discount Rate Assumption

The following presents the Authority's proportionate share of the net pension liability calculated using the discount rate of 7.0 % and the impact of using a discount rate that is 1% higher or lower than the current rate (in thousands).

	1% Decrease (6.0%)	Current Discount (7.0%)	1% Increase (8.0%)
Authority's proportionate share of the net pension liability (asset)	\$ 118,175	\$ 15,619	\$ (71,140)

h. Pension Plan Fiduciary Net Position

The components of the current-year net pension liability of the New York State and Local Employees' Retirement System as of March 31, 2018 and 2017 respectively, were as follows (amounts in thousands):

	2018	2017
Employers' total pension liability	\$ 183,400,590	\$ 177,400,586
Plan net position	(180,173,145)	(168,004,363)
Employers' net pension liability	\$ 3,227,445	\$ 9,396,223
Ratio of plan net position to the employers' total pension liability	98.2%	94.7%

Note 8 - Deferred Compensation Plan

The Authority participates in the New York State Deferred Compensation Plan (Plan). The plan is a 457(b) retirement plan which is administered by New York State. The Authority does not have any authority to amend or abolish the Plan provisions, and the Authority does not make contributions to the Plan.

Note 9 - Other Postemployment Benefits

The Authority reports in its financial statements the financial impact of other postemployment benefits (OPEB), principally employer funded health care and death benefits which the Authority provides for retired employees. With the exception of Part-time Toll Collectors, substantially all employees may become eligible for these benefits if they reach normal retirement age while working for the Authority.

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Notes to Financial Statements December 31, 2018 and 2017

Note 9 - Other Postemployment Benefits - Continued

A summary of participants as of the October 1, 2017 actuarial measurement date is as follows:

Actives	1,986
Vestees	4
Disabled	100
Retirees	1,933
Surviving Spouse	<u>323</u>
Total	<u>4,346</u>

Plan Description and Benefits Provided

The Authority participates, pursuant to the provisions of Section 163(4) of the New York State Civil Service Law, in the New York State Health Insurance Program (NYSHIP), an Agent Multiple-Employer plan. NYSHIP is administered through the Department of Civil Service, and the Authority pays the cost of administration.

NYSHIP does not currently issue a standalone financial report since there are no assets legally segregated for the sole purpose of paying benefits under the plan. Certain retiree costs, described below, are first applied against the value of the retiree's existing sick leave bank balance. A plan summary follows:

a. Plan Types

Medical - New York State Health Insurance Program which includes participation in various insurance plans and HMO's and which also includes drug coverage. Details may be found in the Summary Program Description of the New York State Health Insurance Program Booklet.

Medicare Part B Reimbursement - The Authority reimburses the retiree and his/her Medicare eligible spouse for the Medicare Part B premium.

b. Eligibility

To be eligible, an employee must (1) retire as a member of the New York State Employees' Retirement System or be at least 55 years old at time of termination; (2) be enrolled in the NYSHIP on date of retirement; and (3) complete at least five years of service for the retiree and dependent to have coverage while the employee is living. Ten years of service are needed for continued dependent coverage upon death of the employee.

c. Benefit/Cost Sharing

The Authority pays 94% (100% for those employees retired prior to April 1, 1991) of the premium for coverage of the retired employee and 75% of the additional premium for the dependent coverage. The premium paid by the Authority is based on the Empire Plan, one of the options available to retirees under the NYSHIP. If a retiree elects for another plan offered under the NYSHIP, the retiree is responsible for costs that exceed the amount of the Empire Plan premium.

d. Survivor Benefit

\$3,000 payable to retiree's designated beneficiary.

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Notes to Financial Statements December 31, 2018 and 2017

Note 9 - Other Postemployment Benefits - Continued

Plan Description and Benefits Provided - Continued

e. Funding Policy

The Authority contributes to the plan to satisfy obligations on a pay-as-you-go basis. For both of the years ended December 31, 2018 and 2017, the Authority paid \$30,553,000 annually on behalf of retirees.

Net OPEB Liability

The total OPEB liability for the Authority's years ended December 31, 2018 and December 31, 2017 were measured as of December 31, 2017 and December 31, 2016, respectively, using an actuarial valuation dated October 1, 2017.

The total OPEB liability in the October 1, 2017 actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

Discount rate	
December 31, 2017 measurement date	3.31 percent
December 31, 2016 measurement date	3.81 percent
Annual payroll growth rate	2.50 percent
Healthcare cost trend rates	Society of Actuaries Long Term Medical Trend Model v.2014_b
Mortality rates	Recommended Actuarial Assumptions for New York State / SUNY GASB 45 Valuation (dated 12/27/2012)

Actuarial valuations involve estimates and assumptions about the probability of events far into the future and are subject to continual revisions as actual results are compared to past expectations and new estimates are made about the future. These calculations are designed to reduce short-term volatility in actuarial accrued liabilities. Projected benefits are based on the types of benefits provided at the time of each valuation and on the cost sharing provisions then in effect.

Changes in the Net OPEB Liability (in thousands)

Balance as of December 31, 2017	<u>\$ 959,969</u>
Changes for the year	
Service cost	29,485
Interest	35,993
Benefit payments	(30,553)
Change in assumptions and other inputs	<u>88,866</u>
Net changes	<u>123,791</u>
Balance as of December 31, 2018	<u>\$ 1,083,760</u>

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Notes to Financial Statements
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Note 9 - Other Postemployment Benefits - Continued

Changes in the Net OPEB Liability (in thousands) - Continued

Sensitivity of the OPEB liability to changes in the discount rate: The following presents the net OPEB liability of the Authority, as well as what the Authority's net OPEB liability would be if it were calculated using a discount rate that is one percentage point lower or one percentage point higher than the current discount rate (in thousands):

	1% Decrease 2.31%	Current Discount 3.31%	1% Increase 4.31%
Net OPEB liability	\$ 1,298,787	\$ 1,083,760	\$ 916,207

Sensitivity of the OPEB liability to changes in the healthcare cost trend rates: The following presents the net OPEB liability of the Authority, as well as what the Authority's net OPEB liability would be if it were calculated using healthcare cost trend rates that are one percentage point lower or one percentage point higher than the current healthcare cost trend rates (in thousands):

	1% Decrease 2.90%	Medical Trend Rate 3.90%	1% Increase 4.90%
Net OPEB liability	\$ 903,199	\$ 1,083,760	\$ 1,320,104

OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

The Authority recognized OPEB expense of \$83,251,000 for the year ended December 31, 2018. The Authority reported deferred outflows of resources of \$71,093,000 at December 31, 2018 related to OPEB.

Amounts reported as deferred outflows of resources related to the OPEB liability will be recognized as expense as follows (in thousands):

Year ending December 31,	
2019	\$ 17,773
2020	17,773
2021	17,773
2022	17,774
Total	\$ 71,093

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Notes to Financial Statements December 31, 2018 and 2017

Note 10 - Thruway Stabilization Program

The State of New York (State), as part of its 2015-2016 enacted budget, created a \$1.285 billion Thruway Stabilization Program for the payment of costs related to the Governor Mario M. Cuomo Bridge and bridge-related transportation improvements, and for other costs of the Thruway Authority including, but not limited to, its core capital program. As part of its 2016-2017 enacted budget, the State committed an additional \$700 million to the program bringing the total commitment to \$1.985 billion. The Authority intends to use \$1.2 billion of these funds to pay for Governor Mario M. Cuomo Bridge related costs and \$785 million to pay for capital program costs other than the Governor Mario M. Cuomo Bridge. In 2018 and 2017, capital contributions of \$441.8 million and \$281.0 million were reported in the Authority's statement of revenues, expenses and changes in net position, respectively. As of December 31, 2018, the program has contributed a total of \$1.620 billion to the Authority, consisting of \$1.092 billion for the Governor Mario M. Cuomo Bridge and \$527.9 million for other Thruway capital projects.

Note 11 - Contingencies and Commitments

a. Governor Mario M. Cuomo Bridge Claims

In 2013, the Authority entered into a \$3.14 billion design-build contract with Tappan Zee Constructors, LLC (TZC) to replace the Tappan Zee Bridge. Both spans of the new Governor Mario M. Cuomo Bridge, the replacement of the Tappan Zee Bridge, are in service, however certain elements of the project remain in progress. Through December 31, 2018, contract change orders totaling \$180 million have been approved, increasing the value of TZC's contract to \$3.32 billion.

In 2018, TZC submitted claims to the Authority in excess of the approved contract value and anticipated contract change orders. The claims submitted by TZC relate to issues of time and extra work. The Authority disputes these claims. Pursuant to the design build contract, TZC's claims are subject to a non-binding contractual dispute resolution procedure consisting of a multi-tiered administrative review process. At the conclusion of the administrative review process, TZC may be entitled to pursue litigation in the New York State Court of Claims.

While the Authority cannot presently predict the outcome of this matter, the Authority believes it has meritorious defenses and positions with respect thereto. However, an adverse decision could significantly affect the Authority's financial position.

b. Other Claims and Litigation

The Authority is a party to various legal proceedings, including negligence suits, some of which involve death or serious injury. Many of these actions arise in the normal course of the Authority's operations. The Authority records accruals for claims liability to the extent that management concludes their occurrence is probable and the related damages are estimable. If the range of the liability is probable and estimable, the Authority accrues the amount most likely to be paid. If no single amount in the estimated range is more likely to be paid, the Authority accrues the lowest amount in the range.

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Notes to Financial Statements December 31, 2018 and 2017

Note 11 - Contingencies and Commitments - Continued

b. Other Claims and Litigation - Continued

Changes in the Authority's claims liability in years 2016 through 2018 were as follows (in thousands):

<u>Year</u>	<u>Beginning of Year Liability</u>	<u>Claims and Changes in Payments Estimates</u>	<u>Claim Liability Payments</u>	<u>End of Year Liability</u>
2016	\$ 4,000	\$ 1,587	\$ (4,437)	\$ 1,150
2017	1,150	3,200	(1,000)	3,350
2018	3,350	610	(750)	3,210

In addition, there are claims where liability is not probable, but is possible and estimable. The estimated loss on these claims approximated \$1.0 million at December 31, 2018, none of which has been accrued.

Certain other claims cannot be estimated as they involve complex issues. Often these issues are subject to substantial uncertainties and, therefore, the probability of loss or an estimation of damages cannot be determined.

c. Insurance

Loss of revenues is insured through a use and occupancy policy that covers any interruption in excess of 15 days. Property damage to bridges is insured through various policies from major insurance companies equal to the maximum probable loss from a single occurrence (with deductibles ranging from \$2.5 million to \$10.0 million). In addition, the Authority purchases insurance for workers' compensation benefits and various liability exposures.

The Authority is self-insured for property damage to substantially all buildings and vehicles. The Authority is also self-insured for third-party liability, including automobile liability. There are two funded reserves for these exposures, a \$2.5 million insurance fund available to fund certain deductibles and a reserve for public liability claims, which currently totals \$12.9 million.

Insurance for the Authority's service area facilities is provided by the concessionaires. The liability related to construction projects, tandem trailer operations, authorized garage operations, and similar risk is transferred through contractual indemnification and compliance with Authority insurance requirements.

d. Construction Commitments

At December 31, 2018, the amounts of remaining unexpended commitments for projects undertaken and the detail by type of contract are as follows:

<u>Project</u>	<u>Commitments (in thousands)</u>
Highway, bridge and facility, construction, and design	\$ 707,800
Personal service and miscellaneous	91,400
Total	<u>\$ 799,200</u>

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Notes to Financial Statements December 31, 2018 and 2017

Note 11 - Contingencies and Commitments - Continued

e. Environmental Remediation

The Authority records in its financial statements a cost estimate for environmental remediation at a number of sites on Thruway Authority property which have been identified by the New York State Department of Environmental Conservation as locations where operational uses have contributed to various forms of environmental pollution. The estimated costs are developed by Authority engineers and remedial contractors based on the nature of remediation needed and comparable clean-up costs at similar sites and updated for payments made and changes to estimated costs as of December 31, 2018. Estimating environmental remediation obligations requires that a number of assumptions be made. Therefore, it is possible that project cost changes due to price fluctuations, changes in technology, changes in potential responsible parties, results of environmental studies, and other factors could result in revisions to these estimates. Environmental remediation liability amounts are not material.

f. Lease Revenue

The Authority has entered into various non-cancelable contracts with concessionaires to provide patron services on the Thruway System. These contracts provide the Authority with concession revenue, including minimum rentals and contingent revenues based on sales volume. The Authority also leases land, used for antennas and fiber optic cable, under various non-cancelable contracts. Concession contract terms generally range from 16 to 25 years, inclusive of renewal options. Radio tower contract terms generally range from 5 to 10 years, with renewal options up to 10 years, and fiber optic contract terms range from 17 to 20 years.

The following schedule summarizes the future minimum rental revenues to be earned as of December 31, 2018:

<u>Year</u>	<u>Future Minimum Lease Revenue (in thousands)</u>
2019	\$ 16,500
2020	9,800
2021	9,600
2022	7,400
2023	3,400
Thereafter	<u>14,800</u>
Total	<u>\$ 61,500</u>

Note 12 - General Revenue Junior Indebtedness Obligations - Series 2013A

General Revenue Junior Indebtedness Obligations - Series 2013A (the Series 2013A JIO's), in the amount of \$1.6 billion, are term bonds, payable in a single bullet maturity on May 1, 2019. Additional information regarding Series 2013A JIO's is presented in Note 5.

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Note 12 - General Revenue Junior Indebtedness Obligations - Series 2013A - Continued

In April 2019, the Authority's Board authorized the issuance of approximately \$1.6 billion of Series 2019A Junior Indebtedness Obligations Anticipation Notes (the Series 2019A JIANS). The Authority will issue the Series 2019A JIANS, in an amount approximating \$1.6 billion, and use the proceeds to pay the Series 2013A JIO's maturing on May 1, 2019.

In December 2013, the Authority entered into a \$1.6 billion loan agreement (TIFIA Loan) with the United States Department of Transportation, acting through the Federal Highway Administration, for the purpose of financing construction of the New NY Bridge Project. The proceeds of the TIFIA Loan are required to be drawn no later than one year after substantial completion of the New NY Bridge Project (defined as the date on which both spans of the bridge were open to vehicular traffic), which occurred on September 12, 2018. The Authority has reserved the right to pay, but is not obligated to pay, all or a portion of the principal of the Series 2019A JIANS using TIFIA Loan proceeds.

In April 2019, the Authority's Board also authorized the issuance of up to \$2.2 billion of Series 2019B Junior Indebtedness Obligations (Series 2019B JIO's) to repay the Series 2019A JIANS; pay interest costs on the Series 2019B JIO's; establish a debt service reserve for the Series 2019B JIO's; and pay costs of issuance.

Note 13 - Canal Corporation and Canal System Transfer

The State of New York's final approved and enacted budget for their 2016-2017 fiscal year included legislation establishing the Canal Corporation as a subsidiary of the New York State Power Authority (Power Authority) effective January 1, 2017. On this date, the Power Authority assumed control of the Canal Corporation and Canal System.

Assets approximating \$653.7 million, consisting of Canal System land and infrastructure, Canal Corporation equipment and cash on deposit in the Canal Development Fund, together with liabilities approximating \$114.2 million, consisting of Canal Corporation retiree health insurance obligations, pension obligations, salaries and benefits owed to employees, and amounts due vendors for goods and services were included in the transfer. In 2017, the Authority recognized a loss approximating \$539.5 million representing the net assets transferred to the Power Authority.

The legislation authorizing the January 1, 2017 transfer also authorized the Authority and Power Authority to enter into an agreement whereby the Authority would continue to provide certain services after January 1, 2017 to ensure operational continuity of the Canal Corporation and Canal System during the post-transfer period. In 2018 and 2017, the Authority recognized non-operating revenues of \$0.3 and \$1.9 million, respectively, from the Power Authority as reimbursement for post-transfer services provided to the Canal Corporation.

Note 14 - Accounting Standards Issued But Not Yet Implemented

GASB Statement No. 83, *Certain Asset Retirement Obligations*. This statement establishes criteria for determining the timing and pattern of recognition for a liability and corresponding deferred outflow of resources for asset retirement obligations. This statement required that recognition occur when the liability is both incurred and reasonably estimable. The requirements of this statement are effective for reporting periods beginning after June 15, 2018.

GASB Statement No. 84, *Fiduciary Activities*. This statement provides guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. The requirements of this statement are effective for reporting periods beginning after December 15, 2018.

New York State Thruway Authority

(A Component Unit of the State of New York)

Notes to Financial Statements December 31, 2018 and 2017

Note 14 - Accounting Standards Issued But Not Yet Implemented - Continued

GASB Statement No. 87, *Leases*. This statement requires recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and the recognition of inflows of resources or outflows of resources based on the payment provisions of the contract. It establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. Under this statement, a lessee is required to recognize a lease liability and an intangible right-to-use asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources, thereby enhancing the relevance and consistency of information about governments' leasing activities. The requirements of this statement are effect for reporting periods beginning after December 15, 2019.

GASB Statement No. 88, *Certain Disclosures Related to Debt, Including Direct Borrowings and Direct Placements*. This statement requires that additional essential information related to debt be disclosed in notes to financial statements, including unused lines of credit; assets pledged as collateral for the debt; terms specified in debt agreements related to significant events of default with finance-related consequences, significant termination events with finance-related consequences, and significant acceleration clauses. For notes to financial statements related to debt, this statement also requires that existing and additional information be provided for direct borrowings and direct placements of debt separately from other debt. The requirements of this statement are effective for reporting periods beginning after June 15, 2018.

GASB Statement No. 89, *Accounting for Interest Cost Incurred Before the End of a Construction Period* (GASB No. 89). This statement establishes accounting requirements for interest cost incurred before the end of a construction period. Such interest cost includes all interest that previously was accounted for in accordance with the requirements of paragraphs 5-22 of Statement No. 62, *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements*, which are superseded by this statement. This statement requires that interest cost incurred before the end of a construction period be recognized as an expense in the period in which the cost is incurred for financial statements prepared using the economic resources measurement focus. As a result, interest cost incurred before the end of a construction period will not be included in the historical cost of a capital asset reported in a business-type activity or enterprise fund. This statement also reiterates that in financial statements prepared using the current financial resources measurement focus, interest cost incurred before the end of a construction period should be recognized as an expenditure on a basis consistent with governmental fund accounting principles. The requirements of this statement are effective for reporting periods beginning after December 15, 2019.

GASB Statement No. 90, *Majority Equity Interest*. This statement will provide financial reporting uses with information related to the presentation of majority equity interests in legally separate organizations. In addition, this statement requires the reporting of information about component units if the government acquires a 100% equity interest about the cost of services to be provided by the component unit in relation to the consideration provided to acquire the component unit. The requirements for this statement are effective for reporting periods beginning after December 15, 2018.

Management has not estimated the extent of the potential impact, if any, of these statements on the Authority's financial statements.

New York State Thruway Authority

(A Component Unit of the State of New York)

Notes to Financial Statements December 31, 2018 and 2017

Note 15 - Reclassifications

Certain amounts have been reclassified in the previously issued 2017 financial statements as follows:

Costs associated with pavement resurfacing projects that did achieve their estimated useful life prior to being removed from service were previously included in Loss on disposal of assets on the accompanying Statements of Revenues, Expenses, and Changes in Net Position. Costs of approximately \$9,609,000 have been reclassified within Depreciation expense.

The reclassification resulted in no change to overall change in net position for the year ended December 31, 2017.

New York State Thruway Authority
 (A Component Unit of the State of New York)

Required Supplementary Information
 Schedule of Other Postemployment Benefits Liability and
 OPEB as a Percentage of Covered Payroll
 (in millions of dollars)

	December 31, 2018
Beginning of the year	<u>\$ 959,969</u>
Charges for the year	
Service cost	29,485
Interest	35,993
Changes in assumptions and other inputs	88,866
Benefit payments	<u>(30,553)</u>
Net changes	<u>123,791</u>
End of year	<u>\$ 1,083,760</u>
Covered payroll	146,100
OPEB liability as a percentage of covered payroll	741.79%

Data not available prior to the 2018 implementation of Governmental Accounting Standards Board Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*.

New York State Thruway Authority
(A Component Unit of the State of New York)

Required Supplementary Information
Schedule of the Proportionate Share of the Net Pension Liability
(In thousands of dollars)

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>
Proportion of the net pension liability (asset)	0.483932%	0.492207%	0.617656%	0.633266%
Proportionate share of the net pension liability (asset)	\$ 15,619	\$ 46,249	\$ 99,135	\$ 21,393
Covered-employee payroll	148,206	141,550	164,506	173,658
Proportionate share of the net pension liability (asset) as a percentage of its covered-employee payroll	10.54%	32.67%	60.26%	12.32%
Plan fiduciary net position as a percentage of total pension liability	98.2%	94.7%	90.7%	97.9%

The amounts presented for each fiscal year were determined as of March 31.

Years prior to 2017 include the New York State Canal Corporation.

Data not available prior to fiscal year 2015 implementation of Governmental Accounting Standards Board Statement No. 68, *Accounting and Financial Reporting for Pensions*.

New York State Thruway Authority
(A Component Unit of the State of New York)

Required Supplementary Information
Schedule of Pension Contributions
Years Ended December 31
(in thousands of dollars)

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Contractually required contribution	22,454	21,028	24,795	28,815	30,537	35,800	34,627	37,125	22,132	12,882
Contributions in relation to the contractually required contribution	22,454	21,028	24,795	28,815	30,537	35,800	34,627	37,125	22,132	12,682
Contribution delinquency (excess)	-	-	-	-	-	-	-	-	-	-
Authority's covered-employee payroll	157,528	145,099	163,041	164,994	176,546	174,784	183,464	181,625	166,206	187,805
Contributions as a percentage of covered-employee payroll	14%	14%	15%	17%	17%	20%	19%	20%	12%	7%

Years prior to 2017 include the New York State Canal Corporation.

See Independent Auditor's Report.

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**Summary of Certain Provisions of the
Junior Indebtedness Resolution and the Senior Resolution**

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**SUMMARY OF CERTAIN PROVISIONS OF THE
JUNIOR INDEBTEDNESS RESOLUTION
AND THE
SENIOR RESOLUTION**

The following is a general summary of certain provisions of the Junior Indebtedness General Resolution and, where identified, certain provisions of the General Revenue Bond Resolution. This summary is not to be considered a full statement of the terms of the Junior Indebtedness General Resolution or the General Revenue Bond Resolution and, accordingly, is qualified by reference thereto and is subject to the full text thereof. Copies of the Junior Indebtedness General Resolution and the General Revenue Bond Resolution are available at the office of the Authority.

Definitions

Except as otherwise identified, the following are definitions in summary form of certain terms contained in the Junior Indebtedness General Resolution and used in this Official Statement:

“Accrued Debt Service” means, as of any date of calculation, the amount of Debt Service that has accrued with respect to any Series of Senior Bonds or any Series of Junior Indebtedness Obligations, as the case may be, calculating the Debt Service that has accrued with respect to such Series of Bonds or Junior Indebtedness Obligations as an amount equal to the sum of (1) the interest on such Series of Bonds or Junior Indebtedness Obligations that has accrued and is unpaid and that will have accrued by the end of the then current calendar month, including, to the extent not otherwise provided in a Supplemental Resolution, all net amounts due and payable by the Authority and all net amounts to accrue to the end of the then current calendar month pursuant to a Qualified Swap or a Qualified Reverse Swap (with respect to Senior Bonds only) or a Parity Reimbursement Obligation; and (2) that portion of the Principal Installments for such Series next due which would be accrued (if deemed to accrue in the manner set forth in the definition of “Debt Service” (as defined in the General Revenue Bond Resolution)) to the end of such calendar month; provided that the definition of Accrued Debt Service for any Series of Variable Interest Rate Bonds shall be set forth in the applicable Supplemental Resolution.

“Act” means the New York State Thruway Authority Act, Title 9 of Article 2 of the Public Authorities Law, Chapter 43-A of the Consolidated Laws of the State of New York, as it may be amended from time to time.

“Additional Project” shall mean any Other Authority Project designated as an Additional Project by the Authority and in respect of which there has been submitted to the Trustee the documents provided for in the General Revenue Bond Resolution and the Junior Indebtedness General Resolution and any New Interchange or New Extension (each as defined in the General Revenue Bond Resolution); and once designated as an Additional Project, any subsequent Facility Capital Improvements related thereto.

“Additional Project Revenues” means Revenues derived from Additional Projects. “Additional Project Revenues” shall not include the proceeds of any gifts, grants or other income to the Authority from the government of the United States or the State, any public instrumentality of the State or any other individual or entity, to the extent the Authority is precluded by law, the grant or other operative contract or instrument from applying such amounts to the general corporate purposes of the Authority.

“Aggregate Debt Service on Senior Bonds” means for any period and as of any date of calculation, the sum of the amounts of Debt Service (as defined in the General Revenue Bond Resolution) for such period with respect to all Senior Bonds then outstanding.

“Appreciated Value” means (i) as of any date of computation with respect to any Capital Appreciation and Current Interest Junior Indebtedness Obligation prior to the Interest Commencement Date set forth in the Supplemental Resolution or related Certificate of Determination providing for the issuance of such Capital Appreciation and Current Interest Junior Indebtedness Obligations, an amount equal to the principal amount of such Capital Appreciation and Current Interest Junior Indebtedness Obligation (the principal amount at its original issuance) plus the interest accrued on such Capital Appreciation and Current Interest Junior Indebtedness Obligation from the date of original issuance of such Junior Indebtedness Obligation to the Interest Payment Date next preceding the date of computation or the date of computation if such date is an Interest Payment Date, such interest to accrue at the rate per annum of the Capital Appreciation and Current Interest Junior Indebtedness Obligations set forth in the Supplemental Resolution or related Certificate of Determination providing for the issuance of such Capital Appreciation and Current Interest Junior Indebtedness Obligations, compounded semi-annually on each Interest Payment Date, and, if such date of computation shall not be an Interest Payment Date, a portion of the difference between the Appreciated Value as of the immediately preceding Interest Payment Date (or the date of original issuance if the date of computation is prior to the first Interest Payment Date succeeding the date of original issuance) and the Appreciated Value as of the immediately succeeding Interest Payment Date calculated based upon an assumption that Appreciated Value accrues during any period in equal daily amounts on the basis of a year of 360 days consisting of twelve (12) months of thirty (30) days each, and (ii) as of any date of computation on and after the Interest Commencement Date, the Appreciated Value on the Interest Commencement Date.

“Arbitrage and Use of Proceeds Certificate” means, with respect to any Junior Indebtedness Obligations, the interest on which is intended by the Authority to be excluded from gross income for federal income tax purposes, a certificate or certificates executed by an Authorized Officer in connection with the initial issuance and delivery of such Junior Indebtedness Obligations and containing representations, warranties and covenants of the Authority relating to the federal tax status of such Junior Indebtedness Obligations, as such certificate or certificates may be amended and supplemented from time to time.

“Assumed Balloon Maturity Debt Service” means if all or any portion of an Outstanding Series of Junior Indebtedness constitute Balloon Maturities, then, for purposes of determining debt service, each maturity that constitutes a Balloon Maturity shall, unless otherwise provided in a Supplemental Resolution or a related Certificate of Determination, be treated as if it were to be amortized over a term of not more than 35 years and with substantially level annual debt service funding payments commencing not later than the year following the maturity of the Balloon Maturity. The interest rate used for such computation shall be that rate quoted in The Bond Buyer 25 Revenue Bond Index for the last week of the month preceding the date of calculation as published by The Bond Buyer, or if such index is no longer published, another similar index designated by an Authorized Officer, taking into consideration whether such Junior Indebtedness Obligations bear interest which is or is not excluded from gross income for federal income tax purposes.

“Assumed First Junior Indebtedness Debt Service” means the debt service on the TIFIA Loan, as set forth in an exhibit to the Certificate of Determination executed in connection with the First Series of Junior Indebtedness Obligations issued or incurred by the Authority, as the same may be revised in accordance with the provisions of the TIFIA Loan Agreement, plus the interest that is not capitalized by the proceeds of the issue.

“Authority Board” means the board of the Authority duly appointed and acting pursuant to the Act.

“Authority Budget” means the budget of the Authority, as amended or supplemented, adopted or in effect for a particular Authority fiscal year pursuant to the Junior Indebtedness General Resolution and the General Revenue Bond Resolution.

“Authority Engineer’s Certificate” means, in the sole discretion of the Authority, (i) an Independent Consultant’s Certificate (delivered by an Independent Consultant that is a licensed professional engineer) or (ii) a certificate or an opinion signed by a licensed professional engineer employed by the Authority, having knowledge and expertise with respect to the subject matter of such certificate or opinion, and selected by the Authority to deliver such certificate or opinion.

“Authorized Newspaper” means The Bond Buyer or any newspaper customarily published at least once a day for at least five days (other than legal holidays) in each calendar week, printed in the English language and of general circulation in the Borough of Manhattan, City and State of New York, designated by the Authority.

“Authorized Officer” means any member of the Authority Board, its Treasurer, any Assistant Treasurer, its Secretary, any Assistant Secretary, its Executive Director, its Chief Financial Officer and any other person authorized by a resolution or the by-laws of the Authority to perform the act or execute the document in question.

“Balloon Maturities” means, with respect to any Series of Junior Indebtedness Obligations, except the First Series of Junior Indebtedness Obligations, 50% or more of the principal of which matures on the same date or within a 12-month period which is no more than 10 years from its date of issuance, that portion (and only that portion) of such Series that matures on such date or within such 12-month period. For purposes of determining whether all or any portion of any Series of Junior Indebtedness Obligations constitutes Balloon Maturities, the principal amount maturing on any date shall be reduced by the amount of such Junior Indebtedness Obligations scheduled to be amortized by prepayment or redemption prior to their stated maturity date. Junior Indebtedness Obligations Anticipation Notes shall not be Balloon Maturities.

“Business Day” means a day of the year which is not a Saturday, Sunday or legal holiday in the State and not a day on which the Authority, State offices, the Trustee, Paying Agent or provider of a Credit Facility or Reserve Credit Facility are authorized or obligated to close.

“Capital Appreciation and Current Interest Junior Indebtedness Obligations” means any Junior Indebtedness Obligations as to which accruing interest is not paid prior to the Interest Commencement Date specified in the Supplemental Resolution or related Certificate of Determination providing for the issuance of such Junior Indebtedness Obligations and the Appreciated Value for such Junior Indebtedness Obligations is compounded semi-annually on each of the applicable semi-annual dates designated for compounding prior to the Interest Commencement Date for such Junior Indebtedness Obligations, all as so designated by Supplemental Resolution or related Certificate of Determination providing for the issuance of such Junior Indebtedness Obligations.

“Capital Appreciation Junior Indebtedness Obligations” means Junior Indebtedness Obligations of a Series the interest on which (1) is compounded and accumulated at the rates and on the dates set forth in the Supplemental Resolution or the Certificate of Determination authorizing the issuance of such Junior Indebtedness Obligations and (2) is payable upon the maturity or redemption of such Junior Indebtedness Obligations.

“Certificate of Determination” means a certificate of an Authorized Officer of the Authority fixing terms, conditions and other details of Junior Indebtedness Obligations in accordance with the delegation of power to do so under a Supplemental Resolution.

“Code” means the Internal Revenue Code of 1986, as amended. Each reference to a section of the Code shall be deemed to include the Regulations, including temporary and proposed Regulations, relating to such section which are applicable to the Junior Indebtedness General Resolution, including the Junior Indebtedness Obligations or the use of proceeds of Junior Indebtedness Obligations.

“Cost or Costs of Issuance” means the items of expense incurred in connection with the authorization, sale and issuance of Junior Indebtedness Obligations, which items of expense may include, but are not limited to, Authority expenses, State bond issuance charges, document printing and reproduction costs, filing and recording fees, costs of credit ratings, initial fees and charges of the Trustee, legal fees and charges, professional consultants’ fees, underwriting fees, fees and charges for execution, transportation and safekeeping of Junior Indebtedness Obligations, premiums, fees and charges for Credit Facilities, Reserve Credit Facilities and other similar financial arrangements, costs and expenses of Junior Indebtedness Refunding Obligations and other costs, charges and fees, including those of the Authority, in connection with the foregoing.

“Counsel’s Opinion” means an opinion signed by an attorney or firm of attorneys of nationally recognized standing in the practice of law relating to municipal, state and public agency financing selected by the Authority.

“Credit Facility” means any letter of credit, line of credit, policy of bond insurance, surety bond, guarantee or similar instrument which is issued by a financial, insurance or other institution and which provides security or liquidity payment of principal of and interest on Junior Indebtedness Obligations issued as bonds, not including any Reserve Credit Facility.

“Current Interest Junior Indebtedness Obligations” means Junior Indebtedness Obligations of a Series the interest on which is payable on the Interest Payment Dates provided therefor in a Supplemental Resolution.

“Date of Completion” means (i) in the case of the construction of any vehicular bridge or road, the date on which such bridge or road is opened to vehicular traffic (as evidenced by an Authority Engineer’s Certificate), and (ii) in any other case, the date on which the acquisition, construction, improvement, reconstruction or rehabilitation of a Facility is completed (as evidenced by an Authority Engineer’s Certificate).

“Defeased Municipal Obligations” means pre-refunded municipal obligations rated in the same Rating Category by S&P, Moody’s and Fitch as obligations of the federal government described in clauses (a) or (b) of “Government Obligations” and meeting the following requirements:

(a) the municipal obligations are (i) not subject to redemption prior to maturity or (ii) the Authority, the Trustee or the Paying Agent has been given irrevocable instructions concerning their call and redemption and the issuer of the municipal obligations has covenanted not to redeem such municipal obligations other than as set forth in such instructions; and

(b) the municipal obligations are fully secured by cash or Government Obligations which may be applied only to payment of the principal of and interest and premium, if any, on such municipal obligations.

“Depository” means any bank or trust company or national banking association selected by the Authority, the Trustee (with the consent of the Authority), or the Paying Agent (with the consent of the Authority) as a depository of moneys and securities held under the provisions of the Junior Indebtedness General Resolution and may include the Trustee or the Paying Agent.

“Facilities” means the Original Project and any Additional Project (but not including an Other Authority Project that does not constitute an Additional Project).

“Facility Capital Improvements” means, as applicable to the Original Project or any Additional Project, as may be determined by the Authority Board to be necessary or appropriate, any construction, reconstruction, rehabilitation, widening (including construction of any parallel spans or thoroughfares to any existing Facility bridge or tunnel) or relocation thereof, any extraordinary repairs, modifications or improvements thereto or with respect to any portion thereof, or any incidental expansion thereof or incidental extension thereto, or with respect to any portion thereof, including:

(i) incidental connecting tunnels, bridges, overpasses and underpasses, as well as existing interchanges (with regard to the Original Project, such existing interchanges shall expressly include, subject to Authority Board approval, any new interchange or interchanges providing access to Stewart International Airport and Interstate Route 84, from that portion of the Original Project constituting Interstate Route 87), new interchanges determined by the Authority Board to be necessary or appropriate for the proper operation of the applicable Facility in order to relieve congestion, to promote the efficient operation thereof, or to enhance the safe operation thereof; and

(ii) administration, storage and other buildings, toll facilities and equipment, entrance plazas, service areas and stations, barriers, machinery, equipment and other facilities relating to the construction, reconstruction, operation or maintenance of any Facility, acquisition of rights-of-way or other interests in real property necessary or appropriate for any of the activities described above in this definition.

“Fiduciary” means the Trustee, any Paying Agent, or any or all of them, as may be appropriate.

“First Series of Junior Indebtedness Obligations” shall mean the initial Series of Junior Indebtedness Obligations issued or incurred pursuant to the Junior Indebtedness General Resolution and the related Supplemental Resolution.

“Fitch” means Fitch Ratings, Inc., a corporation organized and existing under the laws of the State of Delaware, its successors and assigns, and, if such corporation shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, “Fitch” shall be deemed to refer to any other nationally recognized securities rating agency designated by the Authority.

“General Reserve Fund” means the fund designated as the General Reserve Fund established in Section 502 of the General Revenue Bond Resolution.

“General Revenue Bond Resolution” means the resolution adopted by the Authority on August 3, 1992, as amended on January 5, 2007, entitled “General Revenue Bond Resolution”, as supplemented.

“Government Obligations” means, except as otherwise provided in a Supplemental Resolution, (a) direct obligations of, or obligations the principal of and the interest on which are unconditionally guaranteed by, the United States of America and entitled to the full faith and credit thereof; (b) certificates, depository receipts or other instruments which evidence a direct ownership interest in

obligations described in clause (a) above or in any specific interest or principal payments due in respect thereof; provided, however, that the custodian of such obligations or specific interest or principal payments shall be a bank or trust company organized under the laws of the United States of America or of any state or territory thereof or of the District of Columbia, with a combined capital stock, surplus and undivided profits of at least \$50,000,000 or the custodian is appointed by or on behalf of the United States of America; and provided, further, that except as may be otherwise required by law, such custodian shall be obligated to pay to the holders of such certificates, depositary receipts or other instruments the full amount received by such custodian in respect of such obligations or specific payments and shall not be permitted to make any deduction therefrom; (c) Defeased Municipal Obligations; and (d) bonds, debentures, notes or other obligations issued or guaranteed by any of the following: Federal National Mortgage Association, the Federal Financing Bank, the Federal Home Loan Mortgage Association, the Federal Housing Administration, the Farmers Home Administration, the Government National Mortgage Association, or any other agency controlled by or supervised by and acting as an instrumentality of the United States government.

“Holder” or “Holder of Junior Indebtedness Obligations”, or any similar term, means any person who shall be the registered owner of any Outstanding Junior Indebtedness Obligations.

“Independent Consultant” means an independent licensed professional engineer or firm of independent licensed professional engineers of recognized national standing (who may be an engineer or firm of engineers retained by the Authority for other purposes) selected by the Authority; provided, however, that in connection with an Additional Project, the Authority may, in a Supplemental Resolution, if it determines that the field of engineering is not the most appropriate professional discipline (in terms of knowledge and expertise in connection with such Additional Project) to deliver any Independent Consultant’s Certificates required by the terms of the Junior Indebtedness General Resolution, select members of another professional discipline, including but not limited to accounting, as appropriate, as an Independent Consultant in connection with such Additional Project; provided further that any members of such discipline thereafter selected by the Authority shall be independent and shall be of recognized national standing in such discipline.

“Independent Consultant’s Certificate” means a certificate or an opinion signed and delivered by an Independent Consultant pursuant to the terms of the Junior Indebtedness General Resolution.

“Interest Payment Date” means, with respect to a Series of Junior Indebtedness Obligations, each date on which interest, if any, is payable pursuant to the Supplemental Resolution authorizing such Junior Indebtedness Obligations.

“Investment Obligations” means, to the extent the same are at the time legal for investment of funds of the Authority under the Act or under other applicable law:

(a) Government Obligations;

(b) certificates of deposit issued by, and time deposits in, and bankers’ acceptances of, any bank (including any Paying Agent or Trustee), any branch of any bank, national banking association or federally chartered savings and loan association; provided that, with respect to any of the foregoing institutions, whose long-term unsecured indebtedness is rated less than “A” by Moody’s, S&P or Fitch, such certificates of deposit or time deposits are (i) insured by the Federal Deposit Insurance Corporation for the full face amount thereof or (ii) to the extent not so insured, collateralized by direct obligations of the United States of America having a market value of not less than the face amount of such certificates and deposits;

(c) evidences of ownership of a proportionate interest in specified direct obligations of the United States of America, which obligations are held by a bank or trust company organized and existing under the laws of the United States of America or any state thereof in the capacity of custodian, or when “stripped” by the United States Treasury, then by the custodian designated by the United States Treasury;

(d) obligations of state or local government municipal bond issuers which are rated in one of the two highest Rating Categories by S&P, Moody’s or Fitch;

(e) obligations of state or local government municipal bond issuers, the principal of and interest on which, when due and payable, have been insured by an insurance policy or guaranteed by a letter of credit and which are rated in one of the two highest Rating Categories by S&P, Moody’s or Fitch;

(f) interests in a money market mutual fund registered under the Investment Company Act of 1940, 15 U.S.C. §§ 80-1, et seq., as from time to time amended, the portfolio of which is limited to obligations described in clause (a), (d), or (e) above and repurchase agreements fully collateralized thereby provided that such fund has total assets of at least \$100,000,000 and is rated in the highest Rating Category by S&P, Moody’s or Fitch;

(g) evidences of ownership of a proportionate interest in specified Defeased Municipal Obligations which Defeased Municipal Obligations are held by a bank or trust company organized and existing under the laws of the United States of America or any state thereof in the capacity of custodian;

(h) any repurchase agreement for Government Obligations by the Authority or any Trustee that is with a bank, trust company (including any Trustee) or securities dealer which is a member of the Securities Investors Protective Corporation, each of which is a primary reporting dealer in government securities as determined by the Federal Reserve Bank, or if “primary reporting dealers” cease to be determined by the Federal Reserve Bank, such other comparable standard as the Authority shall implement pursuant to a Supplemental Resolution; provided, however, that the Government Obligations must be transferred to the Authority or any Trustee or a third party agent by physical delivery or by an entry made on the records of the issuer or registrar of such obligations, and the collateral security must continually have a market value at least equal to the amount so invested and the collateral must be free of third party claims. Any investment in a repurchase agreement shall be considered to mature on the date the bank, trust company or recognized securities dealer providing the repurchase agreement is obligated to repurchase the Government Obligations;

(i) commercial paper rated in the highest Rating Category by S&P, Moody’s or Fitch; and

(j) any other obligations from time to time permitted pursuant to the Act or other applicable law, provided, however, that if the funds invested in any such obligation are pledged for the payment of Junior Indebtedness Obligations under the Junior Indebtedness General Resolution and the Junior Indebtedness Obligations are then rated by Moody’s, S&P or Fitch, such obligation shall be rated in one of the two highest Rating Categories of each such rating agency or, if such obligation is not then rated by either rating agency, an obligation of comparable credit quality of the same issuer is rated in one of the two highest Rating Categories of such rating agency.

Any investment in obligations described in (a), (c), (d), (e), (f), (g), (h) and (i) above may be made in the form of an entry made on the records of the issuer of the particular obligation.

“Junior Indebtedness Aggregate Debt Service” means for any period and of any date of calculation, the sum of the amounts of Junior Indebtedness Debt Service for such period with respect to all Series of Junior Indebtedness Obligations then outstanding.

“Junior Indebtedness Construction Account” means the account of the Junior Indebtedness Fund designated as the Junior Indebtedness Construction Account established in Section 401 of the Junior Indebtedness General Resolution.

“Junior Indebtedness Debt Service” means for any period, as of any date of calculation, and with respect to any Series of Junior Indebtedness Obligations, an amount equal to the sum of (i) interest accruing during such period on the Junior Indebtedness Obligations of such Series, including to the extent not otherwise provided in a Supplemental Resolution, all net amounts due and payable by the Authority and all net amounts to accrue to the end of such period pursuant to a Parity Reimbursement Obligation, and (ii) that portion of each Principal Installment for such Series which would accrue during such period if such Principal Installment were deemed to accrue daily in equal amounts from the next preceding Principal Installment payment date for such Series (or, if there shall be no such preceding Principal Installment payment date, from a date one year prior to the due date of the first Principal Installment of the Junior Indebtedness Obligations of such Series); provided, however, “Junior Indebtedness Debt Service” for (a) the First Junior Indebtedness Obligations shall be calculated on the basis of Assumed First Junior Indebtedness Debt Service and (b) a Balloon Maturity shall be calculated on the basis of Assumed Balloon Maturity Debt Service. Such interest and Principal Installments shall be calculated on the assumption that no Junior Indebtedness Obligations of such Series that are outstanding at the date of calculation will cease to be outstanding except by reason of the payment of each Principal Installment on the due date thereof; provided, however, that there shall be excluded from “Junior Indebtedness Debt Service” (1) interest on Junior Indebtedness Obligations to the extent that escrowed interest is available to pay such interest, (2) Principal Installments on Junior Indebtedness Obligations to the extent that escrowed principal is available to pay such Principal Installments, and (3) interest funded from the proceeds of Junior Indebtedness Obligations to the extent that such funded interest is held by the Trustee in the Junior Indebtedness Debt Service Payment Account for such purpose.

“Junior Indebtedness Debt Service Payment Account” means the account of the Junior Indebtedness Fund designated as the Junior Indebtedness Debt Service Payment Account established in Section 401 of the Junior Indebtedness General Resolution.

“Junior Indebtedness Debt Service Reserve Account” means the account of the Junior Indebtedness Fund designated as the Junior Indebtedness Debt Service Reserve Account established in Section 401 of the Junior Indebtedness General Resolution.

“Junior Indebtedness Debt Service Reserve Account Requirement” means, with respect to any particular subaccount of the Junior Indebtedness Debt Service Reserve Account, the amount, if any, established for such purpose in a Supplemental Resolution or Certificate of Determination relating to a Series of Junior Indebtedness Obligations.

“Junior Indebtedness Fund” means the fund established by Section 502(6) of the General Revenue Bond Resolution for the payment of Junior Indebtedness Obligations.

“Junior Indebtedness Net Revenue Requirement” means, with respect to any period of time, an amount equal to the greater of (i) the sum of (A) Aggregate Debt Service on Senior Bonds, (B) amounts

required to make deposits to the Senior Debt Service Reserve Fund (as defined in the General Revenue Bond Resolution), if any, (C) amounts required to make Reserve Maintenance Payments (as defined in the General Revenue Bond Resolution), and (D) amounts required to be deposited in the Junior Indebtedness Fund pursuant to the General Revenue Bond Resolution and the Junior Indebtedness General Resolution and any Supplemental Resolution thereto or other resolution or agreement authorizing Junior Indebtedness Obligations, or (ii) for such period of time, 1.20 times the sum of (A) Aggregate Debt Service on Senior Bonds and (B) amounts required to be deposited in the Junior Indebtedness Debt Service Payment Account of the Junior Indebtedness Fund pursuant to the Junior Indebtedness General Resolution and any Supplemental Resolution thereto or other resolution authorizing Junior Indebtedness Obligations; provided, however, that (1) Aggregate Debt Service on Senior Bonds for purposes of calculating the Junior Indebtedness Net Revenue Requirement may be reduced by an amount equal to investment income on the Senior Debt Service Fund (as defined in the General Revenue Bond Resolution) and the Senior Debt Service Reserve Fund (to the extent such investment income is required to be retained in or transferred to the Senior Debt Service Fund, as appropriate, pursuant to a Supplemental Resolution); and (2) amounts required to be deposited in the Junior Indebtedness Fund for purposes of calculating the Junior Indebtedness Net Revenue Requirement may be reduced by an amount equal to investment income on deposit in the Junior Indebtedness Fund Debt Service Payment Account and the Junior Indebtedness Debt Service Reserve subaccounts (to the extent such investment income is required to be retained in or transferred to the Junior Indebtedness Debt Service Payment Account).

“Junior Indebtedness Obligations” means all bonds, notes or other evidence of indebtedness (i) issued or incurred by the Authority pursuant to the Junior Indebtedness General Resolution and any Supplemental Resolution and in accordance with Section 509 of the General Revenue Bond Resolution, and (ii) payable from and secured by (A) a junior lien on Revenues, and (B) amounts on deposit in the Junior Indebtedness Fund; provided, however, that such term shall not include any Junior Indebtedness Obligations Anticipation Notes.

“Junior Indebtedness Obligations Anticipation Notes” means the obligations issued or incurred by the Authority pursuant to the Junior Indebtedness General Resolution and any related Supplemental Resolution.

“Junior Indebtedness Proceeds Account” means the account of the Junior Indebtedness Fund designated as the Junior Indebtedness Proceeds Account established in Section 401 of the Junior Indebtedness General Resolution.

“Junior Indebtedness Refunding Obligations” means any Junior Indebtedness Obligations issued to refund or refinance indebtedness of the Authority, whether issued in one or more Series of Junior Indebtedness Obligations, authenticated and delivered pursuant to Article II of the Junior Indebtedness General Resolution, on original issuance pursuant to the Junior Indebtedness General Resolution, and any Junior Indebtedness Obligations thereafter authenticated and delivered in lieu of or in substitution for such Junior Indebtedness Obligations pursuant to Junior Indebtedness General Resolution.

“Maximum Annual Debt Service” means, as of any date of calculation, an amount equal to the greatest amount of Aggregate Debt Service for the current or any future 12-month period. For purposes of this definition, interest with respect to any Variable Interest Rate Bonds shall be calculated using the Maximum Interest Rate with respect to such Bonds.

“Maximum Annual Junior Indebtedness Debt Service” means, as of any date of calculation, an amount equal to the greatest amount of Junior Indebtedness Aggregate Debt Service for the current or any future 12-month period.

“Maximum Annual Senior and Junior Indebtedness Debt Service” means as of any date of calculation, an amount equal to the greatest amount of the sum of (i) Aggregate Debt Service on Senior Bonds, and (ii) Junior Indebtedness Aggregate Debt Service.

“Maximum Interest Rate” means, with respect to any particular Variable Interest Rate Bonds, a numerical rate of interest, which shall be set forth in the Supplemental Resolution authorizing such Bonds, that shall be the maximum rate of interest such Bonds may at any time bear; provided, however, that (a) should the Authority obtain insurance or other coverage which provides that any increase in the variable interest rate on any Variable Interest Rate Bonds above a threshold rate will be reimbursed or paid by the insurer or provider of such other coverage, such threshold rate will be deemed to be the Maximum Interest Rate and (b) with respect to fixed interest rate [Senior] Bonds deemed to be Variable Interest Rate Bonds because of a Qualified Reverse Swap entered in connection therewith, the Maximum Interest Rate shall be (i) the fixed interest rate of such [Senior] Bonds for so long as the aggregate Outstanding principal amount of all such fixed interest rate [Senior] Bonds deemed to be Variable Interest Rate Bonds is less than or equal to 5% of the aggregate principal amount of all [Senior] Bonds Outstanding, and (ii) otherwise shall be the maximum interest rate of such Qualified Reverse Swap. With respect to the immediately preceding clause (a), the insurer or provider of such other coverage providing such insurance policy or other coverage shall be an insurer or bank whose insurance policies or other coverage are rated in the highest Rating Category by S&P and Moody’s. *[This is a General Revenue Bond Resolution definition]*

“Moody’s” means Moody’s Investors Service, a corporation organized and existing under the laws of the State of Delaware, its successors and assigns, and, if such corporations shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, “Moody’s” shall be deemed to refer to any other nationally recognized securities rating agency designated by the Authority.

“Net Revenues” for any period means the amount of the excess of the Revenues over the Operating Expenses during such period; provided, however, that in calculating such amount there shall be excluded from “Revenues” any amounts that (i) are subject to appropriation by the Congress of the United States, the Legislature of the State or any other legislative body of a governmental entity or (ii) are not reasonably expected by the Authority to recur annually in predictable amounts until the scheduled retirement at maturity or pursuant to Sinking Fund Installments of all Senior Bonds and Junior Indebtedness Obligations Outstanding or then proposed to be Outstanding.

“New Extension” means an additional tolled roadway or an extension to or expansion of any Facility constituting a tolled roadway (including in either case tunnels and bridges), in each case which fully satisfies the requirements of the General Revenue Bond Resolution and upon such satisfaction is designated by the Authority as an Additional Project; provided that such Additional Project shall be (i) within the jurisdiction and control of the Authority and (ii) undertaken for transportation or transportation-related purposes (including related necessary or appropriate economic development activities). *[This is a General Revenue Bond Resolution definition]*

“New Interchange” means an interchange on any Facility constituting a tolled roadway which fully satisfies the requirements of the General Revenue Bond Resolution and upon such satisfaction is designated by the Authority as an Additional Project; provided that such Additional Project shall be (i) within the jurisdiction and control of the Authority and (ii) undertaken for transportation or transportation-related purposes (including related necessary or appropriate economic development activities). *[This is a General Revenue Bond Resolution definition]*

“NNYB” or “New NY Bridge” means the portion of the Original Project constituting the Governor Malcolm Wilson Tappan Zee Bridge in the Hudson section, as provided in Section 356(2) of

the Act, constituting the replacement of said Facility with a new multi-span bridge crossing the Hudson River between Tarrytown and Nyack, New York, and all toll plazas and support facilities for such bridge in Westchester or Rockland Counties.

“Operating Expenses” means the expenses incurred for operation, maintenance and repair, ordinary replacement and ordinary reconstruction of any Facility or any part thereof and shall include, without limiting the generality of the foregoing, administrative expenses, premiums and reserves for insurance and self-insurance, fees or premiums for a Credit Facility, Reserve Credit Facility, Qualified Swap or Qualified Reverse Swap, legal and engineering expenses, payments into pension, retirement, health and hospitalization funds, and any other expenses associated with the rehabilitation and reconstruction of a municipal highway, under which passes any portion of the Original Project, and required to be paid by the Authority by Subdivision 4 of Section 359 of the Act, as in effect on August 25, 1992, all to the extent properly and directly attributable to the operation of the Original Project, and rental payments in connection with operating leases entered in the ordinary course of business, all to the extent properly and directly attributable to any Facility, and the expenses and compensation of the Fiduciaries required to be paid under the Junior Indebtedness General Resolution; but does not include (i) any costs or expenses for new construction or for major reconstruction or (ii) any provision for interest, depreciation, amortization or similar charges.

“Original Project” means all New York State Thruway sections and connections constituting roads or bridges, authorized by the Act as in effect on, and open to traffic on the original date of adoption of the General Revenue Bond Resolution, except the portion of I-84 in the State, together with any Facility Capital Improvements related thereto.

“Other Authority Project” means one or more facilities and other real and personal property, or any interest therein, which the Authority may now or hereafter be authorized to acquire, design, construct, maintain, operate, finance, improve, reconstruct, rehabilitate or otherwise undertake for transportation or transportation-related purposes (including related necessary or appropriate economic development activities). Each Other Authority Project shall be within the jurisdiction and control of the Authority and shall be designated as an Other Authority Project by a Supplemental Resolution adopted pursuant to the Junior Indebtedness General Resolution, and if not so designated shall not become an Other Authority Project. Notwithstanding the foregoing, the following projects, to the extent authorized by law, shall in any event be deemed Other Authority Projects regardless of whether the Authority has jurisdiction and control of such projects and whether designated by a Supplemental Resolution: (1) the Inner Harbor project and the Intermodal Transportation Center in Syracuse; (2) the Horizons Waterfront project in Buffalo; (3) the Stewart International Airport Access project in Orange County and intended to provide direct access to Stewart International Airport from Interstate Route 84 in the vicinity of the airport; (4) the New York State Canal system; (5) the Thruway Exit 26 project in Schenectady County; and (6) the Tappan Zee Bridge Ferry Service project between Rockland County and Manhattan.

“Other Authority Project Cost” shall have the meaning set forth for such term in the definition of “Project Cost.”

“Outstanding,” when used with reference to Junior Indebtedness Obligations, means, as of any date, all Junior Indebtedness Obligations theretofore or thereupon being authenticated and delivered under the Junior Indebtedness General Resolution except:

- (i) Any Junior Indebtedness Obligation canceled or delivered for cancellation at or prior to such date;

(ii) Any Junior Indebtedness Obligation (or portion thereof) deemed to have been paid in accordance with the terms of the Junior Indebtedness General Resolution; or

(iii) Any Junior Indebtedness Obligation in lieu of or in substitution for which other Junior Indebtedness Obligations shall have been authenticated and delivered pursuant to the Junior Indebtedness General Resolution;

provided, however, that, unless required pursuant to a Supplemental Resolution, a Parity Reimbursement Obligation shall not, by itself, increase the Outstanding principal amount of Junior Indebtedness Obligations.

“Principal” or “principal” means (1) with respect to any Capital Appreciation Junior Indebtedness Obligation, the Accreted Amount thereof (the difference between the stated amount to be paid at maturity and the Accreted Amount being deemed unearned interest), provided, however, when used in connection with (a) the authorization and issuance of Junior Indebtedness Obligations and (b) the order of priority of payments of Junior Indebtedness Obligations after an Event of Default, “Principal” or “principal” means the Original Principal Amount of a Capital Appreciation Junior Indebtedness Obligation (the difference between the Accreted Amount and the Original Principal Amount being deemed interest), and provided further, however, that when used in connection with determining whether the Junior Indebtedness Obligation holders of the requisite principal amount of Outstanding Junior Indebtedness Obligations have given any required consent, notice, waiver, request, demand, authorization, direction or notice, “Principal” or “principal” means the Accreted Amount, (2) with respect to any Capital Appreciation and Current Interest Junior Indebtedness Obligation, the Appreciated Value thereof, and (3) with respect to any Current Interest Junior Indebtedness Obligation, the principal amount of such Junior Indebtedness Obligation payable at maturity.

“Principal Installment” means, as of any date of calculation and with respect to any Series, (a) the Principal amount of Outstanding Junior Indebtedness Obligations of such Series, due on the dates and in the amounts, in each case as specified in the Supplemental Resolution authorizing such Series, reduced by the Principal amount of such Junior Indebtedness Obligations which would be retired by reason of the payment when due and application in accordance with the Junior Indebtedness General Resolution of Sinking Fund Installments payable before such future date, plus the unsatisfied balance of any Sinking Fund Installment due on such certain future date, together with the aggregate amount of the premiums, if any, applicable on such future date upon the redemption of such Junior Indebtedness Obligations by application of such Sinking Fund Installments in a principal amount equal to such unsatisfied balance, and (b) with respect to any amounts due under any Parity Reimbursement Obligation, the Principal amount of such amounts due under any Parity Reimbursement Obligation.

“Principal Payment Date” means, with respect to a Series of Junior Indebtedness Obligations, each date on which principal or a Sinking Fund Installment, if any, is payable pursuant to the Supplemental Resolution authorizing such Junior Indebtedness Obligations.

“Project Cost” with respect to any Facility, shall mean (i) the costs incurred or to be incurred by the Authority in connection with or incidental to the acquisition, design, construction, improvement, reconstruction or rehabilitation of such Facility, including legal, administrative, engineering, planning, design, studies, insurance costs and financing costs of such Facility (except to the extent such costs are funded from the proceeds of any Junior Indebtedness Obligations of the Authority, the payment of which is included as a Project Cost under clause (iii) below); (ii) amounts, if any, required by the Junior Indebtedness General Resolution to be paid into (A) any account or subaccount of the Junior Indebtedness Fund, (B) the Junior Indebtedness Obligations Account of the Rebate Fund established pursuant to paragraph (6) of Section 401 of the Junior Indebtedness General Resolution, or (C) any other Fund or

account established by the General Revenue Bond Resolution pursuant to the direction of an Authorized Officer in a Certificate of Determination; (iii) payments when due (whether at the maturity of principal or the due date of interest or upon redemption) on Junior Indebtedness Obligations Anticipation Notes; (iv) costs of equipment and supplies and initial working capital and reserves required by the Authority for the commencement of operation of such Facility; (v) costs of acquisition by the Authority of real or personal property or any interest therein, including land required for relocation and relocation costs and land required for environmental mitigation; (vi) any other costs properly attributable to the acquisition, design, construction, improvement, reconstruction or rehabilitation of such Facility, including costs of any Facility Capital Improvements; and (vii) interest on Junior Indebtedness Obligations during the estimated period of construction and for a reasonable period thereafter. As distinguished from Project Costs, any such costs incurred in connection with an Other Authority Project that has not been designated an Additional Project shall be referred to as “Other Authority Project Costs”.

“Purchase Agreement or Placement Agreement” means the agreement between the Authority and the underwriters or purchasers named therein for the public offering or private placement, as the case may be, of Junior Indebtedness Obligations.

“Qualified Reverse Swap” means, to the extent from time to time permitted by law, with respect to [Senior] Bonds, any financial arrangement (i) that is entered into by the Authority in connection with [Senior] Bonds bearing interest at a fixed rate of interest in the expectation of lowering the Authority’s costs of incurring such indebtedness, (ii) that is entered into by the Authority for a term of more than five years, (iii) the net effect of which, together with the interest rate borne by such [Senior] Bonds, is a variable rate of interest to the Authority during the term of such arrangement, and (iv) which has been designated in writing to the Trustee by an Authorized Officer as a Qualified Reverse Swap with respect to such Bonds. *[This is a General Revenue Bond Resolution definition]*

“Qualified Swap” means, to the extent from time to time permitted pursuant to law, with respect to [Senior] Bonds, any financial arrangement (i) that is entered into by the Authority with an entity that is a Qualified Swap Provider at the time the arrangement is entered into; (ii) which provides that the Authority shall pay to such entity an amount based on the interest accruing at a fixed rate on an amount equal either to the principal amount of such [Senior] Bonds of such Series or a notional principal amount relating to such Series, and that such entity shall pay to the Authority an amount based on the interest accruing on such actual or notional principal amount at a variable rate of interest computed according to a formula set forth in such arrangement (which need not be the same as the actual rate of interest borne by such [Senior] Bonds) or that one shall pay to the other any net amount due under such arrangement or such other similar arrangement, the net effect of such arrangement and the interest rate borne by such [Senior] Bonds is at all times a fixed interest rate to the Authority; (iii) which provides for a commencement date and a termination date identical to the term or remaining term of such [Senior] Bonds, taking into account any conversion of Bonds from a variable interest rate to a fixed interest rate as a termination date; and (iv) which has been designated in writing to the Trustee by an Authorized Officer as a Qualified Swap with respect to such [Senior] Bonds. *[This is a General Revenue Bond Resolution definition]*

“Qualified Swap Provider” means, with respect to a Series of [Senior] Bonds, an entity whose senior long term obligations, other senior long term obligations or claims paying ability or whose payment obligations under a Qualified Swap are guaranteed by an entity whose senior long term debt obligations, other senior unsecured long term obligations or claims paying ability are rated either (i) at least as high as “A3” by Moody’s, and “A-” by S&P, or the equivalent thereof by any successor thereto for so long as such rating agency is then maintaining a rating on the [Senior] Bonds Outstanding, but in no event lower than any Rating Category designated by each such rating agency for the Bonds Outstanding subject to such Qualified Swap, or (ii) any such lower Rating Categories which each such

rating agency then maintaining a rating on the [Senior] Bonds Outstanding indicates in writing to the Authority and the Trustee will not, by itself, result in a reduction or withdrawal of its rating on the [Senior] Bonds Outstanding subject to such Qualified Swap that is in effect prior to entering into such Qualified Swap. *[This is a General Revenue Bond Resolution definition]*

“Rating Categories” means one of the generic rating categories of either Moody’s, S&P or Fitch without regard to any refinement or gradation of such rating by a numerical modifier or otherwise.

“Rebate Amount” means, with respect to each Series of Junior Indebtedness Obligations, the amount equal to the rebatable arbitrage and any income attributable to the rebatable arbitrage as required by the Code.

“Rebate Fund” means the Fund designated as the Rebate Fund established in the General Revenue Bond Resolution.

“Record Date” means with respect to any Interest Payment Date, unless the applicable Supplemental Resolution authorizing a particular Series of Junior Indebtedness Obligations or a Certificate of Determination relating thereto provides otherwise with respect to Junior Indebtedness Obligations of such Series, the fifteenth (15th) day of the calendar month next preceding such Interest Payment Date.

“Redemption Date” means the date upon which Junior Indebtedness Obligations are to be called for redemption pursuant to the Junior Indebtedness General Resolution.

“Redemption Price” means, with respect to any Junior Indebtedness Obligations, the Principal amount thereof plus the applicable premium, if any, payable upon the redemption thereof.

“Regulations” means the Income Tax Regulations promulgated by the Department of the Treasury from time to time.

“Reserve Credit Facility” means (a) any irrevocable, unconditional letter of credit issued by a bank or savings and loan association whose long-term uncollateralized debt obligations are rated in one of the two highest Rating Categories by each nationally recognized rating agency then rating any Junior Indebtedness, or if no Junior Indebtedness is then rated, by any nationally recognized rating agency, and (b) any insurance policy providing substantially equivalent liquidity as an irrevocable, unconditional letter of credit, and which is issued by a municipal bond or other insurance company, obligations insured by which are rated in one of the two highest Rating Categories by each nationally recognized rating agency then rating any Junior Indebtedness, or if no Junior Indebtedness is then rated, by a nationally recognized rating agency, and which is used, to the extent permitted under applicable law, including the Act, to fund all or a portion of any Junior Indebtedness Debt Service Reserve Account Requirement.

“Reserve Maintenance Payments” means an amount described as such for a particular Authority fiscal year in the Authority Budget, which for each fiscal year of the Authority shall be an amount no less than the greater of (i) \$30,000,000 or (ii) the amount specified in an Independent Consultant’s Certificate for such Authority fiscal year (the amount so specified in each Authority Budget being the “Minimum Amount”); provided further that Reserve Maintenance Payments may not exceed an amount or amounts from time to time established by the Authority pursuant to a Supplemental Resolution (the “Maximum Amount”); provided further that any such Maximum Amount shall not be less than the Minimum Amount. For purposes of the tests set forth in the Junior Indebtedness General Resolution for an Other Authority Project or for a New Interchange or a New Extension to become an Authority Project, for any period beyond the term of an Authority Budget, “Reserve Maintenance Payments” shall be based upon

estimates provided in an Independent Consultant's Certificate. *[This is a General Revenue Bond Resolution definition]*

“Revenues” means (i) all tolls, revenues, fees, charges, rent and other income and receipts derived from the operation, jurisdiction and control of the Facilities, (ii) the proceeds of any use and occupancy insurance relating to the Facilities and of any other insurance which insures against loss of Revenues, and (iii) investment income received on any moneys or securities held under the General Revenue Bond Resolution other than investment income on amounts held in the Rebate Fund, the Junior Indebtedness Fund or any other Fund to the extent the investment income from such Fund or any account thereof is not transferred to the Revenue Fund pursuant to the General Revenue Bond Resolution. “Revenues” shall not include the proceeds of any gifts, grants or other income to the Authority from the government of the United States or the State, any public instrumentality of the State or any other individual or entity, to the extent the Authority is precluded by law, the grant or other operative contract or instrument from applying such amounts to Operating Expenses, Debt Service (as such term is defined in the General Revenue Bond Resolution) and Junior Indebtedness Debt Service.

“S&P” means Standard & Poor's Ratings Services, a division of McGraw-Hill Financial, Inc., its successors and assigns, and, if such corporation shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, “S&P” shall be deemed to refer to any other nationally recognized securities rating agency designated by the Authority.

“Senior Bonds” means all bonds, notes and other evidences of indebtedness or obligations (other than any [Senior] Bond Anticipation Notes) issued or incurred by the Authority pursuant to the General Revenue Bond Resolution that are secured by and payable from the Senior Debt Service Fund established in Section 502 of the General Revenue Bond Resolution and for which the pledge and lien created by the General Revenue Bond Resolution are senior in all respects to any pledge or lien now or hereafter created for Junior Indebtedness Obligations.

“Senior Debt Service Reserve Fund Requirement” means, as of any date of calculation, an amount equal to the maximum amount of Aggregate Debt Service for any 12-month period (exclusive of accrued interest, if any) on all Outstanding [Senior] Bonds secured by the Senior Debt Service Reserve Fund; provided that (i) with respect to Variable Interest Rate Bonds, interest on such [Senior] Bonds shall be calculated at the Estimated Average Interest Rate until conversion to a fixed rate of interest at which time such requirement shall be recalculated in accordance with actual Debt Service thereafter due and payable for any ensuing 12-month period with respect to such [Senior] Bonds and (ii) for the purposes of determining the amount required to be on deposit and thereafter maintained in the Senior Debt Service Reserve Fund with respect to any Series of [Senior] Bonds the interest on which is excludable from gross income for federal income tax purposes, to the extent required to maintain the federal tax status of interest on such [Senior] Bonds, the Senior Debt Service Reserve Fund Requirement shall at no time exceed the sum of the Senior Debt Service Reserve Fund Requirement immediately prior to the issuance of such Series and an amount equal to ten per centum (10%) of the proceeds (as such term is used in Section 148(d) of the Code) from the sale of such Series. *[This is a General Revenue Bond Resolution definition]*

“Series” means, as applicable, (i) all of the Junior Indebtedness Obligations issued as notes or bonds of the Authority that are authenticated and delivered on original issuance and denominated as part of the same series, and thereafter delivered in lieu of or in substitution of such Junior Indebtedness Obligations regardless of variations in maturity, interest rate, Sinking Fund Installments or other provisions, or (ii) any evidence of indebtedness incurred by the Authority constituting Junior Indebtedness Obligations that is not evidenced in the manner set forth in clause (i) of this definition.

“Sinking Fund Installment” means, with respect to any Series of Junior Indebtedness Obligations or Senior Bonds, as of any date of calculation and with respect to any Junior Indebtedness Obligations or Senior Bonds of such Series, the amount of money required by the applicable Supplemental Resolution pursuant to which such Junior Indebtedness Obligations or Senior Bonds were issued, to be paid in all events by the Authority on a single future date for the retirement of any Outstanding Junior Indebtedness Obligations or Senior Bonds of said Series which mature after said future date, but does not include any amount payable by the Authority by reason only of the maturity of such Junior Indebtedness Obligation or Senior Bond.

“State” means the State of New York.

“Subordinated Indebtedness” means all bonds, notes or any other evidence of indebtedness issued or incurred by the Authority in accordance with the General Revenue Bond Resolution and payable out of amounts available in the General Reserve Fund.

“Supplemental Resolution” shall mean any resolution supplemental to or amendatory of the Junior Indebtedness General Resolution, adopted by the Authority and becoming effective in accordance with the Junior Indebtedness General Resolution.

“Term Bonds” means with respect to [Senior] Bonds of a Series, the [Senior] Bonds so designated in an applicable Supplemental Resolution or the applicable Certificate of Determination and payable from Sinking Fund Installments. *[This is a General Revenue Bond Resolution definition]*

“Test Period” means a period of time consisting of the greater of (i) the next succeeding five Authority fiscal years and (ii) the period extending from the next succeeding Authority fiscal year through the second Authority fiscal year following the estimated Date of Completion of any Facility not then completed.

“TIFIA Lender” means the United States Department of Transportation, an agency of the United States of America, acting by and through the Federal Highway Administrator.

“TIFIA Loan” means the loan made by the TIFIA Lender Under the TIFIA Loan Agreement pursuant to the Transportation Infrastructure Financing and Innovation Act to the Authority, to pay a portion of the Eligible Project Costs (as such term is defined in the TIFIA Loan Agreement) of the NNYB.

“TIFIA Loan Agreement” means the TIFIA Loan Agreement, dated as provided therein, by and between the Authority and the TIFIA Lender.

“Trustee” means a trustee appointed by the Authority pursuant to the Junior Indebtedness General Resolution, its successor and assigns, and any other corporation or association which may at any time be substituted in its place as provided in the Junior Indebtedness General Resolution.

“Variable Interest Rate Bonds” means [Senior] Bonds which bear a variable interest rate but does not include any [Senior] Bond which, during the remainder of the term thereof to maturity, bears interest at a fixed rate; provided, however, that [Senior] Bonds bearing a variable rate of interest shall not be deemed Variable Interest Rate Bonds if (a) the Authority has entered into a Qualified Swap with respect to such [Senior] Bonds (but only for so long as such Qualified Swap meets all requirements of a “Qualified Swap”) or (b) each of the following conditions is met: (i) such [Senior] Bonds are issued concurrently in equal principal amounts with other [Senior] Bonds bearing a variable rate of interest, (ii) such [Senior] Bonds and such other [Senior] Bonds are required to remain Outstanding in equal

principal amounts at all times, and (iii) the net effect of such equal principal amounts and variable interest rates is at all times a fixed interest rate to the Authority; provided further that, except for purposes of establishing the amount of the Senior Debt Service Reserve Fund Requirement, (1) [Senior] Bonds bearing a fixed rate of interest shall be deemed Variable Interest Rate Bonds to the extent that the Authority has entered into a Qualified Reverse Swap and (2) the derivative rate of such arrangement shall be deemed to be the variable interest rate of such [Senior] Bonds. *[This is a General Revenue Bond Resolution definition]*

Junior Indebtedness General Resolution to Constitute Contract

In consideration of the purchase and acceptance of any and all Junior Indebtedness Obligations authorized to be issued under the Junior Indebtedness General Resolution by those who shall hold the same from time to time, the Junior Indebtedness General Resolution shall be deemed to be and shall constitute a contract between the Authority and the holders from time to time of Junior Indebtedness Obligations; and the pledge made in the Junior Indebtedness General Resolution and the covenants and agreements set forth therein to be performed on behalf of the Authority shall be for the equal benefit, protection and security of the holders of any and all Junior Indebtedness Obligations, all of which, regardless of the time or times of their issue, shall be of equal rank without preference, priority or distinction of any Junior Indebtedness Obligations over any other thereof, except as expressly provided in or permitted by the Junior Indebtedness General Resolution, by a Supplemental Resolution or by a related Certificate of Determination.

The Junior Pledge Effected by the Junior Indebtedness General Resolution

Junior Indebtedness Obligations are special obligations of the Authority and subject to the terms, conditions and limitations established in the General Revenue Bond Resolution and the Junior Indebtedness General Resolution.

There are pledged for the payment of the principal, and Redemption Price of, Sinking Fund Installments, if any, and interest on, Junior Indebtedness Obligations, in accordance with their terms, the provisions of the General Revenue Bond Resolution and the terms of the Junior Indebtedness General Resolution, subject only to the provisions of the General Revenue Bond Resolution and the provisions of the Junior Indebtedness General Resolution permitting the application thereof for the purposes and on the terms and conditions set forth therein, (i) the proceeds of the sale of Junior Indebtedness Obligations, (ii) the Revenues, and (iii) all amounts on deposit in the Junior Indebtedness Fund (including the investments, if any, thereof) other than amounts on deposit in any subaccount of the Junior Indebtedness Debt Service Reserve Account, which shall only secure the Series of Junior Indebtedness Obligations for which it was established. The pledge and lien created by the Junior Indebtedness General Resolution for Junior Indebtedness Obligations shall be subordinate in all respects to any pledge or lien now or hereafter created for Senior Bonds and shall be senior in all respects to any pledge or lien now or hereafter created for Subordinated Indebtedness.

All moneys at any time deposited in the Junior Indebtedness Fund, or any account thereof, shall be held in trust by the Trustee solely for the benefit of the Holders of Junior Indebtedness Obligations, other than amounts on deposit in any subaccount of the Junior Indebtedness Debt Service Reserve Account, which shall only secure the Series of Junior Indebtedness Obligations for which it was established.

Authorization of Junior Indebtedness Obligations

Junior Indebtedness Obligations entitled to the benefit, protection and security of the Junior Indebtedness General Resolution are authorized to be issued or incurred without limit, except as otherwise provided in the Junior Indebtedness General Resolution or as limited by law. The Junior Indebtedness General Resolution creates a continuing pledge and lien to secure the full and final payment of the principal and Redemption Price of, interest on, and Sinking Fund Installments for, all Junior Indebtedness Obligations, which continuing pledge and lien shall be subordinate in all respects to any pledge or lien now or hereafter created for Senior Bonds on the Revenues. Junior Indebtedness Obligations shall be special obligations of the Authority and subject to the terms, conditions and limitations established in the General Revenue Bond Resolution and the Junior Indebtedness General Resolution.

Purposes for Issuing or Incurring Junior Indebtedness Obligations

The purposes for which Junior Indebtedness Obligations may be issued or incurred by the Authority are to (i) pay Project Costs, Additional Project Costs and Other Authority Project Costs, (ii) refund or refinance any Senior Bonds (including any bond anticipation notes related thereto), Junior Indebtedness Obligations or Subordinated Indebtedness of the Authority, (iii) make a deposit to a subaccount of the Junior Indebtedness Debt Service Reserve Account in order to additionally secure a particular series of JIOs, (iv) pay Costs of Issuance relating to the issuance or incurrence of Junior Indebtedness Obligations and (v) pay or provide for the payment of Project Costs of improvement, reconstruction or rehabilitation of the NNYB for the purpose of preventing a loss of Net Revenues derived from the NNYB, provided, that such loss of Net Revenues would be the result of an emergency declared by the State, the federal governmental or a federal authority or agency and that proceeds of Additional Junior Indebtedness Obligations would not be used for such purpose to the extent that insurance proceeds relating to such occurrence were then available.

Notwithstanding the foregoing and except as permitted in the proviso to this paragraph, prior to the completion of the construction and equipping of the NNYB, Junior Indebtedness Obligations shall not be issued or incurred to pay for any Project Costs not related to the NNYB or to refund or refinance any Senior Bonds (including any bond anticipation notes related thereto); provided, however, that prior to the execution of the TIFIA Loan Agreement by the Authority and the TIFIA Lender, Junior Indebtedness Obligations may be issued by the Authority to refund or refinance any Senior Bonds and/or related bond anticipation notes, the proceeds of which were issued to pay Project Costs for the NNYB.

General Provisions for Issuance or Incurrence of Junior Indebtedness Obligations

The issuance or incurrence of a specific aggregate principal amount of Junior Indebtedness Obligations shall be authorized by a Supplemental Resolution or Supplemental Resolutions adopted at the time of or subsequent to the adoption of the Junior Indebtedness General Resolution and shall be subject to the express limitations of the Junior Indebtedness General Resolution. Junior Indebtedness Obligations issued as bonds or notes of the Authority shall be executed in accordance with the Junior Indebtedness General Resolution and delivered to the Trustee, shall be authenticated by the Trustee from time to time in such amounts as directed by the Authority, and be delivered to or upon the order of the Authority upon receipt to the Trustee, among other things, of a Counsel's Opinion to the effect that (i) the Authority has the right and power under the Act to adopt the General Revenue Bond Resolution, the Junior Indebtedness General Resolution and the Supplemental Resolution authorizing the specific aggregate amount of Junior Indebtedness Obligations being issued or incurred, and the General Revenue Bond Resolution, the Junior Indebtedness General Resolution and such Supplemental Resolution have each been duly and lawfully adopted by the Authority, are each in full force and effect and are each valid and

binding upon the Authority and enforceable in accordance with their respective terms, and no other authorization for the General Revenue Bond Resolution, the Junior Indebtedness General Resolution and such Supplemental Resolution is required; (ii) the Junior Indebtedness General Resolution and such Supplemental Resolution create the valid pledge of the proceeds of sale of the Junior Indebtedness Obligations, of the Revenues, and of amounts deposited in the Junior Indebtedness Fund and the accounts established therein, and the investment income derived therefrom which it purports to create pursuant to the Junior Indebtedness General Resolution, subject to the provisions of the Junior Indebtedness General Resolution permitting the withdrawal, payment, setting apart or appropriation thereof for the purposes and on the terms and conditions set forth in the Junior Indebtedness General Resolution and such Supplemental Resolution; and (iii) upon the execution and delivery thereof and upon authentication by the Trustee, such Junior Indebtedness Obligations will be valid and binding special obligations of the Authority, subject to the prior pledge and lien of the Holders of Senior Bonds on the Revenues and payable as provided in, and enforceable in accordance with their terms and the terms of, the Junior Indebtedness General Resolution and such Supplemental Resolution and entitled to their benefits and the benefits of the Act, and such Junior Indebtedness Obligations have been duly and validly authorized and issued in accordance with law, including the Act, as amended to the date of such Counsel's Opinion, and in accordance with the Junior Indebtedness General Resolution and such Supplemental Resolution; provided, however, that such Counsel's Opinion may be qualified to the extent that the enforceability thereof may be limited by bankruptcy, insolvency and similar laws affecting rights and remedies of creditors.

Issuance or Incurrence of Additional Senior Bonds

One or more Series of Additional Senior Bonds may be authorized and delivered upon original issuance for the purpose of (i) paying the Project Costs (other than Project Costs provided for in clause (iii)), (ii) paying Other Authority Project Costs, to the extent permitted by subparagraph (B) below, and (iii) paying or providing for the payment of Project Costs of improvement, reconstruction or rehabilitation of one or more Facilities for the purpose of preventing a loss of Net Revenues derived from such Facilities, provided that such loss of Net Revenues would be the result of an emergency or some unusual or extraordinary occurrence and that proceeds of Additional Senior Bonds would not be used for such purpose to the extent that insurance proceeds relating to such occurrence were then available.

(A) The Senior Bonds of any such Series issued for purposes specified in the foregoing clauses (i) and (ii) above shall be authenticated and delivered by the Trustee only upon receipt by it (in addition to the other documents and moneys required by the Bond Resolution) of:

1. A certificate of an Authorized Officer setting forth (i) the Net Revenues for any period of 12 consecutive calendar months out of the 18 calendar months next preceding the authentication and delivery of the Senior Bonds of such Series, provided that if any adjustment of rates shall have been placed in effect during such 12-month period, such Net Revenues shall reflect the Revenues which an Independent Consultant's Certificate estimates in the certificate delivered pursuant to paragraph 3 below would have resulted had such rate adjustment been in effect for the entire 12-month period, and (ii) the Net Revenue Requirement for such 12 calendar months, which certificate shall demonstrate that such Net Revenues equal or exceed such Net Revenue Requirement;

2. A certificate of an Authorized Officer familiar with such matters and an Independent Consultant's Certificate, in each case stating whether, to the best of such party's knowledge, any federal, State or other agency is then projecting or planning the construction, improvement or acquisition of any highway or other facility which, in the opinion of such person or firm, may be materially competitive with any part of the Facilities, and the estimated date of completion of such highway or other facility;

3. An Independent Consultant's Certificate setting forth, for the then current Authority fiscal year and each of the Authority fiscal years in the Test Period, estimates of Revenues giving effect to (i) the placing in service of any Facility not yet placed in service and on the assumption that any competitive highway or other facility referred to in its certificate delivered pursuant to paragraph 2 above will be completed on the date therein estimated and will thereafter be in operation during the period covered by such estimates, (ii) any adjustment of rates which shall have been placed in effect subsequent to the beginning of the current Authority fiscal year, as if such toll, fee or charge adjustment had been in effect from the beginning of such Authority fiscal year until the effective date of any subsequent adjustment presumed necessary, and (iii) any adjustment of rates which, in the opinion of the Independent Consultant, would be practicable and necessary to comply with the provisions of the toll, fee and charge covenant in the Bond Resolution, as if such adjustment were to be in effect from its effective date to the effective date of any other such adjustment;

4. An Independent Consultant's Certificate setting forth (i) for the years and taking into account the assumptions specified for the Independent Consultant's Certificate pursuant to paragraph 3 above, estimates of the Operating Expenses giving effect to the placing in service of any Facility taken into account in paragraph 3 above, (ii) the estimated total Project Cost, and (iii) the estimated date of placing in service of any Facility taken into account in such paragraph 3; and

5. A certificate of an Authorized Officer setting forth (i) the estimated Net Revenues (based on the certificates delivered pursuant to paragraphs 3 and 4 above) for the current Authority fiscal year and each of the years in the Test Period giving effect to the placing in service of any Facility not yet placed in service and (ii) the opinion that such estimated Net Revenues for the current Authority fiscal year and each of the Authority fiscal years in the Test Period equal or exceed the estimated Net Revenue Requirement (based on the certificate delivered pursuant to paragraph 1 above and assuming the Maximum Interest Rate on any Variable Interest Rate Bonds) for each such year and that estimated Net Revenues in the last full Authority fiscal year of the Test Period equal or exceed Maximum Annual Debt Service on all Senior Bonds Outstanding immediately after the authentication and delivery of the Senior Bonds being issued.

(B) Any Series of Additional Senior Bonds to be issued for the purpose of financing or refinancing Other Authority Project Costs shall be issued only if, in addition to satisfying the conditions of subparagraph (A) above, the Maximum Annual Debt Service on all Outstanding Senior Bonds issued for the purpose of financing or refinancing Other Authority Project Costs (after the issuance of such Series of Additional Senior Bonds) shall be less than 20% of the amount of Net Revenues calculated pursuant to clause (A)(1)(i) above; provided that there shall not be counted in the calculation of such Maximum Annual Debt Service any Senior Bonds initially issued to finance or refinance an Other Authority Project (1) if such Senior Bonds are no longer Outstanding, (2) if such Other Authority Project has since been designated an "Additional Project" in accordance with provisions of the Bond Resolution, or (3) to the extent that the proceeds of such Senior Bonds were used to finance Project Costs rather than Other Authority Project Costs, in accordance with the terms of the Bond Resolution.

(C) Any Series of Additional Senior Bonds to be issued for the purpose described in clause (iii) of the first paragraph under this heading, shall be authenticated and delivered by the Trustee only upon receipt by it (in addition to the other documents and moneys required by the Bond Resolution) of an Independent Consultant's Certificate setting forth (i) in reasonable detail the improvement, reconstruction or rehabilitation for which such payment is to be made, (ii) the estimated Project Cost of such improvement, reconstruction or rehabilitation, (iii) the amounts reasonably expected to be available therefor from insurance proceeds, and (iv) that such improvement, reconstruction or rehabilitation is necessary to prevent a loss of Net Revenues derived therefrom, that such loss would result from an emergency or some unusual or extraordinary occurrence that has occurred and that insurance proceeds

relating to such occurrence are not then available in amounts sufficient to improve, reconstruct or rehabilitate such Facility or Facilities to prevent such loss of Net Revenues.

Issuance or Incurrence of Additional Junior Indebtedness Obligations

(A) Except for (i) the First Series of Junior Indebtedness Obligations (in an aggregate principal amount up to the principal amount of the TIFIA Loan), and (ii) Junior Indebtedness Refunding Obligations meeting the refunding tests contained in the Junior Indebtedness General Resolution, and (iii) Junior Indebtedness Obligations issued or incurred to pay or provide for the payment of Project Costs of improvement, reconstruction or rehabilitation of the NNYB for the purpose of preventing a loss of Net Revenues derived from the NNYB, provided that such loss of Net Revenues would be the result of an emergency declared by the State, the federal governmental or a federal authority or agency and that proceeds of Additional Junior Indebtedness Obligations would not be used for such purpose to the extent that insurance proceeds relating to such occurrence were then available, Junior Indebtedness Obligations of one or more Series authorized and delivered upon original issuance for the purpose of paying Project Costs and Other Authority Project Costs shall be authenticated and delivered by the Trustee only upon receipt by it (in addition to the other documents and moneys required by the Junior Indebtedness General Resolution) of:

1. A certificate of an Authorized Officer setting forth (a) the Net Revenues for any period of 12 consecutive calendar months out of the 18 calendar months next preceding the authentication and delivery of the Junior Indebtedness Obligation to be issued or incurred, provided that if any adjustment of rates shall have been placed in effect during such 12-month period, such Net Revenues shall reflect the Revenues which an Independent Consultant's Certificate estimates in the certificate delivered pursuant to paragraph 3 below would have resulted had such rate adjustment been in effect for the entire 12-month period, and (b) the Junior Indebtedness Net Revenue Requirement for such 12-month period, which certificate shall demonstrate that such Net Revenues equal or exceed such Junior Indebtedness Net Revenue Requirement;
2. A certificate of an Authorized Officer familiar with such matters and an Independent Consultant's Certificate, in each case stating whether, to the best of such party's knowledge, any federal, State or other agency is then projecting or planning the construction, improvement or acquisition of any highway or other facility which, in the opinion of such person or firm, may be materially competitive with any part of the Facilities, and the estimated date of completion of such highway or other facility;
3. An Independent Consultant's Certificate setting forth, for the then current Authority fiscal year and each of the Authority fiscal years in the Test Period, estimates of Revenues giving effect to (a) the placing in service of any Facility not yet placed in service and on the assumption that any competitive highway or other facility referred to in its certificate delivered pursuant to paragraph 2 above will be completed on the date therein estimated and will thereafter be in operation during the period covered by such estimates, (b) any adjustment of rates which shall have been placed in effect subsequent to the beginning of the current Authority fiscal year, as if such toll, fee or charge adjustment had been in effect from the beginning of such Authority fiscal year until the effective date of any subsequent adjustment presumed necessary, and (c) any adjustment of rates which, in the opinion of the Independent Consultant, would be practicable and necessary to comply with the provisions of the toll, fee and charge covenant in the Junior Indebtedness General Resolution, as if such adjustment were to be in effect from its effective date to the effective date of any other such adjustment;

4. An Independent Consultant's Certificate setting forth (a) for the years and taking into account the assumptions specified for the Independent Consultant's Certificate pursuant to paragraph 3 above, estimates of the Operating Expenses giving effect to the placing in service of any Facility taken into account in such paragraph 3, (b) the estimated total Project Cost, and (c) the estimated date of placing in service of any Facility taken into account in such paragraph 3; and
5. A certificate of an Authorized Officer setting forth (a) the estimated Net Revenues (based on the certificates delivered pursuant to paragraphs 3 and 4 above) for the current Authority fiscal year and each of the years in the Test Period giving effect to the placing in service of any Facility not yet placed in service, and (b) the opinion that such estimated Net Revenues for the current Authority fiscal year and each of the Authority fiscal years in the Test Period equal or exceed the estimated Junior Indebtedness Net Revenue Requirement (based on the certificate delivered pursuant to paragraph 1 above, assuming the Maximum Interest Rate on any Variable Interest Rate Bonds (as such terms are defined in the General Revenue Bond Resolution) for each such year and that estimated Net Revenues in the last full Authority fiscal year of the Test Period equal or exceed Maximum Annual Senior and Junior Indebtedness Debt Service immediately after the authentication and delivery of the Junior Indebtedness Obligations being issued or incurred.

(B) Any Series of Junior Indebtedness Obligations to be issued or incurred for the purpose of financing or refinancing Other Authority Project Costs shall be issued or incurred only if, in addition to satisfying the conditions of paragraph (A) above, Maximum Annual Senior and Junior Indebtedness Debt Service issued for the purpose of financing or refinancing Other Authority Project Costs (after the issuance of such Series of Additional Junior Indebtedness Obligations) shall be less than 20% of the amount of Net Revenues calculated pursuant to clause (a) of paragraph (A)(1) above; provided that there shall not be counted in the calculation of such Maximum Annual Senior and Junior Indebtedness Debt Service any Senior Bonds or Junior Indebtedness Obligations initially issued to finance or refinance an Other Authority Project (1) if such Senior Bonds and Junior Indebtedness Obligations are no longer Outstanding, (2) if such Other Authority Project has since been designated an "Additional Project" in accordance with the General Revenue Bond Resolution and the Junior Indebtedness General Resolution, or (3) to the extent that the proceeds of such Senior Bonds and Junior Indebtedness Obligations were used to finance Project Costs rather than Other Authority Project Costs, in accordance with the terms of the General Revenue Bond Resolution;

(C) Any Series of Junior Indebtedness Obligations to be issued for the purpose described in clause (iii) paragraph (A) above shall be authenticated and delivered by the Trustee only upon receipt by it (in addition to the other documents and moneys required by the Junior Indebtedness General Resolution) of an Independent Consultant's Certificate setting forth (i) in reasonable detail the improvement, reconstruction or rehabilitation to the NNYB for which such payment is to be made, (ii) the estimated Project Cost of such improvement, reconstruction or rehabilitation, (iii) the amounts reasonably expected to be available therefor from insurance proceeds, and (iv) that such improvement, reconstruction or rehabilitation is necessary to prevent a loss of Net Revenues derived therefrom, that such loss would be the result of an emergency declared by the State, the federal governmental or a federal authority or agency and that insurance proceeds relating to such occurrence are not then available in amounts sufficient to improve, reconstruct or rehabilitate the NNYB to prevent such loss of Net Revenues.

Refunding Senior Bonds

One or more Series of Refunding Senior Bonds may be authenticated and delivered to refund all Outstanding Senior Bonds of one or more Series of Senior Bonds, a portion of a Series of Outstanding Senior Bonds, a portion of a maturity of a Series of Outstanding Senior Bonds or any Junior Indebtedness or Subordinated Indebtedness that was issued to finance or refinance Project Costs or Other Authority Project Costs. The Authority Board by resolution of its members may issue Refunding Senior Bonds of a Series in an aggregate principal amount sufficient, together with other moneys available therefor, to accomplish such refunding and to make such deposits required by the Bond Resolution and of the Supplemental Resolution authorizing such Series of Refunding Senior Bonds. Refunding Senior Bonds of any Series issued to refund Outstanding Senior Bonds shall be authenticated by the Trustee only upon satisfaction of the requirements of subparagraph (A) set forth under the heading “Additional Senior Bonds” above or upon the receipt by the Trustee of, among other items, a certificate of an Authorized Officer (a) setting forth the Aggregate Debt Service (assuming with respect to any Variable Interest Rate Bonds a Maximum Interest Rate) for the then current and each future Authority fiscal year to and including the Authority fiscal year in which the latest maturity of any Senior Bonds of any Series then Outstanding matures (i) with respect to the Senior Bonds of all Series Outstanding immediately prior to the date of authentication and delivery of such Refunding Senior Bonds, and (ii) with respect to the Senior Bonds of all Series to be Outstanding immediately thereafter, and (b) demonstrating that the Aggregate Debt Service (assuming with respect to any Variable Interest Rate Bonds a Maximum Interest Rate) set forth for each Authority fiscal year pursuant to (ii) above is no greater than that set forth for such Authority fiscal year pursuant to (i) above.

Junior Indebtedness Refunding Obligations

One or more Series of Junior Indebtedness Refunding Obligations may be issued or incurred to refund or refinance any Senior Bonds (including any bond anticipation notes related thereto), Junior Indebtedness Obligations or Subordinated Indebtedness of the Authority (including any portion of a maturity thereof) that was originally issued to finance or refinance Project Costs or Other Authority Project Costs.. The Authority Board by resolution of its members may issue Junior Indebtedness Refunding Obligations in an aggregate principal amount sufficient, together with other moneys available therefor, to accomplish such refunding and to make such deposits required by the Junior Indebtedness General Resolution and of the Supplemental Resolution authorizing such Junior Indebtedness Refunding Obligations.

Junior Indebtedness Refunding Obligations issued as bonds or notes of the Authority shall be authenticated by the Trustee only upon the satisfaction of any applicable requirements set forth in subparagraph (A) under the heading “Issuance or Incurrence of Additional Junior Indebtedness Obligations” above and upon the receipt by the Trustee of, among other items, a certificate of an Authorized Officer (a) setting forth the Junior Indebtedness Aggregate Debt Service for the then current and each future Authority fiscal year to and including the Authority fiscal year in which the latest maturity of any Junior Indebtedness Obligations of any Series then outstanding matures (i) with respect to all Junior Indebtedness Obligations outstanding immediately prior to the date of authentication and delivery of such Junior Indebtedness Refunding Obligations, and (ii) with respect to all Junior Indebtedness Obligations to be outstanding immediately thereafter, and (b) demonstrating that the Junior Indebtedness Aggregate Debt Service set forth for each Authority fiscal year pursuant to (ii) above is no greater than that set forth for such Authority fiscal year pursuant to (i) above; provided, however, that if the Authority is unable to provide a certificate of an Authorized Officer meeting the requirements of this paragraph, Junior Indebtedness Refunding Obligations to be issued as bonds or notes of the Authority may nevertheless be authenticated by the Trustee upon the receipt by the Trustee of a certificate of an

Authorized Officer meeting all of the requirements set forth under the heading “Issuance or Incurrence of Additional Junior Indebtedness Obligations” above.

Provisions Regarding Junior Indebtedness Obligations Secured by a Credit Facility

The Authority may include such provisions in a Supplemental Resolution or related Certificate of Determination authorizing the issuance of Junior Indebtedness Obligations secured by a Credit Facility as the Authority deems appropriate.

In addition, such Supplemental Resolution or applicable Certificate of Determination may establish such provisions as are necessary (i) to comply with the provisions of each such Credit Facility, (ii) to provide relevant information to the issuer of the Credit Facility, (iii) to provide a mechanism for paying Principal Installments and interest on such Junior Indebtedness Obligations under the Credit Facility, and (iv) to make provision for any events of default or for additional or improved security required by the issuer of a Credit Facility.

In connection therewith the Authority may enter into such agreements with the issuer of such Credit Facility providing for, inter alia: (i) the payment of fees and expenses to such issuer for the issuance of such Credit Facility; (ii) the terms and conditions of such Credit Facility and the Junior Indebtedness Obligations affected thereby; and (iii) the security, if any, to be provided for the issuance of such Credit Facility.

The Authority may secure such Credit Facility by an agreement providing for the purchase of the Junior Indebtedness Obligations secured thereby with such adjustments to the rate of interest, method of determining interest, maturity, or redemption provisions as specified by the Authority in the applicable Supplemental Resolution. The Authority may also in an agreement with the issuer of such Credit Facility agree to directly reimburse such issuer for amounts paid under the terms of such Credit Facility, together with interest thereon (the “Parity Reimbursement Obligation”); provided, however, that no Parity Reimbursement Obligation shall be created, for purposes of the Junior Indebtedness General Resolution, until amounts are paid under such Credit Facility. Any such Parity Reimbursement Obligation shall be deemed to be a part of the Junior Indebtedness Obligations to which the Credit Facility which gave rise to such Parity Reimbursement Obligation relates.

Junior Indebtedness Obligations Anticipation Notes

Whenever the Authority shall have, by Supplemental Resolution, authorized the issuance of a specified aggregate principal amount of Junior Indebtedness Obligations, the Authority may by resolution authorize the issuance of Junior Indebtedness Obligation Anticipation Notes in anticipation of the issuance of such authorized Junior Indebtedness Obligations, in a principal amount not exceeding the aggregate principal amount of such Junior Indebtedness Obligations so authorized. The principal of and premium, if any, and interest on such Junior Indebtedness Obligation Anticipation Notes and any renewals of such Junior Indebtedness Obligation Anticipation Notes shall be secured only by and be expressly made payable (i) from the proceeds of any renewals of such Junior Indebtedness Obligation Anticipation Notes issued to repay such Junior Indebtedness Obligation Anticipation Notes, (ii) from the proceeds of the sale of the Series of Junior Indebtedness Obligations in anticipation of which such Junior Indebtedness Obligation Anticipation Notes are issued, (iii) from any amounts provided by the State and/or the federal government expressly for payment of such Junior Indebtedness Obligation Anticipation Notes, or (iv) from the proceeds of such Junior Indebtedness Obligation Anticipation Notes deposited in the Junior Indebtedness Fund. Such proceeds and other amounts set forth in clauses (i), (ii), (iii) and (iv) may be pledged for the payment of the principal of and premium, if any, and interest on such Junior Indebtedness Obligation Anticipation Notes and any such pledge shall have priority over any other pledge

created by the Junior Indebtedness General Resolution. Notwithstanding the foregoing, the Authority may, in the Supplemental Resolution adopted with respect to such Junior Indebtedness Obligation Anticipation Notes, reserve the right to pay such Junior Indebtedness Obligation Anticipation Notes from such other sources identified therein, but the Authority shall not pledge such additional sources to secure such Junior Indebtedness Obligation Anticipation Notes. Such Junior Indebtedness Obligation Anticipation Notes shall be retired or provision shall be made for their retirement not later than the date of authentication and delivery of the Junior Indebtedness Obligations in anticipation of which they are issued.

Funds and Revenues

The General Revenue Bond Resolution establishes the following Funds, to be held as set forth below:

1. Revenue Fund, to be held by the Authority;
2. Operating Fund, to be held by the Authority;
3. Senior Debt Service Fund, to be held by the Trustee;
4. Senior Debt Service Reserve Fund, to be held by the Trustee;
5. Reserve Maintenance Fund, to be held by the Authority;
6. Junior Indebtedness Fund, to be held as determined in the applicable Supplemental Resolution, indenture or other agreement;
7. Facilities Capital Improvement Fund, to be held by the Authority;
8. Other Authority Projects Operating Fund, to be held by the Authority;
9. General Reserve Fund, to be held by the Authority;
10. Rebate Fund, to be held by the Authority; and
11. Construction Fund, to be held by the Authority.

Revenue Fund

The Authority shall pay into the Revenue Fund all Revenues as received, and on or before the last Business Day of each month, the Authority shall, out of the moneys in the Revenue Fund, pay into the Operating Fund all amounts required for reasonable and necessary Operating Expenses and reserves for Operating Expenses and working capital. The Authority shall, out of the moneys remaining in the Revenue Fund after the deposit to the Operating Fund on or before the last Business Day of each month allocate, transfer and apply the balance in the Revenue Fund as of the last day of the preceding month, to the extent sufficient therefor, as follows, but as to each transfer mentioned, only within the limitation indicated below and only after maximum payment within such limitation to the purposes and into the Funds in the following tabulation:

1. To the Trustee for deposit in the Senior Debt Service Fund, if and to the extent required so that the balance in the Senior Debt Service Fund shall be at least equal to Accrued Debt Service for all Bonds Outstanding as of the last day of such month, after taking into account any other amounts available

for payment of Debt Service, including any amounts representing investment earnings retained in the Senior Debt Service Fund or transferred from the Senior Debt Service Reserve Fund;

2. To the Trustee for deposit in the Senior Debt Service Reserve Fund, if and to the extent required so that the balance in said Fund shall equal the Senior Debt Service Reserve Requirement for all Bonds secured by such Fund and Outstanding on said date;

3. To the Reserve Maintenance Fund, amounts such that (a) on or before the first day of the seventh month of the Authority's fiscal year there shall have been deposited an amount equal to or greater than one-half of the amount, and (b) on or before the last day of the Authority's fiscal year there shall have been deposited an amount equal to or greater than the full amount, in each case provided in the Authority Budget for the applicable fiscal year for Reserve Maintenance Payments, plus accrued deficits, if any, with respect to prior required allocations to such Fund;

4. To the Junior Indebtedness Fund, if and to the extent required so that the balance in said Fund shall equal the amounts required to be deposited therein by the Supplemental Resolution or other indenture or agreement authorizing the issuance of Junior Indebtedness outstanding on said date;

5. To the Facilities Capital Improvement Fund, in the amounts and at the times determined to be necessary or appropriate by the Authority Board, to fund Project Costs or to set up reserves to fund such costs;

6. To the Other Authority Projects Operating Fund, in the amounts and at the times determined to be necessary or appropriate by the Authority Board, to fund operating expenses relating to Other Authority Projects or to set up reserves to fund such expenses; and

7. To the General Reserve Fund, to the extent of any remaining balance of such moneys withdrawn from the Revenue Fund.

Operating Fund

Amounts in the Operating Fund shall be paid out from time to time by the Authority for reasonable and necessary Operating Expenses, free and clear of the lien and pledge created by the General Revenue Bond Resolution.

The Authority shall at all times retain in the Operating Fund reasonable and necessary amounts for working capital and reserves for Operating Expenses including expenses which do not recur annually; provided that the total amount of such working capital and reserves set aside during any year shall not exceed 25% of the amount shown for Operating Expenses for such year in the applicable Authority Budget.

Whenever the Operating Fund exceeds the amount reasonable and necessary for Operating Expenses including reserves and working capital, the Authority shall apply the excess to the purposes and in the Funds established under the General Revenue Bond Resolution in the same manner as payments from the Revenue Fund.

Investment income on amounts in the Operating Fund shall be deposited into the Revenue Fund.

Senior Debt Service Fund

The Trustee shall on or before each Interest Payment Date or Redemption Date, as the case may be, withdraw from the Senior Debt Service Fund and pay:

- (A) The interest due on all Outstanding Bonds on such Interest Payment Date;
- (B) The Principal Installments due on all Outstanding Bonds on such Interest Payment Date;
- (C) The Sinking Fund Installments, if any, due on all Outstanding Bonds on such Interest Payment Date; and
- (D) The Redemption Price due on all Outstanding Bonds on any Redemption Date in accordance with General Revenue Bond Resolution.

The amounts paid out shall be irrevocably pledged to and applied to such payments.

In the event that on any Interest Payment Date, the amount in the Senior Debt Service Fund shall be less than the amounts, respectively, required for payment of interest on the Outstanding Bonds, for the payment of the principal of Outstanding Bonds or for the payment of Sinking Fund Installments of the Outstanding Bonds of any Series due and payable on such Interest Payment Date, the Authority, in the following order of priority, shall withdraw from the unencumbered moneys in the General Reserve Fund, the unencumbered moneys in the Other Authority Projects Operating Fund, the unencumbered moneys in the Facilities Capital Improvement Fund, the unencumbered moneys in the Reserve Maintenance Fund, and, solely to the extent necessary to make any payments with respect to Bonds secured by the Senior Debt Service Reserve Fund, amounts in the Senior Debt Service Reserve Fund, and deposit to the Senior Debt Service Fund such amounts as will increase the amount in the Senior Debt Service Fund to an amount sufficient to make payment of interest on, and principal and Sinking Fund Installments of the Outstanding Bonds of such Series; provided, however, that with respect to any Series of Bonds not secured by amounts in the Senior Debt Service Reserve Fund pursuant to the related Supplemental Resolution, payments relating to any such Bonds shall be made pro rata with all other Bonds from amounts available from unencumbered moneys in the General Reserve Fund, the Other Authority Projects Operating Fund, the Facilities Capital Improvement Fund and the Reserve Maintenance Fund, but shall not be funded from any amounts in the Senior Debt Service Reserve Fund.

Investment income on amounts in the Senior Debt Service Fund, to the extent permitted in a Supplemental Resolution, shall be retained in such Fund or, upon the direction of an Authorized Officer, shall be transferred to the Rebate Fund, the Construction Fund or the Revenue Fund.

Senior Debt Service Reserve Fund

In addition to the moneys allocated from the Revenue Fund, the Trustee shall deposit into the Senior Debt Service Reserve Fund such portion of the proceeds of the sale of Bonds of any Series, if any, as shall be prescribed in the Supplemental Resolution or the Certificate of Determination for such Series, and any other moneys and investments which may be made available to the Trustee for the purposes of the Senior Debt Service Reserve Fund from any other source or sources in order to increase the amounts on deposit in the Senior Debt Service Reserve Fund to the Senior Debt Service Reserve Fund Requirement.

If necessary, moneys and Investment Obligations held for the credit of the Senior Debt Service Reserve Fund shall be withdrawn by the Trustee, deposited to the credit of the Senior Debt Service Fund

and applied to the payment of interest, Principal Installments and Sinking Fund Installments of Bonds secured by the Senior Debt Service Reserve Fund at the times and in the amounts required to permit the Trustee to make timely payment of debt service due and payable on the Bonds.

Except as otherwise provided under this heading, investment income on amounts in the Senior Debt Service Reserve Fund shall be retained therein. If at any time moneys and Investment Obligations on deposit to the credit of the Senior Debt Service Reserve Fund exceed the Senior Debt Service Reserve Fund Requirement, the Trustee shall, to the extent permitted in a Supplemental Resolution, upon the direction of an Authorized Officer, withdraw therefrom and deposit such excess amount into the Senior Debt Service Fund, the Revenue Fund, the Rebate Fund or the Construction Fund.

In lieu of moneys or Investment Obligations, the Authority may, to the extent permitted by law, deposit or cause to be deposited to or substituted for deposit to the Senior Debt Service Reserve Fund a Reserve Credit Facility for the benefit of the Holders of the Bonds secured by the Senior Debt Service Reserve Fund for all or any part of the Senior Debt Service Reserve Fund Requirement. Each Reserve Credit Facility deposited to the Senior Debt Service Reserve Fund shall be payable (upon the giving of such notice as may be required thereby) on any date on which moneys are required to be withdrawn from the Senior Debt Service Reserve Fund and such withdrawal cannot be made without drawing upon such Reserve Credit Facility. In computing the amount on deposit in the Senior Debt Service Reserve Fund, a Reserve Credit Facility shall be valued at the amount available to be drawn or payable thereunder on the date of computation.

In the event of the refunding of any Bonds, the Authority may withdraw from the Senior Debt Service Reserve Fund all or any portion of the amounts accumulated therein with respect to the Bonds being refunded and deposit such amounts with the Trustee to be held for the payment of the principal or Redemption Price, if applicable, and interest on the Bonds being refunded; provided that such withdrawal shall not be made unless (i) upon such refunding, the Bonds being refunded shall be deemed to have been paid within the meaning and with the effect provided in the General Revenue Bond Resolution, and (ii) the amount remaining in the Senior Debt Service Reserve Fund, after giving effect to any Reserve Credit Facility deposited in such Fund pursuant to the General Revenue Bond Resolution, shall not be less than the Senior Debt Service Reserve Fund Requirement, and provided, further, that, at the time of such withdrawal, there shall exist no deficiency in the Senior Debt Service Fund.

The Authority may determine by Supplemental Resolution that a Series of Bonds shall not be secured by the Senior Debt Service Reserve Fund, in which case no amounts shall be required from the proceeds of such Series of Bonds for deposit in the Senior Debt Service Reserve Fund and no amounts shall be payable from the Senior Debt Service Reserve Fund to pay amounts due or payable with respect to such Bonds.

Reserve Maintenance Fund

Moneys held for the credit of the Reserve Maintenance Fund shall be disbursed only for the purpose of paying a cost relating to a Facility of:

- (a) maintenance or repairs not recurring annually, and renewals and replacements,
- (b) repairs or replacements resulting from an emergency or caused by some unusual or extraordinary occurrence, to the extent that the moneys in other available Funds, together with insurance proceeds, if any, available therefor are insufficient to meet such emergency,
- (c) items of equipment, and

(d) engineering expenses incurred under the provisions of the General Revenue Bond Resolution.

The Authority shall from time to time transfer any moneys from the Reserve Maintenance Fund to the credit of the Revenue Fund upon the receipt of a certificate of an Authorized Officer directing such transfer and certifying that the amount so to be transferred is no longer required for the purposes of the Reserve Maintenance Fund.

Investment income on amounts in the Reserve Maintenance Fund shall be deposited into the Revenue Fund.

In connection with the establishment of Authority Budgets for each fiscal year of the Authority, the Authority shall cause the Independent Consultant, at least once every three Authority fiscal years, to make an estimate or to evaluate the Authority's estimate of Reserve Maintenance Payments and to deliver a certificate or certificates setting forth the amount or amounts it has approved as an estimate of Reserve Maintenance Payments for each fiscal year of the Authority covered by such certificate. Any Independent Consultant's Certificate delivered in connection with the establishment of Reserve Maintenance Payments shall take into account any other moneys available for such purposes in determining the amount of such Reserve Maintenance Payments.

Junior Indebtedness Fund

The Junior Indebtedness Fund is established in Section 502(6) of the General Revenue Bond Resolution and secures Junior Indebtedness Obligations issued or incurred pursuant to the Junior Indebtedness General Resolution and any applicable Supplemental Resolution. The principal, and Redemption Price of, Sinking Fund Installments, if any, and interest on, Junior Indebtedness Obligations are payable out of, and secured by a pledge of (i) the proceeds of the sale of Junior Indebtedness Obligations, (ii) the Revenues, and (iii) all amounts on deposit in the Junior Indebtedness Fund from time to time (including the investments, if any, thereof) other than amounts on deposit in any subaccount of the Junior Indebtedness Debt Service Reserve Account, which shall only secure the Series of Junior Indebtedness Obligations for which it was established. The pledge and lien created by the Junior Indebtedness General Resolution for Junior Indebtedness Obligations shall be subordinate in all respects to any pledge or lien now or hereafter created for Senior Bonds and shall be senior in all respects to any pledge or lien now or hereafter created for Subordinated Indebtedness.

The Junior Indebtedness General Resolution establishes the following accounts in the Junior Indebtedness Fund with respect to the issuance or incurrence of Junior Indebtedness Obligations, to be held as set forth below:

1. Junior Indebtedness Proceeds Account, to be held by the Trustee;
2. Junior Indebtedness Construction Account, to be held by the Authority;
3. Junior Indebtedness Debt Service Payment Account, to be held by the Trustee; and
4. Junior Indebtedness Debt Service Reserve Account, to be held by the Trustee.

In addition, the Junior Indebtedness General Resolution establishes the Junior Indebtedness Account of the Facilities Capital Improvement Fund, to be held by the Authority; and the Junior Indebtedness Account of the Rebate Fund, to be held by the Trustee.

*Junior Indebtedness Proceeds Account*The Trustee shall deposit the proceeds of the sale of Junior Indebtedness Obligations, simultaneously with the issuance and delivery of Junior Indebtedness Obligations, in the related subaccount of the Junior Indebtedness Proceeds Account pending further written instructions from an Authorized Officer of the Authority. Any investment income earned on amounts in any subaccount of the Junior Indebtedness Proceeds Account shall be credited to such subaccount.

Junior Indebtedness Debt Service Payment Account

The Trustee shall on or before each Interest Payment Date, Principal Payment Date or Redemption Date, as the case may be, pay from the Junior Indebtedness Debt Service Payment Account:

(A) The interest due on all Outstanding Junior Indebtedness Obligations on such Interest Payment Date;

(B) The Principal Installments due on all Outstanding Junior Indebtedness Obligations on such Principal Payment Date;

(C) The Sinking Fund Installments, if any, due on all Outstanding Junior Indebtedness Obligations on such Principal Payment Date; and

(D) The Redemption Price due on all Outstanding Junior Indebtedness Obligations on any Redemption Date

The amounts paid out shall be irrevocably pledged to and applied to such payments.

In the event that on any Interest Payment Date and/or Principal Payment Date, as the case may be, the amount in the Junior Indebtedness Debt Service Payment Account shall be less than the amounts, respectively, required for payment of interest on the Outstanding Junior Indebtedness Obligations, for the payment of the principal of Outstanding Junior Indebtedness Obligations or for the payment of Sinking Fund Installments of the Outstanding Junior Indebtedness Obligations of any Series due and payable on such Interest Payment Date or Principal Payment Date, the Authority, in the following order of priority, shall withdraw from the unencumbered moneys in the General Reserve Fund, the unencumbered moneys in the Other Authority Projects Operating Fund, and the unencumbered moneys in the Facilities Capital Improvement Fund, and, solely to the extent necessary to make any payments with respect to Junior Indebtedness Obligations secured by a subaccount of the Junior Indebtedness Debt Service Reserve Account, amounts in such subaccount of Junior Indebtedness Debt Service Reserve Account, and deposit to such subaccount of Junior Indebtedness Debt Service Reserve Account such amounts as will increase the amount in such subaccount to an amount sufficient to make payment of interest on, and principal and Sinking Fund Installments of, the Outstanding Junior Indebtedness Obligations of such Series; provided, however, that with respect to any Series of Junior Indebtedness Obligations not secured by amounts in a subaccount of the Junior Indebtedness Debt Service Reserve Account pursuant to the related Supplemental Resolution, payments relating to any such Junior Indebtedness Obligations shall be made pro rata with all other Junior Indebtedness Obligations from amounts available from unencumbered moneys in the General Reserve Fund, the Other Authority Projects Operating Fund and the Facilities Capital Improvement Fund, but shall not be funded from any amounts in any subaccount of the Junior Indebtedness Debt Service Reserve Account.

In the event of the refunding of any Junior Indebtedness Obligations that are separately secured by a subaccount of the Junior Indebtedness Debt Service Reserve Account, the Trustee shall, upon the direction of the Authority, withdraw from such subaccount all or any portion of the amounts

accumulated therein with respect to such Junior Indebtedness Obligations being refunded and deposit such amounts with itself as Trustee to be held for the payment of the principal or Redemption Price, if applicable, of and interest on such Junior Indebtedness Obligations being refunded; provided that such withdrawal shall not be made unless upon such refunding, the Junior Indebtedness Obligations being refunded shall be deemed to have been paid within the meaning and with the effect provided in the Junior Indebtedness General Resolution.

Investment income on amounts in the Junior Indebtedness Debt Service Payment Account, to the extent permitted in a Supplemental Resolution, shall be retained in such Account or, upon the direction of an Authorized Officer, shall be transferred to the Junior Indebtedness Obligations Account of the Rebate Fund.

Junior Indebtedness Debt Service Reserve Account

(1) Junior Indebtedness Obligations of a particular Series may be additionally secured by amounts deposited to a subaccount of the Junior Indebtedness Debt Service Reserve Account so designated for such purpose in the applicable Supplemental Resolution authorizing a Series of Junior Indebtedness Obligations or the related Certificate of Determination. Except as otherwise provided in such applicable Supplemental Resolution or such Certificate of Determination, each subaccount of the Junior Indebtedness Debt Service Reserve Account shall separately and solely secure the Series of Junior Indebtedness Obligations for which it was established. Funding of the applicable subaccount of the Junior Indebtedness Debt Service Reserve Account shall be from the proceeds of such Series or from available moneys of the Authority so designated and in an amount equal to the Junior Indebtedness Debt Service Reserve Account Requirement established for such Series in the applicable Supplemental Resolution or such Certificate of Determination. Moneys held for the credit of the Junior Indebtedness Debt Service Reserve Account may be invested in Investment Obligations; provided, however, that any investment of such moneys shall have a maturity of no greater than five years.

(2) In the event that on any Interest Payment Date or Principal Payment Date moneys in the Junior Indebtedness Debt Service Payment Account shall be insufficient to pay the interest, principal and Sinking Fund Installments then due on all Junior Indebtedness Obligations after utilizing all unencumbered moneys in the General Reserve Fund, the Other Authority Projects Operating Fund and the Facilities Capital Improvement Fund and on deposit in the Junior Indebtedness Debt Service Payment Account, moneys held for the credit of any subaccount of the Junior Indebtedness Debt Service Reserve Account shall be withdrawn by the Trustee and applied solely to the payment of interest, principal and Sinking Fund Installments then due and unpaid on the Series of Junior Indebtedness Obligations for which such subaccount additionally secures.

(3) Moneys and investments held for the credit of any subaccount of the Junior Indebtedness Debt Service Reserve Account in excess of the Junior Indebtedness Debt Service Reserve Account Requirement therefor, shall be withdrawn by the Trustee and, upon direction of the Authority, be deposited in the Junior Indebtedness Obligations Account of the Rebate Fund, if applicable, or the Junior Indebtedness Debt Service Payment Account, or be applied to the redemption of Junior Indebtedness Obligations in accordance with such direction.

(4) Upon any withdrawal of moneys held for the credit of any subaccount of the Junior Indebtedness Debt Service Reserve Account, the Authority shall, commencing in the month immediately following any such withdrawal, deliver to the Trustee one twenty-fourth (1/24) of the amount so withdrawn until the entire amount so withdrawn has been replenished and the amount in such subaccount of the Junior Indebtedness Debt Service Reserve Account has been restored to its Junior Indebtedness Debt Service Reserve Account Requirement; provided, however, that the replenishment of

any withdrawal from a subaccount of the Junior Indebtedness Debt Service Reserve Account shall only be made from unencumbered moneys in the General Reserve Fund, the Other Authority Projects Operating Fund and the Facilities Capital Improvement Fund.

Facilities Capital Improvement Fund

The Authority may, from time to time, disburse or transfer amounts in the Facilities Capital Improvement Fund for the purposes of providing for transfers to the Construction Fund, for Project Costs or, upon the determination of the Authority Board and after satisfying any deficiencies in the Senior Debt Service Fund, the Senior Debt Service Reserve Fund, the Reserve Maintenance Fund or the Junior Indebtedness Fund, transfer such amounts to any other Fund or account held under the General Revenue Bond Resolution.

Other Authority Projects Operating Fund

The Authority may, from time to time, disburse or transfer amounts in the Other Authority Projects Operating Fund, free and clear of the lien and pledge created by the General Revenue Bond Resolution, for the purpose of providing for operating costs of Other Authority Projects, or, upon the determination of the Authority Board, transfer such amounts to the General Reserve Fund.

General Reserve Fund

Amounts in the General Reserve Fund are to be transferred, in the following order, to the Senior Debt Service Fund, the Senior Debt Service Reserve Fund, the Reserve Maintenance Fund, the Junior Indebtedness Fund, the Facilities Capital Improvement Fund and the Other Authority Projects Operating Fund to make up deficiencies in or to set aside reserves for such Funds.

Subject to any lien or pledge securing Subordinated Indebtedness that has been determined by the Authority Board to be superior to such purposes, amounts in the General Reserve Fund not immediately required for the purposes specified in the preceding paragraph shall, pursuant to resolution of the Authority Board, be applied in the following order: (i) to the purchase, redemption or payment at maturity of Senior Bonds or Junior Indebtedness Obligations, (ii) to pay the capital costs of Other Authority Projects or (iii) paid to the Authority, free and clear of the lien and pledge created by the General Revenue Bond Resolution, for any lawful corporate purpose of the Authority, including but not limited to payment of amounts due with respect to Subordinated Indebtedness.

Upon any purchase or redemption, with moneys in the General Reserve Fund, of Senior Bonds of any Series and maturity for which Sinking Fund Installments have been established, there shall be credited toward each such Sinking Fund Installment thereafter to become due (other than that next due), unless otherwise directed by the Authority, an amount bearing the same ratio to such Sinking Fund Installment as the total principal amount of such Senior Bonds so purchased or redeemed bears to the total amount of all remaining Sinking Fund Installments for the Senior Bonds of the same Series and maturity to be credited.

Rebate Fund

Moneys on deposit in the Rebate Fund shall be applied by the Authority to make payments to the Department of the Treasury of the United States of America at such times and in such amounts as the Authority shall determine to be required by the Code to be rebated to the Department of the Treasury of the United States of America in accordance with the provisions of the Arbitrage and Use of Proceeds Certificate, if any, delivered in connection with each Series of Senior Bonds and Junior Indebtedness

Obligations. Moneys which the Authority determines to be in excess of the amount required to be so rebated shall be deposited to the Revenue Fund.

Covenants of the Authority

Payment of Junior Indebtedness Obligations. The Authority shall duly and punctually pay or cause to be paid from the Junior Indebtedness Debt Service Payment Account the principal, Sinking Fund Installments, if any, Redemption Price of, and interest on all Junior Indebtedness Obligations, on the dates, at the places and in the manner set forth in the Junior Indebtedness Obligations according to their true intent and meaning thereof.

Extension of Payment of Junior Indebtedness Obligations The Authority shall not directly or indirectly extend or assent to the extension of the maturity of any Junior Indebtedness Obligations or the time of payment of any claims for interest by the purchase or funding of Junior Indebtedness Obligations or claims for interest or by any other arrangement and, in case the maturity of any of Junior Indebtedness Obligations or the time for payment of any claims for interest shall be extended, such Junior Indebtedness Obligations or claims for interest shall not be entitled, in case of any applicable default under the General Revenue Bond Resolution or any default under the Junior Indebtedness General Resolution, to the benefit of the Junior Indebtedness General Resolution or to any payment out of the Junior Indebtedness Fund held by the Trustee, except subject to the prior payment of the principal of all Junior Indebtedness Obligations issued and Outstanding the maturity of which has not been extended and of such portion of the accrued interest on Junior Indebtedness Obligations as shall not be represented by such claims for interest. Nothing in the Junior Indebtedness General Resolution shall be deemed to limit the right of the Authority to issue Junior Indebtedness Refunding Obligations as permitted by the Junior Indebtedness General Resolution and by the Act and such issuance shall not be deemed to constitute an extension of the maturity of the Junior Indebtedness Obligations refunded.

Power to Issue Junior Indebtedness Obligations and Pledge the Junior Indebtedness Fund and Revenues. The Authority is duly authorized under the Act, all applicable laws and the General Revenue Bond Resolution to create and issue Junior Indebtedness Obligations, to adopt the Junior Indebtedness General Resolution, to secure Junior Indebtedness Obligations with a junior lien on Revenues and to pledge the Junior Indebtedness Fund and the proceeds of Junior Indebtedness Obligations in the manner and to the extent provided in the Junior Indebtedness General Resolution. The moneys deposited to the Junior Indebtedness Fund and, except to the extent otherwise provided in the General Revenue Bond Resolution, the Revenues, so pledged are and shall be free and clear of any pledge, lien, charge or encumbrance thereon or with respect thereto prior to, or of equal rank with, the pledge created by the Junior Indebtedness General Resolution, and all corporate action on the part of the Authority to that end has been duly and validly taken. Junior Indebtedness Obligations and the provisions of the Junior Indebtedness General Resolution are and will be the valid and legally enforceable obligations of the Authority in accordance with their terms and the terms of the Junior Indebtedness General Resolution. The Authority further covenants that it shall at all times, to the extent permitted by law, defend, preserve and protect the pledge of the Junior Indebtedness Fund pledged under the Junior Indebtedness General Resolution and all of the rights of the Holders of Junior Indebtedness Obligations under the Junior Indebtedness General Resolution against all claims and demands of all persons whomsoever.

Tax Covenants. (1) To the extent that interest on Junior Indebtedness Obligations is intended to be excluded from gross income for federal income tax purposes, the Authority shall at all times do and perform all acts and things necessary or desirable in order to assure that interest paid on such Junior Indebtedness Obligations shall not be included in the gross income of the Holders thereof for federal income tax purposes. The Authority covenants not to permit at any time any of the proceeds of tax-exempt Junior Indebtedness Obligations or any other funds of the Authority to be used directly or

indirectly to acquire any investment property, the acquisition of which would cause any Junior Indebtedness Obligation to be an “arbitrage bond” as defined in Section 148 of the Code. The Authority further covenants to not permit at any time any proceeds of any Junior Indebtedness Obligations or any other funds of the Authority to be used, directly or indirectly, in a manner which would result in the classification of any Junior Indebtedness Obligation as a “private activity bond” within the meaning of Section 141 of the Code. Notwithstanding the foregoing, the Authority reserves the right to elect to issue or incur Junior Indebtedness Obligations, the interest on which is not exempt from federal income taxation, if such election is made prior to the issuance of such Junior Indebtedness Obligations, and, in such event, the covenants contained in this paragraph shall not apply to such Junior Indebtedness Obligations.

To the extent that interest on Junior Indebtedness Obligations is intended to be excluded from gross income for federal income tax purposes, the Authority covenants that if and to the extent required by the Code or an Arbitrage and Use of Proceeds Certificate, it shall periodically, at such times and in such manner as may be required to comply with the Code, determine the Rebate Amount with respect to such Junior Indebtedness Obligations and transfer such Rebate Amount from the Junior Indebtedness Fund, Junior Indebtedness Obligations Account of the Facilities Capital Improvement Fund, the Other Authority Projects Operating Fund, or the General Reserve Fund to the Junior Indebtedness Obligations Account of the Rebate Fund, and pay out of such Account the amount, if any, required by the Code to be rebated to the Department of the Treasury of the United States of America.

Non-Impairment. In accordance with the provisions of Section 373 of the Act, the Authority includes in the Junior Indebtedness General Resolution, to the fullest extent enforceable under applicable federal and State law, the pledge of the State to, and agreement with, the holders of the bonds and notes of the Authority, including Junior Indebtedness Obligations, that the State will not limit or alter the rights vested in the Authority by the Act to fulfill the terms of any agreements made with the holders thereof or in any way impair the rights and remedies of such holders until all bonds and notes of the Authority, including Junior Indebtedness Obligations, together with interest thereon, and all costs and expenses in connection with any action or proceedings by or on behalf of such holders, are fully met and discharged.

The Authority includes in the Junior Indebtedness General Resolution, to the fullest extent enforceable under applicable federal and State law, the further pledge of the State to and agreement with the holders of the bonds and notes of the Authority, including Junior Indebtedness Obligations that are secured by a pledge of the tolls or other revenues or any part thereof from any bridge constructed by the Authority across the Hudson River south of Bear Mountain Bridge or from any part of the Thruway which includes such bridge, that no bridge or tunnel constituting a connection for vehicular traffic over, under or across the Hudson River between the present location of the Bear Mountain Bridge and the boundary line between the State of New York and the State of New Jersey at the west side of the Hudson River will be constructed or maintained so long as the obligations of such bonds and notes of the Authority, including Junior Indebtedness Obligations, for principal and interest shall not have been paid or otherwise discharged.

Further Assurance. At any time and all times the Authority shall, so far as it may be authorized by law, pass, make, do, execute, acknowledge and deliver, all and every such further resolutions, acts, deeds, conveyances, assignments, transfers and assurances as may be necessary or desirable for the better assuring, conveying, granting, assigning and confirming all and singular rights, Revenues, the Junior Indebtedness Fund, moneys and securities pledged or assigned by the Junior Indebtedness General Resolution, or intended so to be, or which the Authority may hereafter become bound to pledge or assign.

Power to Construct and Operate Original Project and Additional Projects and to Collect Tolls, Fees and Charges. The Authority has good right and lawful authority to take jurisdiction over, construct,

reconstruct, improve, maintain and operate the Original Project (including the NNYB) and any Additional Project or Other Authority Project and to fix and collect tolls, fees, rentals and other charges as provided in the Junior Indebtedness General Resolution and in the General Revenue Bond Resolution.

Creation of Liens; Sale and Lease of Property. The Authority shall not hereafter issue any evidences of indebtedness, other than Senior Bonds or Junior Indebtedness Obligations, secured by a respective equal or prior pledge of all or any part of the Revenues or other moneys, securities or funds held or set aside by the Authority or by the Fiduciaries under the General Revenue Bond Resolution or under the Junior Indebtedness General Resolution, and shall not create or cause to be created any respective equal or prior lien or charge on the Revenues, or such other moneys, securities or funds except as provided in the General Revenue Bond Resolution or the Junior Indebtedness General Resolution; provided, however, that nothing contained in the Junior Indebtedness General Resolution shall prevent the Authority from issuing (i) evidences of indebtedness 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 the Junior Indebtedness General Resolution shall be discharged and satisfied as provided in the Junior Indebtedness General Resolution, or (ii) Subordinated Indebtedness.

No part of the Facilities shall be sold, mortgaged, leased or otherwise disposed of or encumbered, provided that the Authority (i) may sell or exchange at any time and from time to time any property or facilities constituting part of the Facilities and not useful, in its opinion, in the operation thereof, but any proceeds of any such sale or exchange, not used to replace such property so sold or exchanged, shall, subject to the rights of other parties, including the State, be deposited to the Revenue Fund to be applied in the manner provided in the Junior Indebtedness General Resolution or (ii) at any time or from time to time, in any manner deemed appropriate by the Authority Board, may dispose of any portion of the Facilities with respect to which it is forbidden by law to impose tolls or other charges and which, in its opinion, is not useful in the operation of the Facilities, but any proceeds of any such disposition, shall, subject to the rights of other parties, including the State, be deposited to the Revenue Fund to be applied in the manner provided in the Junior Indebtedness General Resolution.

Notwithstanding the provisions of the preceding paragraph, the Authority may lease or make contracts or grant licenses for the operation of, or grant easements or other rights with respect to, any part of the Facilities, provided that any such lease, contract, license, easement or right does not, in the opinion of the Authority, impede or restrict the operation or maintenance by the Authority of the Facilities.

Operation and Maintenance of the Facilities. The Authority has and will have good right and lawful power to construct, reconstruct, improve, maintain, operate and repair the Facilities and to fix and collect concessions, charges, fees, fares, receipts, rents, and tolls for its use, all as provided in the Act.

The Authority shall at all times operate or cause to be operated the Facilities properly and in a sound and economical manner and shall maintain, preserve, reconstruct and keep the same or cause the same to be so maintained, preserved, reconstructed and kept, with the appurtenances and every part and parcel thereof, in good repair, working order and condition, and shall from time to time make, or cause to be made, all necessary and proper repairs, replacements and renewals so that at all times the operation of the Facilities may be properly and advantageously conducted.

Tolls, Fees and Charges. The Authority covenants that:

(a) it shall at all times, fix, charge and collect such tolls, fees and charges for the use of the Facilities as are required in order that, in each Authority fiscal year, Net Revenues shall at least equal the Junior Indebtedness Net Revenue Requirement for such year; and

(b) On or before the sixtieth day preceding the first day of each Authority fiscal year, the Authority shall review its financial condition in order to estimate and determine whether Net Revenues for such Authority fiscal year and for the following Authority fiscal year will be sufficient to comply with the Junior Indebtedness Net Revenue Requirement; provided that, for purposes of determining the portion of the Junior Indebtedness Net Revenue Requirement relating to Variable Interest Rate Bonds (as defined in the General Revenue Bond Resolution) for any prospective period of time, such amounts shall be calculated for each Series or subseries of Senior Bonds bearing interest at the same rate by multiplying the principal amount of such Variable Interest Rate Bonds to be Outstanding during such prospective period by the product of the average rate of interest borne by such Variable Interest Rate Bonds during the immediately preceding 12-month period by 1.25%, provided further, that for any partial year such amounts shall be prorated by multiplying the foregoing product by the actual number of days of interest accrual to be determined, and by dividing that product by 365 or 366 days, as appropriate for the particular year. If the Authority determines that Net Revenues may be inadequate, it shall cause a study to be made by an Independent Consultant that shall recommend a schedule of tolls, fees and charges which will provide sufficient Net Revenues in the following Authority fiscal year to comply with the revenue covenant described above and which will provide additional Net Revenues to eliminate any deficiency in Funds and accounts held under the General Revenue Bond Resolution or the Junior Indebtedness General Resolution at the earliest practicable time, and the Authority will place in effect as soon as practicable either (i) the recommended schedule of tolls, fees and charges, or (ii) a different schedule of tolls, fees and charges developed by the Authority which will provide sufficient Net Revenues in the following Authority fiscal year to comply with the Junior Indebtedness Net Revenue Requirement and which will provide additional Net Revenues in such following Authority fiscal year to eliminate any deficiency at the earliest practicable time, which conclusion is concurred in by an Independent Consultant's Certificate delivered to the Authority and the Trustee.

The tolls, fees and charges to be established pursuant to the Junior Indebtedness General Resolution and the General Revenue Bond Resolution on the Original Project or on any Additional Project constituting a tolled road, bridge or tunnel, in the sole discretion of the Authority, shall be based on any reasonable vehicle classification, use or occupancy, and further, may consist either alone or in combination of (i) point-to-point tolls based on mileage rates, (ii) fixed or single-trip tolls or commutation rates for passage through a barrier station or bridge, including each Grand Island Bridge and a bridge for crossing the Hudson River via the Hudson section, (iii) a surcharge for crossing the Hudson River via the Berkshire section or, if determined to be necessary or appropriate by the Authority Board, a surcharge for any other location, (iv) congestion pricing, and (v) an annual, seasonal or periodic fee for a permit for the limited use of or access to all or any part of the Original Project or an Additional Project constituting a tolled road, bridge or tunnel.

The Authority covenants that tolls, fees or charges for the use of a Facility constituting a tolled road or bridge will be classified in a reasonable way to cover all traffic within any class regardless of the status or character of any person, firm or corporation participating in the traffic, and that no reduced rate of toll, fee or charge will be allowed within any such class except that provision may be made for the use of commutation or other tickets or privileges based upon frequency, volume, occupancy, congestion pricing or to facilitate implementation of electronic or other new toll collection technologies, or relating to incentives for use of newly tolled facilities which incentives last not longer than three years from the date of introduction of such incentives.

The Authority further covenants that no free vehicular passage will be permitted over any portion of the Original Project that is subject to tolls at the time of adoption of the General Revenue Bond Resolution or any portion of an Additional Project constituting a tolled road or bridge except, to the extent determined necessary and appropriate from time to time in the sole discretion of the Authority, (i) to members, officers and employees of the Authority and the New York State Police, in each case to the

extent assigned to any Facility actually in the performance of their duties or in the course of traveling to or from the place of the performance of such duties or as contractually provided, (ii) by means of passes or otherwise, to such vehicles owned by individuals, corporations or partnerships with which the Authority has entered into leases, concession contracts or service and maintenance contracts, as in its discretion may be deemed necessary for the operation of concessions and facilities upon the Facilities, for the maintenance of such concessions or facilities and for the prompt and economical furnishing of emergency services to patrons of the Facilities or any concession or facility thereof, (iii) in a manner and in amounts such that as a result thereof, based upon projections furnished in a report to the Authority and the Trustee by an Independent Consultant, the Authority projects that there will be no material decrease in Revenues, except to the extent offset by a corresponding decrease in Operating Expenses and/or the operating expenses of any Other Authority Projects; provided that for purposes of its report, the Independent Consultant shall take into account implemented or approved toll adjustments and other contemporaneous or prospective changes in the operations of the Original Project and any portion of any Additional Project constituting a tolled road or bridge that shall have been approved by the Authority or any Other Authority Projects, and (iv) otherwise in de minimis amounts.

Insurance. The Authority covenants that it shall maintain with responsible insurers all insurance required and reasonably obtainable, in the judgment of the Authority, to provide against loss of or damage to the Facilities and loss of revenues, to the extent necessary to protect the interests of the Authority and the Holders of Junior Indebtedness Obligations.

Accounts and Reports. The Authority shall keep or cause to be kept proper books of record and account in which complete and correct entries shall be made of all its transactions relating to all Funds established by the General Revenue Bond Resolution and the Junior Indebtedness General Resolution which shall at all reasonable times be subject to the inspection of the Holders of an aggregate of not less than five per cent (5%) in the principal amount of Junior Indebtedness Obligations then Outstanding or their representatives duly authorized in writing.

The Authority shall annually, within 120 days after the close of each calendar year, file with the Trustee a copy of an annual report for such year, accompanied by a certificate of an Authorized Officer, including statements in reasonable detail of: financial condition as of the end of such year and income and expenses for such year, all to the extent relating to the Facilities; a statement of all classifications of income for such year; and (i) a summary statement with respect to each account and subaccount established under the Junior Indebtedness General Resolution, and (ii) a summary statement with respect to each Fund and account established under the General Revenue Bond Resolution.

Authority Budgets. The Authority shall prepare an Authority Budget on an annual basis, or on such other periodic basis as the Authority Board shall determine, but in no event on a less frequent basis than biennially, which shall include amounts for all anticipated Operating Expenses and reserves therefor, Reserve Maintenance Payments (as defined in the General Revenue Bond Resolution) and provision for anticipated deposits into each Fund under the General Revenue Bond Resolution and the Junior Indebtedness Fund under the Junior Indebtedness General Resolution for the period of such budget. Such Authority Budget may set forth such additional material as the Authority may determine. On or before the first day of each fiscal year or for such applicable period for the Authority Budget as aforesaid, the Authority shall finally adopt the Authority Budget for such period and shall mail such Authority Budget to the Trustee for Senior Bonds and the Trustee for Junior Indebtedness Obligations. The Authority may at any time adopt an amended Authority Budget for the remainder of the then current fiscal year or other applicable period.

Inspection of Facilities; Duties of Independent Consultants. The Authority shall make, or cause the Independent Consultant to make, an inspection of the Facilities at least once every three Authority

fiscal years, and, on or before the first day of the first Authority fiscal year in such period to report as to proper maintenance, repair and operation together with an estimate of the moneys necessary for such purposes during each such Authority fiscal year. In any event, the Authority shall cause an Independent Consultant to deliver an Independent Consultant's Certificate either concurring in and approving or making such determinations, as appropriate.

Limitation on Certain Acquisitions. Except for amounts released from the lien of the General Revenue Bond Resolution pursuant to the provisions relating to the General Reserve Fund, the Authority covenants that no Revenues, proceeds of Senior Bonds, or proceeds of Junior Indebtedness shall be applied to the purchase or acquisition of any existing facility not, in the opinion of the Authority Board, necessary for the proper operation of an existing Facility or an existing Other Authority Project, except to the extent necessary to pay, in due course or through refunding, any outstanding bonds, notes or other evidences of indebtedness (which bonds, notes or evidences of indebtedness have a lien on revenues of such facility to be acquired) of a public corporation transferring such facility.

Additional Projects. The Authority may designate an Other Authority Project to be an Additional Project if and only if there has been submitted to the Trustee with respect to such Other Authority Project at or prior to the date of such designation:

(1) A certificate of an Authorized Officer to the effect that the Other Authority Project has been in operation (whether or not by the Authority) for a period of at least twelve (12) months prior to the date of such designation, and that for the 12-month period ending on the last day of a month no more than 90 days preceding the date of designation as an Additional Project the revenues derived from the operation of such Project exceeded the operating expenses for such Other Authority Project;

(2) A Counsel's Opinion to the effect that the Authority has good right and lawful authority to acquire, design, construct, maintain, operate, finance, improve, reconstruct, rehabilitate or otherwise undertake such Other Authority Project and to establish, levy, maintain and collect, during the term of the Senior Bonds and Junior Indebtedness Obligations, tolls, rentals, rates, fees or other charges in connection therewith, which establishment, levy, maintenance or collection shall not then require or be subject to (a) in the case of any Additional Project constituting a tolled road, bridge or tunnel, any governmental approval not applicable to the Original Project, or (b) in the case of any Additional Project not constituting a tolled road, bridge or tunnel, any direct governmental approval;

(3) A Counsel's Opinion stating whether or not the Authority is required by law to have a license, order or other authority from any federal, State or other governmental agency or regulatory body having lawful jurisdiction in connection with such Facility and, if so required, that such license, order or other authority has been obtained;

(4) A certificate of an Authorized Officer setting forth (A) the Revenues and Operating Expenses of the Authority for the 12-month period set forth in subsection (1), including revenues and operating expenses relating to the Other Authority Project being designated an Additional Project; provided that if (a) any previously designated Additional Project had not been an Additional Project for any part of the 12-month period, such Additional Project Revenues and Operating Expenses shall be respectively increased by the revenues and operating expenses of such Additional Project for such 12-month period calculated as if the respective definitions of "Additional Project", "Revenues" and "Operating Expenses" had been applicable thereto for the entire 12-month period, and (b) if on the date of such designation by the Authority the tolls, fees or charges for any Facility shall be less than it was during any part of the period covered by such certificate, the Revenues for such part of such period, shall be decreased as if such tolls, fees or charges had been in effect for all of such period, and (B) that for such 12-month period the

Net Revenues as calculated pursuant to clause (A) of this subparagraph (4), are at least equal to the Junior Indebtedness Net Revenue Requirement;

(5) An Independent Consultant's Certificate setting forth (A) the estimated Net Revenues for all Facilities, together with estimated Reserve Maintenance Payments (as defined in the General Revenue Bond Resolution), excluding the proposed Additional Project, for each of the Authority fiscal years in the Test Period, and (B) the estimated Net Revenues for all Facilities, together with estimated Reserve Maintenance Payments, including the proposed Additional Project, for each of the Authority fiscal years in the Test Period;

(6) A certificate of an Authorized Officer to the effect that the amount of the estimated Net Revenues less Reserve Maintenance Payments determined pursuant to subsection (5)(B) above in each of the Authority fiscal years in the Test Period is not less than 100% of the estimated Net Revenues less estimated Reserve Maintenance Payments for each of the same years in subsection (5)(A) above; and

(7) A copy of the Supplemental Resolution designating such Other Authority Project as an Additional Project certified by an Authorized Officer.

Covenants with Credit Facility Providers

The Authority may make such covenants as it may in its sole discretion determine to be appropriate with any provider of a Credit Facility or Reserve Credit Facility that shall agree to provide a Credit Facility or Reserve Credit Facility for Junior Indebtedness Obligations of any one or more Series that shall enhance the security or the value of such Junior Indebtedness Obligations and thereby reduce the principal and interest requirements on such Junior Indebtedness Obligations. Such covenants may be set forth in or provided for by the applicable Supplemental Resolution and shall be binding on the Authority, the Trustee, the Paying Agents, and all the owners of Junior Indebtedness Obligations the same as if such covenants were set forth in full in the Junior Indebtedness General Resolution.

Investment of Funds

Amounts in the Funds and accounts established by the General Revenue Bond Resolution may be invested only in Investment Obligations. Investment Obligations on deposit in the Funds and accounts held under the General Revenue Bond Resolution shall have maturity dates, or shall be subject to redemption or tender at the option of the Authority or the Trustee on the respective dates specified by an Authorized Officer, as appropriate, which dates shall be on or prior to the respective dates on which the moneys invested therein are payable for the purposes of such Funds and accounts.

Trustee

The Trustee may at any time resign and be discharged of its duties and obligations created by the Junior Indebtedness General Resolution by giving not less than sixty (60) days' written notice to the Authority, specifying the date when such resignation shall take effect; provided, however, that any resignation or removal of the Trustee shall in no event take effect until a successor shall have been appointed and accepted the duties of Trustee.

The Authority may at any time remove the Trustee initially appointed or any successor thereto by written notice of such removal mailed by first class mail to the Trustee except that the Trustee may not be removed during the pendency of an Event of Default; provided, however, that any resignation or removal of the Trustee shall in no event take effect until a successor shall have been appointed and accepted the duties of Trustee.

Any Trustee appointed in succession to the original Trustee shall be a bank or trust company organized under the laws of the State of New York or a national banking association and having Capital Funds of at least \$100,000,000, if there be such a bank or trust company or national banking association willing and able to accept the office on reasonable and customary terms and authorized by law to perform all the duties imposed upon it by the Junior Indebtedness General Resolution.

Supplemental Resolutions

The Authority may adopt, for, among other things, any one or more of the following purposes and at any time or from time to time, a Supplemental Resolution which, upon adoption thereof and filing with the Trustee shall be fully effective in accordance with its terms:

1. To add to the covenants and agreements of the Authority contained in the General Revenue Bond Resolution or the Junior Indebtedness General Resolution other covenants and agreements to be observed by the Authority which are not contrary to or inconsistent with the General Revenue Bond Resolution or the Junior Indebtedness General Resolution as theretofore in effect;

2. To add to the limitations or restrictions in the General Revenue Bond Resolution or the Junior Indebtedness General Resolution other limitations or restrictions to be observed by the Authority which are not contrary to or inconsistent with the General Revenue Bond Resolution or the Junior Indebtedness General Resolution as theretofore in effect;

3. To surrender any right, power or privilege reserved to or conferred upon the Authority by the Junior Indebtedness General Resolution, provided that the surrender of such right, power or privilege is not contrary to or inconsistent with the covenants and agreements of the Authority contained in the Junior Indebtedness General Resolution;

4. To modify any of the provisions of the General Revenue Bond Resolution or the Junior Indebtedness General Resolution in any respect whatever, provided that (i) such modification shall be, and be expressed to be, effective only after all Junior Indebtedness Obligations Outstanding at the date of the adoption of such Supplemental Resolution shall cease to be Outstanding and (ii) such Supplemental Resolution shall be specifically referred to in the text of all Junior Indebtedness Obligations issued or incurred after the date of the adoption of such Supplemental Resolution and of Junior Indebtedness Obligations issued in exchange therefor or in place thereof;

5. To modify, amend, insert or delete such provisions of the General Revenue Bond Resolution or the Junior Indebtedness General Resolution as, in Counsel's Opinion, shall be necessary or desirable to ensure the continued federal tax exemption of the interest on any Outstanding Junior Indebtedness Obligations, so long as the Authority determines that such Supplemental Resolution does not materially adversely affect the right, security and interest of the Holders of Outstanding Junior Indebtedness Obligations or Senior Bonds;

6. Except as may be limited by the provisions of a Supplemental Resolution authorizing the issuance or incurrence of Junior Indebtedness Obligations, to modify, amend or supplement the Junior Indebtedness General Resolution in any manner in order to provide for a Credit Facility or a Reserve Credit Facility for any Junior Indebtedness Obligations, so long as the Authority determines that such Supplemental Resolution does not materially adversely affect the right, security and interest of the Holders of Outstanding Junior Indebtedness Obligations;

7. To cure any ambiguity, supply any omission, or cure or correct any defect or inconsistent provision in the Junior Indebtedness General Resolution, so long as the Authority determines

that such Supplemental Resolution does not materially adversely affect the right, security and interest of the Holders of Outstanding Junior Indebtedness Obligations or Senior Bonds;

8. To authorize Junior Indebtedness Obligations and, in connection therewith, specify and determine the matters and things referred to in the Junior Indebtedness General Resolution and also any other matters and things relative to such Junior Indebtedness Obligations which are not contrary to or inconsistent with the Junior Indebtedness General 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 Junior Indebtedness Obligations;

9. To provide for additional investments that may be delivered in lieu of Government Obligations in order to cause Junior Indebtedness Obligations then or thereafter being initially issued or incurred to be deemed paid by the Junior Indebtedness General Resolution;

10. to the extent authorized by law and to the extent the Authority shall have received a Counsel's Opinion that it will not adversely affect the exclusion of interest from the income of holders of Junior Indebtedness Obligations for federal income tax purposes for any Junior Indebtedness Obligations issued on a tax-exempt basis, to provide for the delivery of Junior Indebtedness Obligations that are not in registered form.

In addition, the Authority may adopt a Supplemental Resolution amending any provision of the Junior Indebtedness General Resolution, effective upon filing with the Authority of a written determination of the Trustee and a Counsel's Opinion that such amendment will not materially adversely affect the rights of any Holder of Junior Indebtedness Obligations or the Holders of Senior Bonds.

Powers of Amendment

Any modification or amendment of the Junior Indebtedness General Resolution and of the rights and obligations of the Authority and of the Holders of Junior Indebtedness Obligations thereunder, in any particular, may be made by a Supplemental Resolution, with the written consent given as provided in the Junior Indebtedness General Resolution, (a) by the Holders of at least a majority in principal amount of Junior Indebtedness Obligations Outstanding at the time such consent is given, and (b) in case less than all Junior Indebtedness Obligations then Outstanding are affected by the modification or amendment, by the Holders of at least a majority in principal amount of Junior Indebtedness Obligations so affected and Outstanding at the time such consent is given. No such modification or amendment shall permit a change in the maturity of the principal of any Outstanding Junior Indebtedness Obligation or of any installment of interest thereon or a reduction in the principal amount thereof or in the rate of interest thereon without the consent of the Holders of such Junior Indebtedness Obligations, or shall reduce the percentages or otherwise affect the classes of Junior Indebtedness Obligations 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 the Trustee without its written assent thereto.

Events of Default

The occurrence of one or more of the following events shall constitute an "Event of Default":

1. payment of principal of, Sinking Fund Installments or interest on Junior Indebtedness Obligations shall not be made when the same shall have become due; or
2. failure by the Authority to observe any of the covenants, agreements or conditions on its part contained in the General Revenue Bond Resolution relating to Junior Indebtedness or the Junior

Indebtedness General Resolution or in Junior Indebtedness Obligations, and failure to remedy the same for a period of thirty (30) days after written notice thereof, specifying such failure and requiring the same to be remedied, shall have been given to the Authority by the Trustee or to the Authority and the Trustee by the Holders of not less than a majority in aggregate principal amount of Junior Indebtedness Obligations at the time Outstanding; provided that, if such default cannot be corrected within such thirty (30) day period, it shall not constitute an Event of Default if corrective action is instituted by the Authority within such period and is diligently pursued until the default is corrected; or

3. if the Authority (i) admits in writing its inability to pay its debts generally as they become due, (ii) commences voluntary proceedings in bankruptcy or seeking a composition of indebtedness, (iii) makes an assignment for the benefit of its creditors, (iv) consents to the appointment of a receiver of the whole or any substantial part of the Facilities, (v) consents to the assumption by any court of competent jurisdiction under any law for the relief of debtors of custody or control of the Authority or of the whole or any substantial part of the Facilities, or (vi) for so long as the TIFIA Loan shall remain outstanding, a “Bankruptcy Related Event” (as defined in the TIFIA Loan Agreement) shall have occurred; or

4. any default by the Authority under the General Revenue Bond Resolution that shall result in the declaration by the Trustee for the Senior Bonds that all Senior Bonds are due and payable, which declaration shall not have been annulled with the consent of the Holders of not less than a majority in aggregate principal amount of the Senior Bonds then outstanding, all in accordance with the provisions of the General Revenue Bond Resolution; or

5. any default under a lending or loan agreement that is incurred by the Authority as a Junior Indebtedness Obligation, including, without limitation, the TIFIA Loan Agreement.

Remedies

Upon the occurrence and continuance of any Event of Default, the Trustee may, and upon written request of the Holders of not less than a majority in aggregate principal amount of such Junior Indebtedness Obligations then Outstanding, shall:

(a) by mandamus or other suit, action or proceeding at law or in equity enforce all rights of the Holders of Junior Indebtedness Obligations under the Junior Indebtedness General Resolution;

(b) bring suit upon such Junior Indebtedness Obligations;

(c) by action or suit in equity, require the Authority to account as if it were the trustee of an express trust for the Holders of such Junior Indebtedness Obligations;

(d) by action or suit in equity, enjoin any acts or things which may be unlawful or in violation of the rights of the Holders of such Junior Indebtedness Obligations;

(e) if all outstanding Senior Bonds shall have been declared by the trustee for the Senior Bonds to be immediately due and payable in accordance with the General Revenue Bond Resolution, notwithstanding any provision of the Junior Indebtedness General Resolution to the contrary, declare all outstanding Junior Indebtedness Obligations to be immediately due and payable..

The Supreme Court of the State shall have jurisdiction of any suit, action or proceeding by the Trustee on behalf of the Holders of Junior Indebtedness Obligations, and venue of any such suit, action or proceeding shall be laid in the County of Albany.

4. No remedy by the terms of the Junior Indebtedness General Resolution conferred upon or reserved to the Trustee or the Holders of Junior Indebtedness Obligations is intended to be exclusive of any other remedy but each and every such remedy shall be cumulative and shall be in addition to every other remedy given under the Junior Indebtedness General Resolution or existing at law or in equity or by statute on or after the date of adoption of the Junior Indebtedness General Resolution, except that Holders of Junior Indebtedness Obligations shall not have the statutory rights afforded by Section 368 of the Act as in effect on August 3, 1992 respecting the appointment of a trustee subsequent to a payment default on the Bonds.

5. No Holder of any of Junior Indebtedness Obligations shall have any right to institute any suit, action or proceeding in equity or at law for the enforcement of any trust under the Junior Indebtedness General Resolution, or any other remedy under the Junior Indebtedness General Resolution or under Junior Indebtedness Obligations, unless such Holder previously shall have given to the Trustee written notice of an Event of Default as provided above and unless also the Holders of not less than a majority in aggregate principal amount of Junior Indebtedness Obligations then Outstanding shall have made written request of the Trustee so to do, after the right to exercise such powers or rights of action, as the case may be, shall have accrued, and shall have afforded the Trustee a reasonable opportunity either to proceed to exercise the powers granted in Junior Indebtedness General Resolution, or to institute such action, suit or proceeding in its or their name; nor unless there also shall have been offered to the Trustee security and indemnity satisfactory to it against the costs, expenses and liabilities to be incurred therein or thereby, and the Trustee shall not have complied with such request within a reasonable time; and such notification, request and offer of indemnity are declared in every such case, at the option of the Trustee, to be conditions precedent to the execution of the trusts of the Junior Indebtedness General Resolution, or to enforce any right under the Junior Indebtedness General Resolution or under Junior Indebtedness Obligations, except in the manner provided in the Junior Indebtedness General Resolution, and that all proceedings at law or in equity shall be instituted, had and maintained in the manner provided in the Junior Indebtedness General Resolution and for the equal benefit of all Holders of Outstanding Junior Indebtedness Obligations. Nothing in the Junior Indebtedness General Resolution or in Junior Indebtedness Obligations contained shall affect or impair the right of action, which is also absolute and unconditional, of any Holder of any Junior Indebtedness Obligation to enforce payment of the principal of and premium, if any, and interest on such Junior Indebtedness Obligation at the date of maturity of each of the foregoing and at the places therein expressed.

6. All rights of action under the Junior Indebtedness General Resolution or under any Junior Indebtedness Obligations which are enforceable by the Trustee may be enforced by it without the possession of any Junior Indebtedness Obligations, or the production thereof on the trial or other proceedings relative thereto, and any such suit, action or proceeding instituted by the Trustee shall be brought in its name, as trustee, for the equal and ratable benefit of the Holders of Junior Indebtedness Obligations, subject to the provisions of the Junior Indebtedness General Resolution.

7. No delay or omission of the Trustee or of any Holder of Junior Indebtedness Obligations to exercise any right or power accruing upon any default shall impair any such right or power or shall be construed to be a waiver of any such default, or an acquiescence therein; and every power and remedy given by Article IX of the Junior Indebtedness General Resolution to the Trustee and to the Holders of Junior Indebtedness Obligations, respectively, may be exercised from time to time as often as may be deemed expedient.

No Acceleration of Payments After Default

Notwithstanding any provision of the Junior Indebtedness General Resolution to the contrary, upon the occurrence and continuance of any Event of Default, the holders of Junior Indebtedness

Obligations shall have no authority to declare, or to instruct the Trustee to declare, and neither shall declare Junior Indebtedness Obligations to be immediately due and payable notwithstanding the occurrence of an event that would otherwise give rise to such a declaration unless all outstanding Senior Bonds shall have been declared immediately due and payable in accordance with the General Revenue Bond Resolution

Priority of Payments After Default

In the event that moneys in the Junior Indebtedness Fund shall be insufficient for the payment of principal of and interest then due on Junior Indebtedness Obligations, such moneys and any other moneys received or collected by the Trustee or any Paying Agents, or a trustee appointed pursuant to the Junior Indebtedness General Resolution and in accordance with the Act, after making provision for the payment of the reasonable charges and expenses and liabilities incurred and advances made by the Trustee or any Paying Agents in the performance of their duties under the Junior Indebtedness General Resolution, shall be applied as follows:

(1) Unless the principal of all Junior Indebtedness Obligations shall have become or have been declared due and payable, all such moneys shall be applied:

FIRST; To the payment to the persons entitled thereto of all installments of interest then due in the order of the maturity of the installments of such interest, and, if the amount available shall not be sufficient to pay in full any installment, then to the payment thereof ratably, according to the amounts due on such installment, to the persons entitled thereto, without any discrimination or preference, except as to the difference in the respective rates of interest specified in such Junior Indebtedness Obligations; and

SECOND: To the payment to the persons entitled thereto of the unpaid principal, Sinking Fund Installments or Redemption Price of any Junior Indebtedness Obligations which 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 Junior Indebtedness Obligations due on any date, then to the payment thereof ratably, according to the amount of principal, Sinking Fund Installments or Redemption Price due on such date, to the persons entitled thereto, without any discrimination or preference.

(2) If the principal of all Junior Indebtedness Obligations shall have become or have been declared due and payable, all such moneys shall be applied to the payment of the principal and interest then due and unpaid upon the Junior Indebtedness Obligations 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 Junior Indebtedness Obligation over any other Junior Indebtedness Obligation, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto without any discrimination or preference except as to any difference in the respective rates of interest specified in the Junior Indebtedness Obligations.

Defeasance

If the Authority shall pay or cause to be paid, or there shall otherwise be paid, to the Holders of all Junior Indebtedness Obligations then Outstanding, the principal of and interest to become due thereon, at the time and in the manner stipulated therein and in the Junior Indebtedness General Resolution, then, at the option of the Authority, the covenants, agreements and other obligations of the Authority to the Holders of Junior Indebtedness Obligations shall thereupon cease, terminate and become void and be discharged and satisfied. Junior Indebtedness Obligations for the payment of which moneys shall have been set aside and shall be held by the Trustee (through deposit by the Authority of funds for such payment or otherwise) at the maturity date of such Junior Indebtedness Obligations shall be deemed to

have been paid within the meaning of the Junior Indebtedness General Resolution. Any Junior Indebtedness Obligations shall prior to the maturity thereof be deemed to have been paid within the meaning and with the effect expressed in this paragraph if there shall have been deposited with the Authority either moneys in an amount which shall be sufficient, or non-callable Government Obligations the principal of and the interest on which when due will provide moneys which, together with the moneys, if any, deposited with the Authority at the same time, shall be sufficient to pay when due the principal of and interest due and to become due on said Junior Indebtedness Obligations on and prior to the maturity date. Neither non-callable Government Obligations or moneys deposited pursuant to the Junior Indebtedness General Resolution nor principal or interest payments on any such Government Obligations shall be withdrawn or used for any purpose other than, and shall be held in trust for, the payment of the principal of and interest on said Junior Indebtedness Obligations; provided that any moneys received from such principal or interest payments on such Government Obligations so deposited, if not then needed for such purpose, shall, to the extent practicable, be reinvested in non-callable Government Obligations maturing at times and in amounts sufficient to pay when due the principal of and interest to become due on said Junior Indebtedness Obligations on and prior to such maturity date thereof.

Payments due on Saturdays, Sundays and Holidays

In any case where the date of maturity of interest on or principal of Junior Indebtedness Obligations shall be on a day that is not a Business Day, then payment of interest or principal and premium, if any, need not be made on such date but may be made (without additional interest) on the next succeeding Business Day, with the same force and effect as if made on the date of maturity.

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Book-Entry Only System

The Depository Trust Company (“DTC”), New York, New York, will act as securities depository for the Series 2019B Junior Indebtedness Obligations. The Series 2019B Junior Indebtedness Obligations will be issued as fully-registered bonds 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 2019B Junior Indebtedness Obligation certificate will be issued for each stated maturity of the Series 2019B Junior Indebtedness Obligations, each in the aggregate principal amount of such maturity, and will be deposited with DTC. SO LONG AS CEDE & CO. IS THE REGISTERED OWNER OF THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS, AS PARTNERSHIP NOMINEE FOR DTC, REFERENCES HEREIN TO BONDHOLDERS OR OWNERS OF THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS (OTHER THAN UNDER THE CAPTIONS “TAX MATTERS” AND “CONTINUING DISCLOSURE UNDER SEC RULE 15c2-12”) SHALL MEAN CEDE & CO. AND SHALL NOT MEAN THE BENEFICIAL OWNERS OF THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS.

DTC 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 3.5 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 (“Direct Participants”) deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities, through electronic computerized book-entry transfers and pledges between Direct Participants’ accounts. This eliminates the need for physical movement of securities certificates. 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 Direct Participant, either directly or indirectly (“Indirect Participants”). The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com.

Purchases of Series 2019B Junior Indebtedness Obligations under the DTC system must be made by or through Direct Participants, which will receive a credit for the Series 2019B Junior Indebtedness Obligations on DTC’s records. The ownership interest of each actual purchaser of each Series 2019B Junior Indebtedness Obligation (“Beneficial Owner”) is in turn to be recorded on the Direct and Indirect Participants’ records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial Owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the Series 2019B Junior Indebtedness Obligations are to be accomplished by entries made on the books of Direct and Indirect Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in Series 2019B Junior Indebtedness Obligations, except in the event that use of the book-entry system for the Series 2019B Junior Indebtedness Obligations is discontinued.

To facilitate subsequent transfers, all Series 2019B Junior Indebtedness Obligations deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of Series 2019B Junior Indebtedness Obligations with DTC and their registration in the name of Cede & Co. or such other DTC nominee does not affect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Series 2019B Junior Indebtedness Obligations; DTC's records reflect only the identity of the Direct Participants to whose accounts such Series 2019B Junior Indebtedness Obligations are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and 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. Beneficial Owners of Series 2019B Junior Indebtedness Obligations may wish to take certain steps to augment transmission to them of notices of significant events with respect to the Series 2019B Junior Indebtedness Obligations, such as redemptions, tenders, defaults, and proposed amendments to the security documents. For example, Beneficial Owners of Series 2019B Junior Indebtedness Obligations may wish to ascertain that the nominee holding the Series 2019B Junior Indebtedness Obligations for their benefit has agreed to obtain and transmit notices to Beneficial Owners. In the alternative, Beneficial Owners may wish to provide their names and addresses to the registrar and request that copies of the notices be provided directly to them.

Redemption notices shall be sent to DTC. If less than all of the Series 2019B Junior Indebtedness Obligations within a stated maturity are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such Series 2019B Junior Indebtedness Obligations to be redeemed.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to the Series 2019B Junior Indebtedness Obligations 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 Direct Participants to whose accounts Series 2019B Junior Indebtedness Obligations are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal of, redemption premium, if any, and interest payments on the Series 2019B Junior Indebtedness Obligations 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 Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the Authority or Paying Agent on the payable date in accordance with their respective holdings shown on DTC's records. Payments by 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 Participant and not of DTC, 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 of, redemption premium, if any, 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 Paying Agent, disbursement of such payments to Direct Participants will be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners shall be the responsibility of Direct and Indirect Participants.

DTC may discontinue providing its services as depository with respect to the Series 2019B Junior Indebtedness Obligations at any time by giving reasonable notice to the Authority or the Paying Agent.

Under such circumstances, in the event that a successor depository is not obtained, Series 2019B Junior Indebtedness Obligations 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 2019B Junior Indebtedness Obligations will be printed and delivered to DTC.

NEITHER THE AUTHORITY NOR THE TRUSTEE WILL HAVE ANY RESPONSIBILITY OR OBLIGATION TO PARTICIPANTS, TO INDIRECT PARTICIPANTS OR TO ANY BENEFICIAL OWNER WITH RESPECT TO (i) THE ACCURACY OF ANY RECORDS MAINTAINED BY DTC, ANY PARTICIPANT OR INDIRECT PARTICIPANT; (ii) THE PAYMENT BY DTC OR ANY PARTICIPANT OR INDIRECT PARTICIPANT OF ANY AMOUNT WITH RESPECT TO THE PRINCIPAL OF, OR REDEMPTION PREMIUM, IF ANY, OR INTEREST ON, THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS; (iii) ANY NOTICE WHICH IS PERMITTED OR REQUIRED TO BE GIVEN TO SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS HOLDERS; (iv) ANY CONSENT GIVEN BY DTC OR OTHER ACTION TAKEN BY DTC AS A SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATION HOLDER; OR (v) THE SELECTION BY DTC OR ANY PARTICIPANT OR INDIRECT PARTICIPANT OF ANY BENEFICIAL OWNERS TO RECEIVE PAYMENT IN THE EVENT OF ANY PARTIAL REDEMPTION OF THE SERIES 2019B JUNIOR INDEBTEDNESS OBLIGATIONS.

The information in this section concerning DTC and DTC's book-entry system has been obtained from DTC or other sources that the Authority believes to be reliable, but neither the Authority nor the Trustee take any responsibility for the accuracy thereof.

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Form of Opinion of Bond Counsel

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*Upon delivery of the Series 2019B Junior Indebtedness Obligations in definitive form,
Hawkins Delafield & Wood LLP, Bond Counsel to the Authority,
proposes to render its Approving Opinion in substantially the following form:*

[Date of Closing]

New York State Thruway Authority
200 Southern Boulevard
Albany, New York 12209

Ladies and Gentlemen:

As bond counsel to New York State Thruway Authority (herein called the “Authority”), we have examined a record of proceedings relating to the issuance of \$1,693,245,000 aggregate principal amount of General Revenue Junior Indebtedness Obligations, Series 2019B (herein called the “Series 2019B Junior Indebtedness Obligations”), by the Authority, a body corporate and politic constituting a public corporation of the State of New York (herein sometimes called the “State”). We have also examined such certificates, documents, records and matters of law as we have deemed necessary for the purpose of rendering the opinions set forth below.

Capitalized terms used herein and not otherwise defined have the meanings set forth in the Resolution (hereinafter defined).

The Series 2019B Junior Indebtedness Obligations are to be issued under and pursuant to the New York State Thruway Authority Act, Title 9 of Article 2 of the Public Authorities Law, Chapter 43-A of the Consolidated Laws of the State, as amended (herein called the “Act”), and the Resolution Authorizing General Revenue Junior Indebtedness Obligations of the Authority, adopted by the Authority on November 7, 2013, as amended on August 6, 2014 (herein called the “Junior Indebtedness Resolution”), and as supplemented by the Resolution Authorizing General Revenue Junior Indebtedness Obligations, Series 2019B adopted by the Authority on April 4, 2019, as amended and restated on September 23, 2019 (the “Series 2019B Junior Indebtedness Obligations Resolution”; the Junior Indebtedness Resolution, as so supplemented and amended is herein called the “Resolutions”). The Series 2019B Junior Indebtedness Obligations are being issued for the purposes set forth in the Series 2019B Junior Indebtedness Obligations Resolution.

The Internal Revenue Code of 1986, as amended (the “Code”), establishes certain ongoing requirements that must be met subsequent to the issuance and delivery of the Series 2019B Junior Indebtedness Obligations in order that interest on the Series 2019B Junior Indebtedness Obligations be and remain excluded from gross income for federal income tax purposes under Section 103 of the Code. We have examined the Arbitrage and Use of Proceeds Certificate of the Authority, dated the date hereof (the “Arbitrage and Use of Proceeds Certificate”), in which the Authority has made representations, statements of intention and reasonable expectation, certifications of fact and covenants relating to the federal tax status of interest on the Series 2019B Junior Indebtedness Obligations, including, but not limited to, certain representations with respect to the use of the proceeds of the Series 2019B Junior Indebtedness Obligations and the investment of certain funds. The Arbitrage and Use of Proceeds Certificate obligates the Authority to take certain actions necessary to cause interest on the Series 2019B Junior Indebtedness Obligations to be excluded from gross income pursuant to Section 103 of the Code. Noncompliance with the requirements of the Code could cause interest on the Series 2019B Junior Indebtedness Obligations to be included in gross income for federal income tax purposes retroactive to the date of issuance, irrespective of the date on which such noncompliance occurs or is ascertained. The

Authority has covenanted in the Resolution to maintain the exclusion of the interest on the Series 2019B Junior Indebtedness Obligations from gross income for federal income tax purposes pursuant to Section 103(a) of the Code.

In rendering the opinion in paragraph 5 hereof, we have relied upon and assumed the material accuracy of the representations, statements of intention and reasonable expectation and certifications of fact contained in the Arbitrage and Use of Proceeds Certificate with respect to matters affecting the exclusion of interest on the Series 2019B Junior Indebtedness Obligations from gross income for federal income tax purposes under Section 103 of the Code and compliance by the Authority with procedures and covenants set forth in the Arbitrage and Use of Proceeds Certificate as to such tax matters.

The Authority reserves the right to issue additional Junior Indebtedness Obligations under the Junior Indebtedness Resolution on the terms and conditions, and for the purposes, stated in the Junior Indebtedness Resolution. Under the Junior Indebtedness Resolution, all such Junior Indebtedness Obligations will rank equally as to security and payment with the Series 2019B Junior Indebtedness Obligations, except as otherwise provided for a Series of Junior Indebtedness Obligations in a Supplemental Resolution with respect to the Junior Indebtedness Debt Service Reserve Account.

We are of the opinion that:

1. The Authority is duly created and validly existing under the provisions of the Act.
2. The Authority has the right and power under the Act to adopt the Resolutions and issue the Series 2019B Junior Indebtedness Obligations thereunder, and the Resolutions have been duly and lawfully adopted by the Authority, are in full force and effect and are valid and binding upon the Authority and enforceable in accordance with its terms, and no other authorization for the Resolutions is required.
3. The Resolutions create the valid pledge which the Resolutions purport to create of the proceeds of sale of the Series 2019B Junior Indebtedness Obligations, the Revenues, and the Junior Indebtedness Fund and accounts established therein by the Junior Indebtedness Resolution (other than amounts on deposit in any subaccount of the Junior Indebtedness Debt Service Reserve Account, which shall only secure the Series of Junior Indebtedness Obligations for which it was established) and certain investment income referred to therein subject to the provisions of the Resolutions permitting the application thereof for the purposes and on the terms and conditions set forth therein, including the prior pledge of any Senior Bonds or other obligations payable from the Senior Debt Service Fund or the Senior Debt Service Reserve Fund.
4. The Series 2019B Junior Indebtedness Obligations have been duly and validly authorized and issued in accordance with the laws of the State, including the Constitution of the State and the Act, and in accordance with the Resolutions, and are valid and binding special obligations of the Authority, enforceable in accordance with their terms and the terms of the Resolutions, payable solely from the Revenues subject and subordinate to the payments to be made with respect to Senior Bonds and any other obligations payable from the Senior Debt Service Fund or the Senior Debt Service Reserve Fund as provided in Section 509 of the General Revenue Bond Resolution, and shall be secured by a lien on and pledge of the Revenues subordinate in all respects to the pledge created by the General Revenue Bond Resolution for the payment of the Senior Bonds.
5. Under existing statutes and court decisions interest on the Series 2019B Junior Indebtedness Obligations (i) is excluded from gross income for federal income tax purposes pursuant

to Section 103 of the Code, and (ii) is not treated as a preference item in calculating the alternative minimum tax under the Code.

6. Bond Counsel further is of the opinion that, for any Series 2019B Junior Indebtedness Obligations having original issue discount (a “Discount Bond”), original issue discount that has accrued and is properly allocable to the owners of the Discount Bond under Section 1288 of the Code is excludable from gross income for federal income tax purposes to the same extent as other interest on the Series 2019B Junior Indebtedness Obligations.

7. Under existing statutes, the interest on the Series 2019B Junior Indebtedness Obligations is exempt from personal income taxes imposed by the State or any political subdivision thereof.

We have examined a fully executed Series 2019B Junior Indebtedness Obligation and, in our opinion, the form of said 2019B Junior Indebtedness Obligation and its execution are regular and proper.

Except as stated in paragraphs 5, 6 and 7 above, we express no opinion as to any federal, state or local tax consequences arising with respect to the Series 2019B Junior Indebtedness Obligations or ownership or disposition thereof. Furthermore, we express no opinion as to the effect of any action taken or not taken in reliance upon an opinion of counsel other than ourselves on the exclusion from gross income for federal income tax purposes of interest on the Series 2019B Junior Indebtedness Obligations, or the exemption from personal income taxes of the interest on the Series 2019B Junior Indebtedness Obligations under state and local tax law.

The foregoing opinions are qualified only to the extent that the enforceability of the Resolutions and the Series 2019B Junior Indebtedness Obligations may be limited by bankruptcy, moratorium, insolvency, reorganization or other laws affecting creditors’ rights or remedies heretofore or hereafter enacted and is subject to general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law).

We express no opinion as to the accuracy, adequacy or sufficiency of any financial or other information which has been or will be supplied to purchasers of the Series 2019B Junior Indebtedness Obligations. Our services did not include financial or other non-legal advice.

This opinion 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 opinion is issued as of the date hereof, and we assume no obligation to update, revise or supplement this opinion to reflect any facts or circumstances that may hereafter come to our attention, or any changes in law, or in interpretations thereof, that may hereafter occur, or for any other reason whatsoever.

Very truly yours,

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**Form of Amended and Restated
Master Continuing Disclosure Agreement**

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**NEW YORK STATE THRUWAY AUTHORITY
GENERAL REVENUE JUNIOR INDEBTEDNESS OBLIGATIONS**

**AMENDED AND RESTATED
MASTER CONTINUING DISCLOSURE AGREEMENT**

THIS AMENDED AND RESTATED MASTER CONTINUING DISCLOSURE AGREEMENT, dated December 18, 2013, as amended and restated as of April 4, 2019 (as so amended and restated, the “Agreement”) is made by and among the Issuer and the Trustee, each as defined below in Section 1.

In order to permit the Underwriters of each series of Junior Indebtedness Obligations issued from and after the date hereof to comply with the provisions of Rule 15c2-12, the parties hereto, in consideration of the mutual covenants herein contained and other good and lawful consideration, hereby agree, for the sole and exclusive benefit of the Holders and, for the purposes of Section 5, the beneficial owners of Junior Indebtedness Obligations, as follows:

Section 1. Definitions; Rules of Construction. Capitalized terms used but not defined herein shall have the respective meanings ascribed to them in the Authorizing Document.

“*Annual Information*” shall mean the information specified in Section 3.

“*Authorizing Document*” shall mean the Issuer’s Resolution Authorizing the Issuance of General Revenue Junior Indebtedness Obligations, adopted by the Issuer on November 7, 2013, as amended on August 6, 2014, and as further amended or supplemented from time to time.

“*EMMA*” shall mean the Electronic Municipal Market Access system described in Securities Exchange Act Release No. 34-59062 (or any successor electronic information system) and maintained by the MSRB as the sole repository for the central filing of electronic disclosure pursuant to Rule 15c2-12.

“*GAAP*” shall mean generally accepted accounting principles as prescribed from time to time for governmental units in the United States by the Governmental Accounting Standards Board.

“*GAAS*” shall mean generally accepted auditing standards as in effect from time to time in the United States.

“*Holder*” or “*Holder of Junior Indebtedness Obligations*” shall mean a registered owner of any Junior Indebtedness Obligation or Junior Indebtedness Obligations.

“*Issuer*” shall mean the New York State Thruway Authority, a body corporate and politic constituting a public corporation of the State of New York, and any successor thereto.

“*Junior Indebtedness Obligations*” shall mean the Issuer’s General Revenue Junior Indebtedness Obligations issued from time to time by the Issuer and outstanding pursuant to the Authorizing Document and as described on Schedule 1 attached to this Agreement, including General Revenue Junior Indebtedness Obligation Anticipation Notes.

“*MSRB*” shall mean the Municipal Securities Rulemaking Board established in accordance with the provisions of Section 15B(b)(1) of the Securities Exchange Act of 1934, or any successor thereto or to the functions of the MSRB contemplated by this Agreement.

“*Official Statement*” shall mean the final official statement of the Issuer relating to one or more series of Junior Indebtedness Obligations issued by the Issuer from time to time and listed on Schedule I hereto (which Schedule I shall be updated to reflect each new series of Junior Indebtedness Obligations so issued).

“*Rule 15c2-12*” shall mean Rule 15c2-12 under the Securities Exchange Act of 1934, as amended through the date of this Agreement, including any official interpretations thereof promulgated on or prior to the effective date of this Agreement.

“*SEC*” means the United States Securities and Exchange Commission.

“*Trustee*” shall mean the trustee as appointed in the Supplemental Resolution.

“*Underwriters*” shall mean the underwriter or underwriters that have contracted to purchase one or more series of the Junior Indebtedness Obligations from the Issuer at initial issuance.

(ii) Unless the context clearly indicates to the contrary, the following rules shall apply to the construction of this Agreement:

(a) Words importing the singular number shall include the plural number and vice versa.

(b) Any reference herein to a particular Section or subsection without further reference to a particular document or provision of law or regulation is a reference to a Section or subsection of this Agreement.

(c) The captions and headings herein are solely for convenience of reference and shall not constitute a part of this Agreement nor shall they affect its meaning, construction or effect.

Section 2. Obligations to Provide Continuing Disclosure.

(i) Obligations of the Issuer. The Issuer hereby undertakes, for the benefit of Holders of the Junior Indebtedness Obligations, to provide or cause to be provided the following:

(a) to the MSRB, no later than 120 days after the end of each fiscal year, commencing with the fiscal year ending December 31, 2013, the Issuer Annual Information (as more fully described in Section 3 below), relating to such fiscal year;

(b) if not submitted as part of the Issuer Annual Information, to the MSRB, not later than 120 days after the end of each fiscal year commencing with the fiscal year ending December 31, 2013, audited financial statements of the Issuer for such fiscal year when and if they become available and, if such audited financial statements are not available on the date which is 120 days after the end of a fiscal year, the unaudited financial statements of the Issuer for such fiscal year; and

(c) to the MSRB, in a timely manner, not in excess of ten (10) business days after the occurrence of such event, notice of any of the following sixteen events with respect to the Junior Indebtedness Obligations:

- (1) principal and interest payment delinquencies;
- (2) non-payment related defaults, if material;
- (3) unscheduled draws on debt service reserves reflecting financial difficulties;
- (4) unscheduled draws on credit enhancements reflecting financial difficulties;
- (5) substitution of credit or liquidity providers, or their failure to perform;
- (6) adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax status of the Junior Indebtedness Obligation, or other material events affecting the tax status of the Junior Indebtedness Obligation;
- (7) modifications to rights of security holders, if material;
- (8) bond calls, if material, and tender offers;
- (9) defeasances;
- (10) release, substitution, or sale of property securing repayment of the securities, if material;
- (11) rating changes;
- (12) bankruptcy, insolvency, receivership or similar event of the Issuer;

- (13) the consummation of a merger, consolidation, or acquisition involving the Issuer or the sale of all or substantially all of the assets of the Issuer, 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;
- (14) appointment of a successor or additional trustee or the change of name of a trustee, if material;
- (15) incurrence of a financial obligation of the Issuer, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a financial obligation of the Issuer, any of which affect security holders, if material¹; and
- (16) default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a financial obligation of the Issuer, any of which reflect financial difficulties¹.

(d) to the MSRB, in a timely manner, notice of a failure to provide any Issuer Annual Information required by Section 2(i)(a) or (b).

(e) The Issuer may from time to time designate an agent to act on its behalf in providing or filing notices, documents and information as required of the Issuer under this Agreement, and revoke or modify any such designation.

(ii) Obligations of the Trustee. The Trustee shall notify the Issuer upon the occurrence of any of the sixteen events listed in Section 2(i)(c) promptly upon becoming aware of the occurrence of any such event. The Trustee shall not be deemed to have become aware of the occurrence of any such event unless an officer in its corporate trust department becomes aware of the occurrence of any such event.

(iii) (a) Other Information. Nothing herein shall be deemed to prevent the Issuer from disseminating any other information in addition to that required hereby in the manner set forth herein or in any other manner. If the Issuer should disseminate any such additional information, the Issuer shall not have any obligation hereunder to update such information or to include it in any future materials disseminated hereunder.

(b) Credit Enhancement. Each agreement governing the provision of a credit facility, if any, shall require the provider thereof to provide the Issuer with prompt written notice of any change in the name, address, and telephone number of a place where then current information regarding such provider may be obtained. In addition, such agreement shall require each provider of a credit facility promptly to notify the

¹ For purposes of the events identified in clauses (15) and (16) above, the term “financial obligation” means (i) debt obligation; (ii) derivative instrument entered into by the Issuer in connection with, or pledged as security or a source of payment for, an existing or planned debt obligation; or (iii) guarantee of (i) or (ii). The term “financial obligation” shall not include municipal securities as to which a final official statement has been provided to the MSRB consistent with the Rule.

Issuer of a change in any rating relating to such provider that would affect the rating of the Junior Indebtedness Obligations by any rating agency then rating the Junior Indebtedness Obligations. The Issuer shall promptly provide the Trustee with copies of all notices received by it under this Section 2(e)(iii)(b). The provisions of this Section 2(e)(iii)(b) shall also apply to each provider of a substitute credit facility.

(c) Disclaimer. Each of the Issuer and the Trustee shall be obligated to perform only those duties expressly provided for such entity in this Agreement, and neither of the foregoing shall be under any obligation to the Holders or other parties hereto to perform, or monitor the performance of, any duties of such other parties.

(iv) Additional Disclosure Obligations. The Issuer acknowledges and understands that other state and federal laws, including but not limited to the Securities Act of 1933 and Rule 10b-5 promulgated under the Securities Exchange Act of 1934, may apply to the Issuer and that, under some circumstances, compliance with this Agreement without additional disclosures or other action may not fully discharge all duties and obligations of the Issuer under such laws.

(v) MSRB Prescribed Identifying Information. All documents provided to the MSRB pursuant to this Agreement shall be accompanied by identifying information as prescribed from time to time by the MSRB.

Section 3. Annual Information.

(i) Specified Information. The Annual Information shall consist of the following:

(a) financial information and operating data of the type included in the Official Statement for each series of Junior Indebtedness Obligations, under the headings “THE NEW NY BRIDGE PROJECT – New NY Bridge Project Financial Plan” and “– New NY Bridge Project Budget”, “RESULTS OF OPERATIONS – Financial Results of Operations”, “MANAGEMENT’S DISCUSSION AND ANALYSIS OF RESULTS OF OPERATIONS – Traffic and Revenue” and “BUDGET AND CAPITAL PROGRAM; TRAFFIC ENGINEER’S REPORT – 2013 Budget and Revisions”, “– Multi-Year Capital Program” and “– Funding of the Multi-Year Capital Program” which shall include information relating to the following:

- (1) current toll rates for all classes of vehicles;
- (2) statements of Revenues, Operating Expenses and Net Revenues for the most recent fiscal year;
- (3) statements of traffic and operating revenues for the most recent fiscal year;
- (4) summary of the most recent inspection of any of the Facilities by the Issuer, its Independent Consultant or other professional engineer or engineers retained for the purpose of such inspection;

- (5) status of the Issuer's capital planning process;
- (6) status of the New NY Bridge Project; and
- (7) status of the Issuer's debt service coverage for the most recent fiscal year.

(b) such narrative explanation as may be necessary to avoid misunderstanding and to assist the reader in understanding the presentation of financial information and operating data and in judging the financial condition of the Issuer.

(ii) Transmission of Information and Notices. (a) Unless otherwise required by the MSRB, all notices, documents and information provided to the MSRB shall be provided to the MSRB's EMMA system, the current Internet Web address of which is www.emma.msrb.org.

(b) Unless otherwise required by law, all notices, documents and information provided to the MSRB shall be provided in an electronic format as prescribed by the MSRB and shall be accompanied by identifying information as prescribed by the MSRB.

(iii) Cross Reference. All or any portion of the Annual Information may be incorporated in the Annual Information by specific cross reference to any other documents which are (i) available to the public on the MSRB Internet web site (currently, www.emma.msrb.org) or (ii) filed with the SEC. However, the provisions of this Section 3(iii) shall not apply to notice of the sixteen events listed in Section 2(i)(c).

(iv) Informational Categories. The requirements contained in this Agreement under Section 3(i) are intended to set forth a general description of the type of financial information and operating data to be provided; such descriptions are not intended to state more than general categories of financial information and operating data; and where the provisions of Section 3(i) call for information that no longer can be generated because the operations to which it related have been materially changed or discontinued, a statement to that effect shall be provided.

Section 4. Financial Statements.

The Issuer's annual financial statements for each fiscal year shall be prepared in accordance with GAAP (unless applicable accounting principles are otherwise disclosed) and audited by an independent accounting firm in accordance with GAAS (but only if audited financial statements are otherwise available for such fiscal year).

Section 5. Remedies.

If any party hereto should fail to comply with any provision of this Agreement, then each of the other parties and, as a direct or third-party beneficiary, as the case may be, any Holder of Junior Indebtedness Obligations may enforce, for the equal benefit and protection of all Holders similarly situated, by mandamus or other suit or proceeding at law or in equity, this Agreement against such party and any of its officers, agents and employees, and may compel

such party or any such officers, agents or employees to perform and carry out their duties under this Agreement; provided, however, that the sole and exclusive remedy for breach of this Agreement shall be an action to compel specific performance of the obligations of such party hereunder and no person or entity shall be entitled to recover monetary damages hereunder under any circumstances; and provided further, that the rights of any Holder to challenge the adequacy of the information provided in accordance with Section 2 hereunder are conditioned upon the provisions of the Authorizing Document with respect to the enforcement of remedies of Holders upon the occurrence of an Event of Default described in Section 901 of the Authorizing Document as though such provisions applied hereunder. Each of the Issuer and the Trustee reserves the right, but shall not be obligated, to enforce the obligations of the others. Failure by any party to perform its obligations hereunder shall not constitute an Event of Default under the Authorizing Document or any other agreement executed and delivered in connection with the issuance of the Junior Indebtedness Obligations. In consideration of the third-party beneficiary status of beneficial owners of Junior Indebtedness Obligations pursuant to Section 6, beneficial owners shall be deemed to be Holders of Junior Indebtedness Obligations for purposes of this Section 5.

Section 6. Parties in Interest.

This Agreement is executed and delivered solely for the benefit of the Holders of Junior Indebtedness Obligations and, for the purposes of Section 5, beneficial owners of Junior Indebtedness Obligations. For the purposes of such Section 5, beneficial owners of Junior Indebtedness Obligations shall be third-party beneficiaries of this Agreement. No person other than those described in Section 5 shall have any right to enforce the provisions hereof or any other rights hereunder.

Section 7. Amendments.

(i) Without the consent of any Holders (except to the extent required under clause (c)(II) of this sentence) or provider of any Credit Facility, the Issuer and the Trustee at any time and from time to time may enter into amendments or changes to this Agreement for any purpose, if (a) the amendment is made in connection with a change in circumstances that arises from a change in legal requirements, change in law, or change in the identity, nature or status of the Issuer or any type of business or affairs conducted by either; (b) the undertakings set forth herein, as amended, would have complied with the requirements of Rule 15c2-12 at the time of the primary offering of the Junior Indebtedness Obligations, after taking into account any amendments to, or interpretation by the staff of the Securities and Exchange Commission of, Rule 15c2-12, as well as any change in circumstances; and (c) either (I) the amendment does not materially impair the interests of the Holders, as determined either by the Trustee or by nationally recognized bond counsel or (II) the Holders consent to the amendment to this Agreement pursuant to the same procedures as are required for amendments to the Authorizing Document with the consent of Holders pursuant to Section 704 of the Authorizing Document. In determining whether there is such a material impairment, the Trustee may rely upon an opinion of nationally recognized bond counsel. The interests of Holders shall be deemed not to have been materially impaired by an amendment (1) to add a dissemination agent for the information to be provided hereunder and to make any necessary or desirable provisions with respect thereto, (2) to evidence the succession of another entity to the Issuer or the Trustee and the assumption

by any such successor to the obligations of such party hereunder, or (3) to add to the obligations of the Issuer for the benefit of the Holders, or to surrender any right or power herein conferred upon the Issuer.

(ii) Annual Information for any fiscal year containing any amended operating data or financial information for such fiscal year shall explain, in narrative form, the reasons for such amendment and the impact of the change on the type of operating data or financial information in the Annual Information being provided for such fiscal year. If a change in accounting principles is included in any such amendment, such Annual Information shall present a comparison between the financial statements or information prepared on the basis of the amended accounting principles and those prepared on the basis of the former accounting principles. Such comparison shall 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. To the extent reasonably feasible such comparison shall also be quantitative. A notice of any such change in accounting principles shall be electronically filed with the MSRB.

Section 8. Termination.

This Agreement shall remain in full force and effect until such time as all principal, redemption premiums, if any, and interest on all Junior Indebtedness Obligations (in each case in this paragraph 8, “Junior Indebtedness Obligations” shall refer to each series of Junior Indebtedness Obligations, respectively) shall have been paid in full or all Junior Indebtedness Obligations shall have otherwise been paid or defeased in accordance with the Authorizing Document (a “Legal Defeasance”); provided, however, that if Rule 15c2-12 (or any successor provision) shall be amended, modified or changed so that all or any part of the information currently required to be provided thereunder shall no longer be required to be provided thereunder, then such information shall no longer be required to be provided hereunder; and provided further, that if and to the extent Rule 15c2-12 (or successor provision), or any provision thereof, shall be declared by a court of competent and final jurisdiction to be, in whole or in part, invalid, unconstitutional, null and void, or otherwise inapplicable to the Junior Indebtedness Obligations, then the information required to be provided hereunder, insofar as it was required to be provided by a provision of Rule 15c2-12 so declared, shall no longer be required to be provided hereunder. Upon any Legal Defeasance of a series of Junior Indebtedness Obligations, the Issuer shall electronically file with the MSRB notice of such defeasance to the MSRB, and such notice shall state whether the applicable series of Junior Indebtedness Obligations have been defeased to maturity or to redemption and the timing of such maturity or redemption. Upon any other termination pursuant to this Section 8, the Issuer shall electronically file with the MSRB notice of such termination.

Section 9. The Trustee.

(i) Except as specifically provided herein, this Agreement shall not create any obligation or duty on the part of the Trustee and the Trustee shall not be subject to any liability hereunder for acting or failing to act as the case may be.

(ii) The Trustee shall be indemnified and held harmless in connection with this Agreement, to the same extent provided in the Authorizing Document for matters arising thereunder.

Section 10. Governing Law.

This Agreement shall be governed by the laws of the State of New York determined without regard to principles of conflict of law.

Section 11. Counterparts.

This Agreement may be executed in any number of counterparts, each of which shall be deemed an original, but all shall together constitute one and the same instrument.

IN WITNESS WHEREOF, the undersigned have duly authorized, executed and delivered this Amended and Restated Master Continuing Disclosure Agreement as of the date first above written.

THE BANK OF NEW YORK MELLON,
*as Trustee for the benefit of Holders of the
Junior Indebtedness Obligations*

**NEW YORK STATE THRUWAY
AUTHORITY, Issuer of the Junior
Indebtedness Obligations**

By: _____
Authorized Officer

By: _____
Name: Matthew A. Howard
Title: Chief Financial Officer and
Treasurer

OUTSTANDING SERIES OF JUNIOR INDEBTEDNESS OBLIGATIONS

as of October 30, 2019

General Revenue Junior Indebtedness Obligations, Series 2016A, issued on May 12, 2016

General Revenue Junior Indebtedness Obligations, Series 2019B, issued on October 30, 2019

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Specimen Assured Guaranty Municipal Corp. Insurance Policy

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MUNICIPAL BOND INSURANCE POLICY

ISSUER:

BONDS: \$ in aggregate principal amount of

Policy No: -N

Effective Date:

Premium: \$

ASSURED GUARANTY MUNICIPAL CORP. ("AGM"), for consideration received, hereby UNCONDITIONALLY AND IRREVOCABLY agrees to pay to the trustee (the "Trustee") or paying agent (the "Paying Agent") (as set forth in the documentation providing for the issuance of and securing the Bonds) for the Bonds, for the benefit of the Owners or, at the election of AGM, directly to each Owner, subject only to the terms of this Policy (which includes each endorsement hereto), that portion of the principal of and interest on the Bonds that shall become Due for Payment but shall be unpaid by reason of Nonpayment by the Issuer.

On the later of the day on which such principal and interest becomes Due for Payment or the Business Day next following the Business Day on which AGM shall have received Notice of Nonpayment, AGM will disburse to or for the benefit of each Owner of a Bond the face amount of principal of and interest on the Bond that is then Due for Payment but is then unpaid by reason of Nonpayment by the Issuer, but only upon receipt by AGM, in a form reasonably satisfactory to it, of (a) evidence of the Owner's right to receive payment of the principal or interest then Due for Payment and (b) evidence, including any appropriate instruments of assignment, that all of the Owner's rights with respect to payment of such principal or interest that is Due for Payment shall thereupon vest in AGM. A Notice of Nonpayment will be deemed received on a given Business Day if it is received prior to 1:00 p.m. (New York time) on such Business Day; otherwise, it will be deemed received on the next Business Day. If any Notice of Nonpayment received by AGM is incomplete, it shall be deemed not to have been received by AGM for purposes of the preceding sentence and AGM shall promptly so advise the Trustee, Paying Agent or Owner, as appropriate, who may submit an amended Notice of Nonpayment. Upon disbursement in respect of a Bond, AGM shall become the owner of the Bond, any appurtenant coupon to the Bond or right to receipt of payment of principal of or interest on the Bond and shall be fully subrogated to the rights of the Owner, including the Owner's right to receive payments under the Bond, to the extent of any payment by AGM hereunder. Payment by AGM to the Trustee or Paying Agent for the benefit of the Owners shall, to the extent thereof, discharge the obligation of AGM under this Policy.

Except to the extent expressly modified by an endorsement hereto, the following terms shall have the meanings specified for all purposes of this Policy. "Business Day" means any day other than (a) a Saturday or Sunday or (b) a day on which banking institutions in the State of New York or the Insurer's Fiscal Agent are authorized or required by law or executive order to remain closed. "Due for Payment" means (a) when referring to the principal of a Bond, payable on the stated maturity date thereof or the date on which the same shall have been duly called for mandatory sinking fund redemption and does not refer to any earlier date on which payment is due by reason of call for redemption (other than by mandatory sinking fund redemption), acceleration or other advancement of maturity unless AGM shall elect, in its sole discretion, to pay such principal due upon such acceleration together with any accrued interest to the date of acceleration and (b) when referring to interest on a Bond, payable on the stated date for payment of interest. "Nonpayment" means, in respect of a Bond, the failure of the Issuer to have provided sufficient funds to the Trustee or, if there is no Trustee, to the Paying Agent for payment in full of all principal and interest that is Due for Payment on such Bond. "Nonpayment" shall also include, in respect of a Bond, any payment of principal or interest that is Due for Payment made to an Owner by or on behalf of the Issuer which has been recovered from such Owner pursuant to the

United States Bankruptcy Code by a trustee in bankruptcy in accordance with a final, nonappealable order of a court having competent jurisdiction. "Notice" means telephonic or telecopied notice, subsequently confirmed in a signed writing, or written notice by registered or certified mail, from an Owner, the Trustee or the Paying Agent to AGM which notice shall specify (a) the person or entity making the claim, (b) the Policy Number, (c) the claimed amount and (d) the date such claimed amount became Due for Payment. "Owner" means, in respect of a Bond, the person or entity who, at the time of Nonpayment, is entitled under the terms of such Bond to payment thereof, except that "Owner" shall not include the Issuer or any person or entity whose direct or indirect obligation constitutes the underlying security for the Bonds.

AGM may appoint a fiscal agent (the "Insurer's Fiscal Agent") for purposes of this Policy by giving written notice to the Trustee and the Paying Agent specifying the name and notice address of the Insurer's Fiscal Agent. From and after the date of receipt of such notice by the Trustee and the Paying Agent, (a) copies of all notices required to be delivered to AGM pursuant to this Policy shall be simultaneously delivered to the Insurer's Fiscal Agent and to AGM and shall not be deemed received until received by both and (b) all payments required to be made by AGM under this Policy may be made directly by AGM or by the Insurer's Fiscal Agent on behalf of AGM. The Insurer's Fiscal Agent is the agent of AGM only and the Insurer's Fiscal Agent shall in no event be liable to any Owner for any act of the Insurer's Fiscal Agent or any failure of AGM to deposit or cause to be deposited sufficient funds to make payments due under this Policy.

To the fullest extent permitted by applicable law, AGM agrees not to assert, and hereby waives, only for the benefit of each Owner, all rights (whether by counterclaim, setoff or otherwise) and defenses (including, without limitation, the defense of fraud), whether acquired by subrogation, assignment or otherwise, to the extent that such rights and defenses may be available to AGM to avoid payment of its obligations under this Policy in accordance with the express provisions of this Policy.

This Policy sets forth in full the undertaking of AGM, and shall not be modified, altered or affected by any other agreement or instrument, including any modification or amendment thereto. Except to the extent expressly modified by an endorsement hereto, (a) any premium paid in respect of this Policy is nonrefundable for any reason whatsoever, including payment, or provision being made for payment, of the Bonds prior to maturity and (b) this Policy may not be canceled or revoked. THIS POLICY IS NOT COVERED BY THE PROPERTY/CASUALTY INSURANCE SECURITY FUND SPECIFIED IN ARTICLE 76 OF THE NEW YORK INSURANCE LAW.

In witness whereof, ASSURED GUARANTY MUNICIPAL CORP. has caused this Policy to be executed on its behalf by its Authorized Officer.

ASSURED GUARANTY MUNICIPAL CORP.

By _____
Authorized Officer

A subsidiary of Assured Guaranty Municipal Holdings Inc.
1633 Broadway, New York, N.Y. 10019
(212) 974-0100

