NEW ISSUE **BOOK ENTRY - ONLY**

In the opinion of Harris Beach PLLC, as Bond Counsel to the Authority, under existing statutes, regulations, administrative rulings and court decisions, and assuming compliance with the tax covenants described herein, interest on the Series O Bonds is excluded from gross income for federal income tax purposes pursuant to Section 103 of the Internal Revenue Code of 1986, as amended, and is not an item of tax preference for purposes of calculating the federal alternative minimum tax imposed on individuals. Bond Counsel is also of the opinion that under existing statutes, including the New York State Thruway Authority Act, interest on the Series O Bonds is exempt from personal income taxes imposed by the State of New York or any political subdivision thereof. See "TAX MATTERS" for further information.

NEW YORK STATE OF OPPORTUNITY. Thruway Authority

$549,480,000
New York State Thruway Authority
General Revenue Bonds
Series O

Dated: Date of Delivery **Due: January 1, as shown on the inside cover hereof**

Interest is payable each January 1 and July 1, commencing January 1, 2022. The New York State Thruway Authority General Revenue Bonds, Series O (the "Series O Bonds") are issuable only as fully registered bonds without coupons, in the principal amount of $5,000 or any integral multiple of $5,000 in excess thereof. The Series O Bonds 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 O Bonds. See **Appendix D —** "Book-Entry Only System" herein. Principal of and premium, if any, and interest on the Series O Bonds will be payable to Bondholders through The Bank of New York Mellon, New York, New York, as Trustee.

The Series O Bonds are subject to redemption prior to maturity as described herein.

The Series O Bonds of the New York State Thruway Authority (the "Authority") will be issued pursuant to the Authority's General Revenue Bond Resolution adopted on August 3, 1992, as supplemented (such General Revenue Bond Resolution as from time to time amended or supplemented being herein called the "Bond Resolution"), including as supplemented by the Twentieth Supplemental Revenue Bond Resolution Authorizing General Revenue Bonds, Series O, adopted by the Authority on June 7, 2021 (the "Twentieth Supplemental Resolution"), and are secured as to the payment of principal, premium, if any, and interest thereon by a pledge of the Revenues and certain funds and accounts established under the Bond Resolution, subject to the application thereof for the purposes and on the terms and conditions provided in the Bond Resolution. **The Series O Bonds are not a debt of the State of New York (the "State") nor shall the State be liable thereon.**

The Series O Bonds are being issued to (i) fund a portion of the Authority's Multi-Year Capital Program, (ii) make a deposit to the Senior Debt Service Reserve Fund, (iii) fund capitalized interest on the Series O Bonds, (iv) refund certain outstanding Bonds, and (v) pay the Costs of Issuance of the Series O Bonds.

MATURITY SCHEDULE — See Inside Cover

The cover page and inside cover page 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 O Bonds are offered, when, as and if issued by the Authority and are subject to the approval of legality by Harris Beach PLLC, Bond Counsel to the Authority. Certain legal matters are subject to the approval of Joseph P. Igoe, Esq., Deputy General Counsel to the Authority. Public Resources Advisory Group and Acacia Financial Group, Inc. are acting as Co-Financial Advisors to the Authority. It is expected that the Series O Bonds will be available for delivery to The Depository Trust Company, New York, New York, on or about October 7, 2021.

September 23, 2021

$549,480,000
New York State Thruway Authority
General Revenue Bonds
Series O

Maturities, Principal Amounts, Interest Rates, Yields and CUSIP Numbers

Due January 1	Principal Amount	Interest Rate	Yield	CUSIP Number* (Base# 650009)
2023	$ 9,390,000	5.00%	0.11%	V59
2033	15,655,000	5.00	1.26†	V67
2034	16,435,000	5.00	1.32†	V75
2035	17,255,000	5.00	1.37†	V83
2036	31,550,000	4.00	1.65†	V91
2037	32,835,000	4.00	1.69†	W25
2038	32,260,000	4.00	1.74†	W33
2039	33,640,000	4.00	1.78†	W41
2040	35,100,000	4.00	1.82†	W58
2041	36,600,000	4.00	1.85†	W66
2042	38,180,000	4.00	1.97†	W74
2043	23,705,000	4.00	2.00†	W82
2044	24,655,000	4.00	2.03†	W90
2045	25,640,000	4.00	2.06†	X24
2046	26,670,000	4.00	2.09†	X32
2047	27,735,000	4.00	2.10†	X40
2048	28,845,000	4.00	2.11†	X57
2049	29,995,000	4.00	2.12†	X65
2050	31,200,000	3.00	2.43†	X73
2051	32,135,000	3.00	2.44†	X81

† Priced at the stated yield to the first optional redemption date of July 1, 2031, at a redemption price of 100%.

* CUSIP® is a registered trademark of the American Bankers Association. CUSIP numbers have been assigned by CUSIP Global Services, which is managed on behalf of the American Bankers Association by S&P Global Market Intelligence, a division of S&P Global Inc. The CUSIP numbers listed above are provided solely for the convenience of the registered owners of the Series O Bonds at the time of the issuance of the Series O Bonds. Neither the Authority nor the Initial Purchasers are responsible for the selection or uses of these CUSIP numbers, and no representation is made as to their correctness on the applicable Series O Bonds or as included herein. CUSIP numbers are subject to being changed after the issuance of the Series O Bonds as a result of various subsequent actions including, but not limited to, a refunding in whole or in part or as a result of procurement of secondary market portfolio insurance or other similar enhancement by investors that is applicable to all or a portion of the Series O Bonds.

IN CONNECTION WITH THE OFFERING OF THE SERIES O BONDS, THE INITIAL PURCHASERS MAY OVERALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF SUCH BONDS 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 O Bonds 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 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.

CAUTIONARY STATEMENTS REGARDING FORWARD-LOOKING STATEMENTS IN THIS OFFICIAL STATEMENT

This Official Statement and particularly the information contained under the captions "SUMMARY STATEMENT," "SOURCES OF PAYMENT AND SECURITY FOR THE BONDS", "BUDGET AND CAPITAL PROGRAM – TRAFFIC ENGINEER'S REPORT", "INVESTMENT CONSIDERATIONS", and "**Appendix A** – 2021 Traffic Engineer's Report" 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", "seek", "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 future revenues, costs, additional revenue needs, 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 if 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 of such 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 O BONDS HAVE NOT BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION. THE REGISTRATION, QUALIFICATION, OR EXEMPTION OF THE SERIES O BONDS IN ACCORDANCE WITH THE APPLICABLE SECURITIES LAW PROVISIONS OF THE JURISDICTIONS IN WHICH THESE SECURITIES HAVE BEEN REGISTERED, 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 O BONDS 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.

TABLE OF CONTENTS

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 of the State of New York (the "State"), 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 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 —** "2021 Traffic Engineer's Report".

Purpose of Issue

The Series O Bonds are being issued to (i) fund a portion of the Authority's Multi-Year Capital Program, (ii) make a deposit to the Senior Debt Service Reserve Fund, (iii) pay capitalized interest on the Series O Bonds, (iv) refund certain outstanding Bonds, and (v) pay the Costs of Issuance of the Series O Bonds. See "PLAN OF FINANCE AND REFUNDING".

Security

The Series O Bonds are direct and general obligations of the Authority. Bonds issued under the Bond Resolution, including the Series O Bonds, are secured as to the payment of principal, premium, if any, and interest thereon by a pledge of the Revenues and certain funds and accounts established under the Bond Resolution, subject to the application thereof for the purposes and on the terms and conditions provided in the Bond Resolution. **The Series O Bonds are not a debt of the State nor shall the State be liable thereon.** The Authority has no taxing power. The Series O Bonds are secured by the Senior Debt Service Reserve Fund in an amount equal to the maximum amount of Aggregate Debt Service for any 12-month period on all Outstanding Bonds secured by the Senior Debt Service Reserve Fund, a substantial portion of which is currently funded by Reserve Credit Facilities as permitted by the Bond Resolution. The Bond Resolution also provides that Operating Expenses of Facilities will be funded from Revenues prior to the provision for accrued Debt Service on the Bonds. See "SOURCES OF PAYMENT AND SECURITY FOR THE BONDS" and "AGGREGATE ANNUAL DEBT SERVICE REQUIREMENTS".

Toll Covenant

Pursuant to the Bond 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 Net Revenue Requirement for such year. "Net Revenue Requirement" means, with respect to any period of time, an amount equal to the greater of (i) the sum of amounts required to make payments with respect to Aggregate Debt Service, deposits to the Senior Debt Service Reserve Fund, Reserve Maintenance Payments (minimum, $30 million a year), and the amounts required to be deposited in the Junior Indebtedness Fund pursuant to the Supplemental Resolution or other resolution or agreement authorizing outstanding Junior Indebtedness or (ii) 1.20 times the sum of the Aggregate Debt Service for such period. See "SOURCES OF PAYMENT AND SECURITY FOR THE BONDS — Tolls, Fees and Charges" and **Appendix C —** "Summary of Certain Provisions of the Bond Resolution — Tolls, Fees and Charges".

Additional Indebtedness

Under the Bond Resolution, the Authority may issue Additional Bonds, Refunding Bonds, Junior Indebtedness and Subordinated Indebtedness payable from Revenues. Additional Bonds may be issued, subject to certain limitations, to pay for Project Costs of the Original Project, any Additional Projects and any Other Authority Projects. Refunding Bonds may be issued, subject to certain limitations, to refund Outstanding Bonds, any Junior Indebtedness and any Subordinated Indebtedness. Such limitations include, but are not limited to, satisfaction of a coverage test or not-to-exceed Aggregate Debt Service test. See "SOURCES OF PAYMENT AND SECURITY FOR THE BONDS — Additional Bonds, Refunding Bonds and Other Indebtedness" and "— Reserve Maintenance Fund".

As of September 1, 2021, the Authority had outstanding under the Bond Resolution $3,232,170,000 aggregate principal amount of Bonds. On the date of delivery of the Series O Bonds, the Authority will have outstanding $3,656,080,000 aggregate principal amount of Bonds.

Junior Indebtedness

On November 7, 2013, the Authority established a subordinate credit structure with the adoption of the "Resolution Authorizing General Revenue Junior Indebtedness Obligations" (the "Junior Indebtedness Resolution"), to finance the costs of a new twin-span New NY Bridge Project (now named The Governor Mario M. Cuomo Bridge) to replace the existing Tappan Zee Bridge. See "The New NY Bridge Project" herein. As of September 1, 2021, the Authority had outstanding under the Junior Indebtedness Resolution $2,542,415,000 of Junior Indebtedness Obligations.

2021 Budget and 2021-2025 Capital Program

On December 1, 2020, the Authority Board approved the 2021 Budget and 2021-2025 Capital Program. The 2021 Mid-Year Forecast for the 2021-2025 Capital Program totals $1.87 billion, including $268.8 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 2021-2025 Capital Program project mix, focusing more on high priority and high impact investments to maintain the useful life of Thruway System infrastructure. The 2021-2025 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 – 2021-2025 Capital Program" and "– Funding of the 2021-2025 Capital Program" for more information on the 2021-2025 Capital Program and the New NY Bridge Project.

Projected Results

The Authority retained Stantec Consulting Services, Inc., as Traffic Engineer ("Stantec"), to prepare a study (the "2021 Traffic Engineer's Report") that produced a traffic and revenue forecast based on the Authority's current toll schedule and reviewed the operations, physical condition of the Thruway System and projected financial results for the period 2021-2025. The 2021 Traffic Engineer's Report identifies future revenues required for the Authority to meet its system-wide operating, debt service, and capital needs, management's targets 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 Bond Resolution and Junior Indebtedness Resolution. The Traffic Engineer's future incremental funding needs 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 debt service coverage targets.

The projections for the years 2021 through 2025 are included in the 2021 Traffic Engineer's Report which is included as **Appendix A** hereto, and should be read in its entirety. See "BUDGET AND CAPITAL PROGRAM; TRAFFIC ENGINEER'S REPORT." The 2021 Traffic Engineer's Report is also available for review on the Authority's website.

Toll Initiatives

New toll rates for The New York State Thruway Authority went into effect on January 1, 2021. The new toll rates, along with other tolling changes that support the statewide conversion to cashless tolling (completed in November 2020), were unanimously approved by the Authority's Board of Directors in December 2020. The new toll rates include a toll adjustment on The Governor Mario M. Cuomo Bridge in 2021 and in 2022. Toll rates for NY E-ZPass customers on the rest of the system remain the same. Thruway System tolls had not previously been adjusted since 2010. See "NEW YORK STATE TOLL RELATED INITIATIVES".

The New NY Bridge Project

Formal construction of the New NY Bridge Project (now known as "The Governor Mario M. Cuomo Bridge") began in October 2013. Both spans of the bridge were substantially completed and opened for vehicular traffic, with the north span opening on August 25, 2017 and the south span opening on September 12, 2018. As of December 31, 2020, $3.7 billion in total had been spent on the New NY Bridge Project. Of this amount, $88.9 million was spent in 2020. The Governor Mario M. Cuomo Bridge was constructed under a fixed-price, date-certain, Design-Build Contract with TZC, LLC. The total estimated cost of the New NY Bridge Project is $3.9 billion.

Ratings

Moody's Investors Service, Inc. ("Moody's") and S&P Global Ratings ("S&P") have rated the Series O Bonds "A1" with a Stable outlook and "A" with a Stable outlook, respectively. See "RATINGS" herein.

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OFFICIAL STATEMENT

$549,480,000
New York State Thruway Authority
General Revenue Bonds
Series O

Albany, New York
September 23, 2021

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 Bonds, Series O (the "Series O Bonds"), of the New York State Thruway Authority (the "Authority"). The Series O Bonds 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 O Bonds are authorized to be issued under and pursuant to the Authority's General Revenue Bond Resolution, adopted on August 3, 1992, as amended on January 5, 2007, as supplemented (such General Revenue Bond Resolution as from time to time amended or supplemented being herein called the "Bond Resolution"), including as supplemented by the Twentieth Supplemental Revenue Bond Resolution Authorizing General Revenue Bonds, Series O (the "Twentieth Supplemental Resolution"), adopted by the Authority on June 7, 2021.

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"). 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 New York State (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 State Legislature created the Authority to build, operate and maintain the highway. 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 426-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 Bonds and Junior Indebtedness Obligations and to fulfill the terms of any agreement made with the holders of Bonds and Junior Indebtedness Obligations until such Bonds and Junior Indebtedness Obligations and the interest thereon are fully met and discharged. Under the Bond Resolution and the Junior Indebtedness Resolution, tolls shall remain in effect until all of the 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

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 1, 2021, the Authority had outstanding under the Bond Resolution $3,232,170,000 aggregate principal amount of Bonds. On the date of delivery of the Series O Bonds, the Authority will have outstanding $3,656,080,000 aggregate principal amount of Bonds.

Junior Indebtedness

On November 7, 2013, the Authority established a subordinate credit structure with the adoption of the "Resolution Authorizing General Revenue Junior Indebtedness Obligations" (the "Junior Indebtedness Resolution"). The Authority began issuing Junior Indebtedness Obligations in December 2013 to finance the costs of construction of a new twin-span New NY Bridge Project (now named The Governor Mario M. Cuomo Bridge) to replace the existing Tappan Zee Bridge. As of September 1, 2021, the Authority had outstanding under the Junior Indebtedness Resolution $2,542,415,000 of Junior Indebtedness Obligations.

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. 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:

Name	**Expiration of Term**
Joanne M. Mahoney	January 1, 2020*
José Holguín-Veras	December 12, 2018*
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
Vacant	June 23, 2026

* Holding over.

The present officers of the Authority are as follows:

Name	**Office**
Joanne M. Mahoney	Chair
Robert L. Megna	Vice Chair
Matthew J. Driscoll	Executive Director
Matthew A. Howard	Treasurer
William F. McDonough	Assistant Treasurer
Tanya M. Morris	Secretary
Keith Fragomeni	Assistant Secretary
Jerry B. Yomoah	Assistant Secretary

Matthew J. Driscoll is the Executive Director of the Authority. Matthew A. Howard serves as Chief Financial Officer of the Authority. The General Counsel of the Authority is Francis G. Hoare, Esq. See "AUTHORITY GOVERNANCE, FACILITIES AND OPERATIONS" for additional detail on the Board membership and senior staff at the Authority.

PLAN OF FINANCE AND REFUNDING

The Series O Bonds are being issued to (i) fund a portion of the Authority's Multi-Year Capital Program, (ii) make a deposit to the Senior Debt Service Reserve Fund, (iii) fund capitalized interest on the Series O Bonds, (iv) refund certain outstanding Bonds, and (v) pay the Costs of Issuance of the Series O Bonds. See the table below under "SOURCES AND USES OF FUNDS".

A portion of the net proceeds of the Series O Bonds are expected to be used to defease and refund certain of the Authority's Outstanding Bonds, issued under the Bond Resolution and identified in Appendix F – The Refunded Bonds (collectively, the "Refunded Bonds") and the Refunded Bonds are expected to be redeemed on the date and at the Redemption Price indicated in Appendix F. Such proceeds of the Series O Bonds will be deposited into an escrow established pursuant to an escrow agreement between the Authority and The Bank of New York Mellon, as Escrow Agent and as the Trustee under the Bond Resolution (the "Escrow Deposit Agreement"), and used to acquire Government Obligations (as defined in the Bond Resolution), the principal of and interest on which, when due, will provide, together with any moneys or other investments which may be deposited by the Authority with the Escrow Agent, moneys sufficient to pay the redemption price of the Refunded Bonds and the interest accrued thereon to their redemption date. See "VERIFICATION OF MATHEMATICAL COMPUTATIONS" herein. Upon making such deposit with the Trustee and the issuance of certain irrevocable instructions to the Escrow Agent pursuant to the Escrow Deposit Agreement, the Refunded Bonds will, under the terms of the Bond Resolution, be deemed to have been paid and will no longer be Outstanding and will cease to be entitled to any lien, benefit or security under the Bond Resolution.

SOURCES AND USES OF FUNDS

The proceeds received from the sale of the Series O Bonds, together with other available moneys, are expected to be applied in the following approximate amounts:

Sources of Funds	
Principal Amount of Series O Bonds	$549,480,000.00
Original Issue Premium	98,965,694.25
Other Available Moneys	1,349,639.07
Total Sources of Funds	$649,795,333.32
Uses of Funds	
Deposit to Construction Fund	$450,000,000.00
Deposit to Senior Debt Service Reserve Fund	17,444,093.83
Capitalized Interest	51,855,649.00
Deposit to Escrow Fund for Refunded Bonds	128,268,366.65
Costs of Issuance	641,232.02
Initial Purchasers' Discount	1,585,991.82
Total Uses of Funds	$649,795,333.32

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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 General Revenue Bonds, the Outstanding Junior Indebtedness Obligations and the aggregate debt service on General Revenue Bonds and Junior Indebtedness Obligations after issuance of the Series O Bonds.

		Series O Bonds					
Calendar Year[1]	**Outstanding General Revenue Bond Debt Service**[2]	**Principal**	**Interest**[3]	**Total**	**Total General Revenue Bond Debt Service**	**Outstanding Junior Indebtedness Obligations Debt Service**[3]	**Aggregate Gen. Rev. Bond and Junior Indebt. Obligations Debt Service**[2][3]
2021	$170,066,168	-	$1,033,044	$1,033,044	$171,099,212	$ 24,036,775	$195,135,987
2022	230,616,136	$ 9,390,000	4,427,306	13,817,306	244,433,442	63,590,499	308,023,941
2023	248,531,986	-	4,332,536	4,332,536	252,864,522	108,723,850	361,588,372
2024	253,305,312	-	8,329,812	8,329,812	261,635,124	110,463,850	372,098,974
2025	262,103,540	-	21,463,700	21,463,700	283,567,240	112,365,850	395,933,090
2026	262,857,745	-	21,463,700	21,463,700	284,321,445	114,164,600	398,486,045
2027	264,460,995	-	21,463,700	21,463,700	285,924,695	115,865,100	401,789,795
2028	230,716,045	-	21,463,700	21,463,700	252,179,745	152,697,100	404,876,845
2029	230,725,158	-	21,463,700	21,463,700	252,188,858	155,198,850	407,387,708
2030	275,140,358	-	21,463,700	21,463,700	296,604,058	116,703,600	413,307,658
2031	277,271,239	-	21,463,700	21,463,700	298,734,939	120,474,100	419,209,039
2032	206,983,726	15,655,000	21,463,700	37,118,700	244,102,426	120,901,850	365,004,276
2033	208,949,971	16,435,000	20,680,950	37,115,950	246,065,921	120,792,600	366,858,521
2034	211,650,196	17,255,000	19,859,200	37,114,200	248,764,396	118,814,600	367,578,996
2035	149,494,081	31,550,000	18,996,450	50,546,450	200,040,531	173,333,850	373,374,381
2036	149,497,081	32,835,000	17,734,450	50,569,450	200,066,531	175,342,600	375,409,131
2037	115,170,506	32,260,000	16,421,050	48,681,050	163,851,556	177,025,400	340,876,956
2038	115,096,831	33,640,000	15,130,650	48,770,650	163,867,481	177,737,600	341,605,081
2039	114,987,731	35,100,000	13,785,050	48,885,050	163,872,781	177,437,150	341,309,931
2040	114,907,831	36,600,000	12,381,050	48,981,050	163,888,881	177,389,800	341,278,681
2041	114,793,281	38,180,000	10,917,050	49,097,050	163,890,331	178,675,600	342,565,931
2042	58,186,394	23,705,000	9,389,850	33,094,850	91,281,244	178,632,550	269,913,794
2043	58,185,044	24,655,000	8,441,650	33,096,650	91,281,694	178,668,000	269,949,694
2044	35,111,400	25,640,000	7,455,450	33,095,450	68,206,850	178,675,500	246,882,350
2045	35,113,800	26,670,000	6,429,850	33,099,850	68,213,650	178,548,350	246,762,000
2046	35,110,400	27,735,000	5,363,050	33,098,050	68,208,450	178,653,200	246,861,650
2047	35,114,600	28,845,000	4,253,650	33,098,650	68,213,250	178,356,050	246,569,300
2048	35,110,550	29,995,000	3,099,850	33,094,850	68,205,400	178,995,700	247,201,100
2049	35,112,700	31,200,000	1,900,050	33,100,050	68,212,750	178,841,100	247,053,850
2050	-	32,135,000	964,050	33,099,050	33,099,050	175,361,100	208,460,150
2051	-	-	-	-	-	175,149,300	175,149,300
2052	-	-	-	-	-	175,324,725	175,324,725
2053	-	-	-	-	-	62,210,263	62,210,263
2054	-	-	-	-	-	62,213,425	62,213,425
2055	-	-	-	-	-	62,210,613	62,210,613
Total	$4,534,370,806	$549,480,000	$383,035,648	$932,515,648	$5,466,886,453	$4,933,575,099	$10,400,461,552

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

(2) Excludes debt service on outstanding General Revenue Bonds that are being refunded by the Series O Bonds.

(3) Net of capitalized interest.

Note: Totals may not add due to rounding.

DESCRIPTION OF THE SERIES O BONDS

General

The Series O Bonds will be dated their date of delivery, will bear interest at the rates per annum and will mature, subject to optional and mandatory redemption as described below, on the dates and in the principal amounts set forth on the inside cover page of this Official Statement. Interest on the Series O Bonds will be payable semiannually on January 1 and July 1 of each year, commencing on January 1, 2022.

Book-Entry Only System

The Series O Bonds 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 O Bonds will be held in book-entry only form. Principal of and premium, if any, and interest on the Series O Bonds 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 Bond Resolution. Purchases from DTC of beneficial interests in the Series O Bonds 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 O Bonds, payments of the principal of, premium, if any, and interest on the Series O Bonds 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 O BONDS, AS NOMINEE FOR DTC, REFERENCES HEREIN TO BONDHOLDERS OR OWNERS OF THE SERIES O BONDS (OTHER THAN UNDER THE CAPTION "TAX MATTERS" HEREIN) SHALL MEAN CEDE & CO. AND SHALL NOT MEAN THE BENEFICIAL OWNERS OF THE SERIES O BONDS.

See **Appendix D —** "Book-Entry Only System".

Redemption Provisions

The Series O Bonds are subject to optional redemption as described below. In addition, the State may, upon furnishing sufficient funds therefor, require the Authority to redeem the Bonds as provided in the Act. See **Appendix C —** "Summary of Certain Provisions of the Bond Resolution — Redemption of Bonds".

Optional Redemption. The Series O Bonds are subject to redemption prior to maturity at any time on or after July 1, 2031, 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 a Redemption Price of par, plus accrued interest to the redemption date.

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

Notice of Redemption. The Trustee is to give notice of the redemption of the Series O Bonds 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 O Bonds 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 O Bond to be redeemed to receive notice of redemption thereof will not affect the validity of the proceedings for the redemption of such Series O Bonds.

In accordance with provisions of the Bond Resolution and the Twentieth Supplemental Resolution, any notice of optional redemption may state that it is conditioned upon (i) receipt by the Trustee on or prior to the Redemption Date selected by the Authority for the redemption of Series O Bonds of money sufficient to pay the Redemption Price thereof and accrued interest thereon to such Redemption Date, or (ii) the satisfaction of any other specified condition or the occurrence or non-occurrence of any other specified event (the condition or event described in clause (i) or (ii) being referred to herein as a "Redemption Condition or Event"). Any conditional notice so given may be rescinded by the Trustee at the direction of the Authority at any time before payment of the Redemption Price of and accrued interest on the Series O Bonds if the Redemption Condition or Event is not satisfied or occurs or does not occur, as the case may be.

If on the redemption date moneys for the redemption of the Series O Bonds 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 O Bonds to be redeemed will cease to accrue from and after the Redemption Date and such Series O Bonds will no longer be considered to be Outstanding under the Bond Resolution.

SOURCES OF PAYMENT AND SECURITY FOR THE BONDS

Authorized Projects

In order to finance the projects included within the Authority's responsibilities as broadened by 1992 legislation, the Authority adopted the Bond 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 Bonds. Any Authority project may be funded from surplus Revenues released from time to time from the General Reserve Fund.

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

The first category, "Facilities," includes all of the Thruway System as it existed in 1992 when the Bond 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 Bonds for Facilities is limited by the Additional Bonds test. See "— Additional Bonds, Refunding Bonds and Other Indebtedness — *Additional Bonds for Facilities*".

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, 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 Bonds 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. See "— Facilities" and "— Additional Bonds, Refunding Bonds and Other Indebtedness — *Additional Bonds for Other Authority Projects*".

Revenues

Under the Bond Resolution, the Authority has pledged "Revenues" to the payment of Bonds, including the Series O Bonds. "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 Bond 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 Bond 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 Bond Resolution unless provision has first been made for, among other things, Operating Expenses of Facilities, accrual of debt service on the Bonds (including the Series O Bonds), and required Reserve Maintenance Fund deposits for Facilities. See "— General Revenue Bond Resolution Flow of Funds".

Pledge under the Bond Resolution

The Bonds are direct and general obligations of the Authority. Under the Bond Resolution, the payment of principal and redemption price of, interest on, and Sinking Fund Installments for the Bonds is secured by a pledge of the following: (i) the Revenues, (ii) the proceeds of the sale of the Bonds, and (iii) all Funds and accounts established under the Bond Resolution referred to below under "General Revenue Bond Resolution Flow of Funds" and in **Appendix C** — "Summary of Certain Provisions of the Bond Resolution — Funds and Revenues", including the investments thereof, except for the Rebate Fund and the Junior Indebtedness Fund and, with respect to certain series of Additional Bonds and Refunding Bonds, the Senior Debt Service Reserve Fund. See "Senior Debt Service Reserve Fund" below. The pledge created by the Bond Resolution is subject to the provisions of the Bond Resolution permitting the application of the Revenues, the proceeds of the sale of the Bonds and the funds and accounts established under the Bond Resolution for the purposes and upon the terms and conditions set forth in the Bond Resolution. The Bond Resolution also provides that monthly Operating Expenses of Facilities will be funded from Revenues prior to the provision for accrued Debt Service on Bonds. The Bond Resolution also provides that the pledge and lien created by the Bond Resolution shall be superior in all respects to any pledge or lien now or hereafter created for Junior Indebtedness or Subordinated Indebtedness.

The Act provides that notes and bonds 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 Bond Resolution specifically provides that the Bonds shall not be a debt of the State nor shall the State be liable thereon.

General Revenue Bond Resolution Flow of Funds

Pursuant to the Bond Resolution, the Authority is required to pay into the Revenue Fund all Revenues as received. On or before the last Business Day of each month, the Authority is required to pay into the Operating Fund, out of the moneys in the Revenue Fund, all amounts required for reasonable and necessary Operating Expenses and reserves for Operating Expenses and working capital with respect to Facilities. Operating Expenses for Other Authority Projects are not payable out of the Operating Fund but may be paid out of the Other Authority Projects Operating Fund. On or before the last Business Day of each month, the Authority is required to deposit amounts remaining in the Revenue Fund after such deposits to the Operating Fund as of the last day of the preceding month as follows:

(1) To the Trustee for deposit in the Senior Debt Service Fund, the amount required so that the balance in the Senior Debt Service Fund shall be at least equal to the Accrued Debt Service for all Bonds Outstanding as of the last day of the then current calendar 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, an amount 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, provided in the Authority Budget for the applicable fiscal year for Reserve Maintenance Payments, plus accrued deficits, if any, with respect to the prior required allocations to such Fund;

(4) To the Junior Indebtedness Fund, the amount required so that the balance in said Fund shall equal the amounts required to be deposited therein by any instrument authorizing the issuance of Junior Indebtedness outstanding on said date;

(5) To the Facilities Capital Improvement Fund, the amount 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;

(6) To the Other Authority Projects Operating Fund, the amount 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, any remaining balance of such moneys.

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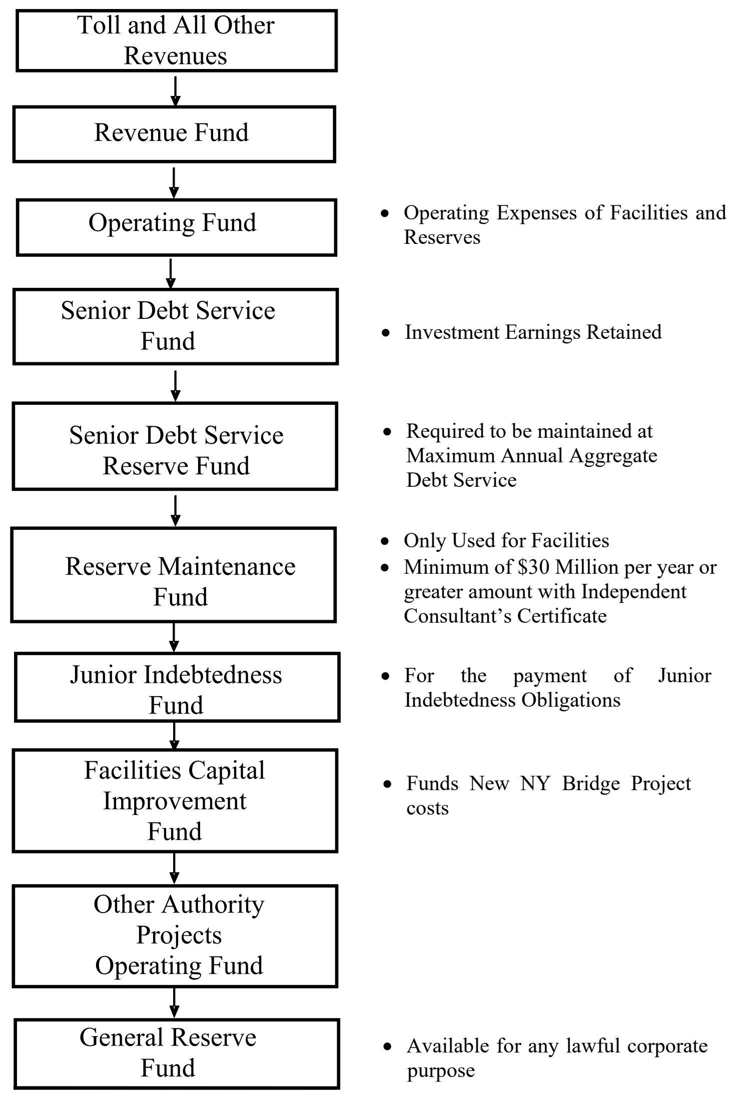
General Revenue Bond Resolution Flow of Funds



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Senior Debt Service Reserve Fund

The Senior Debt Service Reserve Fund Requirement is equal to the maximum amount of Aggregate Debt Service for any 12-month period on all Outstanding Bonds secured by the Senior Debt Service Reserve Fund (calculated with respect to Variable Interest Rate Bonds at the Estimated Average Interest Rate until conversion to a fixed rate of interest and subject to certain limitations). On the date of issuance of the Series O Bonds, the amount in the Senior Debt Service Reserve Fund shall be equal to the Senior Debt Service Reserve Fund Requirement. 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, the Facilities Capital Improvement Fund and the Reserve Maintenance Fund are insufficient to pay debt service, when due, on the Bonds, deficiencies will be made up from amounts in the Senior Debt Service Reserve Fund; provided that no payments will be made from moneys in the Senior Debt Service Reserve Fund with respect to Bonds not secured by the Senior Debt Service Reserve Fund. The Bond Resolution provides that the Authority may determine pursuant to any Supplemental Resolution authorizing a series of Bonds that such series of Bonds will not be secured by the Senior Debt Service Reserve Fund. The Series O Bonds are secured by the Senior Debt Service Reserve Fund. The Bond Resolution also provides that a Reserve Credit Facility may be deposited or substituted for deposit in the Senior Debt Service Reserve Fund to satisfy all or any portion of the Senior Debt Service Reserve Fund Requirement. See **Appendix C** — "Summary of Certain Provisions of the Bond Resolution — Senior Debt Service Reserve Fund".

As permitted by the Bond Resolution, the Authority currently has on deposit in the Senior Debt Service Reserve Fund, together with cash and investments to meet the Senior Debt Service Reserve Fund Requirement, Reserve Credit Facilities in the form of a Debt Service Reserve Surety Bond originally issued by MBIA Insurance Corporation ("MBIA") in the maximum amount of $69,895,025 (the "MBIA Reserve Fund Surety") and a Municipal Bond Debt Service Reserve Fund Policy originally issued by Financial Guaranty Insurance Company ("FGIC") in the maximum amount of $13,118,281 (the "Financial Guaranty Reserve Fund Policy" and collectively with the MBIA Reserve Fund Surety, the "Reserve Fund Policies"). The MBIA Reserve Fund Surety expires on January 1, 2027 and the Financial Guaranty Reserve Fund Policy expires on January 1, 2024, subject, in each case to early termination. The Reserve Fund Policies permit the Trustee, in the event that scheduled debt service is due on Bonds, including the Series O Bonds, and moneys to the credit of the Senior Debt Service Fund are insufficient, to draw pro rata amounts up to the maximum amounts of such Policies after all the cash (such as will be deposited in connection with the issuance of the Series O Bonds) and investments of that cash to the credit of the Senior Debt Service Reserve Fund have first been withdrawn. The Bond Resolution and the Reserve Fund Policies permit the substitution at any time and from time to time of other Reserve Credit Facilities meeting certain requirements for cash to the credit of the Senior Debt Service Reserve Fund. The Authority understands that MBIA ceded the MBIA Reserve Fund Surety to its subsidiary, MBIA Insurance Corp. of Illinois ("MBIA Illinois"), and that MBIA Illinois has been renamed National Public Finance Guarantee Corporation ("National"). The Authority further understands that pursuant to a reinsurance agreement between FGIC and National, National has reinsured certain obligations of FGIC, including the Financial Guaranty Reserve Fund Policy. As of the date hereof, National is rated "Baa2" by Moody's Investors Service. S&P Global Ratings has withdrawn its rating of National. See "SOURCES AND USES OF FUNDS" and **Appendix C** – "Summary of Certain Provisions of the Bond Resolution – Senior Debt Service Reserve Fund".

Additional Bonds, Refunding Bonds and Other Indebtedness

The Bond Resolution permits the issuance of Bonds, Junior Indebtedness and Subordinated Indebtedness. The Bond Resolution defines the "Bonds" to be bonds or other indebtedness of the Authority payable from amounts in the Senior Debt Service Fund, including but not limited to, any additional payment obligations in connection with a Qualified Swap, a Qualified Reverse Swap, a Parity Reimbursement Obligation or a capital lease undertaken in connection with the issuance of certificates of participation. “Junior Indebtedness” is any evidence of indebtedness of the Authority payable out of the Junior Indebtedness Fund. “Subordinated Indebtedness” is any evidence of indebtedness of the Authority payable out of amounts available in the General Reserve Fund. The Authority has issued Junior Indebtedness Obligations under the Junior Indebtedness Resolution. See “*– Junior Indebtedness Obligations*”. See “THE AUTHORITY – Outstanding Indebtedness” above. In addition, the Authority has not and has no current plans to enter into any payment obligations in connection with a Qualified Swap, a Qualified Reverse Swap, a Parity Reimbursement Obligation or a capital lease undertaken in connection with the issuance of certificates of participation under the Bond Resolution.

Bonds consist of the currently Outstanding Bonds and any Additional Bonds and Refunding Bonds that may be issued hereafter. Subject to the limitations described below (i) Additional Bonds may be issued to pay for Project Costs of the Original Project, any Additional Projects and any Other Authority Projects and (ii) Refunding Bonds may be issued to refund any Outstanding Bonds, any Junior Indebtedness or any Subordinated Indebtedness. For a more complete description of the provisions of the Bond Resolution governing the issuance of Additional Bonds and Refunding Bonds than the discussion that follows, see **Appendix C** — “Summary of Certain Provisions of the Bond Resolution — Additional Bonds” and “— Refunding Bonds”.

Additional Bonds for Facilities. In the case of Additional Bonds issued to provide for the Project Cost of one or more Facilities, other than as described under “Additional Bonds to Prevent a Loss of Revenues from Facilities” below, the following requirements, among others, must be met:

(1) The Net Revenues (subject to certain adjustments including toll increases, as provided by the Bond Resolution) for any period of 12 consecutive calendar months out of the 18 calendar months next preceding the date of issuance of the proposed Additional Bonds are at least equal to the Net Revenue Requirement. “Net Revenue Requirement” means, with respect to any period of time, an amount equal to the greater of (i) the sum of the amounts required to make payments with respect to Aggregate Debt Service, deposits to the Senior Debt Service Reserve Fund, Reserve Maintenance Payments, and the amounts required to be deposited in the Junior Indebtedness Fund pursuant to the instrument authorizing the issuance of such Junior Indebtedness and (ii) 1.2 times the sum of the Aggregate Debt Service (which under certain circumstances may be reduced by an amount equal to anticipated investment income on the Senior Debt Service Fund and on the Senior Debt Service Reserve Fund) for such period;

(2) For the then current fiscal year and each fiscal year in the Test Period (being the next five Authority fiscal years or the period extending from the next Authority fiscal year through the second Authority fiscal year following the estimated date of completion of any Facility not then completed, whichever period is greater), the Net Revenues (subject to certain adjustments including toll increases, as provided by the Bond Resolution) must, based on estimates by an Independent Consultant, be at least equal to the estimated Net Revenue Requirement (assuming the Maximum Interest Rate on any Variable Interest Rate Bonds); and

(3) The Net Revenues in the last fiscal year of the Test Period must be estimated by an Independent Consultant to be at least equal to Maximum Annual Debt Service on all Bonds Outstanding immediately after the issuance of the proposed Additional Bonds.

Additional Bonds to Prevent a Loss of Revenues from Facilities. The Authority may issue Additional Bonds without satisfying any earnings or coverage test for the purpose of providing for 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 where such loss would otherwise result from an emergency or some unusual or extraordinary occurrence.

Additional Bonds for Other Authority Projects. Additional Bonds may be issued to finance Other Authority Project Costs only if, in addition to satisfying the conditions described under the subheading "Additional Bonds for Facilities" above, the Maximum Annual Debt Service on all Outstanding Bonds (including the proposed Additional Bonds) the proceeds of which are used to finance or refinance Project Costs for Other Authority Projects (excluding Other Authority Projects that have since been designated as Additional Projects in accordance with the Bond Resolution) is less than 20% of the amount of Net Revenues for 12 consecutive months out of the most recent 18 months. Following the transfer of the State Canal System to the Power Authority on January 1, 2017, the Authority was no longer authorized to incur debt for costs related to the State Canal System.

Refunding Bonds to Refund Bonds. Bonds may be issued for the purpose of refunding Bonds if, in addition to meeting certain other requirements, (i) Aggregate Debt Service (assuming with respect to any Variable Interest Rate Bonds a Maximum Interest Rate), including the Refunding Bonds then proposed to be issued but not including the Bonds to be refunded, for the then current and any future fiscal year is no greater than the Aggregate Debt Service on the Bonds as calculated immediately prior to the refunding (including the refunded Bonds but not including the Refunding Bonds) or (ii) the requirements set forth above under the subheading "Additional Bonds for Facilities" are met.

Refunding Bonds to Refund Junior Indebtedness or Subordinated Indebtedness. Refunding Bonds may be issued for the purpose of refunding Junior Indebtedness or Subordinated Indebtedness that was issued to finance or refinance Project Costs of Facilities or Other Authority Projects if the requirements set forth above under the subheading "Additional Bonds for Facilities" are met and, in addition, if the Junior Indebtedness or Subordinated Indebtedness to be refunded was issued to finance Project Costs for any Other Authority Project that has not been designated as an Additional Project, Refunding Bonds may be issued only if the requirements set forth under the subheading "Additional Bonds for Other Authority Projects" above are met.

Junior Indebtedness Obligations. 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 set forth in the Junior Indebtedness Resolution, Additional Junior Indebtedness Obligations may be issued to (i) pay for Project Costs of the Original Project, any Additional Projects (including Additional Junior Indebtedness Projects) and any Other Authority Projects, (ii) refund or refinance any General Revenue 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 Project for the purpose of preventing a loss of Net Revenues derived from the New NY Bridge Project, 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.

Other Indebtedness. The Bond Resolution permits the issuance of Junior Indebtedness and Subordinated Indebtedness under another resolution. **See Appendix C** – "Summary of Certain Provisions of the Bond Resolution – Junior Indebtedness Fund" and "– General Reserve Fund". The Authority may covenant with the holders of Junior Indebtedness Obligations 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 Bonds shall have been declared immediately due and payable in accordance with the Bond Resolution*. The proceeds of Junior Indebtedness Obligations may be used to provide for Facilities or Other Authority Projects.

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 Bond 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 Bond Resolution on August 3, 1992, together with any Facility Capital Improvements related thereto which include other related structures and facilities.

Additional Projects. 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 Bond Resolution – Additional Projects". Operating Expenses with respect to Facilities, including Additional Projects, are payable from the Operating Fund prior to Debt Service on the Bonds, including the Series O Bonds. The Authority has not designated any project as an Additional Project under the Bond Resolution.

Other Authority Projects. 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 Bond Resolution.

Reserve Maintenance Fund

Pursuant to the Bond Resolution, the Authority is required to deposit in each fiscal year into the Reserve Maintenance Fund 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 amount deposited into the Reserve Maintenance Fund may not exceed any amount from time to time established by the Authority pursuant to a Supplemental Resolution (the "Maximum Amount") provided that the Maximum Amount may not be less than the Minimum Amount.

Subject to the provisions of the Bond Resolution, money held in the Reserve Maintenance Fund can be disbursed for the purpose of paying (i) costs relating to the Facilities 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 in connection with the above permitted uses; and (ii) similar costs relating to certain highway and railroad grade crossings. 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 Bonds, deficiencies will be made up from amounts in the Reserve Maintenance Fund.

Tolls, Fees and Charges

Toll Covenant. Pursuant to the Bond 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 Net Revenue Requirement for such year. "Net Revenue Requirement" means, with respect to any period of time, an amount equal to the greater of (i) the sum of amounts required to make payments with respect to Aggregate Debt Service, deposits to the Senior Debt Service Reserve Fund, Reserve Maintenance Payments (minimum, $30 million a year), and the amounts required to be deposited in the Junior Indebtedness Fund pursuant to the Supplemental Resolution or other resolution or agreement authorizing outstanding Junior Indebtedness or (ii) 1.20 times the sum of the Aggregate Debt Service for such period.*

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 Bond 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 revenue covenant described above 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 Bond 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 Governor Mario M. Cuomo Bridge and the Grand Island Bridges, each 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.

* During any period during which the Junior Indebtedness Obligations are outstanding, the Authority has covenanted pursuant to the Junior Indebtedness Resolution, to maintain tolls in such amounts in order that Net Revenues will at least equal both the Net Revenue Requirement under the Bond Resolution and the Junior Indebtedness Net Revenue Requirement under the Junior Indebtedness Resolution, namely that Net Revenues at any time required shall equal or exceed 1.20 times the sum of Aggregate Debt Service and the amount required to be deposited in the Junior Indebtedness Debt Service Payment Account.

Agreement of the State

Under the Act, the State has agreed with the holders of the bonds and notes of the Authority, including the 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 while 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 2020 Thruway customers traveled approximately 6.2 billion vehicle-miles on the highway, averaging over 17.0 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 816 bridges and also owns 27 travel plazas located at intervals along the Thruway System, operated by two food service and two fuel concessionaires that are open 24-hours daily, 7 days a week, as well as three Welcome Centers. In July 2021, the Thruway commenced a $450 million service area project under a private investment plan by Empire State Thruway Partners to redevelop the 27 service areas. The service areas were originally built in the 1950s, with the last significant redevelopment taking place in the 1990s. Ten service areas are currently closed for construction. Routine maintenance activities are performed by Authority staff from 21 maintenance locations grouped into four divisions. Also, the Authority's tolling system is extensive, 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 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 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 216.7 million toll transactions occurred on the Thruway System in 2020, generating over $615.3 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 —** "2021 Traffic Engineer's Report".

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.

Joanne M. (Joanie) Mahoney was confirmed as a member of the Authority Board on March 30, 2015. Ms. Mahoney serves a term that expired on January 1, 2020. Ms. Mahoney was named as President of SUNY College of Environmental Science and Forestry on November 4, 2020 after previously serving as its Chief Operating Officer. 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 Autónoma 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 President of the Rockefeller Institute of Government and Senior Advisor to the Chancellor of the State University of New York (SUNY). Previously, he served as Senior Vice Chancellor and Chief Operating Officer for the State University of New York (SUNY) System Administration and as Senior Vice President for Finance and Administration at Stony Brook University. Prior to his time with SUNY, 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.

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 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 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 the

Governor'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 24 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. Frank G. Hoare was appointed General Counsel of the New York State Thruway Authority in March 2021. Mr. Hoare's legal career has included both state government service and private practice. Previous assignments include Associate Counsel at the N.Y.S. Division of Military and Naval Affairs, Deputy Secretary for Legislative Affairs for Governor Andrew M. Cuomo, General Counsel of the N.Y.S. Division of Homeland Security and Emergency Services, Deputy Attorney General for Regional Affairs and Deputy Counsel for then Attorney General Andrew M. Cuomo, and Counsel to Assemblyman Herman D. Farrell, Jr., Chair of the Assembly Ways and Means Committee. Mr. Hoare retired from the United States Army Reserve in December 2019 after 28 years of combined active and reserve service. During that time he deployed overseas to Iraq, Afghanistan, and Somalia. Staff assignments included service as Legal Advisor in the Office of Legal Counsel to the Chairman of the Joint Chiefs of Staff and Headquarters, Department of Army. Mr. Hoare earned a Bachelor of Arts cum laude in History from the State University of New York at Albany and earned his Juris Doctor from Albany Law School.

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. James K. Konstalid has served as the New York State Thruway Authority's Acting Director of Maintenance and Operations since June of 2020. He oversees all aspects of the Authority's Highway (including snow and ice operations), Bridge, Facility, Equipment and Intelligent Transportation Systems program areas. Mr. Konstalid directly oversees Toll collection, Traffic safety/operations, Emergency Management and concessions at the Authority's 27 service areas. Mr. Konstalid has been with the Thruway Authority for more than 34 years, previously serving as the Thruway's New York Division Director, with oversight of all programs and operations inside the Thruway's busiest section of highway including the New England Thruway (I-95) and the Cross-Westchester Expressway (I-287) and the newly constructed Gov. Mario M. Cuomo Bridge. Earlier in his career, Mr. Konstalid worked through several trades positions and moved into supervisory roles for the Thruway's fleet management program. He holds many certificates in management processes as well as an Empire LEAN Belt.

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. Vacant.

Organization

To administer its responsibilities for the Thruway System and Other Authority Projects, the Authority is organized into nine operating departments and employs approximately 1,953 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 2016 through 2020. The revenues and operating expenses below are presented in accordance with the Bond 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, 2020 included in **Appendix B** to this Official Statement. See also "MANAGEMENT'S DISCUSSION AND ANALYSIS OF RESULTS OF OPERATIONS" below.

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RESULTS OF OPERATIONS
FOR THE CALENDAR YEARS 2016-2020
(in $ millions)

	2016	2017	2018	2019	2020
Toll Revenue[1]	$708.3	$731.5	$736.5	$739.9	$615.3
Concession Revenue	14.8	14.9	14.9	14.8	6.8
Other Revenues	26.2	45.7	47.4	57.4	46.4
Total Revenues	749.3	792.1	798.8	812.1	668.5
Thruway Operating Expenses[2]	311.6	329.7	339.9	350.9	316.6
Reserve for Claims and Indemnities and Environmental Remediation[3]	1.8	2.7	5.0	6.0	2.0
Net Revenue (A)	435.9	459.7	453.8	455.2	349.9
General Revenue Bond Debt Service	227.8	236.4	225.0	232.9	167.8
Less Interest Earnings on Gen. Rev. Bond Debt Service Reserve Funds	(0.5)	(1.8)	(4.7)	(6.1)	(1.0)
Net General Revenue Bond Debt Service (B)	227.3	234.6	220.3	226.8	166.8
Net Revenue after Gen. Rev. Bond Debt Service	208.6	225.1	233.5	228.4	183.1
Reserve Maintenance Deposit[4]	68.8	103.2	74.1	131.4	97.3
Net Junior Indebtedness Debt Service (C)	29.2	43.7	79.2	47.4	23.1
(+/-) Retain for Operations/Adjustment for Cash Basis[5]	(8.5)	(19.3)	(24.6)	15.4	3.3
Facilities Capital Improvement Deposit[6]	14.0	5.0	12.0	8.0	0.0
Canal Corporation (Net of Federal Aid)[2]	13.8	0.0	0.0	0.0	0.0
General Reserve Fund Provision - Canal Capital and State Police[7]	73.9	54.0	43.6	55.2	59.1
General Reserve Fund - Subordinate Debt[7]	0.4	0.0	0.0	0.0	1.1
Remaining Balance	0.0	(0.1)	0.0	1.8	5.8
Adjustment to Cash Basis[8]	0.0	0.1	0.0	(1.8)	(5.8)
Balance After Cash Adjustment	0.0	0.0	0.0	0.0	0.0
General Revenue Bond Debt Service Coverage Ratio (A/B)	1.92	1.96	2.06	2.01	2.10
Junior Indebtedness Debt Service Coverage Ratio (A/(B + C))	1.70	1.65	1.52	1.66	1.84

(1) Based on the Authority's audited financial statements for the years 2016, 2017, 2018, 2019 and 2020.

(2) Operating expenses do not include the liability of $46.1 million in 2016, $38.8 million in 2017 and 52.7 million in 2018, $31.4 million in 2019 and $57.9 million in 2020 for Thruway, $10.7 million in 2016 for Canal Corporation, 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 $7.7 million in 2016, $4.4 million in 2017, ($2.6) million in 2018, $4.1 million in 2019 and $25.0 million in 2020 for Thruway, and $1.3 million in 2016 for Canal Corporation.

(3) Includes $0.7 million for Environmental Remediation Reserve in 2016, $0.8 million in 2017, $1.1 million in 2018, $0.8 million in 2019 and $2.0 million in 2020. In addition, $2.5 million was provided as an AET transition reserve in 2018 and 4.1 million in 2019.

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

(5) In 2016, $2.3 million was retained for use in 2017, in 2017, $20.5 million was retained for 2018, in 2018, $29.4 million was retained for 2019, in 2019, $9.0 million was retained for 2020, and in 2020, $80.0 million was retained for 2021. In 2018, 15.0 million was retained for working capital, and in 2019, $5.0 was retained for working capital.

(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 Corporation 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 Canal system due to damage 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.

Pandemic Impacts to Authority Revenues

The COVID-19 pandemic that began in March 2020 has resulted in significant impacts to the Authority's financial condition. Most significantly, the Thruway has observed substantial declines in Thruway passenger and commercial traffic and toll revenues, resulting in a decline in net toll revenues of nearly 17% for 2020 from 2019. As a result, anticipated pandemic impacts to Authority toll revenues after considering the January 1, 2021 toll adjustment and changes include:

- An estimated increase in toll revenues of 22% for 2021 over 2020
- Estimated increases of 7%, 0.3%, 1.1% and 0.9% in the years 2022 through 2025, respectively.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF RESULTS OF OPERATIONS

Discussion of Results of Operations: 2016 through 2020

A number of significant factors have impacted the Authority's operating results during the years 2016-2020.

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 were $344.9 million, an increase of $12.5 million, or 3.8% 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.

2019. Total revenue was $812.1 million, an increase of $13.3 million, or 1.7% compared to 2018. Toll revenue for the year was $739.9 million, an increase of $3.4 million, or 0.4% compared to 2018. Other revenue for the year was $57.4 million, an increase of $10.0 million, or 21.1% compared to 2018. This increase is primarily due to an increase in E-ZPass and Tolls by Mail fees resulting from cashless tolling being in place for a full year at the North and South Grand Island Bridges, and at tolling stations in Harriman, Yonkers, New Rochelle and Spring Valley.

Total operating expenses were $356.9 million, an increase of $12.0 million, or 3.5% compared to 2018. Professional and other services increased $10.7 million, or 20.9% compared to 2018. 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 service provider.

2020. Total revenue was $668.5 million, a decrease of $143.6 million, or 17.7% compared to 2019. Toll revenue for the year was $615.3 million, a decrease of $124.6 million, or 16.8% compared to 2019. Concession revenue for the year was $6.8 million, a decrease of $8.0 million, or 54.1% compared to 2019. These decreases are primarily due to reduced traffic resulting from the COVID-19 pandemic. Other revenue for the year was $46.4 million, a decrease of $11.0 million, or 19.2% compared to 2019. This decrease is primarily due to lower interest rates in 2020, as well as interest earned in 2019 on $1.6 billion of Transportation Infrastructure Finance and Innovation Act (TIFIA) Loan proceeds. Days cash on hand for 2020 was maintained at 428 days.

Traffic and toll revenue declines were most severe during the height of the COVID-19 outbreak in March of 2020. In April 2020, total traffic declined by roughly 58% below 2019 levels. This reduction was comprised of a 63% decline in passenger car traffic and 23% decline in commercial traffic. Following this, passenger and commercial traffic has consistently and significantly improved. Traffic in June 2021 was only 2% below the pre-COVID-19 levels of June 2019. This was comprised of a 3% decline in passenger car traffic from pre-COVID-19 levels and a 17% increase from pre-COVID-19 levels in commercial traffic.

Total operating expenses were $318.6 million, a decrease of $38.3 million, or 10.7% compared to 2019. Salary costs decreased $6.6 million, or 4.6% compared to 2019. This decrease is primarily due to the elimination of toll collection staff in conjunction with the implementation of cashless tolling in November 2020. Professional and other services decreased $14.7 million, or 23.8% compared to 2019. This decrease is primarily due to timing of credit card fee reimbursements from toll roads that have E-ZPass reciprocity agreements with the Authority. In addition, reduced traffic levels due to COVID-19 resulted in reduced costs to administer the Authority's Tolls by Mail Program. Supplies, materials and rentals decreased $10.9 million, or 39.1% compared to 2019. This decrease is primarily due to a milder winter in 2020 that resulted in less salt and fuel usage. Lower fuel prices also contributed to this decrease. Maintenance and repairs decreased $7.1 million, or 35.0% compared to 2019. This decrease is primarily due to a settlement with ExxonMobil in which ExxonMobil agreed to reimburse the Authority $7.5 million for soil remediation costs at fueling stations they previously operated at Authority owned service areas.

In response to the reductions in traffic and toll revenues that resulted from COVID-19, the Authority adjusted its multi-year Capital Program to reduce System-wide capital spending by $118.5 million over the 2020-2024 period. In addition, the Authority secured a $125 million JP Morgan Chase Line of Credit ("Line of Credit") and a $100 million RBC Direct Note Purchase Agreement ("Note Purchase Agreement"). Pursuant to these agreements, the Authority drew down $50 million on the Line of Credit in June of 2020. This amount was paid in full on August 11, 2021, and the Line of Credit was terminated. The Note Purchase Agreement remains open but currently has no outstanding balance.

The Line of Credit draw was used, along with $40 million of prior year fund balances, to defease interest due on the Bonds on July 1, 2020, thereby reducing the level of debt service expenses relating to the Bonds that were required to be supported by current year revenues in 2020.

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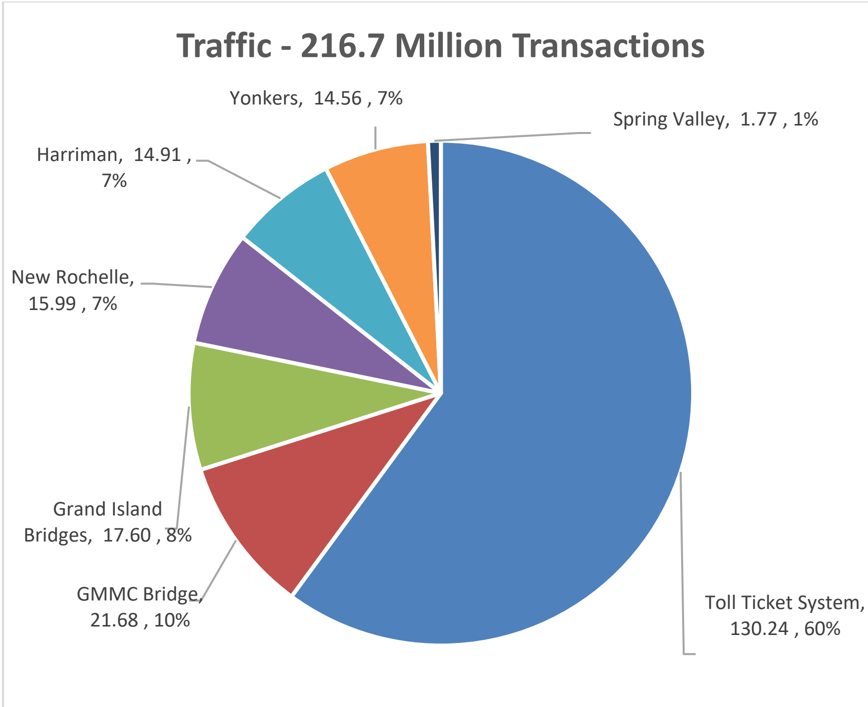
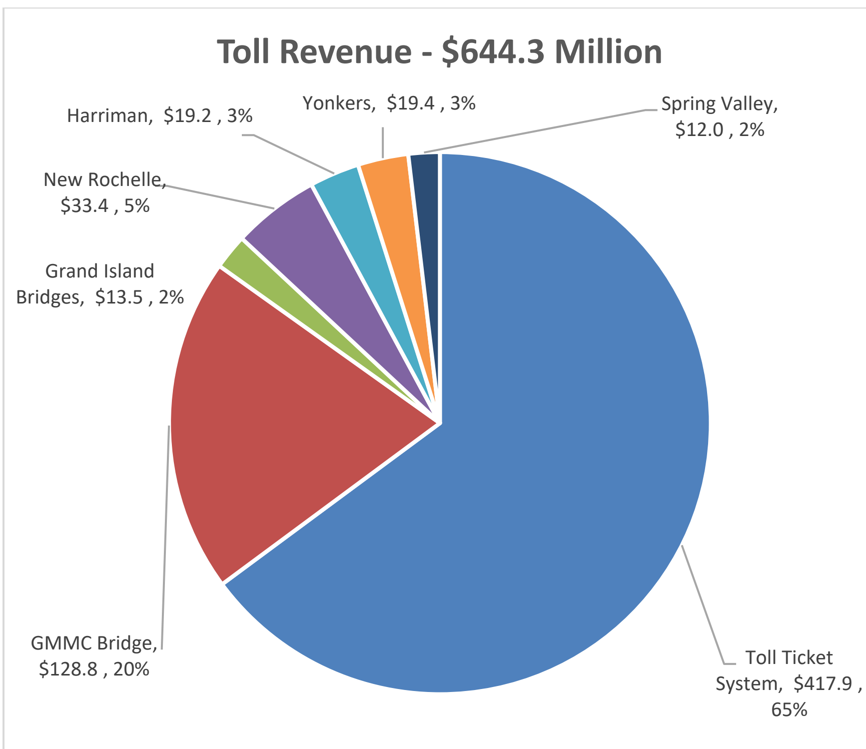
Traffic and Revenue

The following charts show traffic and toll revenues at the various pay points and total revenues for 2020[(1)]:





See **Appendix A** — "2021 Traffic Engineer's Report" for a more detailed discussion of historical traffic, revenue and expenses for the years 2011 through 2020 and forecasted data for the years 2021 through 2025.

(1) Based on the Authority's 2020 audited financial statements and reflects actual results of traffic operations at 2020 year-end. "Traffic" refers to number of all toll and non-tolled transactions at all locations where tolls are collected. Toll Revenue does not reflect volume discounts totaling $29.0 million taken under the Authority's commercial charge account program.

Note: Totals may not add due to rounding.

NEW YORK STATE TOLL RELATED INITIATIVES

In July 2019, 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.

On December 19, 2019, the Authority Board approved a proposal to begin the toll adjustment process on The Governor Mario M. Cuomo Bridge and other tolling changes that support the Statewide conversion to cashless tolling, which was completed in November 2020. The approval authorized the Authority to begin the public process required to implement the toll rate changes supporting the fiscal stability of the Authority. The Authority, supported by analysis by its independent traffic engineer, determined that there will be additional revenues needed for the Authority to fulfill its system-wide operating, debt service, and capital needs through the subsequent forecast period. Thruway System tolls had not been adjusted since 2010.

New toll rates for The New York State Thruway Authority went into effect on January 1, 2021. The new toll rates, along with other tolling changes that support the statewide conversion to cashless tolling, were unanimously approved by the Authority's Board of Directors in December 2020. The new toll rates include a toll adjustment on The Governor Mario M. Cuomo Bridge in 2021 and in 2022. Toll rates for NY E-ZPass customers on the rest of the system remain the same.

The adjustments to toll rates on The Governor Mario M. Cuomo Bridge include the following Passenger and Commercial Vehicle toll adjustments:

Passenger Car Toll Adjustment

- An increase in NY E-ZPass rates by 50 cents to $5.25 in 2021 and 50 cents to $5.75 in 2022.
- A commuter discount rate of 40 percent off of the NY E-ZPass rate for passenger vehicles that opt into the commuter program.
- A new resident E-ZPass plan offered for Westchester and Rockland County residents that keeps eligible passenger cars at their 2020 rates through 2022. The program is available for passenger vehicles registered in either county using a NY E-ZPass.
- A 30% differential for Tolls By Mail passenger vehicles over E-ZPass rates.

Commercial Vehicle Toll Adjustment

- NY E-ZPass rates increased by 31% in 2021 and 30% in 2022.
- A 15% differential for out-of-state E-ZPass commercial vehicles.
- A 30% differential for Tolls By Mail commercial vehicles over E-ZPass rates.

The following tolling changes to support the Thruway's system-wide conversion to cashless tolling were put into effect on January 1, 2021:

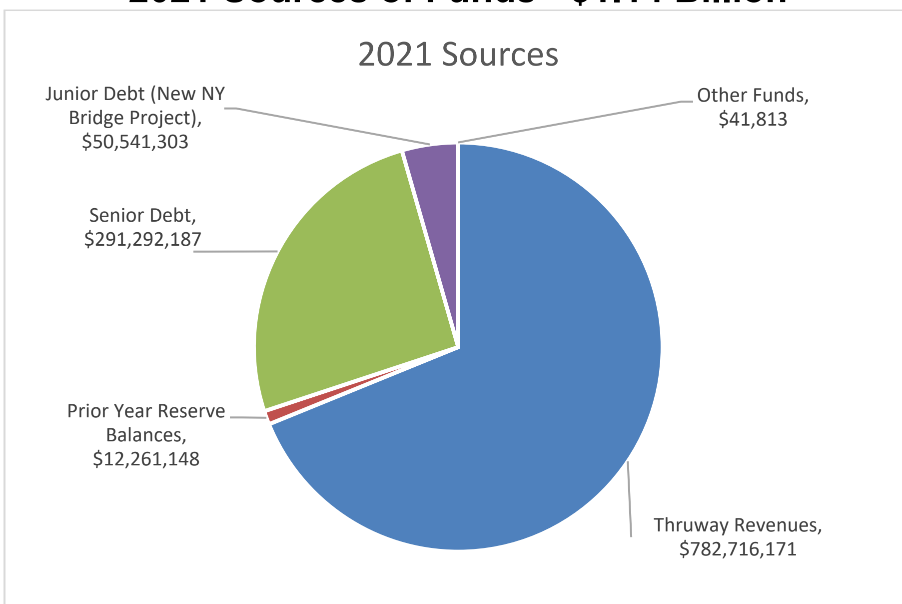
- The standard NY E-ZPass toll rate is now the base toll rate and there was no change to this rate.
- A 30 percent rate differential in comparison to the base NY E-ZPass rate has been established for Tolls by Mail toll rates.
- A 15 percent rate differential in comparison to the base NY E-ZPass rate has been established for out-of-state E-ZPass customers.
- All transactions processed through a license plate image review pay the Tolls by Mail rate.
- A $2 administrative surcharge per billing statement for Tolls by Mail statements was implemented to support the administrative costs associated with processing transactions through the Tolls by Mail program.

2021 Mid-Year Forecast

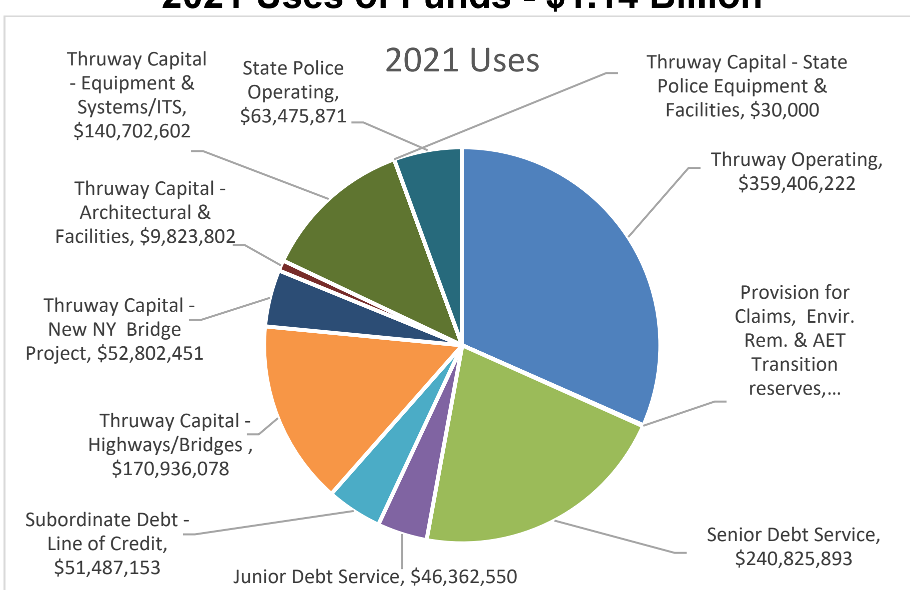
The Board of the Authority adopted a 2021 Budget (the "2021 Budget") at its December 1, 2020 meeting. The below figures reflect the Authority's 2021 Mid-Year Forecast. The 2021 Mid-Year Forecast totals $1,103.2 million, which is a decrease of $3.5 million or 0.3% from the $1,106.7 million 2020 Actual Expenditures. The budget is funded from a combination of Thruway revenues, bond proceeds, and federal, State and other funds. The total 2021 Mid-Year revenue is projected to be $812.6 million, an increase of $146.6 million from the 2020 Actual Revenues. The total 2021 Mid-Year operating expenses are projected to be $364.0 million, an increase of $45.5 million over the 2020 actual figures. The following charts and discussion present the 2021 Mid-Year Forecast and shows the differences in sources and uses of funds between the 2020 Budget and the 2021 Mid-Year Forecast.

Sources and uses of the 2021 Budget are highlighted in the following charts.

2021 Sources of Funds - $1.14 Billion



2021 Uses of Funds - $1.14 Billion



2020 Actual Compared to 2021 Mid-Year Forecast

	2020 Actual	2021 Mid-Year Forecast	Change from 2020 Actual
SOURCES:			
Thruway Revenues	$ 665,986,343	$ 812,559,985	$ 146,573,642
Prior Year Reserve Balances	(93,657,797)	103,440,831	197,098,628
General Revenue Bonds Debt	404,320,349	180,569,634	(223,750,715)
Junior Indebtedness Obligations	68,878,387	6,559,169	(62,319,218)
Other Funds	(825,191)	41,813	867,004
Thruway Stabilization Program Funds	61,954,743	0	(61,954,743)
Total Sources	**$1,106,656,834**	**$1,103,171,432**	**$(3,485,402)**
USES:			
Operating Expenses:			
Thruway Operating	$316,576,904	$360,034,313	$43,457,409
State Police Operating	59,058,620	63,969,041	4,910,421
Sub Total	375,635,524	424,003,354	48,367,830
Provisions for Claims, Env. Remediation & Cashless Tolling Transition	1,999,765	4,000,000	2,000,235
Total	$377,635,289	$428,003,354	$50,368,065
Retained for Working Capital	0	0	0
Debt Service:			
General Obligation Bonds Debt	166,790,345	240,825,893	74,035,548
Junior Indebtedness Obligations	23,130,960	46,362,550	23,231,590
Subordinate Debt – Line of Credit	1,086,458	51,487,153	50,400,695
Total Debt Service	$191,007,763	$338,675,596	$147,667,833
Capital Program:			
Thruway Capital - Highways and Bridges	166,220,635	155,936,078	(10,284,557)
Thruway Capital - New NY Bridge	88,861,173	30,000,000	(58,861,173)
Thruway Capital - Architectural & Facilities	6,176,279	9,823,802	3,647,523
Thruway Capital - Equipment & Systems/ITS	276,755,695	140,702,602	(136,053,093)
Thruway Capital – State Police Equipment/Facilities	0	30,000	30,000
Total Capital Program	$538,013,782	$336,492,482	$(201,521,300)
Total Uses	**$1,106,656,834**	**$1,136,852,622**	**$(3,485,402)**

2021 Mid-Year Forecast Compared to 2020 Actual

- The 2021 Mid-Year Forecast provides for an overall budget of $1.1 billion, representing a $3.5 million decrease or 0.3 percent increase from actual 2020 levels.

- The 2021 Mid-Year Forecast projects total traffic of 363.1 million vehicles, reflecting growth of 75.1 million vehicles or 26.1 percent above 2020 levels. This corresponds to a toll revenue forecast of $750.8 million, reflecting an increase of $135.5 million or 22.0 percent above actual 2020 levels.

- The 2021 Mid-Year Forecast provides a total of $364.0 million for operating expenses of the Authority (including provisions). This represents an increase of $45.5 million or 14.3 percent above actual 2020 levels. The 2021 Mid-Year Forecast also provides $63.5 million for reimbursement to the State Police for the cost of the Troop T patrolling of the Thruway System.

- The 2021 Mid-Year Forecast provides a total of $336.5 million to support the capital program of the Authority. This represents a decrease of $201.5 million or 37.54 percent below actual 2020 levels.

- The 2021 Mid-Year Forecast provides a 2021-2025 Capital Program that would provide $1.87 billion for Authority capital projects. This includes $268.8 million for the New NY Bridge Project that will result in the completion of The Governor Mario M. Cuomo Bridge and $1.60 billion for system-wide projects on the Thruway System.

2021 Unaudited Financial Results through June 30, 2021

- Through June 30, 2021, the Authority has reported revenues of $370.9 million. This reflects an increase of $64.9 million or 21.2% above revenues reported for the same time period in 2020. These actual results through June 30, 2021 are $2.9 million or 0.8% below the level for the 2021 Budget that was approved by the Authority Board on December 1, 2020.

- Through June 30, 2021, the Authority operating expenses and provisions totaled $168.8 million. This reflects an increase of $0.4 million or 0.24% above 2020 levels. These actual results through June 30, 2021 are $6.0 million or 3.7% above the level for the 2021 Budget.

2020 Actual Financial Results

- Through December 31, 2020, the Authority has reported revenues of $668.5 million. This reflects a decrease of $143.6 million or 17.7% below revenues reported for the same time period in 2019. These actual results through December 31, 2020 are $0.9 million or 0.1% above the level for the 2020 Revised Budget that was approved by the Authority Board in December 2020.

- Through December 31, 2020, the Authority operating expenses and provisions totaled $318.6 million. This reflects a decrease of $38.3 million or 10.7% below 2019 levels. These actual results through December 31, 2020 are $35.3 million or 10.0% below the level for the 2020 Revised Budget that was approved by the Authority Board in December 2020.

2021-2025 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.

The 2021-2025 Capital Program totals $1.87 billion in investments for capital projects and equipment, including a total of $268.8 million for the New NY Bridge Project. See "—Funding of the 2021-2025 Capital Program – The New NY Bridge Project" for a more detailed description of the New NY Bridge Project.

The 2021-2025 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 2021-2025 Capital Program provides for the replacement or rehabilitation of 74 bridges, the resurfacing/rehabilitation/reconstruction of approximately 1,095 lane miles of highway and the reduction of congestion in key corridors. From 2021 through 2025, 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 2011-2020, estimated expenditure for 2021, and reflects the 2021 Mid-Year Forecast and projections for the 2021-2025 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)]
2011-2025
(in millions)

		Thruway Highway and Bridge Capital Expenditures	Equipment Replacement and Other Facility Capital Needs	Canal Capital Program[(2)]	Subtotal Capital Program Expenditures	New NY Bridge	Thruway AETC Projects	Total Capital Program Expenditures
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	Actual	222.1	40.3	-	262.4	171.6	130.4	564.5
2020	Actual	166.2	32.3	-	198.5	88.9	250.6	538.0
2021	Estimated	155.9	41.9	-	197.8	30.0	108.6	336.5
2022	Projected	269.9	61.2	-	331.1	238.8	11.1	581.0
2023	Projected	272.9	43.9	-	316.8	-	-	316.8
2024	Projected	268.6	47.8	-	316.4	-	-	316.4
2025	Projected	274.6	47.7	-	322.4	-	-	322.4
Total[(1)]		$3,533.7	$645.1	$266.4	$4,445.2	$3,972.9[(4)]	$528.8	$8,946.9

(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 was 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 2021-2025 Capital Program

The 2021-2025 Capital Program totals $1.87 billion including the New NY Bridge Project. The 2021-2025 Capital Program is funded with a combination of Net Revenues, General Revenue 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 of 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 2021-2025 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's Board has the independent power, without approval by the Legislature, Governor or other official or entity, 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 2021-2025 Capital Program are set forth in the following chart.

	2021 – 2025 Capital Program					
	2021	**2022**	**2023**	**2024**	**2025**	**2021-25 Total**
Thruway System:						
General Revenue Bond Proceeds	$180.6	$233.6	$250.8	$253.6	$238.9	$1,157.4
Reserve Maintenance Fund	125.9	108.6	65.9	62.7	82.0	445.1
Federal, State and Other Funds	0.0	0.0	0.1	0.1	1.5	1.8
Sub-Total	$306.5	$342.2	$316.8	$316.4	$322.4	$1,604.3
New NY Bridge Project:						
Junior Indebtedness Obligations	$ 6.6	$238.8	$ 0.0	$ 0.0	$ 0.0	$ 245.4
Facilities Capital Improvement Fund	23.4	0.0	0.0	0.0	0.0	23.4
Sub Total – New Bridge Program	$ 30.0	$ 238.8	$ 0.0	$ 0.0	$ 0.0	$ 268.8
Grand Total	**$336.5**	**$581.0**	**$316.8**	**$316.4**	**$322.4**	**$1,873.1**

Note: Totals may not add due to rounding

The New NY Bridge Project

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.

Formal construction of the New NY Bridge Project (now known as "The Governor Mario M. Cuomo Bridge") began in October 2013 and as of December 31, 2020, $3.7 billion in total had been spent on the New NY Bridge Project. Of this amount, $88.9 million was spent in 2020. Both spans of the bridge were substantially completed and opened for vehicular traffic, with the north span opening on August 25, 2017 and the south span opening on September 12, 2018. The Governor Mario M. Cuomo Bridge was constructed under a fixed-price, date-certain, Design-Build Contract with TZC (the "Design-Build Contract"). TZC is a special purpose joint venture of Fluor Enterprises, Inc., American Bridge Company, Granite Construction Northeast, Inc. and Traylor Brothers Inc. The total estimated cost of the New NY Bridge Project is $3.9 billion.

In 2018, as supplemented in 2019 and 2020, TZC submitted a dispute to the Authority alleging that TZC is owed approximately $923 million, plus interest, in excess of the approved contract value and anticipated contract change orders ("Dispute"). The Dispute asserts that TZC is owed additional amounts due to purported issues relating to time and extra work. The Authority disputes such assertion. Pursuant to the Design-Build Contract, TZC's Dispute is subject to a non-binding contractual dispute resolution procedure consisting of a four-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 the Dispute, the Authority believes it has meritorious defenses and positions with respect thereto. However, an adverse decision could significantly affect the Authority's financial position. On July 7, 2021, the first level of the administrative review process was completed when the Project Director for the New NY Bridge Project issued a determination rejecting the Dispute with the exception of granting limited time extensions. TZC has appealed this determination to the next tier of administrative review.

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. 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 completed system wide AETC with conversion of the entire controlled system to AETC in November 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 2016 regulation authorizing 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 threshold was changed to three violations over a five year period. See **Appendix A -** "2021 Traffic Engineer's Report".

Bridge Inspection Program and Condition Ratings

There are 876 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 816 of these bridges, including 415 mainline and ramp bridges and 401 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 major flooding events, and inspection of bridges after significant 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 816 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 Ratings for September 2019 and January 2021 are shown as follows.

BRIDGE RATINGS		
CONDITION	**NO. OF BRIDGES**	
	Sept. 2019	Jan. 2021
GENERAL RECOMMENDATION 5-7 Bridges in generally good condition with only minor to moderate repairs required.	684	698
GENERAL RECOMMENDATION 4 Bridges in good to fair condition requiring reconditioning of some structural elements.	117	108
GENERAL RECOMMENDATION 2-3 Bridges in poor condition requiring major repairs or replacement.	10	10

The change in the Authority's bridge ratings between September 2019 and January 2021 is primarily due in combination to aging of structures and the replacement of two bridges. As of January 2021 there were ten bridges with a general recommendation of 3. Nine bridges will be replaced or receive work in the 2021-2025 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 2021-2025 to fund Thruway capital projects.

Report of Independent Traffic Engineer

The Authority retained Stantec Consulting Services, Inc., as Traffic Engineer ("Stantec"), to prepare a study (the "2021 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 2021-2025. The forecast of traffic and revenues detailed in this section of the Official Statement are based on the toll rate schedules implemented by the Authority effective January 1, 2021 and to be implemented effective January 1, 2022. The 2021 Traffic Engineer's Report projects that the Authority will generate sufficient revenues needed to fulfill its system-wide operating, debt service, and capital needs, management's financial policies with respect to debt service coverage (1.55x General Revenue Bonds and 1.35x General Revenue Bonds and Junior Indebtedness Obligations combined) as well as the contractual financial covenants contained in its Bond Resolution and Junior Indebtedness Resolution through the forecast period. Future funding needs through 2025 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 identified revenue shortfalls, inadequate debt service coverage ratios and low pay-as-you-go financing can be implemented on the Thruway System and will result in only small changes to traffic patterns. In addition, the 2021 Traffic Engineer's Report concludes that it will be able to:

- Fully fund necessary operations, maintenance and capital expenses;
- Meet the covenants of the Bond Resolution and the Junior Indebtedness Resolution;

- 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, with the necessary toll adjustments, 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 the modifications to toll rates that are necessary to achieve these goals are attainable and will not result in significant traffic losses or diversions as a result of those increases.

The 2021 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 2021-2025 Capital Program will support the integrity and reliability of the Thruway System; and
- The Authority can complete the remaining elements of the Cashless Tolling Project.

The conclusions presented above are subject to the limitations and assumptions detailed in the 2021 Traffic Engineer's Report. The 2021 Traffic Engineer's Report is contained in **Appendix A** hereto, which should each be read in its entirety. The 2021 Traffic Engineer's Report is also available for review on the Authority's website.

The Authority's traffic engineer plans to conduct its next physical inspection in 2022.

Projected Results

The Traffic Engineer has analyzed the Authority's current operations, and projects financial results of the Authority's operations for the years 2021-2025. The forecast of traffic and revenues detailed in the 2021 Traffic Engineer's Report are based on the projected toll schedule approved by Authority's Board on December 19, 2019 and implemented on January 1, 2021. The increased revenue projections contained in the 2021 Traffic Engineer's Report is anticipated to enable the Authority to maintain levels of safety and service, good infrastructure conditions, meet its system-wide operating, debt service, and capital needs, as well as maintain the Authority's contractual debt service coverage covenants contained in its Bond Resolution and Junior Indebtedness Resolution and the Board'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 2021 through 2025. See **Appendix A** – "2021 Traffic Engineer's Report".

Projected Results
(in millions)

	Actual 2020	Estimated 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Toll Revenue	$615.3	$750.8	$805.6	$807.7	$816.3	$823.9
Other Revenues	53.2	61.7	75.0	72.1	71.8	71.2
Additional Revenue Need(1)	0.0	0.0	0.0	0.0	8.2	88.5
Total Revenues	668.5	812.6	880.6	879.8	896.2	983.7
Thruway Operating Expenses	316.6	360.0	379.4	386.9	394.7	402.6
Reserve for Claims and Indemnities and Environmental Remediation	2.0	4.0	1.0	1.0	1.0	1.0
Net Revenue (A)	349.9	448.5	500.2	491.8	500.5	580.1
Gen. Rev. Bond Debt Service	167.8	241.5	264.1	252.6	261.4	308.2
Less Interest Earnings on Gen. Rev. Bond Debt Service Reserve Funds	(1.0)	(0.7)	(0.8)	(0.8)	(0.9)	(0.9)
Net Gen. Rev. Bond Debt Service (B)(2)	166.8	240.8	263.3	251.7	260.6	307.3
Net Revenue after Gen. Rev. Bond Debt Service	183.1	207.7	236.9	240.1	239.9	272.8
Reserve Maintenance Deposit(3)	97.3	125.9	108.6	65.9	62.7	82.0
Total Junior Indebtedness Debt Service	23.5	46.7	63.6	108.7	110.5	122.7
Less Interest Earnings on Junior. Indebtedness Debt Service Reserve Acct.	(0.4)	(0.4)	(0.3)	(0.3)	(0.3)	(0.3)
Net Junior Indebtedness Debt Service (C)	23.1	46.4	63.3	108.4	110.2	122.4
(+/-) Retain for Operations/Adjustment for Cash Basis	(2.5)	80.0	0.0	0.0	0.0	0.0
General Reserve Fund Provisions – State Police(4) and Subordinated Debt	60.2	115.5	65.0	65.8	67.1	68.4
Balance	0.0	0.0	0.0	0.0	0.0	0.0
Debt Service Coverage Ratio on Gen. Rev. Bonds (A/B)(2)	2.10	1.86	1.90	1.95	1.92	1.89
Gen. Rev. Bonds & Junior Indebtedness Debt Service Coverage Ratio (A/(B+C))(2)	1.84	1.56	1.53	1.37	1.35	1.35
Proposed New Money Debt Issuances						
Gen. Rev. Bonds	450.0	429.3	0.0	74.4	246.0	223.4
Junior Indebtedness	0.0	0.0	275.0	0.0	0.0	0.0

Source: Stantec Consulting Services, Inc., 2021 Traffic Engineer's Report, dated September 14, 2021.

(1) In 2024 and 2025 additional revenues are needed to meet management debt service coverage targets for the combined General Revenue Bonds and Junior Indebtedness Obligations debt service. The Authority has a management commitment to a future minimum debt service coverage ratio of 1.55x for the General Revenue Bonds, above the Board-adopted guideline of 1.50x. The Authority has a management commitment to a minimum debt service coverage ratio for General Revenue Bonds and Junior Indebtedness Obligations of 1.35x, higher than the Junior Indebtedness Resolution requirement of 1.2x coverage for the combined annual General Revenue Bond debt service and annual Junior Indebtedness Obligation debt service.

(2) Does not reflect anticipated General Revenue Bonds Series O refunding debt service savings.

(3) Reflects the minimum required deposit to the Reserve Maintenance Fund ($30,000,000) as well as excess revenue intended for pay-as-you-go capital projects (see "SOURCES OF PAYMENT AND SECURITY FOR THE BONDS – Reserve Maintenance Fund").

(4) The General Reserve Fund figures 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.

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 Bond 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 Bond Resolution and the Junior Indebtedness Net

Revenue Requirement under the Junior Indebtedness Resolution for each year. See "SOURCES OF PAYMENT AND SECURITY FOR THE BONDS — 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 independent power, without approval by the Legislature, the Governor or other person or entity, 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 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, 2020 ranged from 9.6% to 21.6% and during the year ended December 31, 2019 ranged from 9.3% to 21.4%.

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

	ERS
2020	$21,249
2019	21,547
2018	22,454
2017	21,026

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 years ended December 31, 2020 and 2019, the Authority paid $30.5 million and $28.6 million, respectively, on behalf of retirees.

The following table summarizes the Authority's OPEB liability at December 31, 2020 and 2019 (in thousands):

	2020	2019
OPEB Liability	$1,181,202	$983,462
OPEB Covered Payroll	138,700	140,500
OPEB Liability as a percentage of Covered Payroll	851.6%	700.0%

Investments

The Bond Resolution enumerates various investments for Authority funds as authorized by law. See **Appendix C —** "Summary of Certain Provisions of the Bond 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, 2020 and 2019. The Authority's investment policies emphasize preservation of principal and the Authority believes its practices are fiscally responsible.

Insurance

Pursuant to the Bond 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 $1.207 billion 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 and maintenance facilities, and third party liability, including automobile liability. There are two funded reserves for these exposures, a $1.4 million insurance fund and a reserve for public liability claims which, as of August 31, 2021, totaled $13.6 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 Bonds and the Junior Indebtedness Obligations. Those bond programs include the General Highway and Bridge Trust Fund Bonds, State Personal Income Tax Revenue Bonds (Transportation), and State Sales Tax Revenue Bonds, 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 O Bonds are special obligations of the Authority which are secured and payable solely from the Net Revenues available therefor under the Bond Resolution. The following is a discussion of certain investment considerations that should be considered in evaluating an investment in the Series O Bonds. 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 O Bonds 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 was requested by the Authority to prepare the 2021 Traffic Engineer's Report presenting its analyses and findings relative to recent trends in traffic and revenue on the Thruway System. See "**Appendix A** – 2021 Traffic Engineer's Report" attached to this Official Statement. *The revenue forecasts contained in the 2021 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. The 2021 Traffic Engineer's Report projects the Authority's programmatic needs for the period through 2025 and concludes that with the newly implemented toll adjustments, the Authority will generate sufficient revenues needed for the Authority to fulfill its system-wide operating, debt service, and capital needs through the upcoming forecast period.* See "NEW YORK STATE TOLL RELATED INITIATIVES" for a detailed description of the newly implemented toll adjustments. The 2021 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 2021 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 2021 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 2021 Traffic Engineer's Report and the Authority's financial plan, significant additional revenue is required in years 2024 and 2025 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 2021 Traffic Engineer's 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 on the entire Thruway System in November 2020, the 2021 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 Bond 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 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 Bond Resolution.

Toll-Backed Components of the 2021-2025 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 Impact of COVID-19

The COVID-19 pandemic that began in March 2020 resulted in significant impacts to the Authority's financial condition, with substantial declines in Thruway traffic and toll revenues. The risk for further reductions in traffic, comparative to 2020, is low, though future commutation behavior based on patron telecommuting experience during the COVID-19 crisis is unknown.

Continuing impacts to the Authority from the pandemic remain and include, but are not limited to, costs and challenges to the Authority's operations, any remaining limitations on Thruway service areas to ensure compliance with State emergency mandates pertaining to COVID-19, and health risks to Authority employees.

The impacts of the COVID-19 pandemic on the Authority's financial condition are clearly significant and, as noted, may deteriorate further. In 2020, the Authority addressed this financial emergency by securing short and intermediate term liquidity through 2022, understanding that the reductions in 2020 revenues will not be made up immediately, even if intermediate or longer-term traffic returns to pre-crisis levels.

Risks Relating to a Disputes under 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. The Design-Build Contract was awarded to a consortium, TZC, 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. Both spans of the bridge were substantially completed and opened for vehicular traffic, with the north span opening on August 25, 2017 and the south span opening on September 12, 2018, and the original Tappan Zee Bridge has been fully demolished.

In 2018, as supplemented in 2019 and 2020, TZC submitted a dispute to the Authority alleging that TZC is owed approximately $923 million, plus interest, in excess of the approved contract value and anticipated contract change orders ("Dispute"). The Dispute asserts that TZC is owed additional amounts due to purported issues relating to time and extra work. The Authority disputes such assertion. Pursuant to the Design-Build Contract, TZC's Dispute is subject to a non-binding contractual dispute resolution procedure consisting of a four-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 the Dispute, the Authority believes it has meritorious defenses and positions with respect thereto. However, an adverse decision could significantly affect the Authority's financial position. On July 7, 2021, the first level of the administrative review process was completed when the Project Director for the New NY Bridge Project issued a determination rejecting the Dispute with the exception of granting limited time extensions. TZC has appealed this determination to the next tier of administrative review. 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 and "THE NEW NY BRIDGE PROJECT" above for more detail on the Design-Build Contract and TZC.

Risks Relating to All Electronic Toll Collection

The Authority converted the entire Thruway System to AETC in November 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 that incorporates coverage of its AETC equipment, (including coverage for certain lost toll revenues), although the future availability of such coverage at a reasonable price cannot be assured. 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-payors, seeking enforcement of motor vehicle regulation mandating suspension of vehicle registration for non-payors, entering into reciprocity agreements with other states for toll enforcement, and improving and updating technology where possible.

See **Appendix A —** "2021 Traffic Engineer's Report" for a discussion of additional considerations relating to the Authority's implementation of AETC on the Thruway System.

Cybersecurity

The Authority recognizes the necessity for strong cybersecurity surrounding electronic data information, and the protection of that data as it is captured, moved, processed, and stored. In the ordinary course of business, the Authority collects, processes, and stores sensitive data, including toll trip data, financial information, and other operational information, some of which may include personally identifiable information of customers and employees.

The confidentiality, integrity and availability of electronic information can be critical to certain Authority operations. The Authority, through its Department of Information Technology, has developed the necessary procedures, implemented necessary security programs, and developed and performed testing of those procedures and programs to help ensure the security of Authority data and data processing, as well as compliance with any applicable security standards. Despite these security measures currently in place, and any future security measures added, the Authority's cyber infrastructure may be vulnerable to outside attempts to disrupt or disable internal systems or software, or to steal, ransom or delete electronic data. Additionally, while cybersecurity and operational safeguards are periodically tested, no assurances can be given by the Authority that such measures will protect the Authority against outside attempts to access internal systems, or electronic data, or prevent the risk of the Authority's operations or finances from being significantly impacted as a result of unauthorized access.

The Authority continues to devote significant resources to develop and procure, maintain, and upgrade security hardware and software, improve monitoring and alert systems, and training in an effort to maintain and improve electronic information security. The Authority also continues to securely store backup of its most important data to ensure continuity of operations.

Ratings of the Bonds Could be Lowered or Withdrawn

Two credit rating agencies have assigned credit ratings to the Bonds, including the Series O Bonds. The ratings of the Bonds are not a recommendation to purchase, hold or sell the Bonds, and the ratings do not comment on the market price or suitability of the Bonds for a particular investor. The ratings of the Bonds may not remain for any given period of time and may be lowered or withdrawn.

Certain Matters Relating to Enforceability of Obligations

The remedies available to the owners of the Series O Bonds upon the occurrence of an Event of Default under the Bond 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 Bond 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 O Bonds will be qualified to the extent that the enforceability of certain legal rights related to the Series O Bonds 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 O Bonds. Under the Act, the State has agreed with the holders of the bonds and notes of the Authority, including the 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.

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 O Bonds or the Bond 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 O Bonds.

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 after the judgement of the United State District Court for the Southern District of New York as to the remaining defendants.

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 moneys 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 September 3, 2020, the United States District Court for the Western District of New York denied the Thruway Authority/State of New York motion to dismiss. The Second Circuit for the United States Court of Appeals has granted the Thruway Authority/State of New York petition to appeal the motion to dismiss. The Thruway Authority/State of New York has perfected its appeal and the action is stayed pending the Second Circuit's decision on the appeal. In 2004, the Second Circuit for the United States Court of Appeals had 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

Federal Income Taxes

In the opinion of Harris Beach PLLC, Bond Counsel to the Authority, and assuming compliance with the representations, certifications and covenants described below, under existing statutes, regulations, administrative rulings and court decisions as of the date of such opinion, interest on the Series O Bonds is excluded from gross income for federal income tax purposes. Furthermore, in the opinion of Bond Counsel, such interest is not an item of tax preference for purposes of calculating the federal alternative minimum tax imposed on individuals.

The Internal Revenue Code of 1986, as amended (the "Code"), establishes certain requirements that must be met at the time of, and subsequent to, the issuance and delivery of the Series O Bonds in order that interest on the Series O Bonds be and remain excluded from gross income for federal income tax purposes. Included among these continuing requirements are certain restrictions and prohibitions on the use of proceeds of Series O Bonds, restrictions on the investment of proceeds of Series O Bonds and other moneys or properties, and the rebate to the United States of certain earnings in respect of investments. Noncompliance with such continuing requirements may cause the interest on the Series O Bonds to be included in gross income for federal income tax purposes retroactive to the date of issuance of the Series O Bonds irrespective of the date on which such noncompliance occurs. The Bond Resolution and the Arbitrage and Use of Proceeds Certificate delivered by the Authority at the time of delivery of the Series O Bonds (the "Arbitrage Certificate") contain certain factual certifications, covenants, representations and warranties as to compliance with the requirements of the Code. In rendering the above-described opinion, Bond Counsel will assume the accuracy of such factual certifications and continuing compliance by the Authority with such covenants, representations and warranties set forth in the Bond Resolution and the Arbitrage Certificate.

All of the Series O Bonds are initially offered to the public at a price in excess of their stated redemption price (the principal amount) at maturity ("Premium Bonds"). That excess constitutes bond premium. For federal income tax purposes, bond premium is amortized over the period to maturity of a Premium Bond, based on the yield to maturity of that Premium Bond (or, in the case of a Premium Bond callable prior to its stated maturity, 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 that Premium Bond), compounded semiannually. No portion of that bond premium is deductible by the owner of a Premium Bond. For purposes of determining the owner's gain or loss on the sale, redemption (including redemption at maturity) or other disposition of a Premium Bond, the owner's tax basis in the Premium Bond is reduced by the amount of bond premium that is amortized during the period of ownership. As a result, an owner may realize taxable gain for federal income tax purposes from the sale or other disposition of a Premium Bond for an amount equal to or less than the amount paid by the owner for that Premium Bond.

Owners of Premium Bonds should consult their own tax advisers as to the determination for federal income tax purposes of the existence of bond premium, the determination for federal income tax purposes of the amount of bond premium properly accruable or amortizable in any period with respect to Premium Bonds, other federal tax consequences in respect of bond premium, and the treatment of bond premium for purposes of state and local taxes on, or based on, income.

Bond Counsel expresses no opinion regarding any other federal tax consequences related to the ownership or disposition of, or receipt or accrual of interest on, the Series O Bonds. The proposed form of the approving opinion of Bond Counsel relating to the Series O Bonds is attached to this Official Statement as Appendix E.

In addition to the matters referred to in the preceding paragraphs, prospective purchasers of the Series O Bonds should be aware that the accrual or receipt of tax-exempt interest on the Series O Bonds may otherwise affect the federal income tax liability of the recipient. The extent of these other tax consequences may depend upon the recipient's particular tax status or other items of income or deduction. Bond Counsel expresses no opinion regarding any such consequences. Examples of collateral federal income tax consequences of acquiring or holding the Series O Bonds include, without limitation, (i) with respect to certain insurance companies, the Code reduces the deduction for loss reserves by a portion of the sum of certain items, including interest on the Series O Bonds, (ii) interest on the Series O Bonds earned by certain foreign corporations doing business in the United States may be subject to a branch profits tax imposed by the Code, (iii) passive investment income, including interest on the Series O Bonds, may be subject to federal income taxation under the Code for certain S corporations that have certain earnings and profits, and (iv) the Code requires recipients of certain Social Security and certain other federal retirement benefits to take into account, in determining gross income, receipts or accruals of interest on the Series O Bonds.

In addition, the Code generally denies the interest deduction for indebtedness incurred or continued by a taxpayer, including without limitation, banks, thrift institutions, and certain other financial institutions to purchase or carry tax-exempt obligations, such as the Series O Bonds. The foregoing is not intended as an exhaustive list of potential tax consequences.

The foregoing is not intended as an exhaustive list of potential tax consequences. Prospective purchasers of the Series O Bonds should consult with their tax advisors in order to understand the implications of the Code as to these and other federal and state tax consequences, as well as any local tax consequences, of purchasing or holding the Series O Bonds.

All quotations from and summaries and explanations of provisions of law do not purport to be complete, and reference is made to such laws for full and complete statements of their provisions.

State and Local Income Tax

In the opinion of Bond Counsel, under existing statutes, including the Act, interest on the Series O Bonds is exempt from personal income taxes imposed by the State of New York or any political subdivision thereof.

Any noncompliance with the federal income tax requirements set forth above would not affect the exemption of interest on the Series O Bonds from personal income taxes imposed by New York State or any political subdivision thereof.

Bond Counsel expresses no opinion regarding any other state or local tax consequences related to the ownership or disposition of, or the receipt or accrual of interest on, the Series O Bonds.

Interest on the Series O Bonds may or may not be subject to state or local income taxes in jurisdictions other than the State of New York under applicable state or local tax laws. Bond Counsel expresses no opinion, however, as to the tax treatment of the Series O Bonds under other state or local jurisdictions. Each purchaser of Series O Bonds should consult his or her own tax advisor regarding the taxable status of the Series O Bonds in a particular state or local jurisdiction other than the State of New York.

Other Considerations

Bond Counsel has not undertaken to determine or to inform any person whether any actions taken (or not taken) or events occurring (or not occurring) after the date of issuance of the Series O Bonds may adversely affect the value of, or the tax status of, interest on, the Series O Bonds.

Certain requirements and procedures contained or referred to in the Bond Resolution, the Arbitrage Certificate and other relevant documents may be changed and certain actions may be taken or omitted under the circumstances and subject to the terms and conditions set forth in such documents, upon the advice or with the approving opinion of nationally recognized bond counsel. Bond Counsel expresses no opinion as to any federal, state or local tax consequences with respect to the Series O Bonds or the interest thereon if any such change occurs or action is taken or omitted upon the advice or approval of a bond counsel other than Bond Counsel.

No assurance can be given that any judicial decisions or action of the Internal Revenue Service, including but not limited to the promulgation of a regulation or ruling, or the selection of the Series O Bonds for audit examination or the course or result of any Internal Revenue Service examination of the Series O Bonds or obligations which present similar tax issues, will not affect the market price or marketability of the Series O Bonds.

From time to time the United States Congress has considered and can be expected in the future to consider tax reform and other legislative proposals, including some that carry retroactive effective dates, which, if enacted, could alter or amend the federal tax-exempt status, or adversely affect the market value, of the Series O Bonds. It cannot be predicted whether or in what form any such proposal might be enacted or whether, if enacted, it would apply to bonds issued prior to enactment. Prospective purchasers of the Series O Bonds should consult their own tax advisors regarding any pending or proposed federal tax legislation. Bond Counsel to the Authority, express no opinion regarding any pending or proposed federal tax legislation. In the event any such legislation which amends the federal tax-exempt status or adversely affects the market value of the Series O Bonds become law, the Bond Resolution does not provide for the increase in interest rate on the Series O Bonds or the mandatory redemption of the Series O Bonds. Also, Bondholders of the Series O Bonds are not indemnified for any costs or losses (e.g., tax deficiencies, interest and penalties, loss of market value) that may be incurred as a result of a change in law.

No assurance can be given that any amendments to the State income tax laws, regulations, administrative rulings, or court decisions, will not cause interest on the Series O Bonds to be subject, directly or indirectly, to State or local income taxation, or otherwise prevent Bondholders from realizing the full current benefit of the tax status of such interest.

All quotations from and summaries and explanations of provisions of law do not purport to be complete, and reference is made to such laws for full and complete statements of their provisions.

RATINGS

Moody's Investors Service, Inc. ("Moody's") has rated the Series O Bonds "A1" with a Stable outlook. S&P Global Ratings ("S&P") has rated the Series O Bonds "A" with a Stable outlook.

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 O Bonds. A securities rating is not a recommendation to buy, sell or hold securities and may be subject to revision or withdrawal at any time.

SALE BY COMPETITIVE BIDDING

The Series O Bonds were awarded pursuant to two separate competitive bidding processes on September 23, 2021. The Series O Bonds Maturity Group 1, comprised of Series O Bonds maturing on January 1, 2023 and January 1 in the years 2033 through 2041, inclusive, were sold to Barclays Capital Inc. The Series O Bonds Maturity Group 2, comprised of Series O Bonds maturing on January 1 in the years 2042 through 2051, inclusive, were sold to J.P. Morgan Securities, LLC. The Series O Bonds Maturity Group 1 will be purchased at an aggregate price of $317,108,122.75, which reflects an aggregate original issue premium of $57,451,860.35 and an aggregate Initial Purchaser's discount of $1,063,737.60. The Series O Bonds Maturity Group 2 will be purchased at an aggregate price of $329,751,579.68, which reflects an aggregate original issue premium of $41,513,833.90 and an aggregate Initial Purchaser's discount of $522,254.22.

The respective initial purchasers (the "Initial Purchasers") have supplied the information as to the initial public offering prices of the Series O Bonds as set forth on the inside cover of this Official Statement. The Series O Bonds may be offered and sold to certain dealers at prices lower than the public offering prices set forth on the inside cover pages, and such public offering prices may be changed from time to time by the respective Initial Purchasers.

VERIFICATION OF MATHEMATICAL COMPUTATIONS

American Municipal Tax-Exempt Compliance Corporation ("AMTEC") will deliver to the Authority on or before the settlement date of the Series O Bonds, its report indicating that it has verified the mathematical accuracy of schedules provided by the Authority and its representatives. Included in the scope of its engagement will be a verification of the mathematical accuracy of the mathematical computations of the adequacy of the maturing principal of and interest on the Government Obligations, to pay, when due, the maturing principal of, interest on and call premium requirements of the Refunded Bonds.

The verification performed by AMTEC will be solely based upon data, information and documents provided to AMTEC by the Authority and its representatives. The AMTEC verification report will state that AMTEC has no obligation to update the report because of events occurring, or data or information coming to their attention, subsequent to the date of the report.

LEGALITY OF INVESTMENT

Pursuant to the Act, the Series O Bonds 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 O Bonds 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 O Bonds are subject to the approval of Harris Beach PLLC, New York, New York, Bond Counsel to the Authority. Certain legal matters are subject to the approval of Joseph P. Igoe, Esq., Deputy General Counsel of the Authority.

CONSULTANT'S AND ACCOUNTANT'S REPORTS

The 2021 Traffic Engineer's Report is contained in **Appendix A** of this Official Statement in reliance upon the authority of Stantec 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 2021 Traffic Engineer's Report and that, in its opinion, the statements made herein are correct and fairly present in summary form the information contained in such reports, and that all material assumptions or qualifications with respect to such statements are reflected therein. The 2021 Traffic Engineer's Report is also available for review on the Authority's website.

The financial statements of the Authority as of December 31, 2020 and 2019, and for the years then ended, included in **Appendix B** of this Official Statement have been audited by BST & Co. CPAs, LLP, independent auditors, as stated in their report appearing in herein. The Authority has engaged BST & Co. CPAs, LLP to audit the Authority's financial statements for the fiscal year ended December 31, 2021 and expects to receive the audited financial statements and the report of BST & Co. CPAs, LLP thereon in late March 2022.

CO-FINANCIAL ADVISORS

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 O Bonds. 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 purchasers of the Series O Bonds in complying with Rule 15c2-12 promulgated by the Securities and Exchange Commission ("SEC"), the Authority and the Trustee will enter into a written agreement (the "Agreement") for the benefit of the holders of the Series O Bonds to provide continuing disclosure. The Authority will undertake for the benefit of the holders of the Series O Bonds to provide to the Municipal Securities Rulemaking Board ("MSRB"), on an annual basis on or before 120 days after the end of each fiscal year, commencing with the fiscal year ending December 31, 2021, certain financial information and operating data concerning the Authority and the sources of revenue for Bonds issued under the Bond Resolution referred to herein as "Annual Information" and described in more detail below. The Authority will also undertake to provide no later than 120 days after the end of each of its fiscal years, commencing with the fiscal year ending December 31, 2021, 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 provided and such audited financial statements shall be provided to the MSRB if and when available. In addition, the Authority will undertake, for the benefit of the holders of the Series O Bonds, to provide to the MSRB, in a timely manner not in excess of ten (10) Business Days, the notices of certain events described below. The Authority may from time to time designate an agent to act on its behalf in providing or filing notices, documents and information as required under the Agreement, and revoke or modify any such designation.

The Annual Information shall consist of the financial information and operating data of the type included in this Official Statement under the headings "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 — 2021 Mid-Year Forecast"*, "– 2021-2025 Capital Program", "— Funding of the 2021-2025 Capital Program" and "– The New NY Bridge Project" which shall include information relating to the following: (i) current toll rates for all classes of vehicles; (ii) statements of Revenues, Operating Expenses and Net Revenues for the most recent fiscal year; (iii) statements of traffic and operating revenues for the most recent fiscal year; (iv) summary of the most recent inspection by the Authority, its Independent Consultant, or other professional engineer or engineers retained for the purpose of such inspection; (v) status of the Authority's capital planning process; and (vi) statement of the Authority's debt service coverage for the most recent fiscal year.

The notices described above include notices of any of the following events with respect to the Series O Bonds: (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 of determinations with respect to the tax status of the Series O Bonds, or other material events affecting the tax status of the Series O Bonds; (7) modifications to the 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 Authority; (13) the consummation of a merger, consolidation, or acquisition involving the Authority or the sale of all or substantially all of the assets of the Authority, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material; (14) appointment of a successor or additional trustee or the change of name of a trustee, if material; (15) incurrence of a financial obligation by the Authority, if material, or agreement to covenant, events of default, remedies, priority rights, or other similar terms of a financial obligation, any of which affect security holders, if material; and (16) default, event of acceleration, termination event, modification of terms, or other similar events under the terms of the financial obligation of the Authority, any of which reflect financial difficulties. For the purposes of the events identified in clauses (15) and (16) above, the term "financial obligation" means a (i) debt obligation; (ii) derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing or planned debt obligation; or (iii) 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 Rule 15c2-12. In addition, the Authority will undertake, for the benefit of the holders of the Series O Bonds, to provide to the MSRB, in a timely manner, notice of any failure by the Authority to provide the Annual Information and annual financial statements by the date required in the Authority's undertakings described above.

The sole and exclusive remedy for breach or default under the Agreement to provide continuing disclosure described above is an action to compel specific performance of the undertakings of the Authority, and no person, including the holder of the Series O Bonds, may recover monetary damages thereunder under any circumstances. Any Series O Bondholder, including any beneficial owner, may enforce the Agreement for the equal and proportionate benefit of all holders similarly situated to the extent provided in the Agreement. A breach or default under the Agreement shall not constitute an Event of Default under the Bond 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 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.

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* The undertaking of the Authority to annually update this subsection will consist of providing information of the current year's adopted budget rather than the current year's mid-year's budget forecast.

The foregoing undertakings are 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 or is no longer relevant because the operations to which it related have been materially changed or discontinued, a statement to that effect will be provided. As a result, the parties to the Agreement do not anticipate that it often will be necessary to amend the informational undertakings. The Agreement, however, may be amended or modified (i) as a result of a change in change in law or Rule 15c2-12, or change in the identity, nature or status of the Issuer or any type of business or affairs conducted, (ii) if the amendment does not materially impair the interests of the Holders, as determined either by the Trustee or by nationally recognized bond counsel, or (iii) with the consent of holders of the Series O Bonds. Copies of the Agreement when executed by the parties thereto upon issuance of the Series O Bonds will be on file at the office of the Authority.

MISCELLANEOUS

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

The agreements of the Authority with the holders of the Series O Bonds are fully set forth in the Bond Resolution. Neither any advertisement of the Series O Bonds nor this Official Statement is to be construed as a contract with purchasers of the Series O Bonds.

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.

The execution and 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

APPENDIX A

2021 TRAFFIC ENGINEER'S REPORT

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

September 14, 2021

Prepared for:

New York State Thruway Authority

Prepared by:

Stantec Consulting Services, Inc.

Table of Contents

List of Figures

List of Tables

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 General Revenue Obligation Bonds, Series O (the "Series O Bonds").

The forecasts of traffic and revenues set forth herein are based on the Authority's toll modifications adopted in December 2020, summarized as follows:

- Passenger cars with NY *E-ZPass* at the Gov. Mario M. Cuomo Bridge had a $0.50 toll increase in January 2021 and will have another $0.50 increase in January 2022. Trucks tolls were increased proportionately with additional 20% increases for those with five or more axles. The commuter plan remains (with a 40% discount for 20 trips), and a new resident plan keeps tolls for eligible customers at 2020 rates.
- On the rest of the Thruway System, NY *E-ZPass* customers continue to be charged 2020 toll rates.
- Starting in January 2021, customers with a non-NY *E-ZPass* were charged tolls 15 percent above the NY *E-ZPass* rate.
- Starting in January 2021, Tolls by Mail customers were charged 30 percent above the NY *E-ZPass* toll rate, in addition to a $2 administrative surcharge per billing statement.

The forecasts also include recent conversions of all facilities to all-electronic toll collection (AETC), also known as cashless tolling, 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 (controlled system) on November 14, 2020

This study identifies future revenues required for the Authority to fulfill its system-wide operating, debt service, and capital needs. Future funding needs through 2025 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.

It should be noted that the COVID-19 pandemic that began in March 2020 resulted in significant impacts to the Authority's financial condition, with substantial declines in Thruway traffic and toll revenues. Figure 1 compares monthly trips and revenue over the 2019-2021 period. While these declines were most severe during the height of the outbreak, significant improvement has been seen in recent months – traffic in June 2021 was only 2 percent below June 2019. Toll revenues in recent months have slightly exceeded 2019, however, considering the January 2021 toll increase, they have not reached previously projected levels. Continued impacts are expected through the remainder of 2021, with small, downward revisions from prior, “pre-COVID” forecasts for the rest of the multi-year projection period.

Figure 1: Monthly Toll Trips and Revenue Showing COVID-19 Impacts, 2019-2021

** With the new AETC system, there may now be multiple toll transactions per trip on the Woodbury-Williamsville section. Starting in November 2020 these have been converted to trips for graphing purposes to provide a better comparison to pre-AETC conditions.*

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;
- 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; and
- The Authority can complete the remaining elements of the Cashless Tolling Project.

2.0 THE NEW YORK STATE THRUWAY SYSTEM

2.1 BACKGROUND

Since its opening in 1954, 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 8.5 billion vehicle-miles on the highway in 2019, averaging more than 23.2 million vehicle-miles per day. In 2020, when travel was greatly affected by the COVID-19 pandemic, Thruway customers traveled approximately 6.2 billion vehicle-miles on the highway, averaging more than 17.1 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 of 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 267.0 million toll transactions occurred on the Thruway in 2019, generating about $739.9 million in toll revenues[1]. During the COVID-19 pandemic year of 2020 there were approximately 204.7 million toll trips[2] generating about $615.3 million in toll revenues[3].

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-

[1] $767.9 million in gross toll revenues minus $28.0 million in commercial volume discounts

[2] 215.5 million reported toll transactions. After the new cashless toll system was installed on the controlled system in November 2020, there could be multiple transactions per trip. "Trips" are shown above to provide a better comparison to previous years.

[3] $644.3 million in gross toll revenues minus $29.0 million in commercial volume discounts

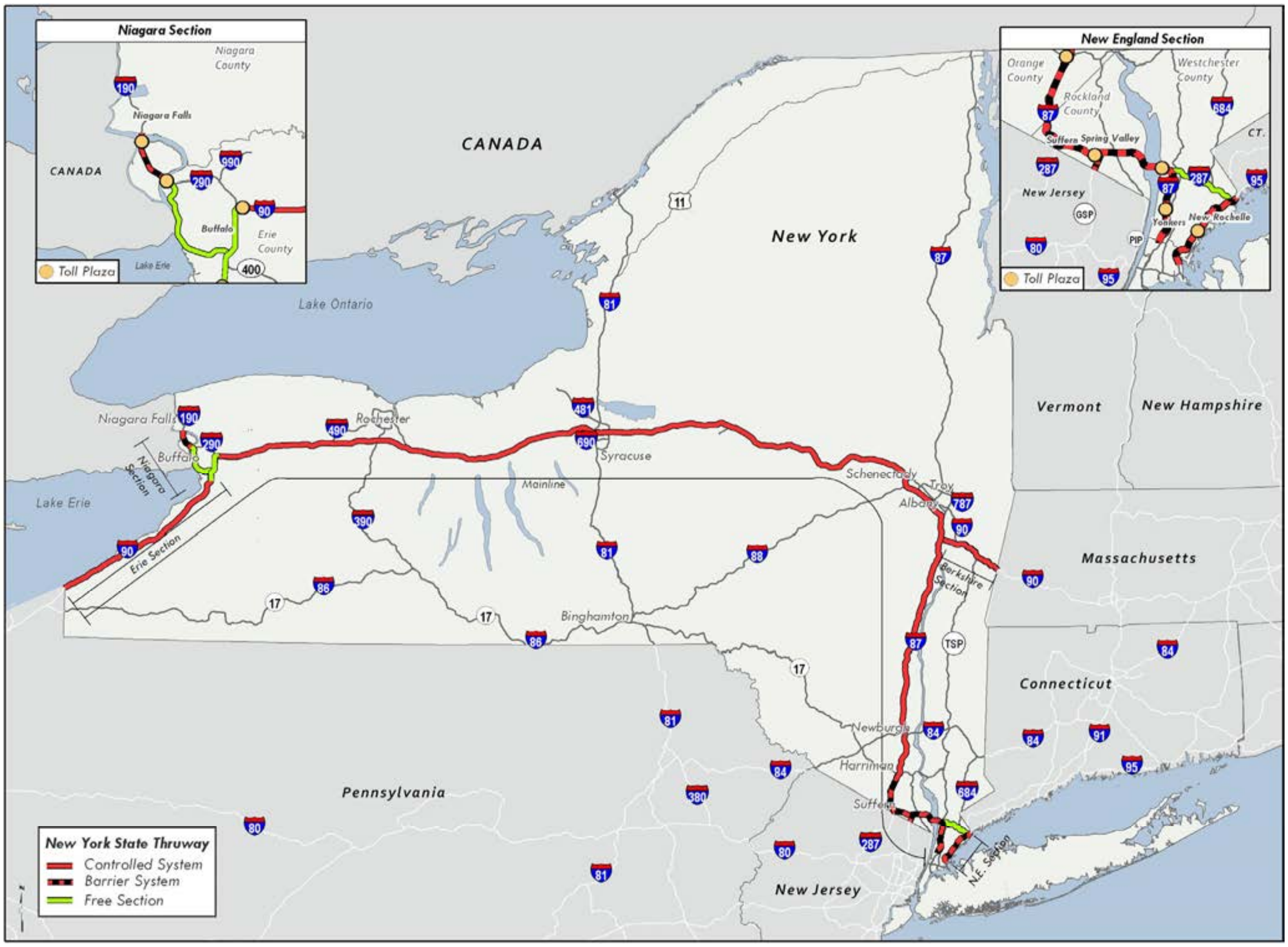
790 in Utica; I-87 (the Northway), I-88, I-90, I-787, and I-890 at Albany; and I-84 at Newburgh. It also makes direct connections with numerous major State highways.

The Thruway is comprised of two types of toll systems – a controlled system and a barrier system, as shown in Figure 2**.** 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. The entire Thruway system operates 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 *E-ZPass,* New York *E-ZPass*, as well as Commuter, Resident 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.

Figure 2: New York State Thruway Toll Systems



The Authority recently completed conversion of its entire system to AETC. The Governor Mario M. Cuomo Bridge (formerly Tappan Zee Bridge barrier) was the first to launch AETC 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 controlled system was converted to AETC on November 14, 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, 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).

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 816 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. The north span's shared-use bike and pedestrian path was completed in June 2020.

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 the 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 wastewater 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 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.

Twenty-seven service areas provide fuel, restaurants and other amenities to Thruway customers. These are owned by the Authority and are operated through concessionaire agreements. Thruway staff maintains the service area fuel station buildings and wastewater treatment plants and conducts winter maintenance of the parking areas. The service areas are located at intervals along the Thruway System and are currently operated by two food service concessionaires: Empire State Thruway Partners (17 plazas) and McDonald's Corporation (10 plazas). In addition, there are two fuel service operators, Dunne Manning (13 facilities) and Sunoco, Inc. (R&M) (16 facilities). The Authority collected $14.78 million in concession payments from these vendors in 2019 and $6.76 million in 2020.

Apart from closures for scheduled remodeling and modernization, 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 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, electronic vehicle charging stations, sell *E-ZPass* On-the-Go (retail *E-ZPass* transponders) and staff a number of Tourist Information Centers.

The Authority announced in July 2021 that construction would begin on a $450 million project to redevelop all 27 service areas. The service areas were originally built in the 1950s, with the last significant redevelopment taking place in the 1990s. Twenty-three of the 27 service area restaurant buildings will be rebuilt, with significant renovations and upgrades to the remaining four. On July 29, 2021 ten service areas closed for work to begin on the first phase of the project. The remaining 17 service areas are scheduled for reconstruction over the next three years. Fuel services will remain available at all locations during construction, and signage will alert motorists of the construction at the service areas and the location of the next open service area on the Thruway.

Most buildings at the new service areas will be configured to provide entrances from both the parking lot and fuel station facilities. New amenities and services at select service areas will also include exterior seating with access to Taste NY farm markets, picnic areas, play areas, pet walking areas with comfort stations, EV charging stations, and commercial driver services including increased truck parking, showers, laundry facilities and fitness centers. New food concepts will be available to customers as part of the redevelopment project. Customers will have diverse food options at all 27 service areas, offering a range of healthy products and meals from nationally recognized restaurants.

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 including: 80 Permanent Variable Message Signs, 173 Closed Circuit Television cameras, 13 Highway Advisory Radio stations, 119 real-time vehicle detector sites, and 135 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 speeding, 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 have contributed to a very low accident fatality rate. The 2018 fatality rate on the Thruway of 0.19 fatalities per 100 million miles traveled was among the lowest in the nation. This compares to an index of 1.37 nationwide in 2020 (1.11 in 2019)[4] and 0.75 for all of New York State[5] in 2019.

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. In addition to the conversion to cashless tolling, which reduces pollution, other examples of environmental enhancements by the Authority include 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 and electric vehicles and expansion of charging stations.

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. 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.

[4] “2020 Fatality Data Show Increased Traffic Fatalities During Pandemic.” National Highway Traffic Safety Administration, June 3, 2021, https://www.nhtsa.gov/press-releases/2020-fatality-data-show-increased-traffic-fatalities-during-pandemic

[5] “Fatality Facts 2019 State by State.” Insurance Institute for Highway Safety Highway Loss Data Institute, March 2021, www.iihs.org/iihs/topics/t/general-statistics/fatalityfacts/state-by-state

The Authority has developed a comprehensive asset management program to strategically operate, maintain, and upgrade the bridge and highway network through its life cycle. Using 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.

As part of the 2019 review, 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 Barrier, Yonkers Barrier, New Rochelle Barrier, Spring Valley Barrier, and Harriman Barrier, all of which have now been converted to AETC, with removal of the physical toll booths near completion. 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 to enhance its maintenance operations. Ongoing maintenance activity including repair of guiderail and safety upgrades was observed during the drive-through.

Capital Program. The 2021-2025 Capital Program includes current on-going projects, along with various planned future construction projects. The most notable 2021 projects are the North Avenue Bridge replacement over I-95 (MP 605.76, $18M) and pavement resurfacing from north of Exit 17 to north of Exit 18B northbound only and north of Exit 19 to north of Exit 21 ($25M). There are four (4) resurfacing projects over $28M each, the I-95 New England Thruway Highway Improvement project ($48M, 2022) and the I-95 New England Highway Rehabilitation project ($34M, 2023). In addition, there is various

Pavement safety striping, two (2) pedestrian bridges, replacement of ITS equipment and an on-demand repair contract. in addition, future programmed projects include various bridge maintenance cleaning projects, municipal utility connections, bridge rehabilitation, metal building, vehicle wash bay and storage and various culvert rehabilitations/replacements.

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 has finalized the construction of a shared used path on the 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. At the time of the 2019 drive-through inspection, 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 2021-2025 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, and various bridge rehabilitations. Notable capital projects include rehabilitation of the Castleton Bridge (MP 801.08) ($50M, 2021 and $30M, 2024) and bridge rehabilitation over Wallkill River (MP 81.72) ($13M). Other projects include pavement resurfacing between South of Catskill (MP 109.3) to south of Coxsackie (MP 121.2) ($10M), pavement resurfacing from Northway (MP 148.2) to west of Schenectady (MP 154.4) ($9.5M), pavement resurfacing from south of Saugerties (MP 100.80) to south of Catskill (MP 109.3) ($7.1M). Upcoming projects in the program include a bridge replacement, bridge preservation for various bridges (2023) and the Albany Maintenance Facility metal building replacement.

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. At the time of the drive-through inspection in 2019, 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. There have also been improvements to their operations center. At the time of the drive-through inspection in 2019, the Syracuse

Division was considering/evaluating the potential for decommissioning structures that are underutilized, which would allow the Authority to reallocate its maintenance resources and operate more efficiently.

Capital Program. The 2021-2025 Capital Program in the Syracuse Division of the Thruway focuses on pavement resurfacing with six (6) resurfacing projects over $10M each in various locations (2022 – 2025), the rehabilitation of two (2) bridges (MP 287.11, MP 287.25), replacement of five (5) bridges, removal of the Canton Street bridge over the Thruway and the Canandaigua (Exit 44, MP 347.1) to Rochester (Exit 45, MP 351.4) concrete pavement restoration project. The program also includes safety upgrades, an on-demand repair contract (2021-2022), waterline replacement, a municipal sewer connection, ITS equipment replacement and bridge preservation of various bridges.

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. The toll facilities were converted to AETC with overhead gantries for high-speed tolling, including the toiling points at Williamsville, Lackawanna, Ripley, Tonawanda, and Niagara. Lackawanna is one of the busiest toll locations on the Thruway. The Tonawanda and Niagara gantries toll the South and North Grand Island Bridges, respectively.

It is noted the approximately three-mile section crossing the Seneca Nation was below satisfactory and 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 project included milling down to concrete, providing full depth concrete repairs, installing a 7” three course overlay, and upgrading roadside safety to current standards. The Authority let the project in January 2020 and it was completed in July 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 2021 construction season includes eastbound pavement resurfacing from east of Westfield (MP 483.00) to the Pennsylvania State Line (MP 496.00), pavement safety striping, sign structure replacement, and an on-demand repair contract (2022-2023).

Other upcoming projects in the 2021-2025 Capital Program include various pavement resurfacing projects (8), bridge replacements (3), bridge rehabilitations, retaining wall stabilization, Grand Island Bridges maintenance cleaning for steel preservation (2022, 2023, 2024), North Grand Island Bridge steel repairs, various culvert rehabilitations/replacements, bridge painting at various locations, Weiss Street bridge removal over the Thruway and North Grand Island Southbound and Northbound bridge painting.

2.7.5 Statewide

In 2020 the Authority initiated a project across the state to transition the Thruway System to AETC – also known as cashless tolling – to reduce congestion, improve safety, and reduce air pollution. The project covered the ticket-controlled system from

Exits 16 to 61(MP 45.03 to MP 496.00) and from Exit 21A to B3. The work performed varied by exits with cashless tolling 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 project provided gantries equipped with appropriate electronic equipment for both E-ZPass and Tolls by Mail. The tolling facilities for the entire system went cashless November 14, 2020, with Phase 2 Toll booth removals to be completed by the fall of 2021.

The Authority has recently initiated a $450 million project to redevelop all 27 service areas located on the Thruway. Twenty-three service stations will be rebuilt and four will receive significant renovations and updates. The construction phase of this program has begun, and ten services areas are currently closed for construction. Fuel services remain available at all locations during these renovations.

The Authority has programmed Statewide pavement striping for 2022, 2023 & 2024, NY Division bridge preservation for various bridges in 2023, Statewide bridge rehabilitations for 2024 – 2025 and finally replacement of ITS equipment statewide.

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 2021-2025 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 O 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 increase by 6.6 percent in 2021 and by 4.5 percent in 2022.[6] Most of this growth is related to recovery from the pandemic.

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. In addition, Stantec has been monitoring the impact of COVID-19 which had major impacts in 2020 and continues to have long-term implications for economic growth and traffic impacts. Information on COVID-19 and its impacts on travel is further detailed in Chapter 4.

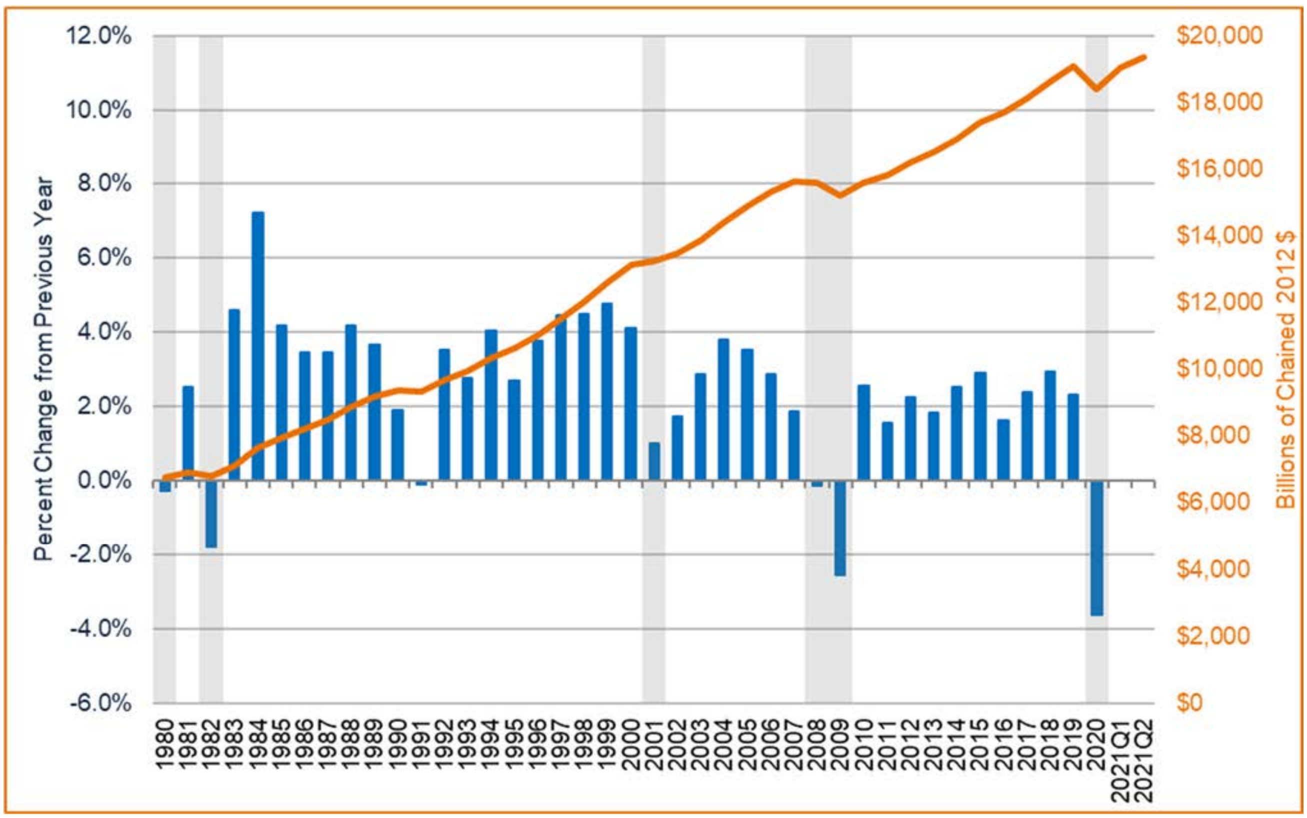
[6] Blue Chip Economic Indicators, Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, July 12, 2021

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 3 shows the real *annual* GDP from 1980 through the second quarter of 2021. 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 – the "Great Recession" - which 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. From 2009 until 2019, the U.S. economy had 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,[7] then increased at annual rates of 2.4 percent in 2017, 2.9 percent in 2018, and 2.1 percent in 2019.[8] The fourth quarter 2019 real GDP was estimated at over $19 trillion before the negative economic growth experienced in the first half of 2020 resulting from the effects of COVID-19.[9] Note that gray shaded areas on the figures in this section represent U.S. recessions according to the Federal Reserve Bank of St Louis.

Figure 3: Real Gross Domestic Product (GDP), Historical Annual, 1980 – 2nd Quarter 2021



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

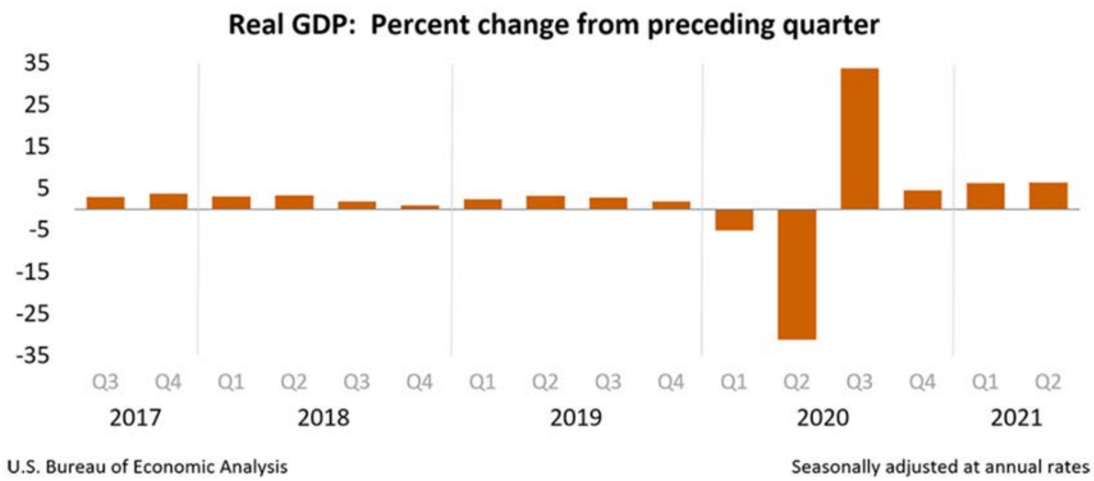
[7] U.S. Bureau of Economic Analysis, Real Gross Domestic Product [A191RL1A225NBEA], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/A191RL1A225NBEA, March 14, 2019

[8] Bureau of Economic Analysis, News Release, "Gross Domestic Product, Second Quarter 2021 (Advance Estimate), July 29, 2021

[9] Ibid.

As shown Figure 4, real gross domestic product (GDP) *decreased* for two consecutive quarters in 2020 but has since recovered with positive growth rates for four consecutive quarters. Advance estimates for the second quarter of 2021 confirm that the U.S. continues its recovery from the effects of COVID-19, experiencing a 6.5 percent growth rate in the second quarter of 2021 with real GDP estimated at $19.4 trillion.[10]

Figure 4: Quarterly Changes in Real Gross Domestic Product (GDP)- 2017-2021



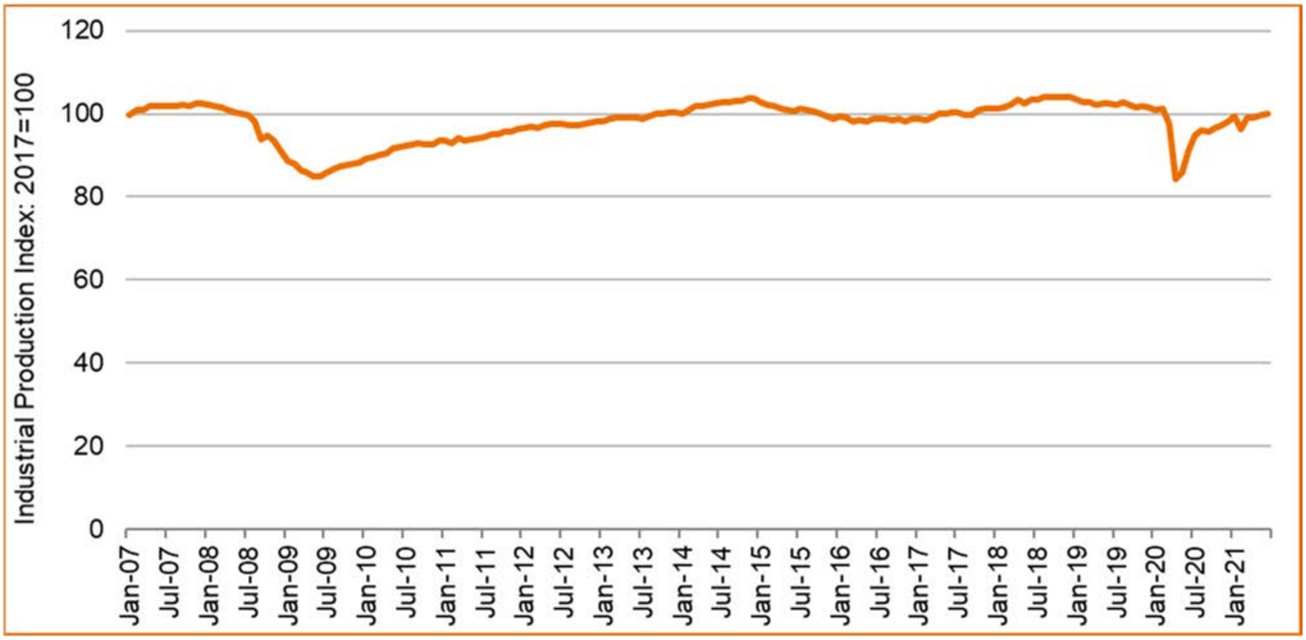
3.1.2 Industrial Production Index

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 2017.

As shown in Figure 5, the IPI hit a 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 had generally been on an upward trajectory, increasing by almost 20 percent from June 2009 through the end of 2019. The IPI then fell by almost the same magnitude in the first five months of 2020 with the index falling below the June 2009 trough as a result of COVID-19 before beginning to recover to close to “pre-COVID” levels by June 2021.

[10] U.S. Bureau of Economic Analysis New Release, July 29, 2021. As accessed on 8-2-2021 at https://www.bea.gov/news/2021/gross-domestic-product-second-quarter-2021-advance-estimate-and-annual-update

Figure 5: Industrial Production Index (IPI), Historical Monthly, January 2007 to June 2021



Source: Board of Governors of the Federal Reserve System (US), Industrial Production: Total Index [INDPRO], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/INDPRO, July 26, 2021.

3.1.3 Trends in Vehicle Miles Traveled (VMT)

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, a pattern recently disrupted by COVID-19.

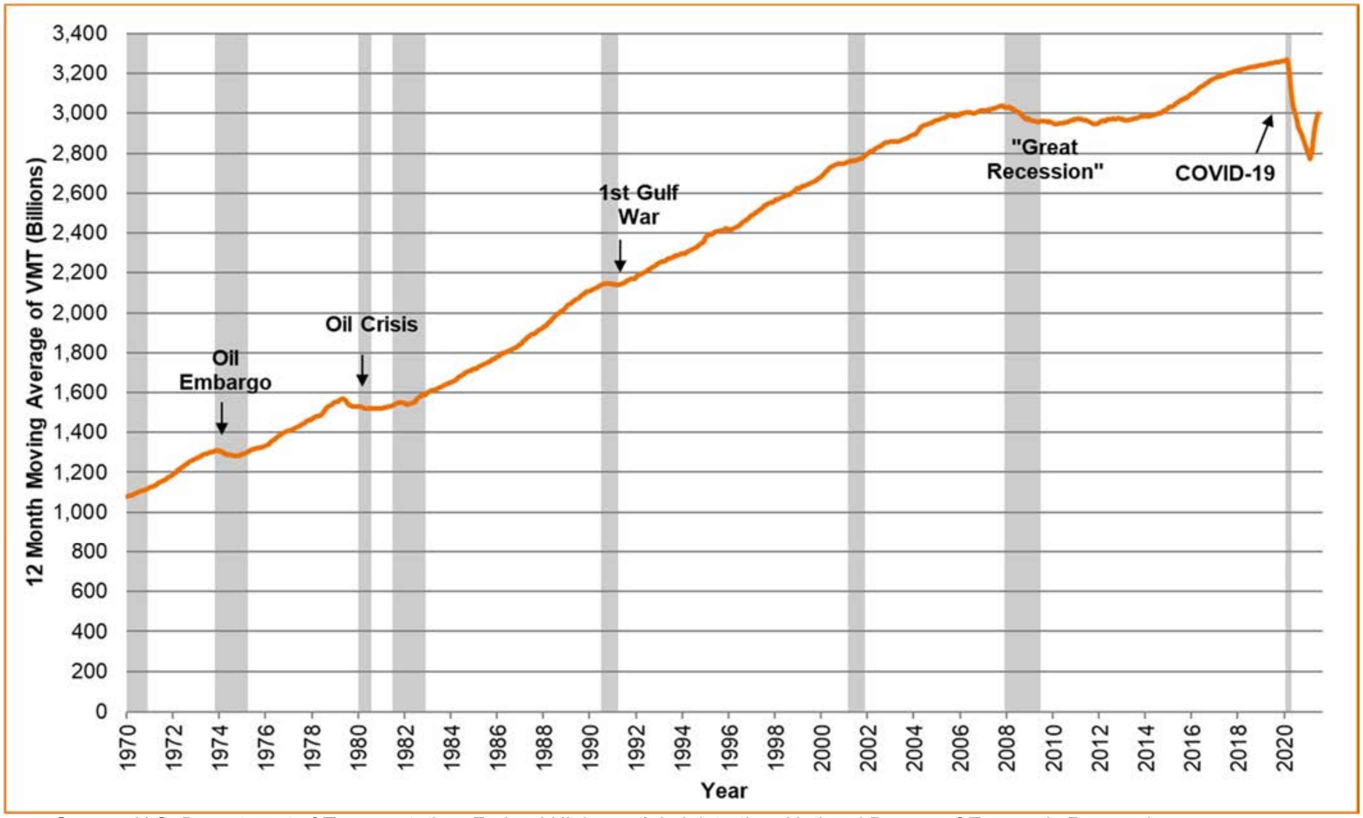
Figure 6 depicts the 12-month moving total of national VMT on all U.S. highways, from 1970 through June 2021. Even before COVID-19, a number of demographic factors were cited as having a downward influence on VMT, including baby boomers retiring and driving less, the ability of many workers to work remotely in the internet era, communication technologies that can substitute for in-person interaction,[11] and a rising preference for compact, mixed-use neighborhoods which reduce the need for driving.[12] More immediately, the pace of economic recovery from COVID-19 will significantly affect trends in VMT; among the factors at play are the extent of a long-term or permanent shift to more work from home and preference for private auto travel over mass transit (which a recent IBTTA presentation described as a "social distancing gap"[13]).

[11] "Vehicle Miles Traveled: Another Look at Our Evolving Behavior", Jill Mislinski, March 17, 2017.

[12] State Smart Transportation Initiative News, "Per capita VMT drops for ninth straight year; DOTs taking notice," Chris Cahill, February 24, 2014.

[13] Keeping Pace: The Financial Effects of a New Travel & Commuting Landscape on Toll Agencies, IBTTA Webinar, July 9, 2020

Figure 6: Vehicle Miles Traveled (VMT) – National, Historical 12-month Moving Average, 1971 – June 2021



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

While Figure 6 represents a rolling 12-month average VMT, it may be more impactful to look at VMT from individual months, and at a regional level. As shown in Table 2, with the advent of COVID-19, VMT fell beginning in March 2020; national traffic data show that the impact was greatest in the Northeastern U.S. which was the early epicenter of the pandemic, although traffic began to rebound in May 2020 and has steadily increased since then. Looking at more recent months, at the national level seasonally adjusted VMT in May 2021 was just 3 percent below May 2019's VMT. Similarly, June's seasonally adjusted national VMT was only 2 percent below 2019[14], signifying significant recovery. The northeast has lagged in recovery, with May 2021 VMT some 9.9 percent below May 2019, and June 2021 VMT some 2.9 percent below June 2019 levels.

Table 2: Monthly COVID-19 Traffic Impact on Vehicle Miles Traveled, Northeast vs. National

Location	March 2020 vs. March 2019	April 2020 vs. April 2019	May 2020 vs. May 2019	May 2021 vs. May 2019	June 2021 vs. June 2019
Northeast states	-21.7%	-47.3%	-34.9%	-9.9%	-2.9%
U.S. overall, seasonally adjusted	-19.1%	-40.8%	-26.1%	-3.0%	-2.0%

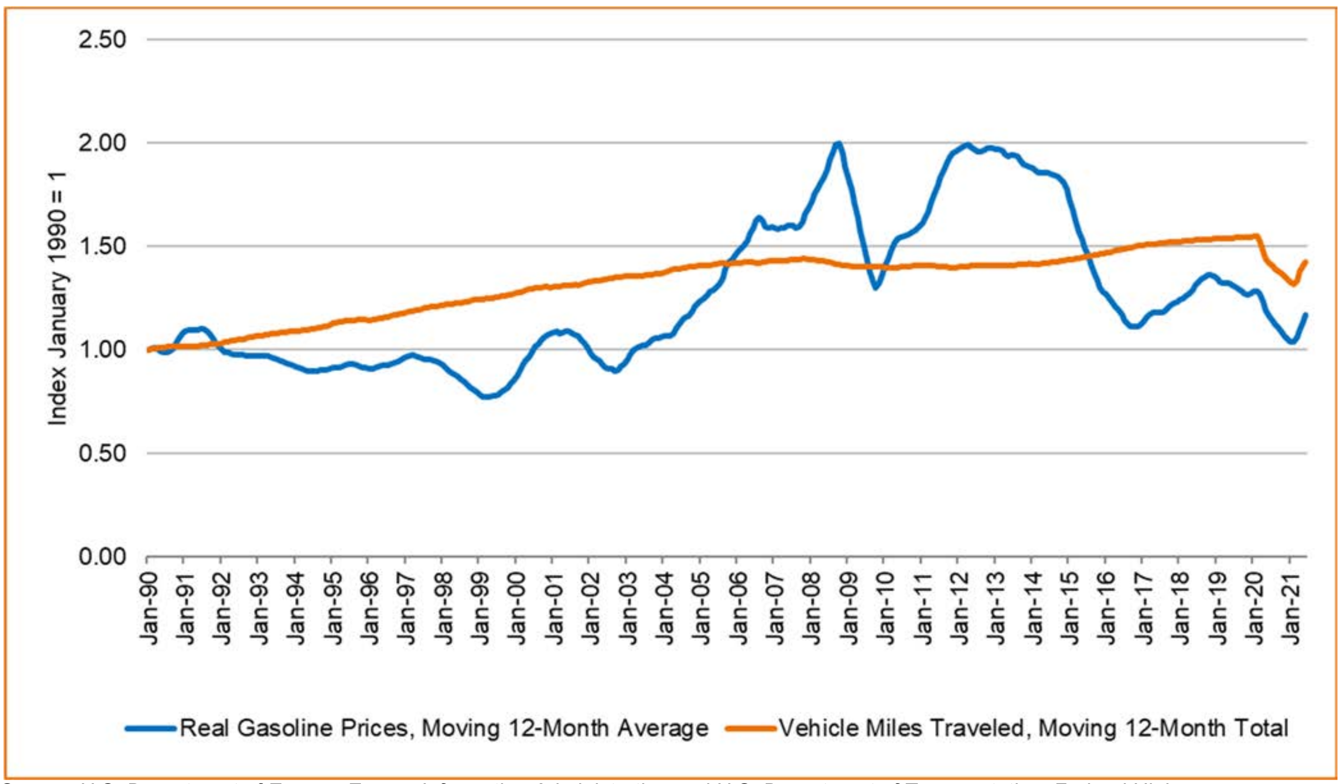
Source: Traffic Volume Trends, FHWA Office of Highway Policy Information

[14] FHWA Traffic Volume Trends, https://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm

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

A number of factors may have caused the recent changes 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 7 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 mid-2021. 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. Between late 2016 and early 2020, VMT grew at a slow rate and did not appear to be affected by fluctuations in real gas prices. These data show that it is difficult to pinpoint the elasticity of travel as it relates to gas prices, yet very large gas price changes do generally result in a change in driving behavior. The more recent decline, followed by increases, in both real VMT and real gas prices, however, are presumably related to COVID-19 and associated changes in economic activity.

Figure 7: National Vehicle Miles Traveled (VMT) vs. Real Gas Prices, Historical 12-month Moving Average, Indexed to January 1990, 1990 – June 2021



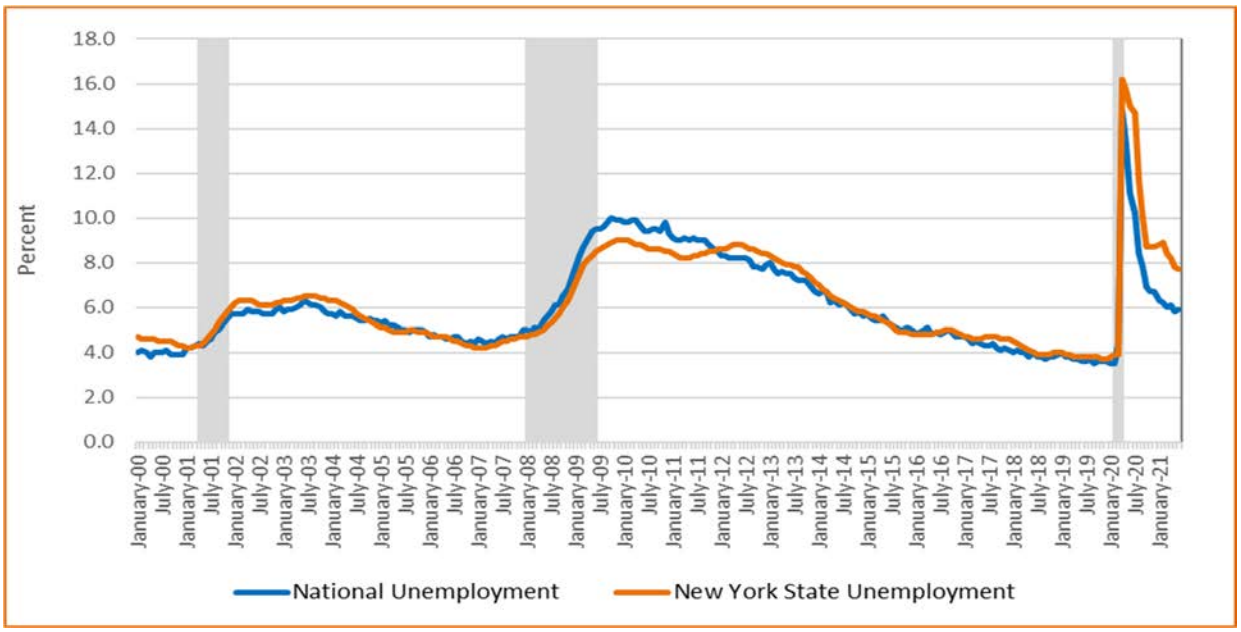
Source: U.S. Department of Energy, Energy Information Administration and U.S. Department of Transportation, Federal Highway Administration

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 "Great Recession", unemployment peaked at approximately 10.0 percent. Over the following decade, total employment slowly recovered and eclipsed its pre-recession peak, reaching 156.9 million persons in February 2019.[15] Consequently, as shown in Figure 8, the national unemployment rate had fallen to 4.0 percent as of January 2019 and stayed below 4 percent until March 2020. Figure 8 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 and very recently with state unemployment higher than the national rate in the COVID-19 era.

While the 2008-2009 recession caused a spike in unemployment and a notable reduction in VMT, there otherwise was 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 unemployment continued to decline in 2018 and 2019 while VMT saw almost no growth. With the impact of COVID-19, national unemployment increased dramatically from a near-historic low of 3.5 percent in February 2020 to a peak of almost 15 percent in April 2020. In June 2021, the national unemployment rate averaged around 6.0 percent with New York State just under 8.0 percent. New York City and New York State unemployment rates in selected months are compared to national data in Table 3.

Figure 8: Civilian Unemployment Rate, National vs. New York State, Historical Monthly, Seasonally Adjusted, January 2000 – June 2021



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

Table 3: National and New York Unemployment Rates (%), Selected Months

Location	Pre-Pandemic	Early Pandemic		Recent Months		
	Apr-19	Apr-20	May-20	May-21	Jun-21	July 2021[(1)]
United States	3.7	14.8	13.3	5.8	5.9	5.4
New York State (NYS)	3.8	16.2	15.7	7.8	7.7	7.6
New York City (NYC)	4	15.6	20	10.9	10.6	10.5

[(1)] Preliminary
Source: U.S. Department of Labor, Bureau of Labor Statistics

[15] Bureau of Labor Statistics, "The Employment Situation- February 2019," as accessed on March 14, 2019 at https://www.bls.gov/news.release/pdf/empsit.pdf. Employment figure is based on Household Data Summary Table A.

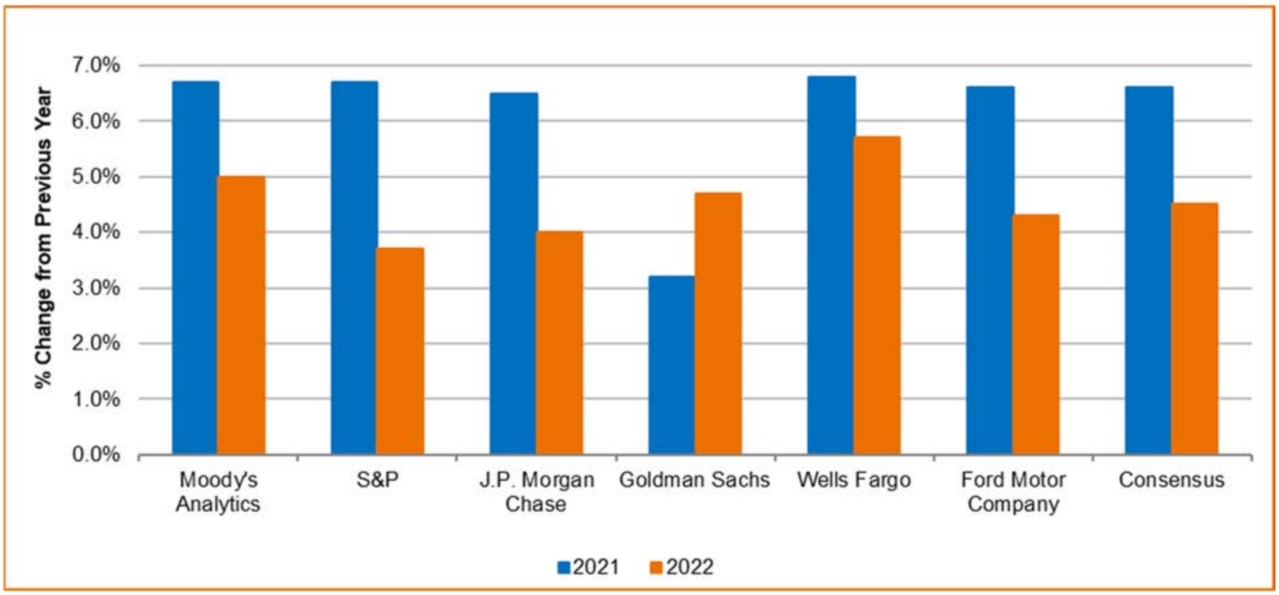
3.2 SHORT-TERM ECONOMIC FORECASTS

Following the sharp contraction in early 2020 due to the COVID-19 pandemic, financial and economic analysts expect the U.S. economy to continue in a recovery mode in the near-term future.

3.2.1 Gross Domestic Product

The most recent (July 2021) consensus forecast, derived from projections from more than 50 financial institutions and professional forecasting firms, is that real GDP will increase by 6.6 percent in 2021 and by 4.5 percent in 2022.[16] Figure 9 presents Real GDP Forecasts by six different forecasting groups for the short-term timeframe through 2022. In the 2023-2027 timeframe, the consensus forecast is for real GDP to continue to grow by an average of 2.1 percent annually.[17] The Congressional Budget Office (CBO) projects only a 1.4% rate of growth over the same time period.[18] For "the longer run" beyond 2023, the median real GDP growth rate forecast across Federal Reserve Bank Board members and Presidents is 1.8 percent.[19]

Figure 9: Real Gross Domestic Product (GDP), Short-term Forecasts for 2021 and 2022



Source: Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, July 12, 2021.

[16] "Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, July 12, 2021.

[17] Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, March 12, 2021.

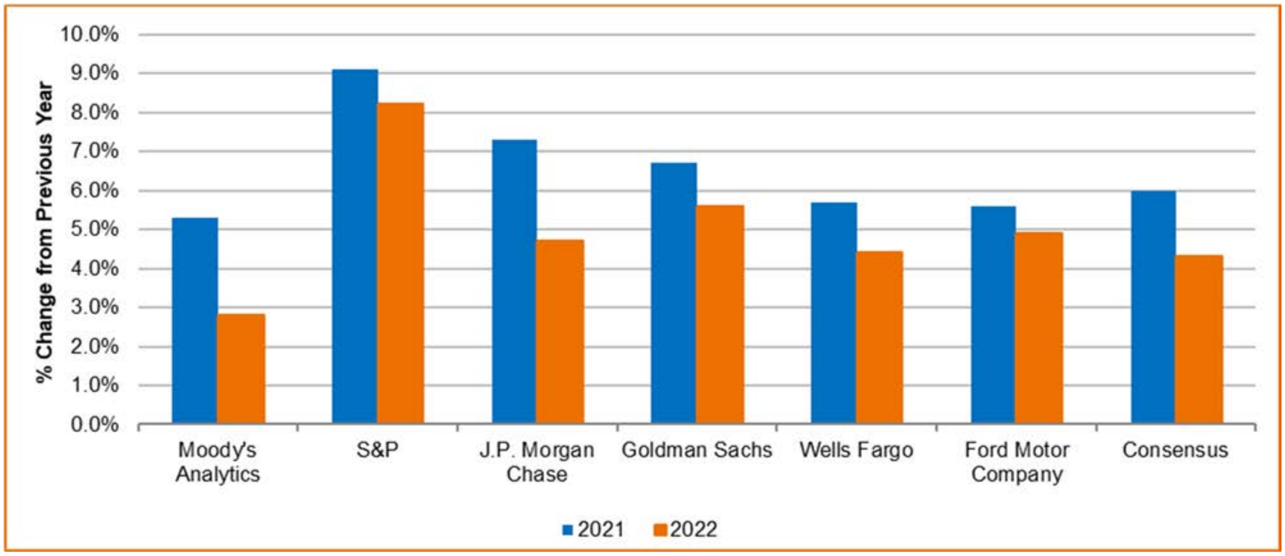
[18] https://www.cbo.gov/publication/57218

[19] Summary of Economic Projections, Federal Reserve Bank Open Market Committee, released March 17, 2021 as accessed July 28, 2021 at https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20210317.pdf

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 6.0 percent in 2021 and by 4.3 percent in 2022.[20] Figure 10 presents Industrial Production Index forecasts by six different forecasting groups for this year and next. *Blue Chip* consensus forecasts for the 2023-2027 timeframe project the IPI to grow by 2.0 percent annually in this timeframe.[21]

Figure 10: 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, July 12, 2021.

3.2.3 Fuel Cost Trends

Figure 11 presents historical and projected gasoline and crude prices from the U.S. Energy Information Administration (EIA). From September 2017 through March 2020, prices averaged $2.62 per gallon, before plunging to under $2.00 a gallon with the advent of COVID-19. U.S. regular gasoline retail prices remained low, averaging $2.09 a gallon for April through December of 2020 but increased to $2.76 a gallon over the first half of 2021. Energy experts attribute the increased prices largely to OPEC cuts in oil production as global energy demand decreased during the pandemic. There was also a short-term jump in prices in the southern U.S. as a result of the Colonial Pipeline shutdown in May. The July Short Term Energy Outlook noted that monthly retail gasoline prices averaged $3.06 per gallon in June, the first time the monthly average was more than $3.00 per gallon since October 2014. Prices are forecast to average $2.92 per gallon for the second half of 2021 and fall slightly to an average of $2.74 per gallon in 2022.[22] As shown in the figure, the retail price for gasoline is expected to remain under $3.00 per gallon in the near term. It is important to note that average fuel economy increased by almost 30 percent between 2004

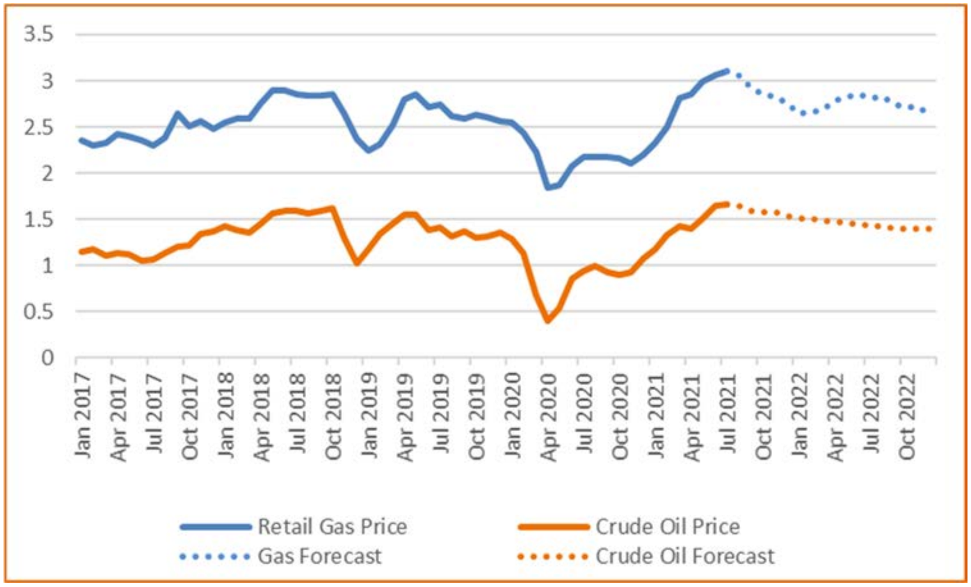
[20] Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, July 12, 2021.

[21] Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, March 12, 2021.

[22] "Short-Term Energy Outlook," U.S. Energy Information Administration, July 2021

and 2019, the latest year for which final fuel economy data is available, with preliminary data for the 2020 model year indicating a 33 percent improvement in real world fuel economy[23]

Figure 11: U.S. Gasoline and Crude Oil Prices, Historical and Short-term Forecasts, 2017 – 2022



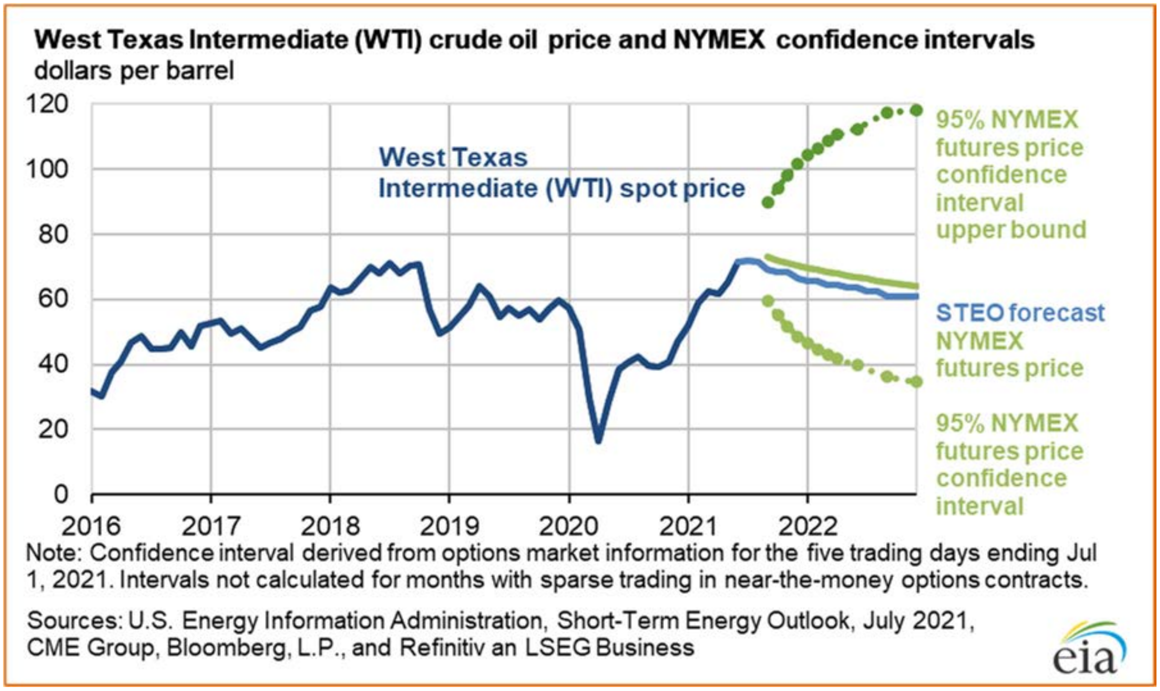
Source: U.S. Department of Energy, U.S Energy Information Administration, Short-Term Energy Outlook, July 2021

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 12 presents the EIA's projections for West Texas Intermediate (WTI) Crude Oil Price. The base projection is similar to that illustrated in Figure 11, 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 94 percent more to 43 percent less than current forecasts for December 2022.[24] The wide range of likely future prices of oil and gasoline, knowing their impact on motorist behavior, presents one of the challenges in accurately projecting future traffic volumes.

[23] Executive Summary, EPA Automotive Trends Report: Greenhouse Gas Emissions, Fuel Economy, and Technology since 1975, U.S. Environmental Protection Agency, January 2021, Report Tables as accessed on August 2, 2021 at https://www.epa.gov/automotive-trends/download-automotive-trends-report#Summary

[24] Short-Term Energy Outlook U.S. Energy Information Administration, July 2021

Figure 12: Crude Oil Prices, Historical and Short-term Forecasts, with Confidence Intervals, 2016 – 2022



Source: U.S. Department of Energy, U.S Energy Information Administration, Short-Term Energy Outlook, July 2021

3.2.4 Unemployment Rate

Based on consensus forecasts developed by financial institutions and industry analysts, the national unemployment rate is projected to average 4.0 percent over the 2023-2027 time period.[25] In the shorter term, CBO forecasts that unemployment will average 4.5 percent for 2021. CBO forecasts unemployment will improve slightly in 2022 to an average of 4.4 percent and remain at that level on average between 2023 and 2027.[26]

3.3 LONG-TERM ECONOMIC FORECASTS

3.3.1 Gross Domestic Product and Industrial Production Index

In the longer-term, 2028-2032 timeframe, the consensus forecast developed by financial institutions and industry analysts on March 12, 2021 was for real GDP to continue to grow by 1.9 percent annually and for the Industrial Production index to continue to grow by 1.8 percent annually.[27]

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25 Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, March 12, 2021.

26 Congressional Budget Office, An Update to the Budget and Economic Outlook: 2021 to 2031, July 1, 2021 as accessed August 2, 2021 at https://www.cbo.gov/publication/57218

27 Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, March 12, 2021.

3.3.2 Vehicle Miles Traveled (VMT)

The Federal Highway Administration prepares long term (20- and 30-year) forecasts of VMT each year and projects VMT growth under three different economic outlooks- baseline, low economic growth, and high economic growth, with the most recent forecasts shown in Table 4.[28] Interestingly, growth in vehicle mileage for single unit and combination trucks is forecast to be at a higher rate than light duty vehicles.

Table 4: FHWA Long-Term Growth Forecasts of National Vehicle Miles Traveled (VMT)

	Compound Annual Growth Rates					
	Low Economic Growth Outlook		Baseline Economic Growth Outlook		High Economic Growth Outlook	
Vehicle Class	2019-2039 (20-Year)	2019-2049 (30-Year)	2019-2039 (20-Year)	2019-2049 (30-Year)	2019-2039 (20-Year)	2019-2049 (30-Year)
Light-Duty Vehicles	0.8%	0.5%	0.9%	0.6%	1.1%	0.8%
Single-Unit Trucks	1.3%	1.5%	2.1%	2.3%	2.3%	2.5%
Combination Trucks	1.4%	1.4%	1.7%	1.6%	1.9%	1.9%
TOTAL	0.8%	0.6%	1.0%	0.7%	1.2%	0.9%

Source: Office of Highway Policy Information U.S. DOT, Federal Highway Administration, May 2021.

The 2021 forecast from the Energy Information Administration (EIA) projects a similar differential between light duty vehicles and trucks for the 2020-2050 timeframe and similar projected rates of growth relative to the FHWA forecasts over a slightly different horizon for all three vehicle categories:[29]

- 0.9 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)
- 1.4 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 CBO has forecasted that the unemployment rate will average 4.4 percent in the 2021-2031 time period.[30]

[28] "FHWA Forecasts of Vehicle Miles Traveled (VMT): Spring 2020," Office of Highway Policy Information, May 2021, as accessed on July 27, 2021 at https://www.fhwa.dot.gov/policyinformation/tables/vmt/vmt_forecast_sum.pdf

[29] Annual Energy Outlook, 2021, Transportation Sector Key Indicators accessed on July 27, 2021 at https://www.eia.gov/outlooks/aeo/data/browser/#/?id=7-AEO2021&cases=ref2021&sourcekey=0

[30] Congressional Budget Office, An Update to the Budget and Economic Outlook: 2021 to 2031, July 1 2021, as accessed August 2, 2021 at https://WWW.CBO.GOV/PUBLICATION/57218

Based on consensus forecasts developed by financial institutions and industry analysts, the unemployment rate is projected to average 4.1 percent over the 2028-32 timeframe[31], slightly lower than the 4.3 percent rate forecasted by the CBO for the 2027-2031 timeframe.

4.0 COVID-19 AND ITS IMPACT ON TRAVEL

The COVID-19 pandemic has had an unprecedented effect on traffic throughout the nation, especially the northeastern U.S. Its effects can be seen as threefold: government-mandated closures and restrictions and suggested behaviors meant to reduce the spread of the disease; economic fallout from job losses related to these restrictions and behaviors; and long-term behavioral changes that are likely to occur as a large share of the population has shifted to working from home, and may continue to work from home, more often than before the pandemic. Closures and restrictions are discussed below.

The COVID-19 pandemic began in March 2020, severely affecting travel on Thruway facilities and across the world. While the impacts are still ongoing, there has been significant progress toward reopening and the recovery of travel. This section highlights the impacts of the COVID-19 pandemic as background information for evaluating the Thruway traffic and revenue forecasts.

As was the case nationally and throughout New York State, traffic declined significantly starting in mid-March 2020. The first confirmed case of COVID-19 in New York State was on March 1, 2020, which quickly grew to over 25,000 confirmed cases by late March. The state's suggested/required public responses included implementing "social distancing", closure of educational facilities (March 18), closure of non-essential services (March 20), and the "NY on PAUSE" stay at home order (March 22).

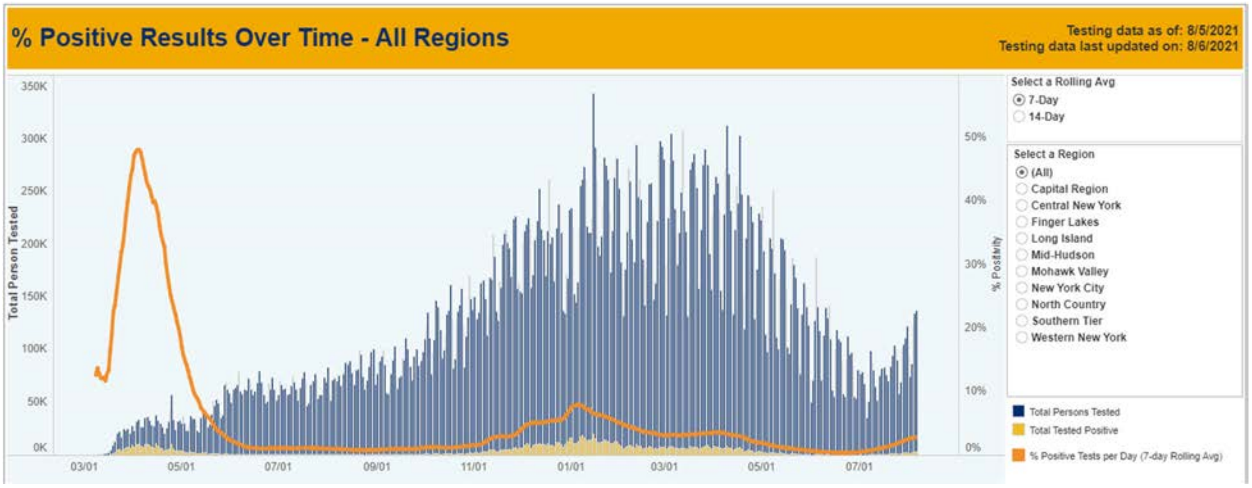
4.1.1 New York Phased Reopening and COVID-19 Vaccines

After about two months of closures and restrictions, the state saw marked reduction in the number of COVID-19 infections and deaths since a mid-April 2020 peak. New York State had a very defined, phased reopening process, creating ten geographic regions for this process. Each region monitored key metrics established with guidance from the CDC and WHO and other public health experts related to hospitalizations, available beds, deaths, testing, and contact tracing resources before advancing to the next phase, with a minimum period of two weeks between phases. Phase I, which included the reopening of construction, manufacturing, supply-chain businesses, and retail curbside pickup, began in the Finger Lakes, Southern Tier, and Mohawk Valley Regions on May 15. New York City was the last region to enter Phase I on June 8. By early August 2020, all ten regions had progressed to Phase IV, with New York City entering this phase last on July 20, 2020. Phase IV allowed for gatherings of up to 50 people as well as the reopening of schools, low-risk arts, entertainment, and recreation businesses, all with social distancing requirements. At that point, indoor dining/bars, movie theatres, shopping malls, museums, and gyms were still prohibited from reopening; these businesses resumed (with capacity limits) throughout the late summer and fall of 2020, based on health metrics for the region. Schools reopened to in-person learning throughout the state in September 2020.

New York State and much of the US experienced a second wave of COVID-19 infections beginning in November 2020 and lasting into the winter 2021 which led to school and indoor dining closures during that timeframe. This was followed by a significant reduction in the spread of the virus as COVID-19 vaccines began to be distributed, and resumption of indoor dining and in-person learning by February/March 2021. Trends in New York State COVID-19 infection rates from March 2020 through early August 2021 are shown in Figure 13.

[31] Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, March 12, 2021

Figure 13: NY State COVID-19 Positivity Totals, August 6, 2021



Source: NY State COVID-19 Dashboard, https://forward.ny.gov/percentage-positive-results-region-dashboard

On December 11, 2020, the U.S. Food and Drug Administration (FDA) issued the first emergency use authorization (EUA) for a COVID-19 vaccine when the Pfizer-BioNTech COVID-19 Vaccine was authorized for individuals 16 years of age and older. On May 10, 2021, the FDA expanded the emergency use authorization for the Pfizer-BioNTech COVID-19 Vaccine to include adolescents 12 through 15 years of age.[32] On December 18, 2020, the U.S. Food and Drug Administration issued an EUA for the second COVID-19 vaccine, allowing for the Moderna COVID-19 Vaccine to be distributed in the U.S for use in individuals 18 years of age and older.[33] On February 27, 2021, the FDA issued an emergency use authorization (EUA) for the third vaccine, allowing the Janssen COVID-19 Vaccine (also referred to as the Johnson & Johnson Vaccine) to be distributed in the U.S. for use in individuals 18 years of age and older.[34]

Throughout New York and much of the country, the elderly, front line workers, and vulnerable populations were generally prioritized for vaccine distribution. Throughout the spring, the portion of the population having received at least one dose of the vaccine grew steadily, and infection rates declined. However, by late spring 2021, the demand for vaccines plateaued, and in mid-summer 2021, another wave of coronavirus infections associated with the Delta variant began spreading rapidly throughout the US.

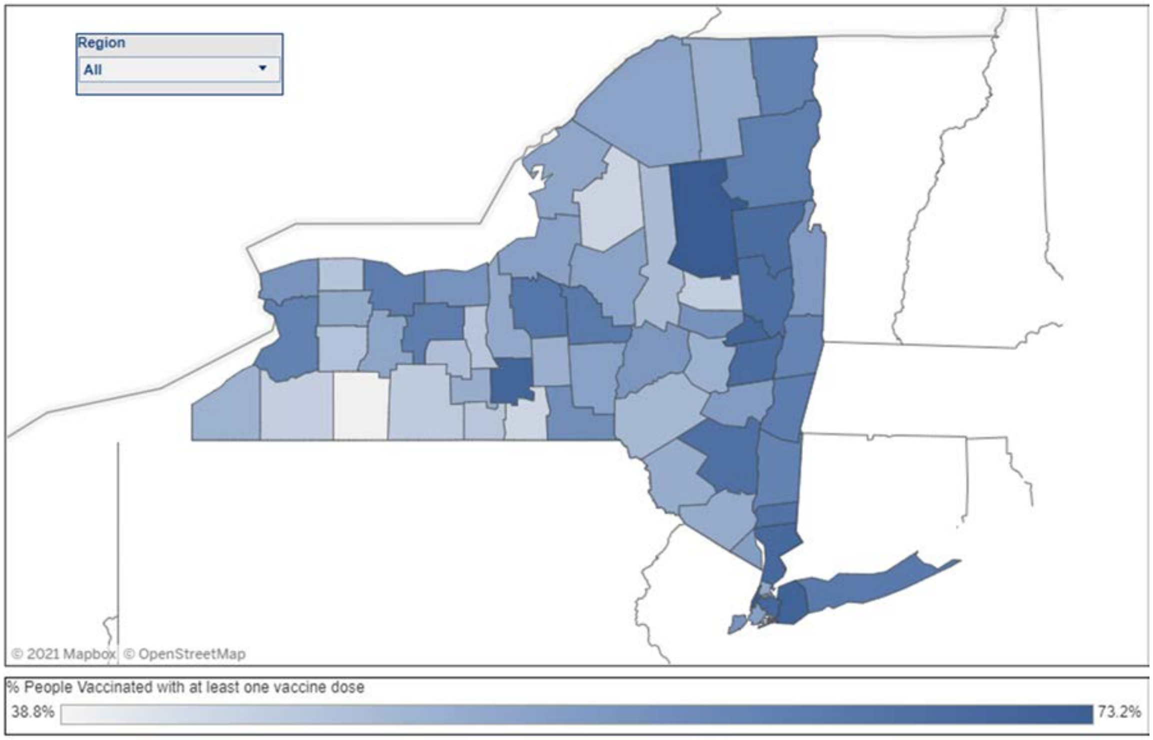
As of early August 2021, the demand for vaccines has begun to increase once more, and roughly 64 percent of the state population has received at least one dose of a vaccine, with eligibility extending to ages 12 and older. The Pfizer vaccine received full approval from the FDA on August 23, and it is anticipated to become available to children ages 5 and older as early as September 2021. Figure 14 presents a snapshot of current vaccine distribution by county.

[32] https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/pfizer-biontech-covid-19-vaccine

[33] https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/moderna-covid-19-vaccine

[34] https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/janssen-covid-19-vaccine

Figure 14: NY State Vaccine Tracker, August 6, 2021



Source: NY State Vaccine Tracker, https://covid19vaccine.health.ny.gov/covid-19-vaccine-tracker

On July 15, 2021, with over 70 percent of adult New Yorkers having received at least the first dose of the COVID-19 vaccine and the lowest levels of new COVID-19 cases in the nation, the State lifted most COVID-19 restrictions, except the mask requirement for unvaccinated individuals and in certain settings (e.g., health care) as advised by the CDC[35]. In addition, Governor Cuomo had announced that the state disaster emergency declared in early March 2020 would expire on June 25, 2021. As of early August 2021, most of New York State was identified by the CDC as having Substantial or High virus transmission rates and recommended indoor masking for all individuals regardless of vaccination status.[36]

With renewed outbreaks across the country due to new COVID-19 variants, the overall situation continues to be fluid. Though many offices have reopened both with and without social distancing restrictions, a significant portion of employees who began working from home in March 2020 are continuing to work mainly from home. This is due both to personal and employer choices as a result of the pandemic, but is largely affected by the uncertainty of schools, childcares, and quarantine protocols. In May 2021, New York City Mayor Bill De Blasio announced that New York City would not offer remote schooling as an option for the 2021-2022 school year[37] and the CDC recommends all schools resume in-person learning. Statewide guidance has not yet been announced.

Restrictions specific to tourism and entertainment that have been in place throughout the pandemic are beginning to loosen as well. Indoor entertainment venues, such as Broadway theaters in New York City and popular tourist destinations such as the Canadian side of Niagara Falls have been inaccessible to New Yorkers. Theaters and entertainment venues in New York City

[35] https://forward.ny.gov/archived-industry-guidance.
[36] https://www.cdc.gov/coronavirus/2019-ncov/index.html
[37] https://www.nytimes.com/2021/05/24/nyregion/nyc-schools-reopening-remote-learning.html

are slowly reopening, with recent announcements that attendees will need to show proof of vaccination. Canada recently reopened the border to vaccinated American tourists as of August 9th, while the US has announced that border restrictions toward Canadian tourists will remain in place until at least September 21st.[38] The border has remained open to essential travelers throughout the majority of the pandemic.

4.1.2 U.S. DOT's General Commentary on Travel Impacts

At the national level, there has been much discussion of the impact of COVID-19 on travel, both during the pandemic and for the future. Some broad observations excerpted from a January 2021 study by U.S. DOT entitled *COVID-19's Effects on The Future of Transportation*[39] include:

> *"Most importantly, communications as a substitute to travel has been actively deployed in many areas, from telework to e-commerce, telemedicine, web-based meetings in lieu of traditional business communications, distance learning, delivery of restaurant meals and online worship services among others. As these behaviors have become more engrained, analysts are envisioning a different future than what might have been anticipated only a year ago.*[40]
>
> *The COVID-19 crisis dramatically reduced the demand for transportation because the government ordered large parts of the economy to shut down and instructed a large part of the population to stay at home. Freight travel escaped the most dramatic consequences as freight remained critical to sustaining the population. Beyond mandatory shutdowns, many sporting, entertainment, business and other functions that involve large groups have remained curtailed and are scheduled to remain so well into 2021. Large swaths of the population have limited their normal activities and movements voluntarily for fear of infection and will continue to exercise caution for some time.*[41]
>
> *Major developments had been underway before COVID-19 that were changing travel supply and demand. The Internet gave rise to electronic commerce and rapid growth of companies that use the Internet to provide both new services (Facebook) and conventional services in new ways (Amazon). The Internet enables new forms of communication and telework, which was a growing practice by some employers pre-COVID-19. Urbanization and the aging of the U.S. population had been moderating travel demand growth. Transportation network companies offering app-based ride-hailing, bikeshare and e-scooters were also changing travel choices. The COVID-19 outbreak has profoundly transformed the economy, society, and the transportation sector in the near-term, and analysts anticipate that some elements of the short-term responses of individuals and businesses will become permanently changed behaviors.*
>
> *Segments of the population will certainly moderate behaviors because they fear the risk of contracting COVID-19. The success of vaccines and therapeutics will certainly lessen such fears but other unknown viral infections may arise. Choices to participate in certain activities and travel changes made during COVID-19 may become more pronounced and create new habits or patterns that travelers continue even when concerns of COVID-19 no longer directly influence their decisions. New habits could include higher auto use as households buy additional vehicles and changes in travel destinations as the pandemic has motivated home, work and other activity location changes for some.*

[38] https://ca.usembassy.gov/covid-19-information-canada-3/

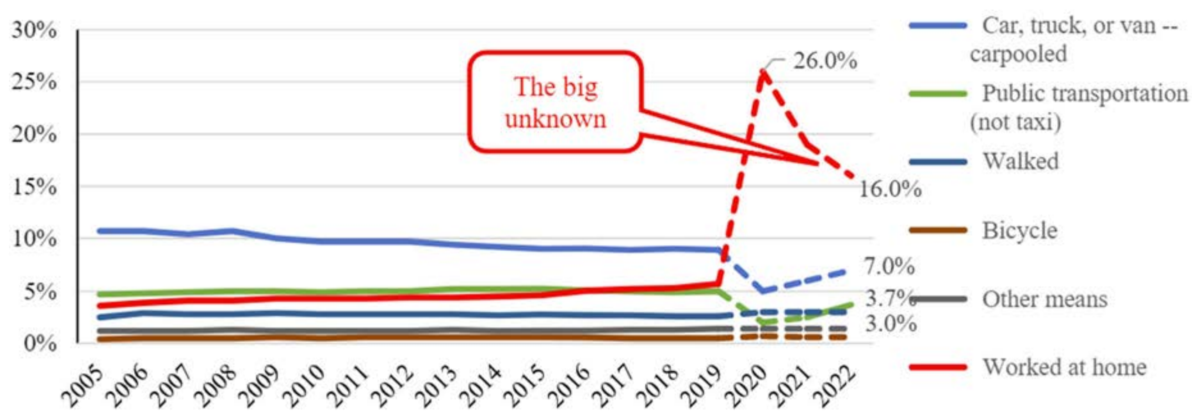
[39] Polzin, Steven; and Tony Choi. (2021). COVID-19's Effects on The Future of Transportation. United States Department of Transportation, Office of the Assistant Secretary for Research and Technology, accessible at https://doi.org/10.21949/1520705

[40] Polzin and Choi, op cit, page 4 of 44

[41] Polzin and Choi, op cit, page 7 of 44

Some of these changes are likely to affect travel long-term. The most apparent of these is the adaption of communications as a substitute for travel. Remote working and shopping are trends that the crisis has dramatically accelerated but it is still speculative to gauge at what level they will settle once the threat of infection recedes. Analysts are speculating whether the 5.7 percent share of individuals who reported in the 2019 American Community Survey as usually working at home the week prior to their survey in 2019 will be exceeded by a few percentage points or as much as 10 to 20 points higher after the health crisis passes.[42] This is shown as "The big unknown" in the graph below.[43]

Figure 15: "Usual" Means of Commuting



Source: ACS Commute data with post-Covid future scenario

Communications substitution for travel also influences business travel. Conferences, sales calls, client/customer meetings and other interactions are being replaced by remote communications. The pandemic has rapidly enhanced how well individuals and institutions can function differently, learn new software, deploy and understand new communication technologies, work through learning curves and adjust to less travel. Preference surveys of various consumers suggest this new behavior will continue in full measure. The Wall Street Journal reported on November 15, 2020 that according to a recent survey conducted by McKinsey & Co., 75 percent of American consumers tried a new shopping method due to the coronavirus, and 50 percent of respondents said they intended to shop via curbside pickup and/or delivery services in the future.[44]

While the economic recovery time frame and its impact on travel remain uncertain, travel demand may remain dampened for an extended period of time. The great recession only reduced vehicle miles of travel by a few percent yet the peak vehicle miles of travel level reached in 2007 was not exceeded until 2015, eight years later, well into the economic recovery. Given slower population growth and a growing shift toward an information economy, VMT is less directly tied to economic activity levels and may recover more slowly from downturns than it used to. … [W]e may well see an extended period of adjustment and recovery, especially for some segments of the transportation sector. It remains unclear how long the public health crisis will dampen overall transportation demand. Travel demand has been growing slowly, and 2019 is likely to mark the peak year of travel demand for many modes.[45]

[42] Polzin and Choi, op cit, page 9 of 44

[43] Polzin and Choi, op cit, page 10 of 44

[44] Polzin and Choi, op cit, page 11 of 44

[45] Polzin and Choi, op cit, PDF page 12 of 44

On the other hand, it should be noted that roadway travel has proven to be the most resilient as it is least affected by fear of contagion. It has recovered from a peak decline during the shutdown of over 40 percent for several weeks to being within 10 percent of pre-pandemic levels during the fall of 2020. Personal vehicle travel offers travelers the ability to control exposure during travel and also avoids traversing terminals where crowds, lines, and check-in/payment interactions introduce exposure risk. However, future personal VMT levels post-pandemic will continue to be shaped by competition from other modes, increased teleworking, and other economic stressors.

While personal VMT has recovered far more rapidly than has demand for shared mode travel, the magnitude of change is sufficiently large to meaningfully change the performance of the roadway transportation system. The importance of changes in personal VMT become most relevant as changes persist after the direct influence of the pandemic has passed. Residual effects on personal travel may persist due to several factors.

The magnitude of the respective factors will determine post-pandemic VMT levels. For perspective, work commuting constitutes nearly 30 percent of household travel and approximately 20 percent of total roadway VMT (inclusive of freight, commercial vehicle and business travel). If telework reduces commuting by 10 percent, this would dampen overall VMT by approximately two percent in the absence of offsetting additional travel. While these are modest numbers, recognizing that VMT has been growing at less than one percent annually in spite of a very strong economy, it does support estimates of soft VMT extending well into the future. Communication substitution for other activities such as shopping, personal business, worship, and education, etc. would enhance this softening of demand on total VMT.[46] "

4.1.3 Return to Workplace Survey Results

On a more local level, though much of the Thruway System does not serve New York City directly, New York City's experience may offer an indication of how upstate locations will be affected in terms of employees returning to the workplace instead of working remotely from home. Some recent information reported:

- Results from a survey of major employers by the Partnership for New York City released in March 2021 found that only 10 percent of Manhattan office employees have returned to the workplace but almost 50 percent are expected back by September, at least part time, as vaccination availability continues to increase.[47]
- A March 2021 report by NYC Dept of Planning[48] noted that by May 2020, traffic volumes had recovered to about 50 percent compared to the 2019 average. By June 2020, bridge and tunnel traffic at MTA crossings was already edging close to pre-pandemic levels, with volumes of about 90 percent of normal. Patterns themselves remained atypical; daytime volumes were higher, but evening traffic was minimal, indicative of fewer entertainment and nightlife-oriented visits. In June 2021, more than 27.9 million vehicles crossed the MTA toll crossings, the most since October 2019, though mass transit use lags.[49]
- As the pandemic is brought under control, New Yorkers will ultimately embrace working, socializing, learning, congregating, and traveling together once again. However, all expectations suggest that remote work will play a

[46] Polzin and Choi, op cit, pages 21-22 of 44
[47] https://pfnyc.org/news/return-to-office-survey-results-released-march-2021/
[48] https://storymaps.arcgis.com/stories/9ae470177d134f7fb42dac3ed61e37ad
[49] https://www.thecity.nyc/2021/7/26/22595195/nyc-bridge-and-tunnel-traffic-to-pre-pandemic-gridlock

greater role in the future than it has before. This expectation aligns with findings from several national studies[50] that there will be a hybrid work model in the future. As one example, a survey conducted by Rensselaer's Center for Infrastructure, Transportation and the Environment (CITE) found that 53 percent of respondents expect they will work from home to some extent after the pandemic. This finding, along with information on many other effects from COVID, can be found at https://cite.rpi.edu/index.php/training-and-outreach/. CITE advises they are continuing to collect data to measure actual vs. expected behavior as pandemic restrictions are removed.

4.1.4 COVID-19 Impact on Home Relocation

Press coverage suggested the Hudson Valley Region, which accounts for almost half of Thruway System toll revenue, saw a very active real estate market as people migrated from densely urban areas, benefitted from low interest rates, and had fewer constraints on residential location as a result of the increased ability to work remotely. This March 21, 2021 headline from the Times-Union is illustrative: "Record-breaking Hudson Valley real estate market pace continues."

Stantec found limited detailed analysis or projection of impacts of COVID-19 on the Hudson Valley region. Data on residential real estate transactions from the New York Department of Taxation and Finance[51] suggests that the reality was not as dramatic as the press indicated. The data suggests sales were up in Albany, Greene, Dutchess, Rensselaer, Ulster and Westchester counties in the Hudson Valley Region, while average sale price did increase in all Hudson Valley counties from 2019 to 2020. In general for the region, 2020 real estate transactions increased by 10 percent over 2019 with median price up by 13 percent. Statewide, the data suggest sales were down by some 11 percent, with a slight increase in median sales price of two percent. It should be noted that the New York City is not included in this data source.

Stantec believes these developments in the housing market do not warrant adjustments to the traffic and revenue forecast for Thruway facilities. Even if there is population growth, travel demand will be largely unaffected as new residents are more likely to be remote workers than new commuters to local businesses.

4.1.5 COVID-19 Impact on Trucking

Based on research from various of sources and organizations, the near-term outlook for truck traffic remains strong. A number of articles has noted the impact of e-commerce in increasing business to consumer deliveries as COVID-19 closures and working remotely have led to more goods being ordered online versus purchased in brick-and-mortar stores. Package volume has increased significantly.

The American Trucking Association (ATA) Chief Economist Bob Costello gave a big picture overview of the freight market in a December 17, 2020 podcast with the editor of Logistics Management[52] as being affected by three conceptual "buckets:"

1. Consumer retail demand where e-commerce sales have soared, increasing over 20 percent in 2020 relative to 2019

2. Manufacturing output which had been soft but based on the latest outlook for the Industrial Production Index began to trend upward

[50] https://www.pwc.com/us/en/library/covid-19/us-remote-work-survey.html
https://www2.deloitte.com/us/en/insights/focus/human-capital-trends/2020/covid-19-and-the-future-of-work.html

[51] https://www.tax.ny.gov./research/property/assess/sales/resmedian.htm
[52] https://www.logisticsmgmt.com/podcast/talking_trucking_with_bob_costello_chief_economist_for_the_american_truckin/podcast

3. Construction, including housing starts which were up 8 percent in 2020

A fourth factor cited by ATA as supporting continued strong truck traffic is the inventory to sales ratio which has decreased significantly, and ATA expects that rebuilding inventory will continue to drive freight traffic increases. Potentially related to this is an increase in imports accumulating in U.S. ports which then need to be shipped via truck to final destinations or distribution centers.

The one potential constraint ATA noted is drivers; a recent article noted over 45,000 truck drivers are no longer driving[53] due to the national Commercial Driver's License Alcohol and Drug Clearinghouse established in January 2020 and it being difficult to train new drivers because of the pandemic.

The most recent quarterly report from U.S. Bank[54] indicates that "the national truck freight market improved during the second quarter of 2021, as the economy gained momentum emerging from the effects of the pandemic. Shipments increased 4.4% during the second quarter, after dropping 8.3% in the first quarter. Compared with a year earlier, this metric rose a solid 6.8%. While freight shipments outperformed many economic sectors during the pandemic, they still contracted appreciably. Shipments during the second quarter were helped by some industries that are emerging from the impacts of the pandemic, including travel and restaurants." In part, the improvement over first quarter shipments was also due to the normal seasonal slowing in the first quarter each year and the severe weather experienced across the country in February.

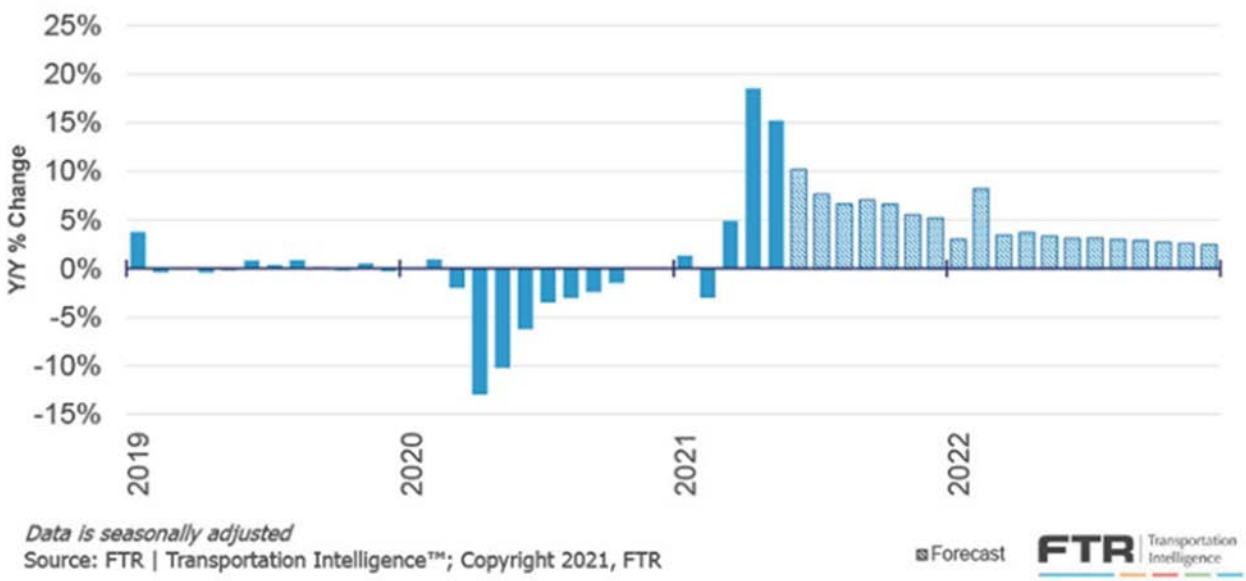
Freight Transportation Research (FTR) suggests that the overall freight environment is strong and will continue to be so as the supply chain catches up with shortages incurred during the pandemic. Figure 16 illustrates that truck growth is expected to grow year over year into 2022, though at more moderate rates.[55] It should be noted that the trucking industry remains constrained by a shortage of drivers.

[53] North American Freight Market Insights | C.H. Robinson (chrobinson.com)

[54] U.S. Bank Freight Payment Index, as accessed on July 27, 2021 at https://freight.usbank.com/download/USB_FreightIndex_2021_Q2_Final.pdf

[55] North American Freight Market Insights | C.H. Robinson (chrobinson.com)

Figure 16: Truck Loadings Outlook

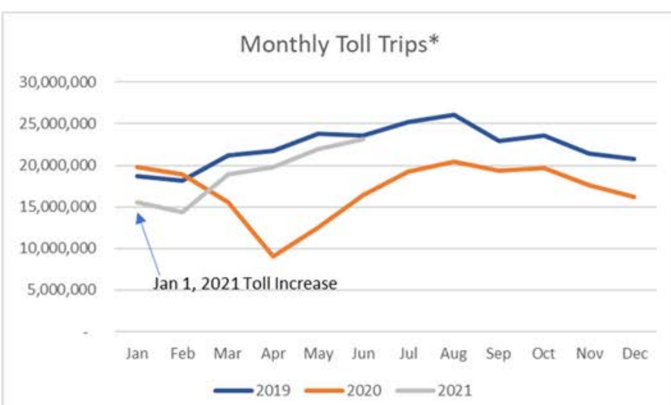


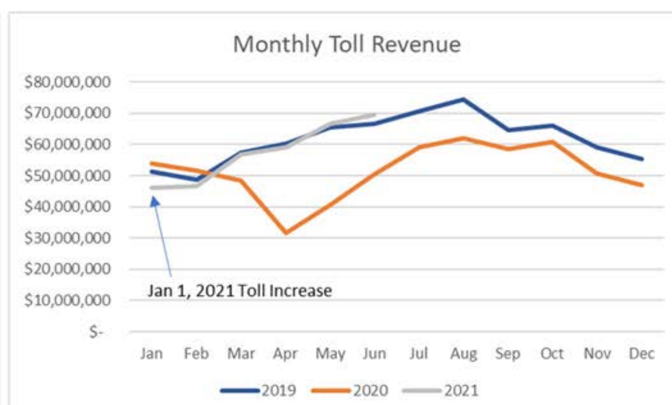
Stantec has considered this research on truck forecasts in future projections of commercial traffic on the Thruway System.

4.1.6 Impact on Thruway System and Other Regional Toll Facility Travel

Throughout the pandemic, Stantec has been monitoring daily and monthly traffic and revenue data from the Authority. Figure 17 compares Thruway System monthly trips and toll revenue over the 2019-2021 period. While these declines were most severe during the height of the outbreak, significant improvement has been seen in recent months – traffic in June 2021 was only 2 percent below 2019. Toll revenues in recent months have slightly exceeded 2019, however, considering the January 2021 toll increase, these toll revenues have not reached previously projected levels.

Figure 17: Thruway System 2019-2021 Monthly Toll Trips and Revenue Showing COVID-19 Impacts





** With the new AETC system, there may now be multiple toll transactions per trip on the Woodbury-Williamsville section of the controlled system. Starting in November 2020 these have been converted to trips for graphing purposes to provide a better comparison to pre-AETC conditions.*

Different impacts have been seen on passenger car and commercial vehicle traffic on the Thruway System as well as other regional toll facilities. The following figure shows the monthly change in traffic – when compared to the same month in 2019 – for passenger car and commercial vehicle traffic separately, for both the New York State Thruway Authority and another regional toll facility - the New Jersey Turnpike Authority.

Figure 18: Car and Commercial Vehicle Traffic Comparison to 2019 Monthly Data, Thruway System and New Jersey Turnpike Authority

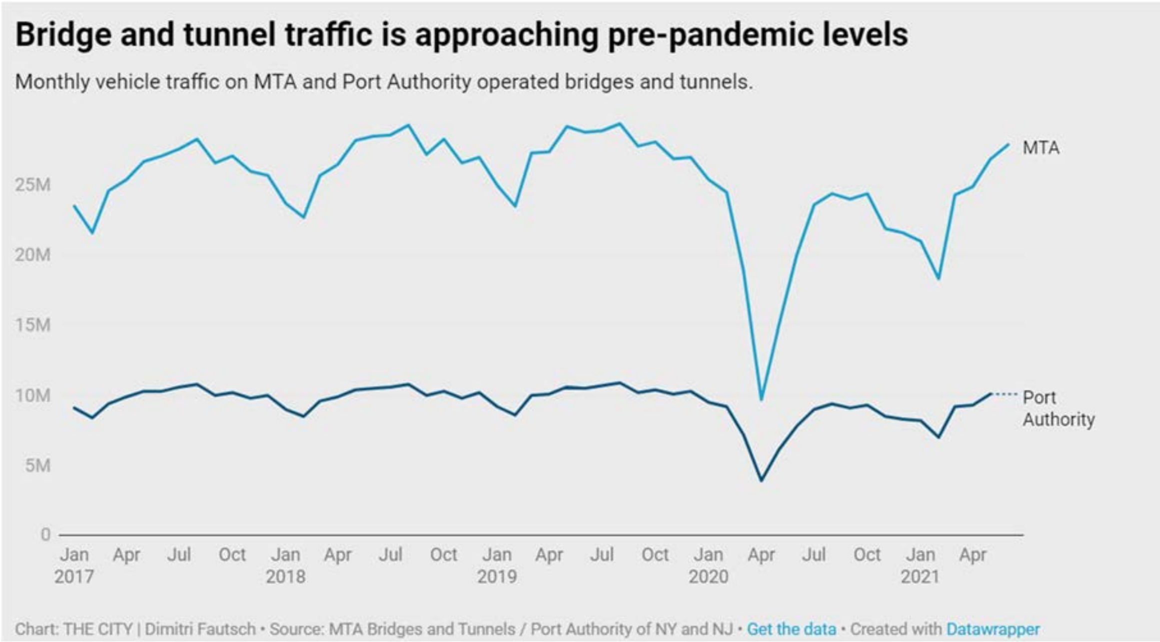
Sources: New York State Thruway Authority; New Jersey Turnpike Toll Revenue and Transaction Comparisons for All Vehicles as accessed from https://www.njta.com/media/6070/june-2021-turnpike-tr.pdf

As shown in the figure, COVID-19 impacts were similar on the two turnpike systems, and passenger cars were impacted much more heavily than commercial vehicles. At the height of the pandemic in April 2020, cars were between 60 and 70 percent below April 2019, while truck traffic was down 20 to 30 percent. Car traffic is now close to recovery for both systems, while truck traffic in recent months has been above 2019 levels for both.

Other regional toll authorities have also reported reaching or approaching 2019 traffic levels as of mid-2021. Overall vehicular traffic at the Port Authority's four bridges and two tunnels for the week of June 14-20, 2021 was down only 0.4% compared to the pre-COVID June 2019 weekly average.[56] Various media sources have reported that both the Port Authority and MTA Bridges and Tunnels have returned to pre-pandemic levels of toll traffic.

[56] https://njbmagazine.com/njb-news-now/port-authority-bridge-and-tunnel-traffic-approaches-pre-pandemic-volumes/

Figure 19: MTA and Port Authority Bridge and Tunnel Toll Traffic – 2017 through June 2021



While regional toll agencies have experienced considerable recovery through June 2021, Stantec anticipates continued COVID-19 impacts to toll traffic and revenue on the Thruway System through the remainder of the forecast period. These are discussed in Section 8.4.4.

5.0 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 2021-2025 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 5 and Table 6 on page 38 summarize the actual annual capital expenditures from 2008 through 2020, and planned expenditures through 2025. These are followed by Table 7 and Table 8 starting on page 40 which provide detail on the funding sources for the recent capital program and projections for future capital programs.

5.1 2021-2025 CAPITAL PROGRAM DETAILS

The Authority's 2021-2025 Capital Program will provide about $1.9 billion for Authority capital projects. This includes approximately $268.8 million for the remaining elements of the New NY Bridge Project, and $119.7 million for the remaining toll plaza removal work for the Cashless Tolling Project. The Capital Program includes reconstruction and rehabilitation of roadway, bridges, facilities, equipment and support systems. From 2021 through 2025, 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.

The Cashless Tolling Project is discussed in Section 5.2. Other major Thruway projects included in the 2021-2025 program include:

- I-95 New England Thruway Highway Improvements and Rehabilitation (2022 and 2023 lettings)
- Castleton Bridge (MP 801.08): Rehabilitation (2021 and 2024 lettings)
- Electronics Parkway (Exit 37, MP 284.1) to I-690 (Exit 39, MP 289.3) Pavement Replacement
- North Grand Island Southbound and Northbound Bridges: Painting (2024 letting)
- North and South Grand Island Bridges: Retrofit / Repair Roller Bearings, Pins and Hangers and North Grand Island Bridges: Steel Repairs (2022 letting)
- I-287/Route 17S (Exit 15, MP 29.4) to north of Suffern (MP 38.7): Pavement Resurfacing (2022 letting)
- Major Deegan Expressway (MP 0.00) to Cross Westchester Expressway (Exit 8, MP 11.3): Pavement Resurfacing (2023 letting)
- South of Nyack (MP 16.2) to south of Spring Valley Toll Barrier: Pavement Resurfacing (2022 letting)
- North of Harriman Toll Barrier (MP 46.0) to Newburgh (MP 60.1) Pavement Resurfacing (2023 letting)
- East of Westfield (MP 483.0) to Pennsylvania State Line (MP 496.0) Eastbound: Pavement Resurfacing (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)

- Statewide: Bridge Rehabilitations - 2024-2025 (2024 letting)
- I-90, west of William St. (Exit 52A) to west of West Seneca (Exit 54) and I-190 (Niagara Section), I-90 to Route 266 (Exit 17): Pavement Resurfacing (2024 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.

5.2 CASHLESS TOLLING PROJECT

The Thruway Authority has modernized its 570-mile transportation system by converting to cashless tolling. Cashless tolling reduces congestion, improves traffic flow, is better for the environment, and allows for non-stop travel. The seven toll barriers had been converted to cashless tolling between 2016 and 2018. For the (formerly) ticketed portion of the Thruway, Cashless Tolling Constructors, LLC was awarded the Design-Build contract for cashless toll conversion, at a cost of $355.3 million. Work began in fall 2019. Phase one, now complete, included the installation of steel gantries over the highway and exit/entrance ramps and equipment (see example in Figure 20) to scan *E-ZPass* tags and capture license plate information. The system was fully operational as cashless beginning November 14, 2020. The second phase of the project began immediately after the November 2020 conversion and includes the removal of the toll plazas at 52 interchanges and realignment and repaving of the ramps, which will allow for travel through tolling points without reducing speed. The project is expected to be completed sometime in 2021.

Figure 20: Example of Cashless Tolling Gantry Before Toll Plaza Removal

5.3 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 2020 are shown in Table 5. Table 6 presents the 2021-2025 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 5: Actual Capital Expenditures, 2008-2020 (millions)

Year	Thruway Highway and Bridges Capital Expenditures	Equipment Replacement and Other Facility Capital Needs(1)	Canal System and Other Authority Projects(2)	Subotal 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
2019	222.1	170.7	0.0	392.9	171.6	564.5
2020	166.2	282.9	0.0	449.2	88.9	538.0

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 6: Projected 2021-2025 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
2021	$155.9	$150.6	$0.0	$306.5	$30.0	$336.5
2022	269.9	72.3	0.0	342.2	238.8	581.0
2023	272.9	43.9	0.0	316.8	0.0	316.8
2024	268.6	47.8	0.0	316.4	0.0	316.4
2025	274.6	47.7	0.0	322.4	0.0	322.4
Total 2021-2025	**$1,242.0**	**$362.3**	**$0.0**	**$1,604.3**	**$268.8**	**$1,873.1**

Note: Numbers may not add due to rounding.
[1] *Includes capital costs for system-wide AET conversion*

Table 7 and Table 8 summarize actual funding sources for the previous Capital Programs and planned funding sources for the 2021-2025 Capital Program. Federal aid allocated by the NYSDOT to the Authority declined from $17.6 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 2021-2025 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. 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 paid the Series 2013A Junior Indebtedness Obligations with the proceeds of the Series 2019A JIO Notes and available cash resources of the Authority. Subsequently the Authority paid the principal of the Series 2019A JIO Notes from a draw of the full $1.6 billion amount under the TIFIA Loan (redeemed by 2019). In 2019 the Authority issued Series 2019 B JIOs and General Revenue Series M bonds to redeem the 2019A JIO Notes, refund the TIFIA Loan, and refund select General Revenue Bonds. The Series 2019B JIOs also funded $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 7: 2008-2020 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%
2019	0.0	367.8	0.0	367.8	196.7	100.0%
2020	0.0	61.1	473.2	534.3	3.7	12.0%

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 were drawn down in 2019.

Table 8: Projected 2021-2025 Funding Sources, Thruway Authority (millions)

Year	Funding Sources					
	Federal Aid	Other	Bond / Note Proceeds	Subtotal Exclusive of Thruway Revenues on Pay-As-You-Go Basis	Revenues Required from Tolls, etc.	Pay-As-You-Go %
2021	$-	$0.0	$187.1	$187.2	$149.3	44.4%
2022	-	0.0	472.4	472.5	108.6	18.7%
2023	-	0.1	250.8	250.9	65.9	20.9%
2024	-	0.1	253.6	253.7	62.7	19.9%
2025	-	1.5	238.9	240.4	82.0	25.9%
Total 2021-2025	**$0.0**	**$1.8**	**$1,402.8**	**$1,404.6**	**$468.5**	**25.1%**

Note: Numbers may not add due to rounding.

5.4 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 21 displays the historic average rating of Thruway pavement surface conditions since 2012 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 816 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 22 shows actual and projected bridge condition ratings from 1990 through 2025 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 21: Historical and Projected Thruway System Pavement Conditions

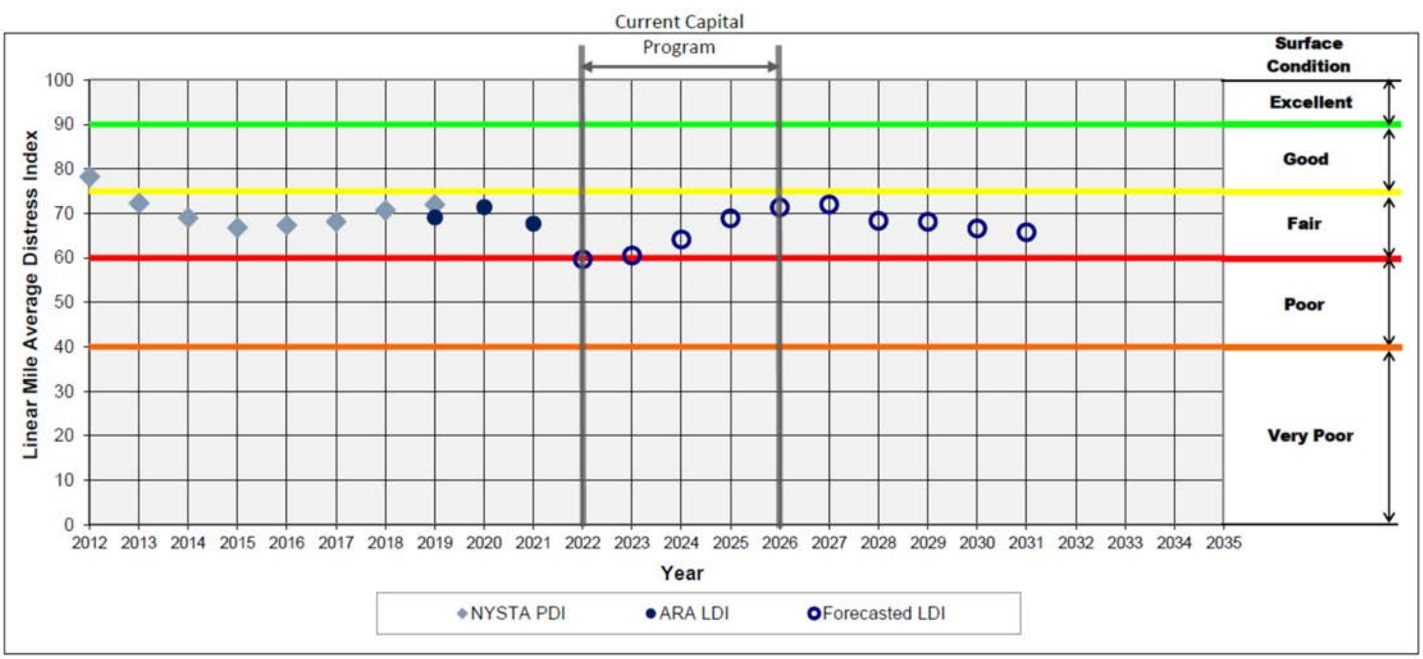
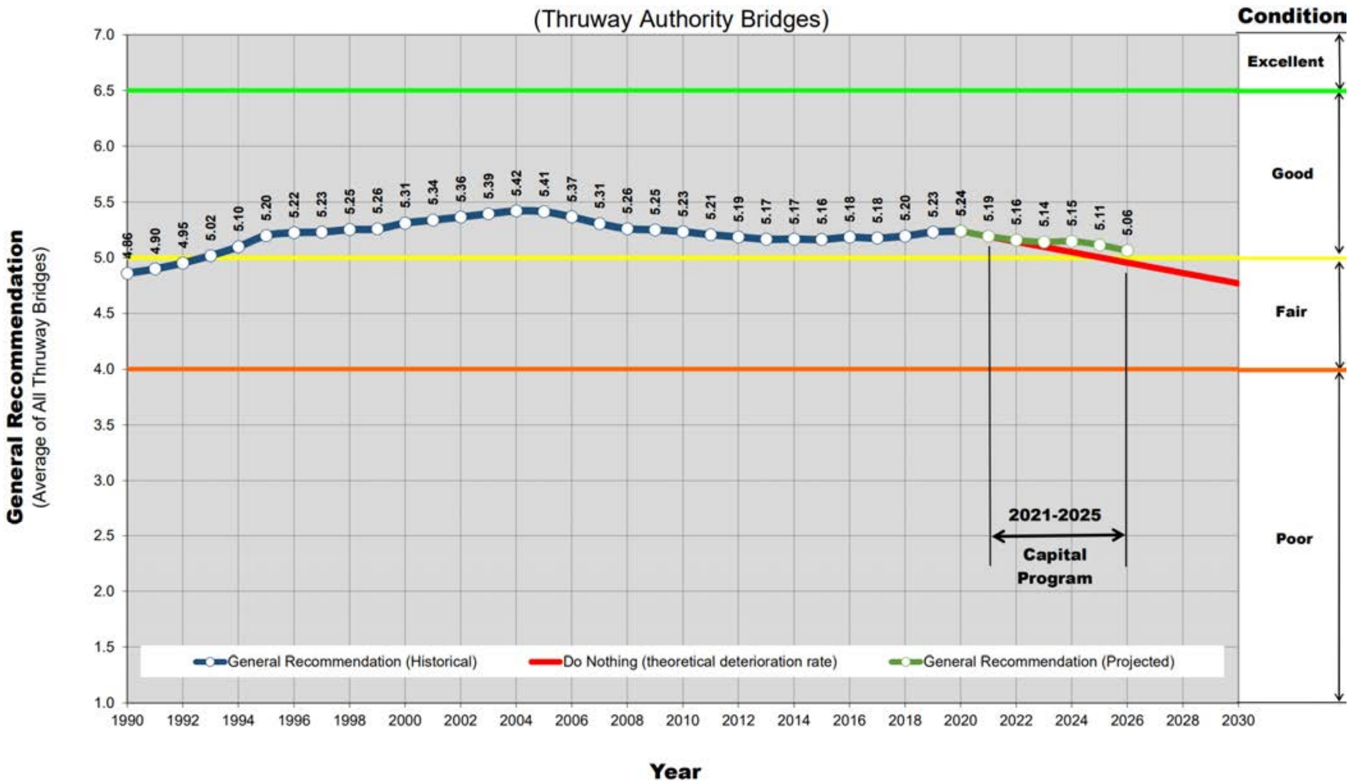


Figure 22: Historical and Projected Thruway System Bridge Condition Ratings



Prior to 2016, the bridge condition rating was calculated by a specific formula containing separate components for each of the bridge elements. The current inspection methodology (since 2016) represents the condition of each element in terms of how much of the element is in a specific condition, called "condition state."

Table 9 presents a summary of the general recommendation ratings for bridges on the Thruway based on bridge inspections through the beginning of 2021. 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). Compared to the previous conditions recorded in September 2019, some bridges have been improved.

Table 9: Bridge Conditions, September 2019 and January 2021

BRIDGE RATINGS		
CONDITION	NO. OF BRIDGES	
	September 2019	January 2021
GENERAL RECOMMENDATION 5-7 Bridges in generally good condition with only minor to moderate repairs required.	684	698
GENERAL RECOMMENDATION 4 Bridges in good to fair condition requiring reconditioning of some structural elements.	117	108
GENERAL RECOMMENDATION 2-3 Bridges in poor condition requiring major repairs or replacement.	10	10

6.0 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 the past 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 10 summarizes the Authority's actual 2008-2020 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.

In April 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, Spring Valley and New Rochelle Barriers in December 2018, and the remainder of the Thruway System in November 2020. Actual costs for account management of the Tolls by Mail program were included in the budgets and actual costs for 2016 through 2020.

Table 10: The Thruway System's Actual Operating and Maintenance Expenses, 2008 – 2020 (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
2019	350.9	6.0	356.8
2020 [6][7]	316.6	2.0	318.6

(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.
(6) AETC began at all Mainline toll locations on November 14, 2020
(7) COVID-19 impacts began in March 2020

Table 11 shows the 2021 through 2025 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 all facilities are now operating with AETC.

Table 11: The Thruway System's Projected 2021-2025 Operating and Maintenance Expenses (millions)

Year	Thruway Operations	Reserves[1]	Total Operating Expenses
2021	$360.0	$4.0	$364.0
2022	379.4	1.0	380.4
2023	386.9	1.0	387.9
2024	394.7	1.0	395.7
2025	402.6	1.0	403.6
Total 2021-2025	**$1,923.6**	**$8.0**	**$1,931.6**

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

7.0 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 12 and Table 13, 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 $301.2 million in 2019 and are projected to reach a maximum of $429.7 million in 2025.

Table 12: Actual Debt Service, Thruway System, 2008-2020 (millions)

Year	Senior Debt Service	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
2019	226.8	27.0	47.4	301.2
2020	166.8 (1)	1.1	23.1 (1)	191.0

Note: Numbers may not add due to rounding.
(1) Net of defeasance

Table 13: Projected 2021-2025 Debt Service, Thruway System (millions)

Year	Senior Debt Service (1)	Bond Anticipation Note (BAN) or Line of Credit Interest	Junior Debt Service	Total Debt Service
2021	$240.8	$51.5	$46.4	$338.7
2022	263.3	0.6	63.3	327.2
2023	251.7	0.0	108.4	360.1
2024	260.6	0.0	110.2	370.8
2025	307.3	0.0	122.4	429.7
Total 2021-2025	**$1,323.8**	**$52.1**	**$450.6**	**$1,826.5**

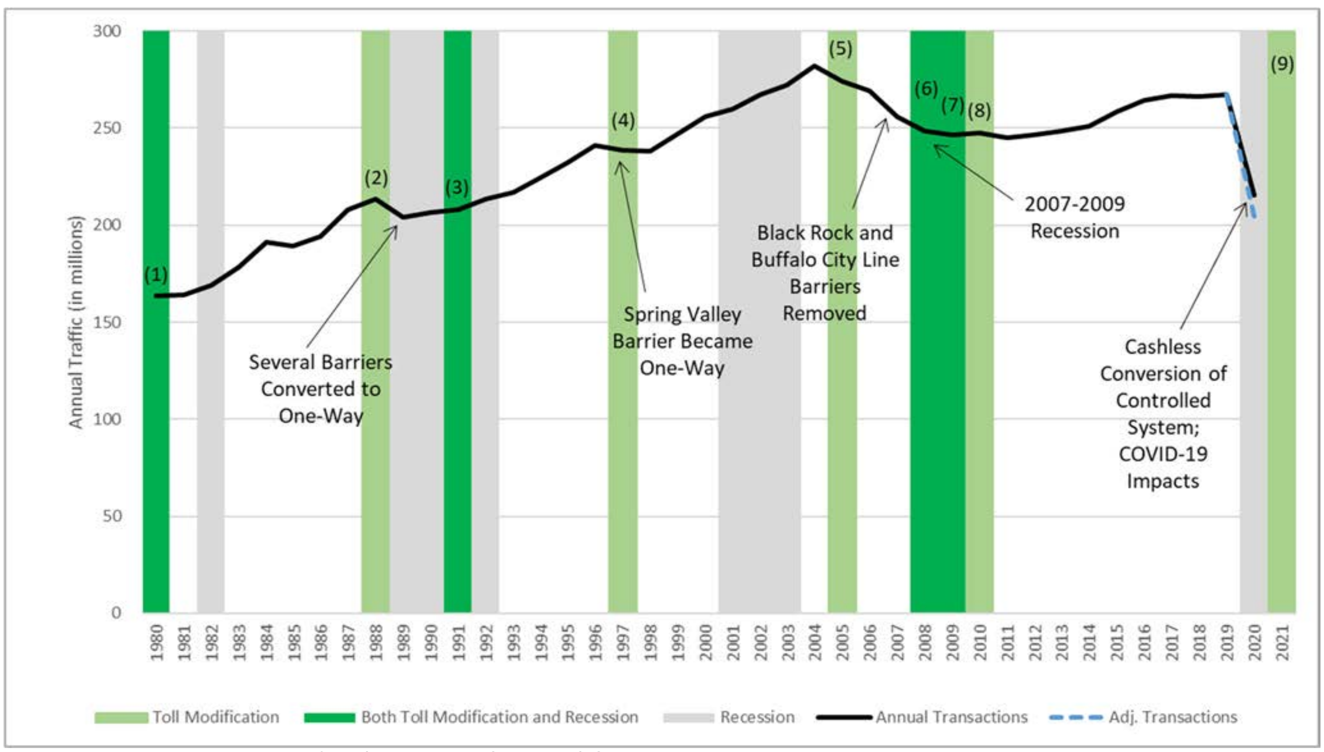
Note: Numbers may not add due to rounding. Projected debt service numbers are net of Debt Service Reserve Fund interest.
(1) Incorporates impact of proposed new money financing on Senior Debt Service. Does not reflect anticipated General Revenue Bonds Series O refunding debt service savings.

8.0 TRAFFIC AND REVENUES

8.1 HISTORICAL TOTAL THRUWAY TRAFFIC

Figure 23 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. In addition, with the controlled system's conversion to AETC in mid-November 2020 the toll locations on the system were reconfigured and there may now be multiple transactions per trip. The figure, therefore, also shows an adjusted transaction number (dashed blue line) that removes this AETC impact, essentially converting controlled system transactions to trips. This provides a better indicator of the true impact of COVID-19 on Thruway System annual traffic.

Figure 23: Historical Thruway Toll Transactions



(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)
(9) 2021 – Toll Increases of 9% and 24% for non-NY E-ZPass and Tolls by Mail vehicles, respectively, on all facilities other than the Governor Mario M. Cuomo Bridge. Cars on the Gov. Mario M. Cuomo Bridge had toll increases of 5% for commuters, 11% for non-Resident Plan E-ZPass cars, 21% for non-NY E-ZPass cars and 37% for Tolls by Mail cars. Trucks on the Gov. Mario M. Cuomo Bridge had toll increases ranging from 11% to 60% based on class and payment type.

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. After the end of the 2008-2009 recession, the national economy improved, and gas prices 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 between 2011 and 2018. Traffic growth in 2018 and 2019 was flat, following the nationwide trend in vehicle miles traveled. Large traffic losses occurred in 2020 due to COVID-19, with total annual traffic dropping to 23 percent below 2019 levels. More detail on the Thruway's historical traffic volumes can be found in Table 21 on page 66 and in the Appendix, which presents historical traffic and revenue by facility.

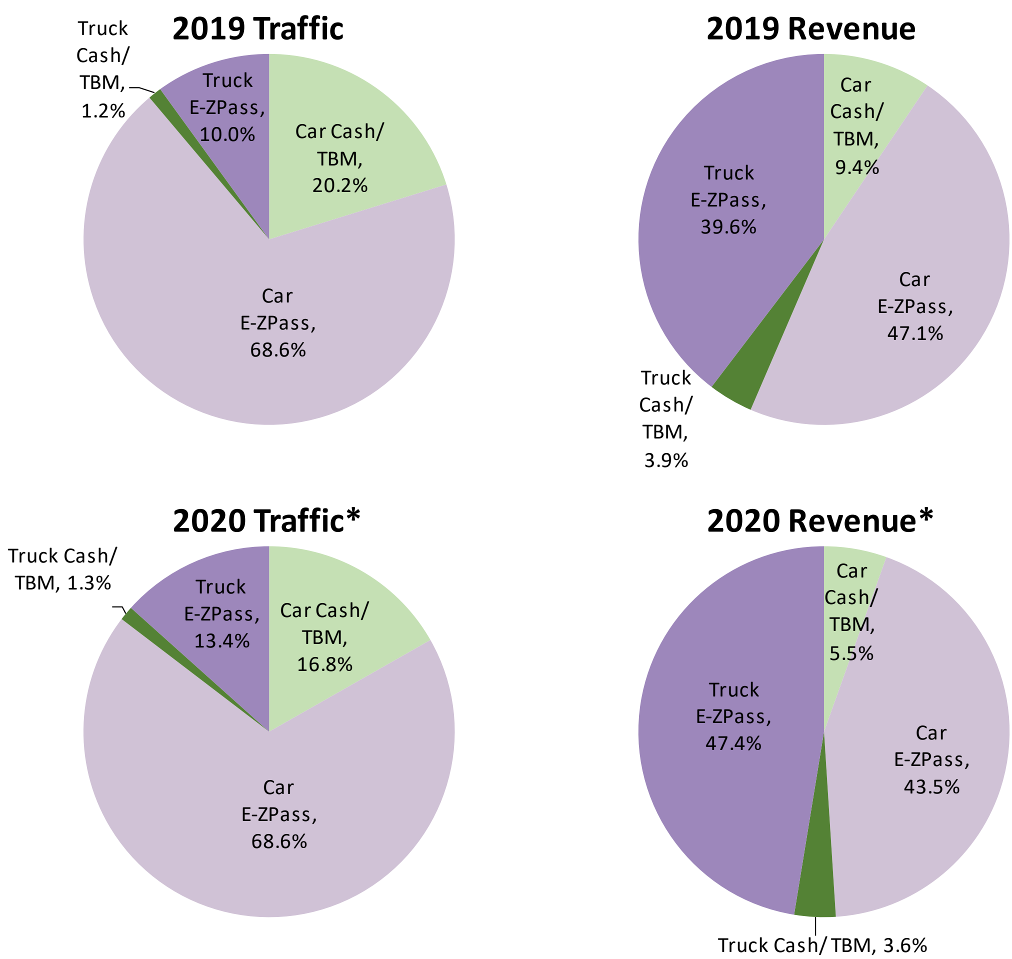
8.2 DEMOGRAPHICS OF TOLL PAYING PATRONS

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. Because 2020 was affected by COVID-19, both 2019 and 2020 statistics are discussed herein.

As shown in Figure 24, in 2019 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 2019, more than 78 percent of total vehicles paid tolls with an *E-ZPass* transponder (approximately 77 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 almost 44 percent of all Thruway toll revenues.

2020 cars were more negatively impacted from the COVID-19 than trucks. As shown in Figure 24, cars made up roughly 85 percent of total toll transactions, while commercial vehicles made up nearly 15 percent. Some 82 percent of total vehicles paid tolls with an *E-ZPass* transponder (approximately 80 percent of passenger vehicles and 91 percent of commercial vehicles). Commercial vehicles accounted for about 51 percent of all Thruway toll revenues.

Figure 24: 2019 and 2020 System Wide Traffic and Revenue Distribution



**impacted by COVID-19*

The distributions of vehicle class and payment types vary by facility, as shown in Figure 25 and Figure 26 for 2019 and 2020, respectively. The highest passenger car participation in *E-ZPass* is seen at the Yonkers and Harriman Barriers and Governor Mario M. Cuomo Bridge, while the highest truck participation rate in *E-ZPass* payment is seen at the Harriman Barrier and the controlled system. It should be noted that although *E-ZPass* transactions accounted for about 79 percent of annual transactions on the Thruway in 2019 rising to 82 percent in 2020, the majority of actual individual customers using the Thruway over the course of a year travel infrequently and do not have *E-ZPass*.

Figure 25: 2019 Passenger Car and Commercial Vehicle Traffic Distribution by Facility

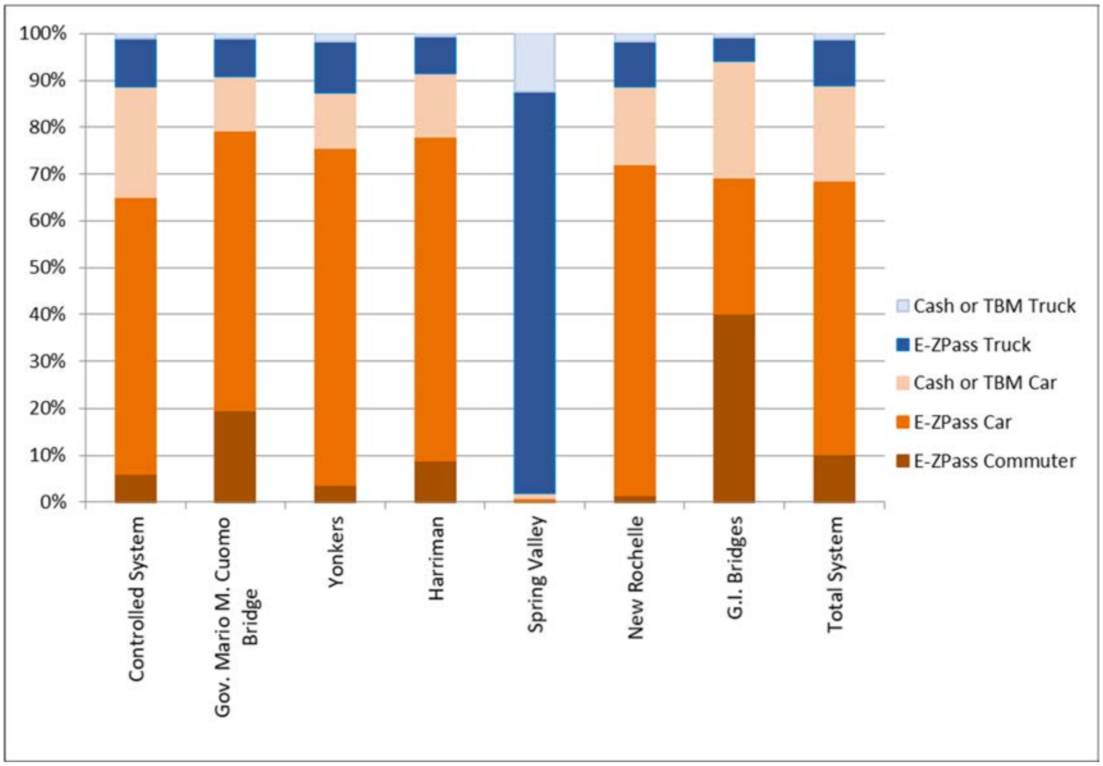
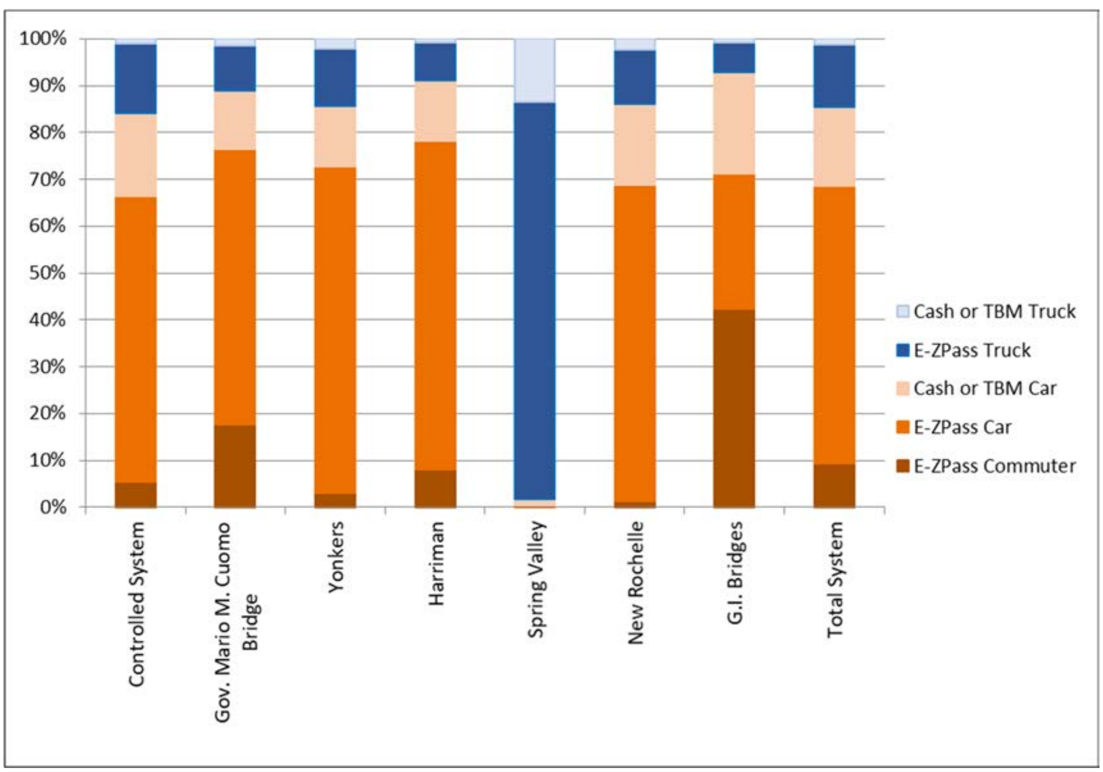
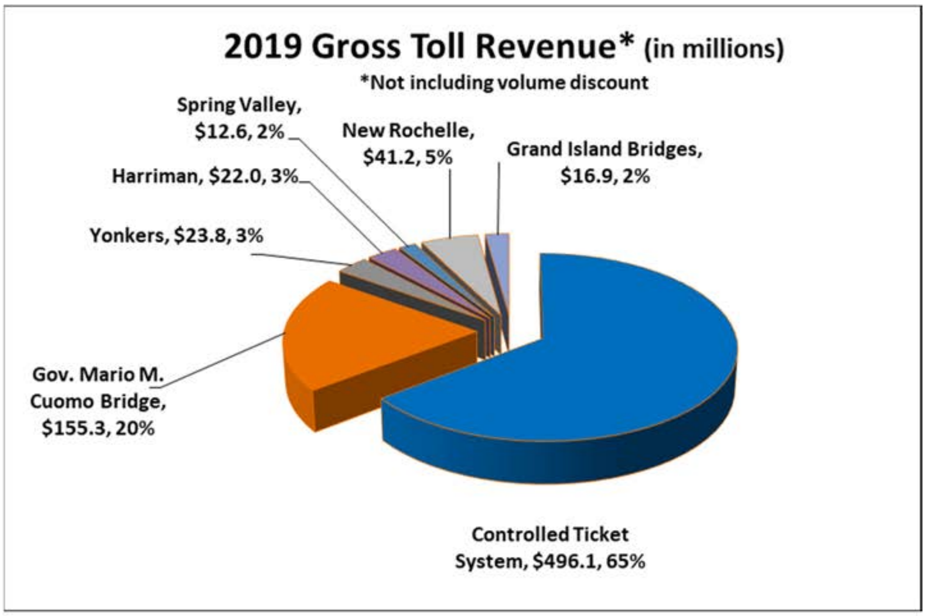


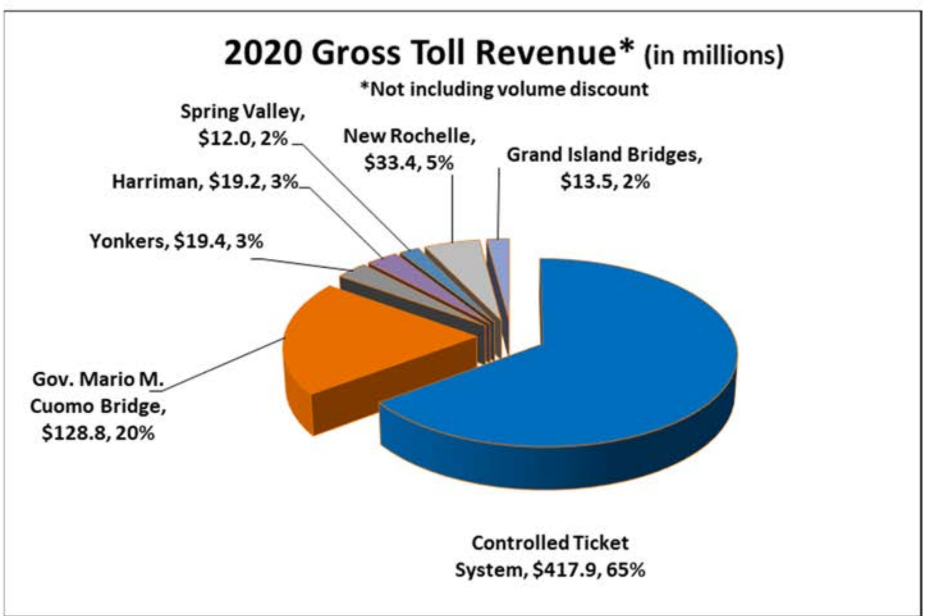
Figure 26: 2020 Passenger Car and Commercial Vehicle Traffic Distribution by Facility



As noted in Figure 27, the controlled system and the Governor Mario M. Cuomo Bridge generate the most significant portions of the Thruway's toll revenue. The controlled system generated a total of $496.1 million in 2019 and $417.9 million in 2020, or about 65 percent of all Thruway toll revenues each year. The Governor Mario M. Cuomo Bridge generated 20 percent of total toll revenues each year, $155.3 million in 2019 and $128.8 million in 2020. The New York City metropolitan area barrier tolls generated a combined 13 percent of total toll revenues each year, about $99.6 million in 2019 and $84.1 million in 2020. The Grand Island Bridges generated about $16.9 million and $13.5 million in 2019 and 2020, respectively, or some 2 percent of revenues each year. 2019 total toll revenues were $767.9 million collected in toll transactions minus $28.0 million in commercial vehicle volume discounts (discussed on page 56), for a net amount of $739.9 million. 2020 total toll revenues were $644.3 million collected in toll transactions minus $29.0 million in commercial vehicle volume discounts, for a net amount of $615.3 million.

Figure 27: Distribution of 2019 and 2020 Toll Revenues by Thruway Facility





Specific regions within the controlled 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 2019 are shown in Table 14.

Table 14: Controlled System Toll Plazas with the Highest Volumes, 2019

Plaza / Interchange	Millions of Transactions
Exit 24: Albany, Montreal, I-90 East, I-87 North	14.1
Exit 50: Williamsville (Buffalo)	10.1
Exit 55: Lackawanna (Buffalo)	9.4
Exit 15: Woodbury	7.9
Exit 25: Schenectady, I-890, NY Routes 7 & 146	7.3
Exit 45: Rochester, Victor, I-490	6.9

Note: 2020 not shown because the new cashless system gantry configuration does not count traffic on all ramps

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 57 percent of total *E-ZPass* toll revenues in 2019 (58 percent in 2020). As a result, 43 percent of *E-ZPass* toll revenues in 2019 (42 percent in 2020) 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.

8.3 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.

8.3.1 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. After 2010, there were no changes to toll rates on the Thruway System for more than ten years, with the exception of the 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. The Thruway's toll rates between 2010 and 2020 are shown in Table 15.

Table 15: Previous Toll Structure, 2010-2020 ($)

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 paid $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 paid $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.

8.3.2 Adopted 2021 and 2022 Toll Modifications

Due to the need for additional revenues to fulfill system-wide operating, debt service, and capital needs over the next several years, on December 19, 2019 the Authority Board of Directors approved a proposal to begin the toll adjustment process on the Gov. Mario M. Cuomo Bridge and other tolling changes that supported the statewide conversion to cashless tolling, detailed in Table 16. After completing the public process required to implement rate changes, the Authority Board of Directors approved the proposal in December 2020.

A summary of the adopted toll modifications is as follows:

- Passenger cars with NY *E-ZPass* at the Gov. Mario M. Cuomo Bridge had a $0.50 toll increase in January 2021 and will have another $0.50 increase in January 2022. Trucks tolls were increased proportionately with additional 20% increases for those with five or more axles. The commuter plan remains (with a 40% discount for 20 trips), and a new resident plan keeps tolls for eligible customers at 2020 rates.

- On the rest of the Thruway System, NY *E-ZPass* customers continue to be charged 2020 toll rates.

- Customers with a non-NY *E-ZPass* pay 15 percent above the NY *E-ZPass* rate.

- Tolls by Mail customers pay 30 percent above the NY *E-ZPass* toll rate, in addition to a $2 administrative surcharge per billing statement.

Table 16: Adopted 2021 and 2022 Toll Modifications

GOVERNOR MARIO M. CUOMO BRIDGE RATES	
Toll Modification Element	**Description**
Increase NY *E-ZPass* by $0.50 per year in 2021 and 2022	On January 1, 2021 the NY *E-ZPass* toll rates on the Bridge increased by 50 cents to $5.25. On January 1, 2022 the NY *E-ZPass* toll rates on the Bridge will be increased another 50 cents to $5.75.
40% Commuter Discount Program	Beginning on January 1, 2021, the commuter rate was discounted by 40 percent off the NY *E-ZPass* rate for passenger vehicles that opt in to the program. Similar to the previous plan, the rates assume that a minimum of 20 trips are made in that month; if fewer than 20 trips are taken per month, customers are charged for each trip not taken. This program is offered to class 2L vehicles only, with a New York *E-ZPass*.
Resident Discount Program	A new resident *E-ZPass* Plan is now available to Westchester and Rockland residents that keeps their rate frozen at the previously-charged $4.75 rate. This program is offered only to class 2L vehicles with a New York *E-ZPass* who opt in to the plan and provide proof of residency (e.g., having a vehicle registered in one of these counties).
Commercial Rates	Class 2H through 4H and S class tolls were increased proportionate to the car toll increases for each payment type. Class 5H through 7H truck tolls were increased 20% more than the car toll increases for each payment type. For the 2022 Bridge toll increase, commercial rates for Class 2H through 4H and S class will be increased proportionate to the car toll increases for each payment type. Class 5H through 7H truck tolls will be increased 20% more than the car toll increases for each payment type.
CHANGES TO SUPPORT SYSTEM-WIDE CONVERSION TO CASHLESS TOLLING	
Incentivize NY *E-ZPass* Usage	NY *E-ZPass* toll rates are based on the rates first established in 2010. Beginning on January 1, 2021, a 30 percent rate differential (a toll rate 30 percent above the NY *E-ZPass* rate) was established for Tolls By Mail toll rates.
Non-NY *E-ZPass* Rates	Beginning on January 1, 2021, a rate differential of 15 percent above the NY *E-ZPass* rate was established for Non-NY *E-ZPass* tolls.
Image Tolls Policy[1]	Beginning on January 1, 2021, all transactions processed as image tolls are charged the Tolls By Mail toll rate. This applies to customers who have an *E-ZPass* account yet their toll transaction must be processed via the Tolls by Mail process (e.g., due to failure to mount the *E-ZPass* transponder properly and a toll transaction is processed through a license plate image review).
Impose a $2 Administrative Surcharge on Tolls by Mail Bills	Beginning on January 1, 2021, a $2 administrative surcharge per billing statement for non-*E-ZPass* statements was implemented to support the administrative costs associated with processing transactions through the Tolls by Mail program and to incentivize more customers to sign up for an *E-ZPass* account.

[1]This policy was not initiated until mid-April 2021

The Authority's current toll rate structure, which began on January 1, 2021, is presented in Table 17 for all toll locations other than the Governor Mario M. Cuomo Bridge. Table 18 presents separately the current 2021 and adopted January 1, 2022 toll rates for the Governor Mario M. Cuomo Bridge.

Table 17: 2021 Toll Structure, Controlled System Mainline and Barriers Exclusive of Gov. Mario M. Cuomo Bridge ($)

New York E-ZPass Rates, January 2021

Vehicle Class	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY	
							PEAK	OFF PEAK
2L	$0.0447	$0.62	$0.95	$1.19	$1.19	$1.66		
3L	$0.0692	$0.86	$1.43	$1.43	$1.43	$2.38	$3.00	$1.50
4L	$0.0821	$1.00	$1.66	$1.66	$1.66	$2.85	$4.50	$2.25
2H	$0.0886	$1.05	$1.90	$1.90	$1.90	$3.33	$5.25	$2.63
3H	$0.1524	$1.47	$2.14	$2.61	$2.14	$4.04	$8.25	$4.13
4H	$0.1680	$1.90	$2.61	$2.85	$2.61	$4.75	$8.25	$4.13
5H	$0.2271	$2.57	$4.04	$4.04	$4.04	$7.60	$13.50	$6.75
6H	$0.2815	$3.09	$4.28	$4.75	$4.28	$8.31	$14.75	$7.38
7H	$0.3359	$3.66	$4.75	$5.46	$4.75	$9.26	$16.50	$8.25

Non-NY E-ZPass Rates, January 2021

Vehicle Class	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY
2L	$0.0514	$0.71	$1.09	$1.37	$1.37	$1.91	
3L	$0.0796	$0.99	$1.64	$1.64	$1.64	$2.73	$3.45
4L	$0.0944	$1.15	$1.91	$1.91	$1.91	$3.28	$5.18
2H	$0.1019	$1.21	$2.19	$2.19	$2.19	$3.82	$6.04
3H	$0.1753	$1.69	$2.46	$3.00	$2.46	$4.64	$9.49
4H	$0.1932	$2.19	$3.00	$3.28	$3.00	$5.46	$9.49
5H	$0.2612	$2.96	$4.64	$4.64	$4.64	$8.74	$15.53
6H	$0.3237	$3.55	$4.92	$5.46	$4.92	$9.56	$16.96
7H	$0.3863	$4.21	$5.46	$6.28	$5.46	$10.65	$18.98

Tolls by Mail Rates, January 2021

Vehicle Class	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY
2L	$0.0581	$0.81	$1.24	$1.54	$1.54	$2.16	
3L	$0.0900	$1.12	$1.85	$1.85	$1.85	$3.09	$3.90
4L	$0.1067	$1.30	$2.16	$2.16	$2.16	$3.71	$5.85
2H	$0.1152	$1.37	$2.47	$2.47	$2.47	$4.32	$6.83
3H	$0.1981	$1.91	$2.78	$3.40	$2.78	$5.25	$10.73
4H	$0.2184	$2.47	$3.40	$3.71	$3.40	$6.18	$10.73
5H	$0.2952	$3.34	$5.25	$5.25	$5.25	$9.88	$17.55
6H	$0.3660	$4.02	$5.56	$6.18	$5.56	$10.81	$19.18
7H	$0.4367	$4.76	$6.18	$7.10	$6.18	$12.04	$21.45

Table 18: 2021 and 2022 Gov. Mario M. Cuomo Bridge Toll Structure ($)

Governor Mario M. Cuomo Bridge Toll Rates, January 2021

Vehicle Class	NY E-ZPass Peak	NY E-ZPass OFF PEAK	Non-NY E-ZPass	Tolls By Mail
Commuter	$3.15	$3.15		
Resident	$4.75	$4.75		
2L	$5.25	$5.25	$6.04	$6.83
3L	$12.71	$6.36	$14.62	$16.52
4L	$15.20	$7.60	$17.48	$19.76
2H	$16.30	$8.15	$18.75	$21.19
3H	$22.93	$11.47	$26.38	$29.82
4H	$27.36	$13.68	$31.46	$35.56
5H	$42.90	$21.45	$49.34	$55.77
6H	$53.71	$26.86	$61.77	$69.82
7H	$64.52	$32.26	$74.20	$83.87

Governor Mario M. Cuomo Bridge Toll Rates, January 2022

Vehicle Class	NY E-ZPass Peak	NY E-ZPass OFF PEAK	Non-NY E-ZPass	Tolls By Mail
Commuter	$3.45	$3.45		
Resident	$4.75	$4.75		
2L	$5.75	$5.75	$6.61	$7.48
3L	$13.92	$6.96	$16.01	$18.10
4L	$16.64	$8.32	$19.14	$21.64
2H	$17.86	$8.93	$20.53	$23.21
3H	$25.12	$12.56	$28.89	$32.65
4H	$29.96	$14.98	$34.45	$38.95
5H	$55.77	$27.89	$64.14	$72.51
6H	$69.82	$34.91	$80.30	$90.77
7H	$83.87	$41.94	$96.45	$109.03

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 having lower base rates for vehicles 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, a newly instituted resident plan for Rockland and Westchester County residents crossing the Governor Mario M. Cuomo Bridge, 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.

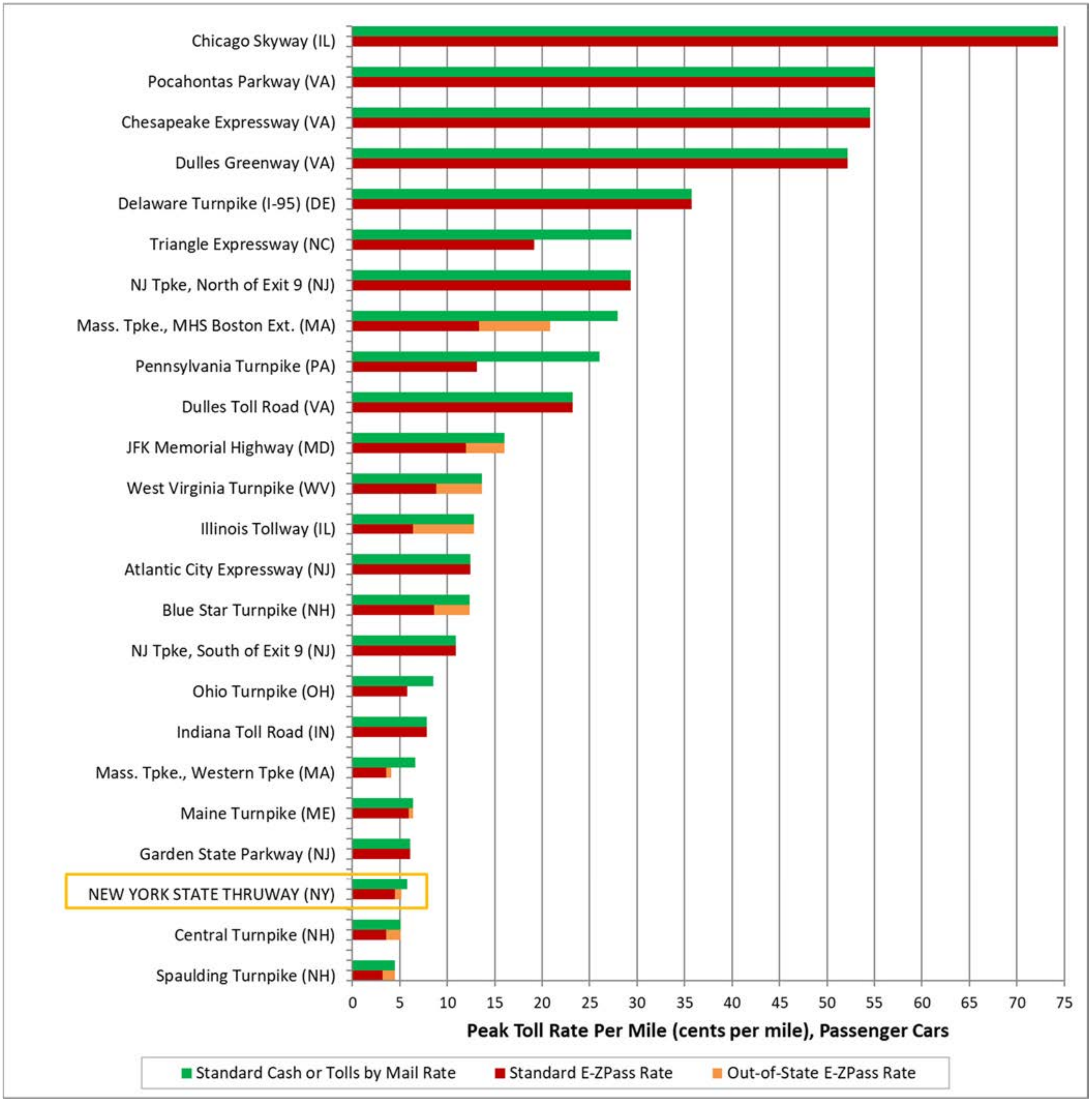
For commercial vehicles, there are currently two types of discount programs offered. The S-Discount is for non-tandem commercial vehicles less than or equal to 48 feet in length and requires a Thruway-issued *E-ZPass* transponder. The second discount program is a commercial volume discount for Thruway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

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

8.3.3 Comparison of Thruway Toll Rates to Other Regional Toll Facilities

Figure 28 and Figure 29 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 28.

Figure 28: 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 29, 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 29: Peak Toll Rates Per-Mile on Toll Roads in the Northeastern Quadrant of U.S, 5-Axle Trucks

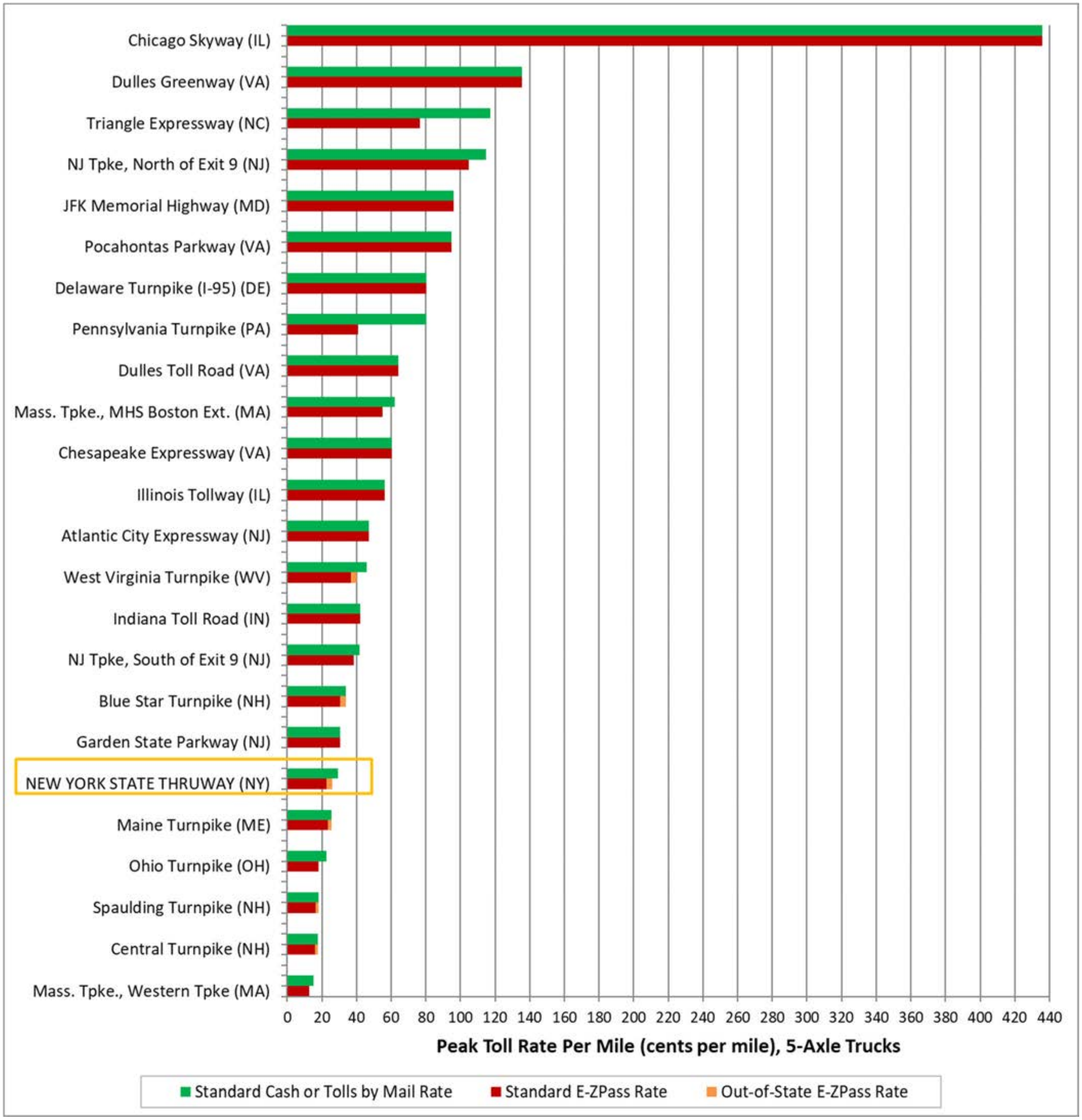
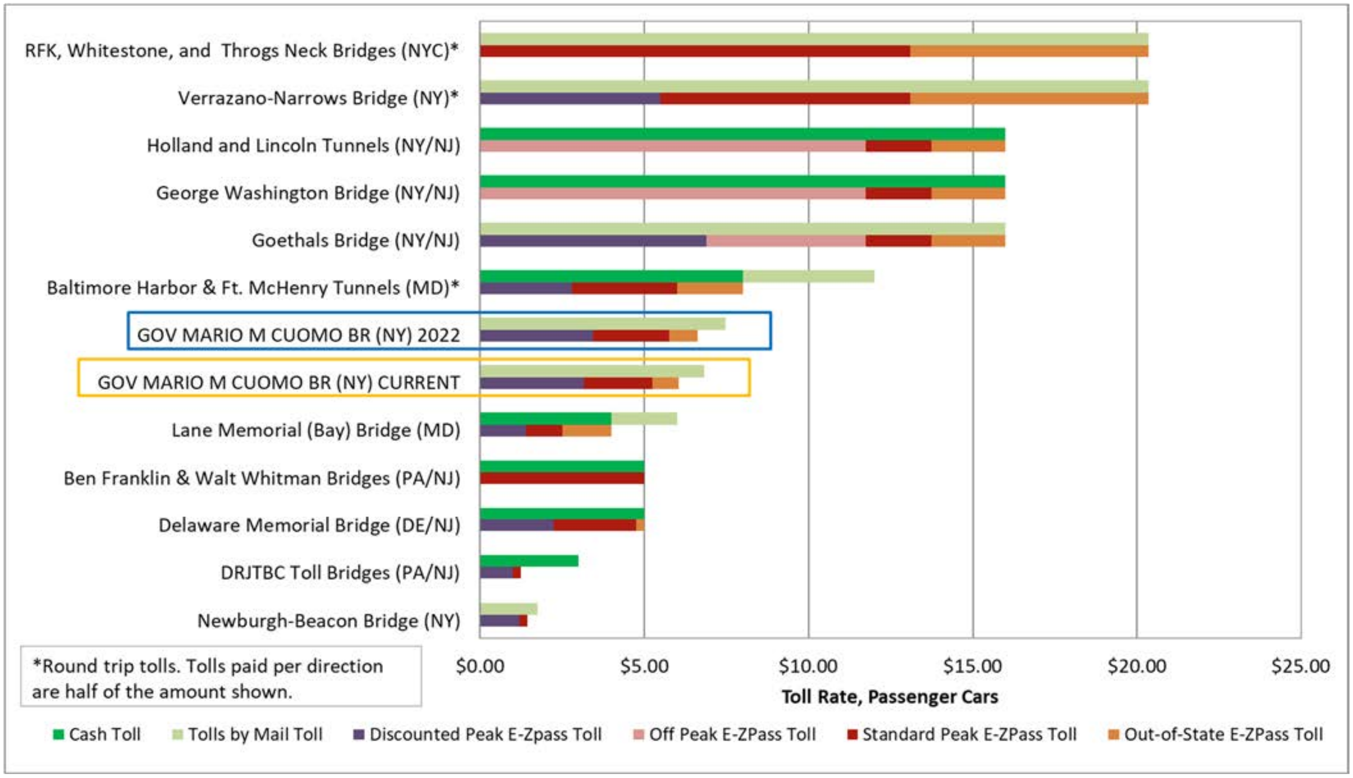


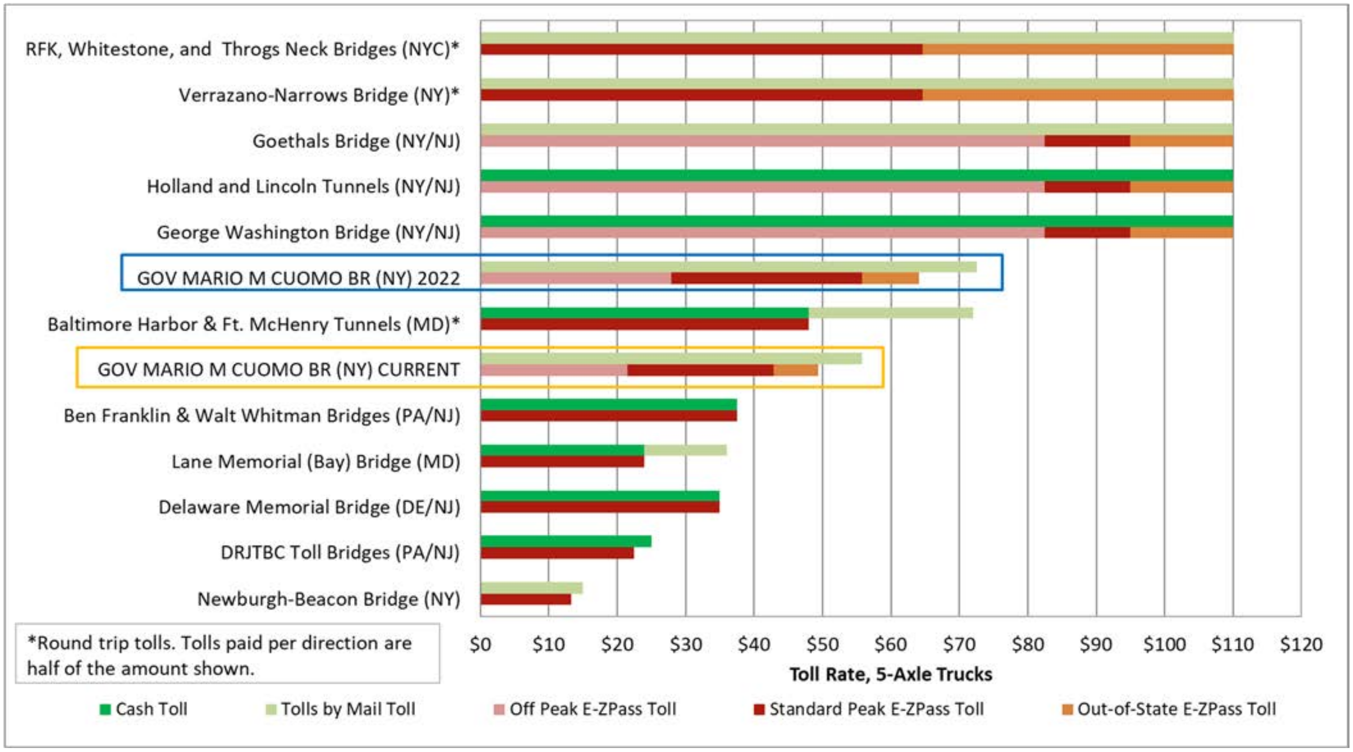
Figure 30 and Figure 31 compare toll rates on a number of major toll crossings in the northeast. Of note is that the Governor Mario M. Cuomo Bridge car tolls - both current rates and scheduled 2022 rates - are below that of the other metro New York crossings and comparable to other major crossings on the interstate highway system, as shown in Figure 30.

Figure 30: Round Trip Toll Rates on Major Toll Crossings in the Northeast, Passenger Cars



Similar to the controlled system, the current and scheduled 2022 peak 5-axle truck rates on the Governor Mario M. Cuomo Bridge are also comparable to that of other regional facilities. It is important to note that 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 will remain in 2022 and make the Governor Mario M. Cuomo Bridge commercial toll rate significantly below that of other metro New York tolled crossings.

Figure 31: Round Trip Toll Rates on Major Toll Crossings in the Northeast, 5-Axle Trucks



8.4 FORECAST METHODOLOGY

The following sections provide detail on the process involved in developing the traffic and toll revenue forecasts for the Thruway which are presented in Section 8.5.

8.4.1 Overview of Forecasting Methodology

Stantec's forecasting methodology built upon methodologies for previous forecasts. The steps in the forecasting process were:

1) Development of "pre-COVID" base forecasts in the fall of 2019 using our general modeling process

2) Application of toll increases and toll diversion

3) Application of AETC conversion impacts

4) Application of COVID-19 impacts

We developed our most recent pre-COVID toll traffic and revenue forecasts in the fall of 2019 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.

To develop these pre-COVID toll traffic projections for the Thruway through 2025, historical traffic information 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).

These pre-COVID base forecasts were then put through a modeling process where the approved 2021 and 2022 toll increases were applied (see Section 8.4.2), as well as the November 2020 conversion of the controlled system to AETC (see Section 8.4.3), resulting in some changes to traffic. Toll revenues were then calculated based on these traffic volumes by applying average toll rates to each payment class volume and accounting for any losses.

The last step in the modeling process was to review recent daily and monthly data going back to the beginning of the pandemic in March 2020 and compare these to the pre-COVID monthly forecasted traffic and revenue (including the 2020 AETC conversion and 2021 toll increase) to determine the losses that could be attributed to the pandemic. A history of COVID-19 impacts was presented in Section 4.1.6. From there, we have estimated the remaining impacts going forward through the forecast period. Methodology applied for future COVID-19 impacts is provided in Section 8.4.4.

8.4.2 Forecasting Methodology for 2021 and 2022 Toll Increases

Diversion due to the 2021 and 2022 toll modifications was considered in the forecasts. Traffic data from previous toll increases indicates that Thruway traffic is relatively insensitive to increases in the toll rates. This is due in part to the fact that there are few effective competitive routes, and that the physical condition of the Thruway is generally better than that of alternative routes. The safety and security related services, such as snow plowing and police patrols, are better on the Thruway than on alternative routes. Additionally, travel plazas along the length of the Thruway provide 24-hour fuel, rest stop, and food services without the need to exit the system. As a result of any toll increase, slight declines in traffic volumes are expected. The decline in volumes includes drivers that choose an alternative route, combine trips or choose not to travel at all.

Toll diversion estimates have been developed for each Thruway barrier facility and segments of the controlled system and conclude that diversion off the Thruway in response to the programmed toll modifications will be minor, at approximately 5.3 percent of total vehicles subject to the modification, and 1.8 percent of total traffic. The diversion percentages and estimated toll elasticities, by toll location, are summarized in Table 19. The estimated diversion rates shown in this table are displayed in two ways: as a percentage of total traffic and as a percentage for only those vehicles affected by the toll modification (all vehicles except resident plan participants at the Governor Mario M. Cuomo Bridge, and all vehicles paying with non-NY *E-ZPass* or Tolls by Mail at the other facilities). Using the Harriman Toll Barrier as an example, it is estimated that 1.5 percent of total traffic and 5.4 percent of the vehicles impacted by the modification would no longer use this facility due to the modification. The equivalent toll elasticity factor for the Harriman Toll Barrier, using the average toll increase and estimated diversion by payment type and vehicle class, would be -0.23.

Table 19: Toll Diversion and Elasticity

Toll Location	Diversion Percentage for All Vehicles	Diversion Percentage for Vehicles Affected by Toll Modification Only	Equivalent Toll Elasticity Factor (3)
Mainline, Woodbury Section	1.8% (1)	5.9%	-0.24
Mainline, Erie Section	2.5% (2)	6.4%	-0.22
Gov. Mario M. Cuomo Bridge	1.3%	1.9%	-0.04
Spring Valley	0.7%	2.3%	-0.10
New Rochelle	1.2%	4.9%	-0.20
Yonkers	1.0%	6.1%	-0.23
Harriman	1.5%	5.4%	-0.23
Grand Island Bridges	2.8%	9.4%	-0.16
Thruway Average	1.8%	5.3%	-0.13

(1) Overall facility trips. Diversion varies by segment from 1.1% - 2.3%
(2) Overall facility trips. Diversion varies by segment from 2.5% - 3.1%
(3) Toll elasticity is the percent change in volume divided by the percent change in toll rate. For example, an elasticity of -0.20 means that with a 100 percent toll increase, 20 percent of the vehicles would no longer use the toll facility (or, with a 10 percent toll increase, 2 percent of vehicles would no longer use the facility).

8.4.3 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 to account for recent conversion to AETC, because there are some uncollectable revenues associated with Tolls by Mail. In addition, there is a lag when the Tolls by Mail revenues are collected; 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). Five years of traffic data and data on collectability of toll revenue from this facility were reviewed, in addition to two to three years 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. Since there is less than a year of data available on controlled system Tolls by Mail collection, we applied collectability similar to that at the barriers.

We reviewed transaction data from the Governor Mario M. Cuomo Bridge and the other barriers and found that there was no discernable change in facility traffic that could be attributed to the implementation of AETC. Therefore, on the controlled system, we have assumed no additional traffic growth or losses 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 in the years after AET conversion.

Stantec reviewed the collectability of Tolls by Mail revenues experienced on the Governor Mario M. Cuomo Bridge 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. 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. The $50 fine was a per-transaction charge until recently – with the conversion of the mainline to AETC this charge was changed to $50 per violation notice.

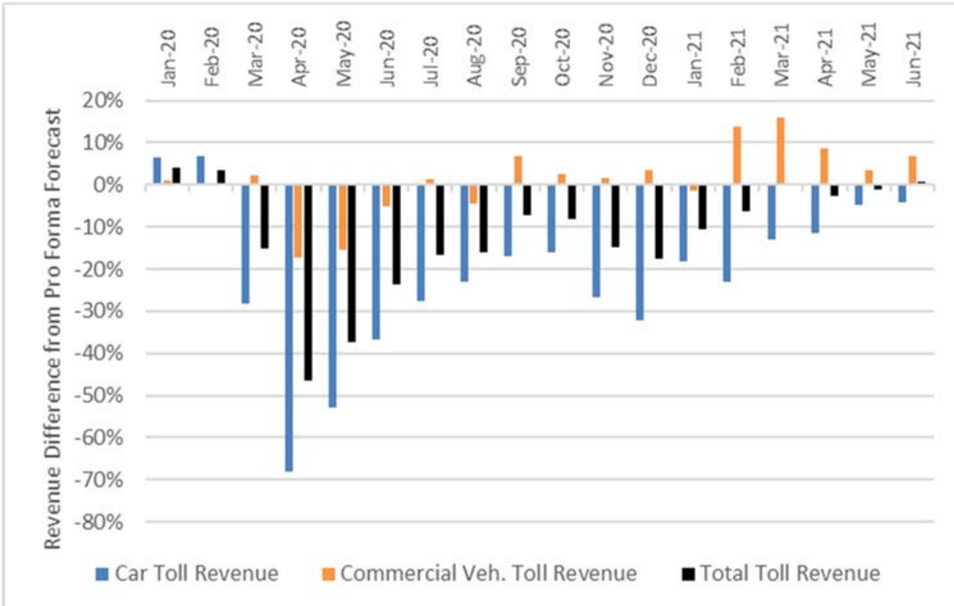
- Dismissals/Forgiveness: The Thruway as well as other toll agencies with AETC typically offer forgiveness of late fees or violations and dismissal of tolls for a very small share of customers. Reasons include incorrect identification of license plates, transponders mistakenly charged more than once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

8.4.4 COVID-19 Impacts

The previous sections described how Stantec developed the "Pro Forma" forecast – the traffic and revenue forecast before any impacts of COVID-19 were applied. Stantec's Pro Forma forecast was first produced in the fall of 2019 and later adjusted to account for any changes in assumptions (for example, AETC on the controlled system was originally assumed to begin in October 2020 but it began in mid-November).

Figure 32 shows the monthly difference between COVID-impacted and Pro Forma toll revenue on the Thruway System, split by passenger cars and commercial vehicles. While car toll revenue was about 4 percent under Pro Forma projections in June 2021, commercial revenue was 7 percent above Pro Forma projections. Total revenues for June 2021 exceeded Pro Forma projections by 1 percent.

Figure 32: Thruway System COVID-19 Impacts on 2020-2021 Monthly Toll Revenue



Preliminary data from July 2021 indicates that car traffic has nearly recovered to Pro Forma levels. With no further widespread, pandemic-related closures currently anticipated the state of New York, plus the declaration that children will return to in-person learning, we have concluded that car traffic will likely stay just under Pro Forma levels through September. We have assumed a slight decrease into the fall and winter to account for potentially less travel demand for indoor activities and a potential delay in returning to offices due to the Delta variant. Going forward, we have estimated that 2022 passenger car traffic will be 3 percent below the 2022 Pro Forma level, and annual passenger car traffic from 2023 through 2025 will be about 2 percent below Pro Forma. The reduction from Pro Forma assumes that many office workers will work from home more often than before the pandemic.

COVID-19 has had a different impact on commercial vehicle traffic on the Thruway System – while there were losses in 2020 they have been very minor compared to car traffic. Additionally, and commercial traffic has exceeded Pro Forma projections for the first six months of 2021. Commercial traffic in June 2021 was more than 13 percent above Pro Forma projections, and preliminary numbers from July 2021 show that it may have reached 15 percent above Pro Forma levels. Our research on trucking indicates that the considerably higher-than-normal volume of truck trips is not necessarily here to stay. During COVID-19, various factors produced changes in the supply chain. Our discussions with the trucking industry strongly suggests there will be improvements in supply chain efficiency, bringing long-term traffic closer to previous levels. We have assumed a reduction closer to Pro Forma levels will occur between this fall and 2023, with a minor reduction from the Pro Forma (less than 0.5 percent) in 2024 and 2025.

For the full year of 2021, total toll revenue is anticipated to be some 16 percent below what was forecasted without COVID-19 impacts. Because of the recent increase in commercial volumes, and the fact that these vehicles typically account for about 40 percent or more of systemwide toll revenue, the total toll revenue loss for the remainder of the forecast period due to COVID-19 is anticipated to be around 1 to 2 percent as shown in Table 20.

Table 20: Thruway System Projected COVID-19 Impacts on Future Toll Revenue

Difference between Projected Revenue with COVID-19 Impacts and Pro Forma Forecasts						
	Car Revenue		Comm. Veh. Revenue		Total Toll Revenue	
Year	Millions of $	%	Millions of $	%	Millions of $	%
2020 (Actual)	$(113.1)	-26%	$(6.3)	-2%	$(119.4)	-16%
2021	$(30.4)	-7%	$22.7	7%	$(7.7)	-1%
2022	$(14.6)	-3%	$9.5	3%	$(5.1)	-1%
2023	$(12.0)	-3%	$(0.7)	0%	$(12.8)	-2%
2024	$(11.6)	-2%	$(1.0)	0%	$(12.6)	-2%
2025	$(11.4)	-2%	$(1.2)	0%	$(12.6)	-2%

Stantec also conducted sensitivity estimates of potential high and low ranges of future COVID-19 impacts, provided in Section 8.7.

8.5 HISTORICAL AND FORECASTED TRAFFIC AND TOLL REVENUE

Table 21 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 was moderate growth, with traffic volumes exceeding the pre-recession 2007 volumes. In 2017 through 2019 overall traffic volumes had remained relatively flat, following the nationwide trend in vehicle miles traveled as shown previously in Figure 6 (page 16). COVID-19 impacted the traffic volumes beginning in March 2020 leading to an overall decline in traffic of 23.3 percent in calendar year 2020. Note that commercial traffic was impacted much less than passenger car traffic.

Table 21: The Thruway System's Actual 2008-2020 Tolled Traffic (millions)

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%
2019	139.6	25.5	72.1	18.0	2.5	9.3	267.0	0.2%
2020 (4)(5)	100.9(6)	19.2	56.0	17.6(6)	2.4	8.6	204.7	-23.3%

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.
(4) AETC began at all Mainline toll locations on November 14, 2020
(5) COVID-19 impacts began in March 2020
(6) Controlled system transactions converted to trips in order to provide a better comparison to previous years; after conversion to AETC in mid-November 2020 a trip incurs more than one transaction if passing through multiple segments. Actual toll transactions on the controlled system are noted in Table 22.

Table 22 shows Stantec's forecast of traffic through 2025 considering the economic information and expectations regarding COVID-19 recovery summarized earlier in this study. Sufficient traffic recovery from COVID-19 impacts is forecasted to occur by the end of 2022 with moderate growth thereafter.

It is important to note that due to the November 2020 AETC conversion, traffic appears to more than double on the controlled system in 2021. In reality, this is not the case. With the AETC conversion, the controlled system now records trips by segment (one segment-trip is one toll transaction), and there are a total of thirteen tolling segments. Previously, one vehicle was recorded as one toll transaction, and with AETC there may now be multiple toll transactions per controlled system trip.

Table 22: The Thruway System's Actual 2020 and Forecasted 2021-2025 Tolled Traffic (millions)

	Passenger Cars			Commercial Vehicles				
Year	Controlled System	Gov. Mario M. Cuomo Br.	Other Barriers	Controlled System	Gov. Mario M. Cuomo Br.	Other Barriers	Total	Growth
2020(1)	108.7(1)	19.2	56.0	20.5(1)	2.4	8.6	215.5	
2021(2)	213.7	23.7	66.7	46.8	2.7	9.5	363.1	68.5%
2022(3)	224.9	25.5	70.4	44.2	2.6	9.5	377.1	3.9%
2023	228.2	25.9	71.1	42.4	2.6	9.5	379.7	0.7%
2024	230.4	26.2	71.5	42.5	2.6	9.6	382.8	0.8%
2025	232.5	26.5	71.9	42.7	2.6	9.7	385.9	0.8%

Notes: Totals may not add due to rounding. Traffic classified as non-revenue is not included.
(1) Actual toll transactions. The controlled system was converted to AETC in mid-November 2020; with the new configuration a vehicle can have multiple transactions per trip.
(2) Systemwide toll increase; first full year of systemwide AETC
(3) Toll increase at Governor Mario M. Cuomo Bridge only

Table 23 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 was 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. 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 21. All of the remaining toll barriers were converted to AETC in 2018, which, due to some uncollectable Tolls by Mail revenue, led to a small reduction in revenue at these locations in 2018. Even with the conversion, 2018 saw positive system-wide toll revenue growth over 2017. Toll revenues in 2018 and 2019 grew by less than one percent. In 2020, toll revenues dropped by 16.8 percent due to COVID-19. Because truck traffic has not been as affected by the pandemic as car traffic, and trucks pay higher tolls, the revenue loss was not as deep as the traffic loss. In addition, with the conversion of the controlled system to AET, there are additional losses due to some uncollectable Tolls by Mail revenues and lag in collection of this revenue.

Table 24 presents the gross toll revenue forecasts for the Thruway System through 2025. Implementation of AETC began on the entire controlled system in mid-November 2020. In the forecasts, Tolls by Mail revenue collectability similar to that experienced at the toll barriers was applied to the controlled system after its conversion to AETC. Incorporating the effects of AETC, partial recovery from COVID-19, and the 2021 systemwide toll increase, the 2021 forecasted toll revenue of $750.8 million is slightly higher than 2019 annual toll revenue. There is additional growth in toll revenue in 2022 on the Governor Mario M. Cuomo Bridge due to the approved toll increase that year. Like toll traffic, toll revenue is expected to experience sufficient recovery from COVID-19 impacts by the end of 2022. After that point, moderate growth in toll revenue is expected. **Note that the forecasts in this study do not include any toll rate adjustments beyond the approved 2022 toll modification.**

Table 23: The Thruway System's Actual 2008-2020 Toll Revenues (millions)

Year	Passenger Cars			Commercial Vehicles				Total	Growth
	Controlled System	TZB/ Cuomo Br.	Other Barriers	Controlled System	TZB/ Cuomo Br.	Other Barriers	CV Disc		
2008 (1)	$193.8	$85.4	$67.9	$187.0	$21.2	$29.1	$(21.7)	$562.7	
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%
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%
2019	253.0	105.1	77.7	243.1	50.2	38.8	(28.0)	739.9	0.5%
2020(5)(6)	177.2	80.6	59.9	240.8	48.2	37.7	(29.0)	615.3	-16.8%

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.
(5) AETC began at all Mainline toll locations on November 14, 2020
(6) COVID-19 impacts began in March 2020

Table 24: The Thruway System's Forecasted 2021-2025 Toll Revenues (millions)

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	CV Disc		
2021(1)	$213.8	$110.9	$75.5	$260.4	$75.9	$45.0	$(30.6)	$750.8	22.0%
2022(2)	230.9	128.5	83.3	257.9	91.1	45.6	(31.8)	805.6	7.3%
2023	236.0	130.6	84.8	253.2	89.1	45.2	(31.2)	807.7	0.3%
2024	239.6	132.5	85.5	254.6	89.9	45.7	(31.4)	816.3	1.1%
2025	242.7	134.3	86.1	255.9	90.4	46.1	(31.6)	823.9	0.9%

Notes: Totals may not add due to rounding.
(1) Systemwide toll increase; first full year of systemwide AETC
(2) Toll increase at Governor Mario M. Cuomo Bridge only

8.6 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 had been charged *per transaction;* this was changed in 2021 to a fine *per notice*. Violations also continue to be charged to *E-ZPass* customers who travel through a toll location without sufficient funds in their accounts, and, up until November 14, 2020, cash customers who evaded 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.
- On 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 was applied to all the other toll locations as they were converted to AETC.
- Starting in 2021, a $2 billing fee was added to Tolls by Mail invoices, and the Tolls by Mail violation fee was changed to $50 per violation notice for all Thruway toll locations.
- During the period of transitioning to a new collection agent in the fall of 2020 the Authority temporarily suspended sending violations to collections; this will resume later in 2021, to include violations incurred in 2021.
- As part of the conversion to systemwide cashless tolling, beginning February 2021, the Authority temporarily suspended mailing of violation notices which resumed in the summer of 2021.

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. In 2019 and 2020 collected *E-ZPass* violation fees dropped to $9.6 million and $9.5 million, respectively. This was expected because *E-ZPass* violation fees also included non-E-ZPass customers at facilities where cash was collected, and by late 2018 all barriers had been converted to cashless.

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 were 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 was 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 during this year. These revenues grew to $1.4 million in late fees plus $14.2 million in violations in 2019, the first full year with AETC at all barriers. COVID-19 impacts have slightly reduced the growth of fees and fine revenue in 2020, with $1.1 million collected in late fees plus $14.3 million collected in violations.

The Authority also began to charge Tolls by Mail billing fees in 2021 after the entire system was converted to cashless. Table 25 provides forecasts of billing fee, late fee, and violation fee revenues. The current Tolls by Mail billing fee of $2 per bill, late fee of $5 per bill, and violation fee of $50 per bill has been assumed at all facilities going forward. The forecasts show a decline in systemwide *E-ZPass* violation revenues as more facilities were converted to AETC. This is because these revenues include both *E-ZPass* and cash customer violations, and there are no longer cash customer violations at AETC facilities.

With these assumptions, based on seven months of fee collection data this year, a total of $36.7 million in annual violation and late fee revenues is projected for 2021, growing to more than $51.9 by 2022, after there has been more than a full year of AETC systemwide. This number is expected to decline slightly in the following years as some Tolls by Mail customers acquire an *E-ZPass* in the future.

Table 25: Historical and Forecasted Violation, Late Fee, and Billing Fee Revenue (in millions)

Year	*E-ZPass* Violations(1)	TBM Violations(2)	TBM Late Fees	TBM Billing Fees	TOTAL
2016 (3)	$5.3	$2.2	$0.3		$7.8
2017 (3)	7.7	14.6	1.0		23.3
2018 (3)(4)	10.6	10.6	0.9		22.1
2019 (3)	9.6	14.2	1.4		25.2
2020 (3)(5)	8.3	14.3	1.1		23.7
2021 (7)	2.5	24.7	2.7	$6.8	36.7
2022 (7)	1.8	33.6	4.5	12.0	51.9
2023	1.8	32.2	4.5	11.7	50.2
2024	1.8	31.6	4.4	11.5	49.3
2025	1.8	31.1	4.3	11.4	48.6

(1) Includes both E-ZPass and cash customer violations. The E-ZPass violation fee increased from $25 in 2016 to $50 on 1/1/17.
(2) AETC violation fee increased from $25 in 2016 to $50 on 1/1/17 and to $100 on 1/17/17. This was reduced back to $50 on 5/15/18. In 2020, the $50 violation changed from per transaction to per bill.
(3) Actual
(4) An amnesty program ran from 1/22/18 through 2/26/18 waiving violation fees for customers who paid outstanding tolls. AETC began at the Grand Island Bridges on 3/30/18, Harriman Barrier on 9/28/18, Yonkers Barrier on 11/19/18, and Spring Valley and New Rochelle Barriers on 12/20/18.
(5) The rest of the system (ticket controlled) began operating with AETC in mid-November 2020.
(6) COVID-19 impacts starting in March 2020
(7) Toll modifications on January 1, 2021 (system-wide) and January 1, 2022 (Gov. Mario M. Cuomo Bridge only)

Historical gross total revenues, including both toll revenues and other revenues between 2008 and 2020, are summarized in Table 26. "Other revenues" in the table include the fee and violation revenues from Table 25 and a variety of the non-toll revenue derived from payments received from concessionaires at the Thruway service areas' restaurant and gasoline stations, sales of surplus property, revenues from special hauling permits, fiber optic agreements, interest on various invested funds, and other miscellaneous sources.

Table 26: Summary of 2008 – 2020 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
2019	739.9	72.2 (3)	812.1
2020 (6)(7)	615.3	53.2 (3)	668.5

Note: 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) 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.
(6) AETC began at all Mainline toll locations on November 14, 2020
(7) COVID-19 impacts began in March 2020

Table 27 presents the forecasts of 2021-2025 total gross revenues. The current Tolls by Mail billing fee of $2 per bill, late fee of $5 per bill, and violation fee of $50 per bill have been assumed at all facilities throughout the forecast period. If these schedules of fees and penalties or enforcement capabilities were to change, it could have an impact on the currently projected levels of "other revenues". Note that there is the need for additional revenues in 2024 and 2025.

Table 27: Forecasted 2021-2025 Thruway System Total Gross Revenues (millions)

Year	Toll Revenues	Other Revenues (1)	Additional Revenue Need	Total Revenues
2021(2)	$750.8	$61.7		$812.6
2022(3)	805.6	75.0	-	880.6
2023	807.7	72.1	-	879.8
2024	816.3	71.8	$8.2	896.2
2025	823.9	71.2	88.5	983.7

Note: Totals may not add due to rounding.
(1) Includes fines and fees collected from Tolls by Mail customers.
(2) Systemwide toll increase; first full year of systemwide AETC and first year with $2 Tolls by Mail billing fee.
(3) Toll increase at Governor Mario M. Cuomo Bridge only

8.7 REVENUE SENSITIVITY

Stantec conducted sensitivity scenarios for toll revenue due to a potential range of COVID-19 impacts. The upside scenario assumes that car toll revenue will continue to improve towards Pro Forma monthly revenue numbers through the remainder of 2021, reaching a “new normal” of 1 percent below Pro Forma levels in 2023 and beyond. Commercial vehicle revenue for this scenario is estimated to decrease from 9 percent above Pro Forma in July 2021 to 5 percent above Pro Forma in December 2021, gradually returning to the Pro Forma line in 2023.

The downside scenario assumes that 2021 car toll revenue will decline into the winter months, with COVID-related reductions in November and December of 10 percent, close to the 11% loss seen in April 2021. After that point, car toll revenue is expected to improve gradually through 2025 to a “new normal” of 5 percent below the Pro Forma forecast. This accounts for greater potential long-term impacts of increased working from home on car travel. Commercial vehicle revenue for this scenario is estimated to decrease from 6 percent above Pro Forma in July 2021 to 1 percent above Pro Forma in December 2021, gradually reaching a “new normal” of 1 percent below Pro Forma in 2025.

In addition, Stantec estimated a range of potential revenues for violations, late fees, and billing fees. Changes in revenues with the upside and downside scenarios are shown in Table 28. In 2022, where we have estimated the widest potential range of results, changes in total revenues range from $12.8 million above to $25.7 million below forecasts.

Table 28: Revenue Sensitivity – Range of Potential Changes to Toll and Fee/Fine Revenue

Year	Upside Scenario			Downside Scenario		
	Toll Revenue	Violations/ Fees	Total	Toll Revenue	Violations/ Fees	Total
2021	$6.0	$4.7	$10.7	$(12.0)	$(6.5)	$(18.5)
2022	$12.3	$0.5	$12.8	$(24.7)	$(1.0)	$(25.7)
2023	$8.5	$0.5	$9.0	$(16.9)	$(1.1)	$(18.0)
2024	$8.2	$0.6	$8.8	$(16.5)	$(1.1)	$(17.6)
2025	$8.2	$0.6	$8.8	$(16.5)	$(1.1)	$(17.6)

Note: Violations/Fees includes E-ZPass Violations, TBM Violations, TBM late fees, and TBM Billing Fees

9.0 FLOW OF FUNDS

9.1 HISTORICAL

Table 29 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 2020 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.

9.2 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 fulfill its system-wide operating, debt service, and capital needs through the forecast period. Future funding needs through 2025 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 credit ratings.

The projected flow of funds included in Table 29 shows the future revenue needs and debt service coverage ratios through 2025. The funding for the Capital Program is also displayed in the table, but not the expected savings from the refunding. 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 2023; to meet minimum coverage requirements in 2024 and 2025, an additional $8.2 million and $88.5 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 2021-2025 forecast period beyond the programmed 2021 and 2022 toll modifications, 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 (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 adverse changes to traffic patterns.

Table 29: Historical and Projected Thruway Flow of Funds and Debt Service Coverage (millions)

	ACTUAL			FORECAST					2021-2025
	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total Revenues	$ 798.8	$ 812.1	$ 668.5	$ 812.6	$ 880.6	$ 879.8	$ 888.0	$ 895.1	$ 4,356.1
Gap Closing Revenues [1]	-	-	-	-	-	-	8.2	88.5	96.7
Available Revenues	798.8	812.1	668.5	812.6	880.6	879.8	896.2	983.7	4,452.8
Less:									
Operating Expenses	339.9	350.9	316.6	360.0	379.4	386.9	394.7	402.6	1,923.6
Operating Reserves	5.0	6.0	2.0	4.0	1.0	1.0	1.0	1.0	8.0
Total Operating Costs	345.0	356.8	318.6	364.0	380.4	387.9	395.7	403.6	1,931.6
Net Revenues	453.8	455.2	349.9	448.5	500.2	491.8	500.5	580.1	2,521.2
Less: Gen. Rev. Bonds Debt Service [2]	220.3	226.8	166.8	240.8	263.3	251.7	260.6	307.3	1,323.8
Net Revenues After Gen. Rev. Debt Service	233.5	228.5	183.1	207.7	236.9	240.1	239.9	272.8	1,197.4
Less Reserve Maintenance Provisions [3]	74.1	131.4	97.3	125.9	108.6	65.9	62.7	82.0	445.1
Less Junior Indebtedness Debt Service	79.2	47.4	23.1	46.4	63.3	108.4	110.2	122.4	450.6
Net Revenues After Jun. Ind. Debt Service	80.2	49.6	62.6	35.5	65.0	65.8	67.1	68.4	301.7
+/- Operating Reserves Adjustment/AETC Lag/Working Capital Provision	(24.6)	13.6	(2.5)	80.0	-	-	-	-	80.0
Less: Facil Cap Imp Fund	12.0	8.0	-	-		-	-	-	-
Less: General Reserve Fund [4]	43.6	41.9	59.1	64.0	64.5	65.8	67.1	68.4	329.7
Less: Gen Res Fund - Subordinate Debt	-	13.3	1.1	51.5	0.6	-	-	-	52.1
Balance After Reserve Maintenance Provisions, Other Authority Projects	-	-	-	-	-	-	-	-	-
Senior Debt Service Coverage	2.06	2.01	2.10	1.86	1.90	1.95	1.92	1.89	
Junior & Senior Coverage	1.52	1.66	1.84	1.56	1.53	1.37	1.35	1.35	
Pay go % ROS Capital	99.5%	100.0%	12.0%	44.4%	18.7%	20.9%	19.9%	25.9%	

Notes: Totals may not add due to rounding.

[1] In 2024 and 2025 additional revenues are needed to meet management debt service coverage targets for the combined General Revenue Bonds and Junior Indebtedness Obligations debt service. The Authority has a management commitment to a future minimum debt service coverage ratio of 1.55x for the General Revenue Bonds, above the Board-adopted guideline of 1.50x. The Authority has a management commitment to a minimum debt service coverage ratio for General Revenue Bonds and Junior Indebtedness Obligations of 1.35x, higher than the Junior Indebtedness Resolution requirement of 1.2x coverage for the combined annual General Revenue Bond debt service and annual Junior Indebtedness Obligation debt service.

[2] Does not reflect anticipated General Revenue Bonds Series O refunding debt service savings.

[3] Reflects the minimum required deposit to the Reserve Maintenance Fund ($30,000,000) as well as excess revenue intended for pay-as-you-go capital projects.

[4] The General Reserve Fund figures 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.

10.0 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 O 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 remaining elements of the Cashless Tolling Project;
- Preserve good overall infrastructure conditions of the Thruway System and complete its current 5-Year Capital Program; and
- Comply with the Authority's Fiscal Management Guidelines by maintaining targeted levels of debt service coverage.

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.

11.0 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 future 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.

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

Sincerely,

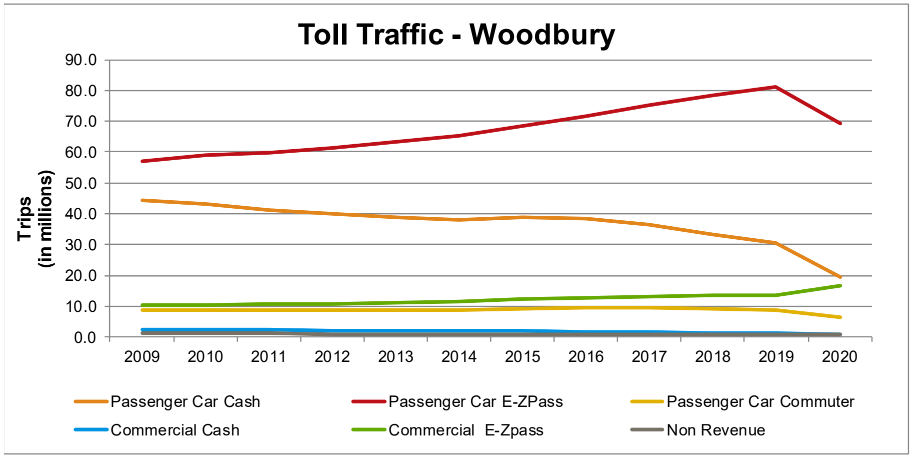
Richard J. Gobeille, P.E.
Senior Principal
Stantec Consulting, Inc.

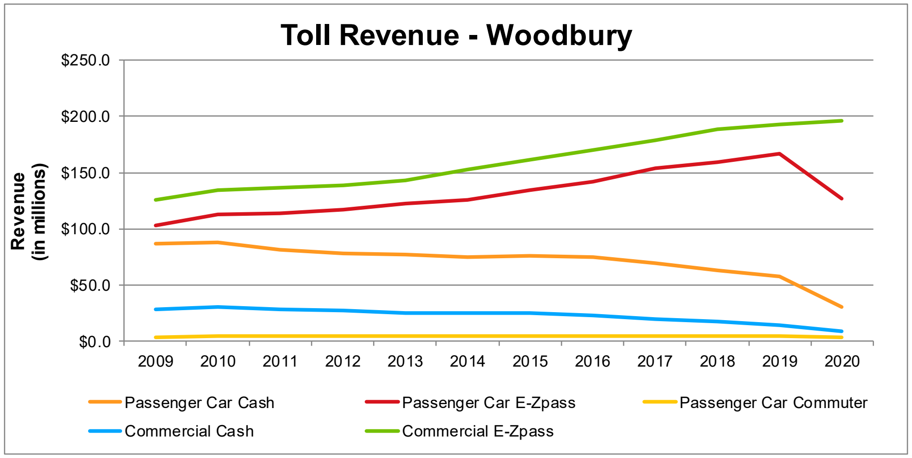
APPENDIX: HISTORICAL TRAFFIC AND REVENUE BY FACILITY

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
2019	30.4	81.1	8.9	1.2	13.6	0.9	136.1
2020	19.4	69.1	6.3	0.9	16.5	0.9	113.1

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
2019	$57.3	$166.9	$4.6	$14.0	$193.0	$0.0	$435.9
2020	$30.2	$127.1	$4.0	$9.3	$196.3	$0.0	$366.9

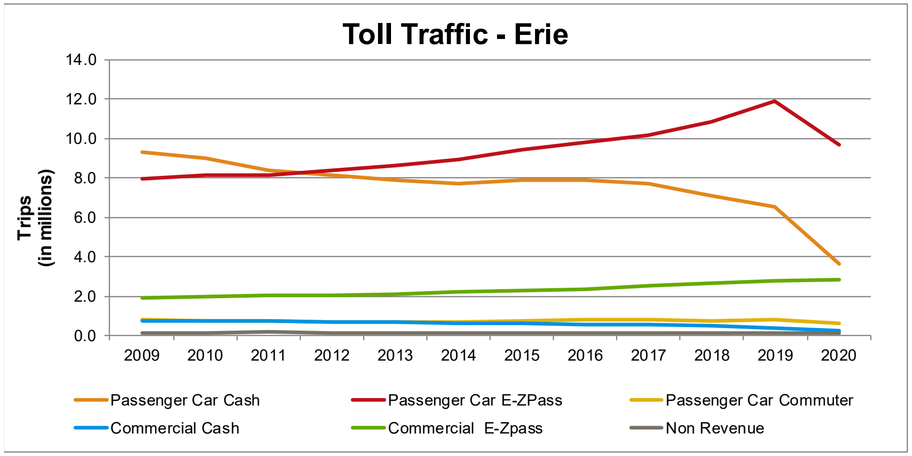


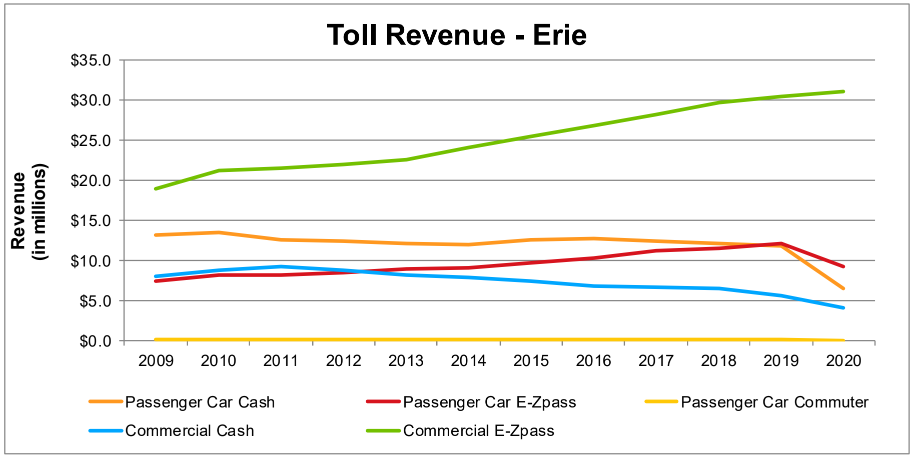


Traffic and Revenue - Erie Section

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
2019	6.5	11.9	0.8	0.4	2.8	0.1	22.5
2020	3.7	9.7	0.6	0.3	2.8	0.1	17.2

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
2019	$11.8	$12.1	$0.2	$5.6	$30.5	$0.0	$60.2
2020	$6.6	$9.2	$0.2	$4.1	$31.0	$0.0	$51.1

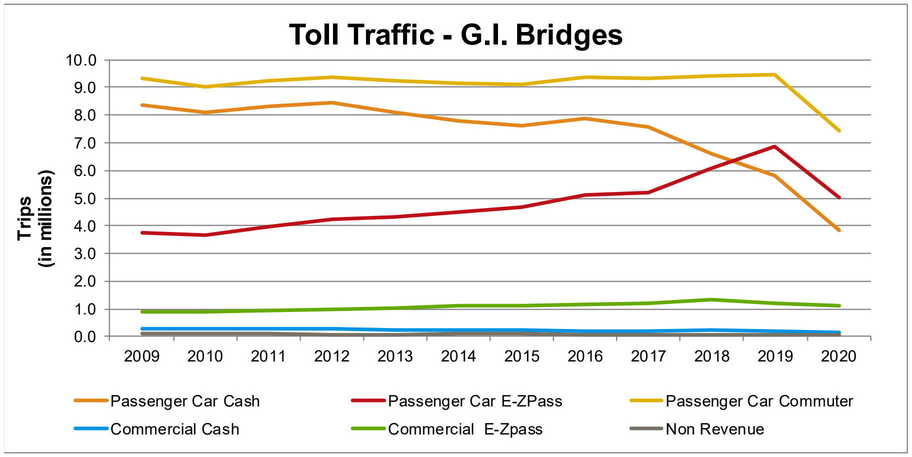


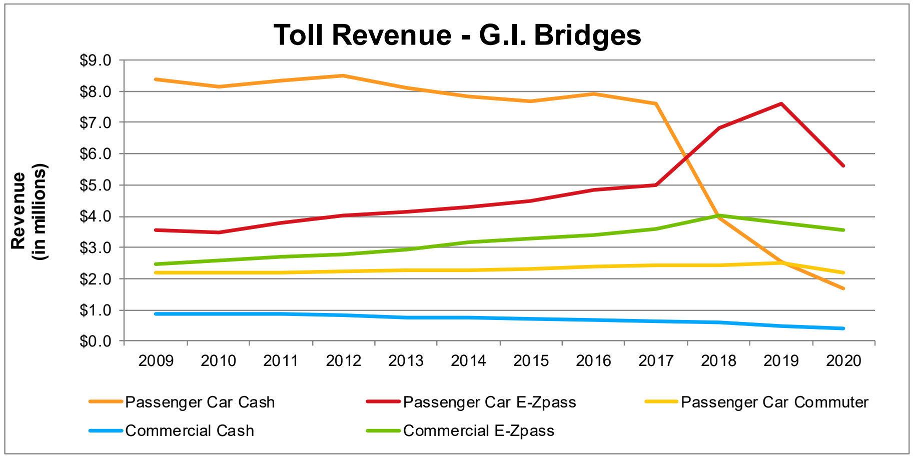


Traffic and Revenue - Grand Island Bridges

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
2019	5.8	6.9	9.5	0.2	1.2	0.1	23.6
2020	3.8	5.0	7.4	0.2	1.1	0.1	17.6

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
2019	$2.5	$7.6	$2.5	$0.5	$3.8	$0.0	$16.9
2020	$1.7	$5.6	$2.2	$0.4	$3.6	$0.0	$13.5

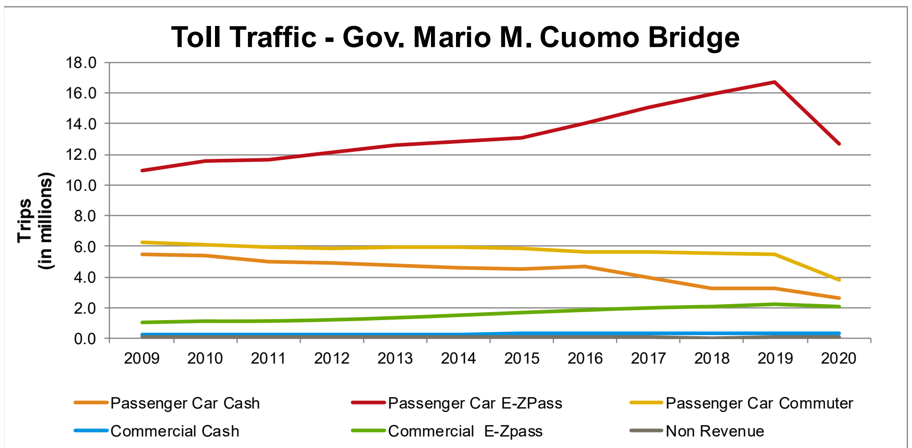


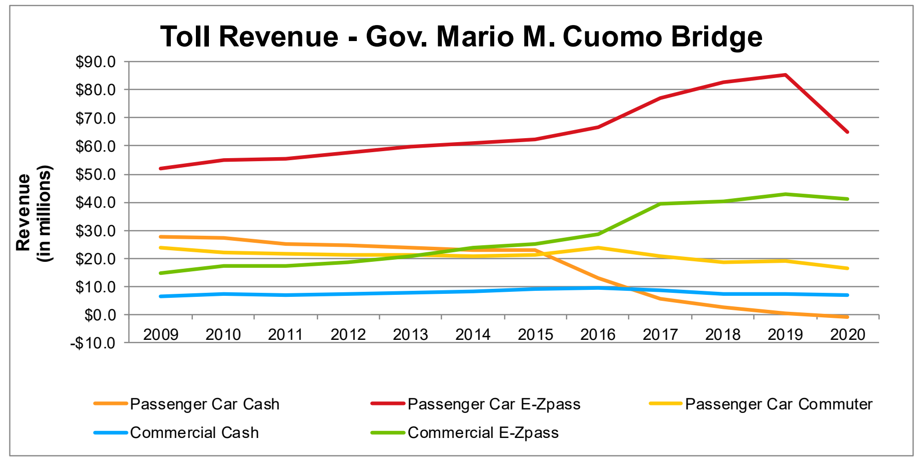


Traffic and Revenue - Governor Mario M. Cuomo Bridge

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
2019	3.3	16.7	5.5	0.3	2.2	0.1	28.1
2020	2.7	12.7	3.8	0.3	2.1	0.1	21.7

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
2019	$0.7	$85.1	$19.3	$7.3	$42.9	$0.0	$155.3
2020	-$0.9	$65.1	$16.3	$6.8	$41.4	$0.0	$128.8

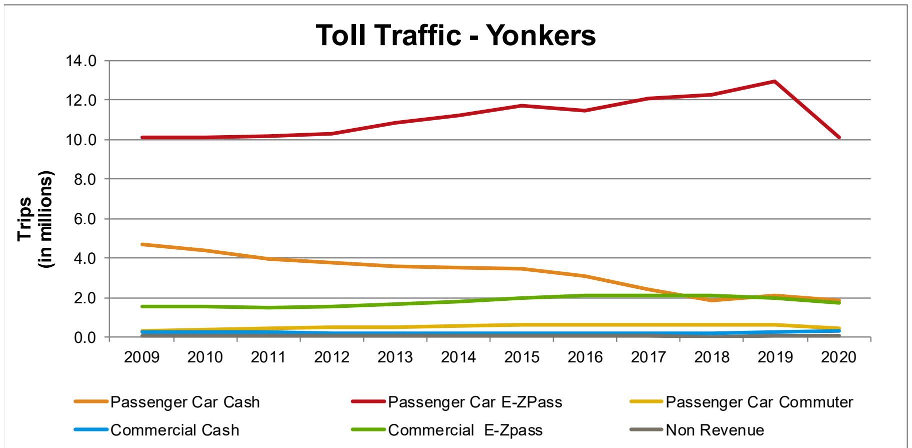


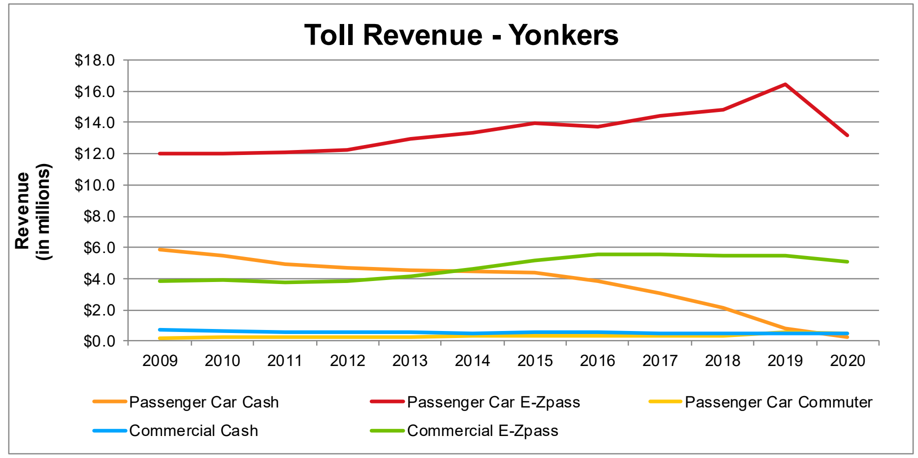


Traffic and Revenue - Yonkers Barrier

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
2019	2.1	12.9	0.6	0.3	2.0	0.1	18.0
2020	1.9	10.1	0.4	0.3	1.8	0.1	14.6

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
2019	$0.8	$16.5	$0.5	$0.5	$5.5	$0.0	$23.8
2020	$0.3	$13.2	$0.5	$0.5	$5.1	$0.0	$19.4

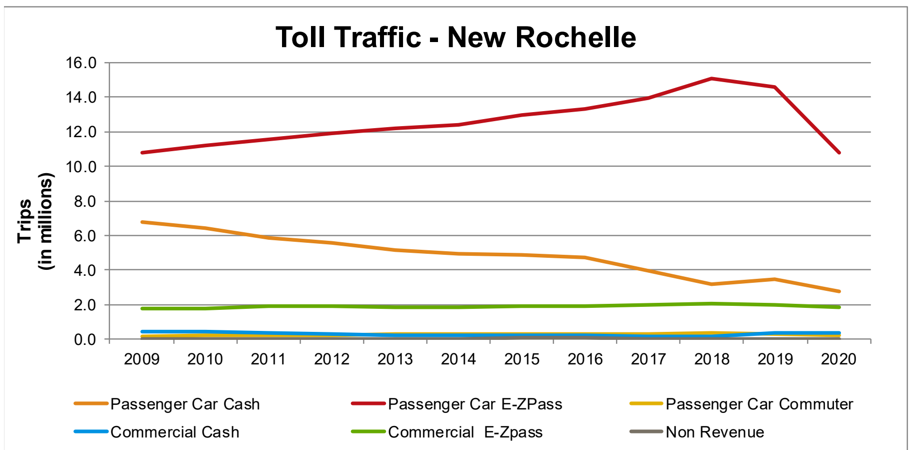


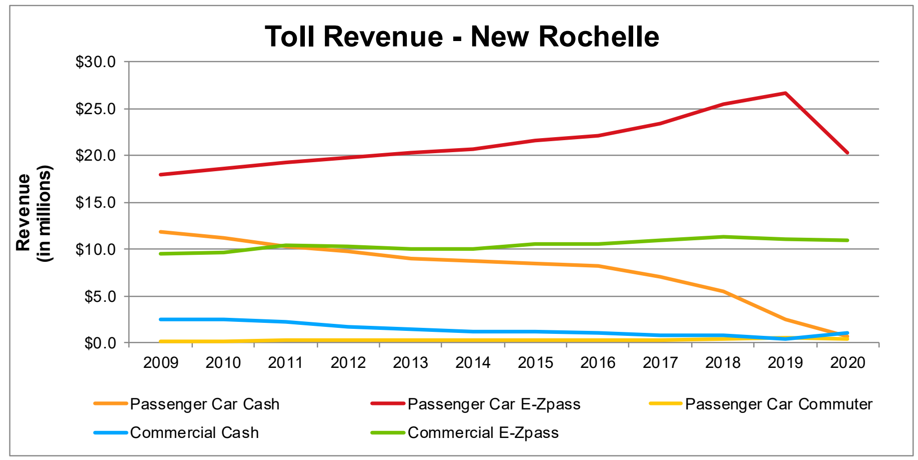


Traffic and Revenue - New Rochelle Barrier

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
2019	3.4	14.6	0.3	0.3	2.0	0.0	20.7
2020	2.8	10.8	0.2	0.4	1.8	0.0	16.0

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
2019	$2.5	$26.7	$0.5	$0.5	$11.0	$0.0	$41.2
2020	$0.7	$20.2	$0.5	$1.1	$11.0	$0.0	$33.4





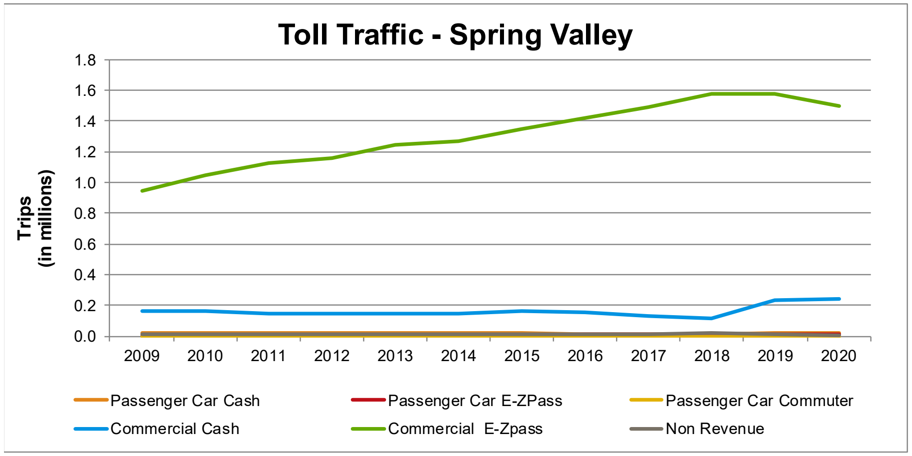
Traffic and Revenue - Spring Valley Barrier

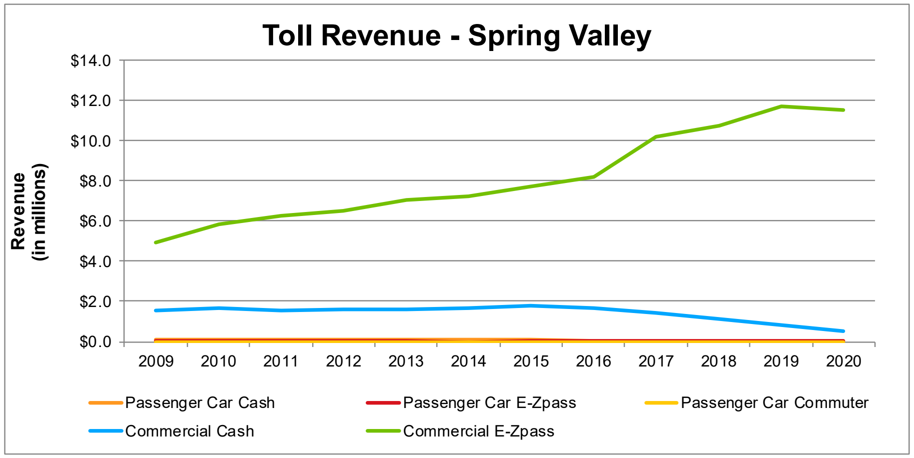
Toll Traffic - Spring Valley

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
2019	0.0	0.0	0.0	0.2	1.6	0.0	1.9
2020	0.0	0.0	0.0	0.2	1.5	0.0	1.8

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
2019	$0.0	$0.0	$0.0	$0.8	$11.7	$0.0	$12.6
2020	$0.0	$0.0	$0.0	$0.5	$11.5	$0.0	$12.0

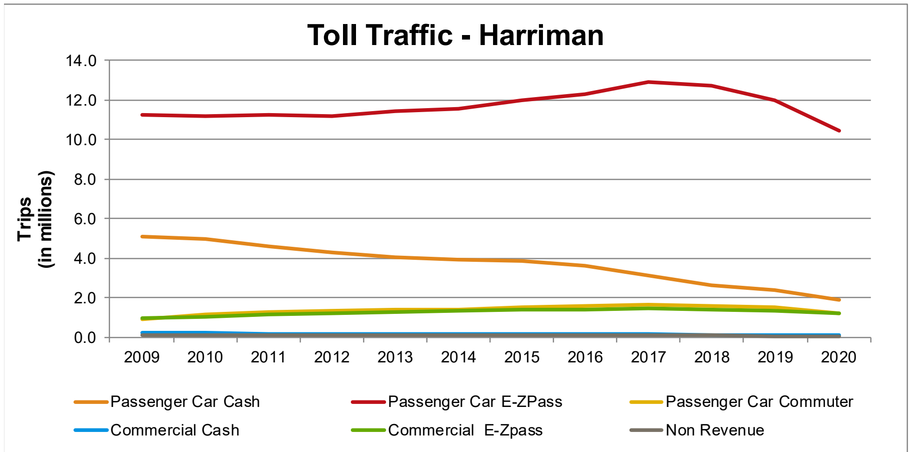


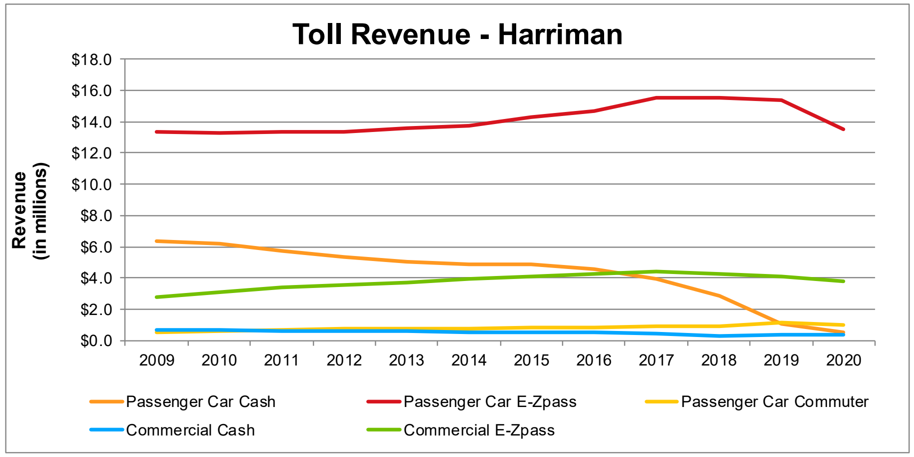


Traffic and Revenue - Harriman Barrier

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
2019	2.4	12.0	1.5	0.1	1.4	0.1	17.4
2020	1.9	10.4	1.2	0.1	1.2	0.1	14.9

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
2019	$1.0	$15.4	$1.1	$0.3	$4.1	$0.0	$22.0
2020	$0.6	$13.5	$1.0	$0.3	$3.8	$0.0	$19.2

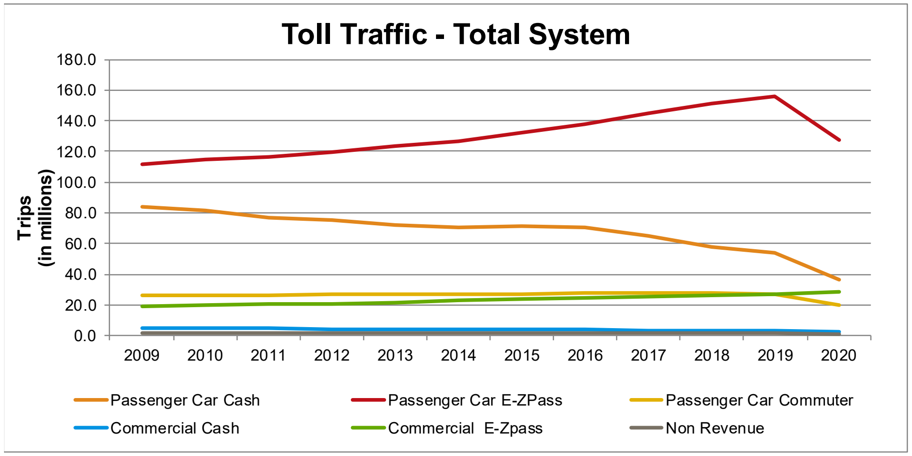


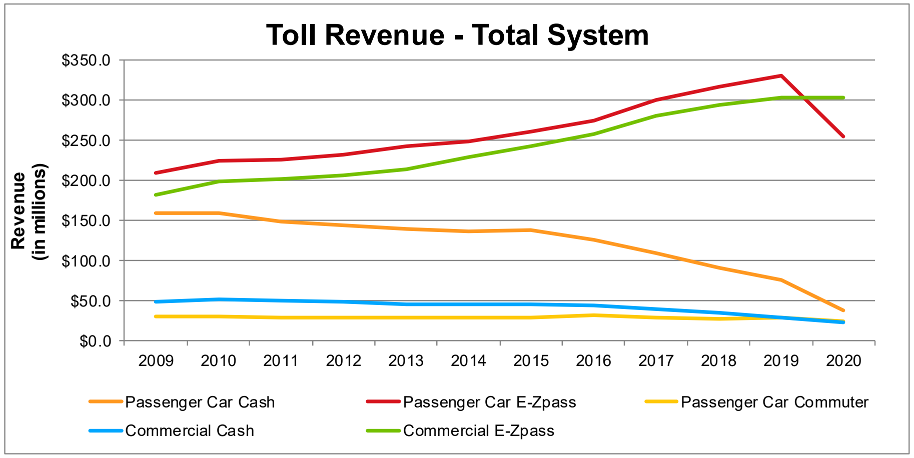


Traffic and Revenue - Total System

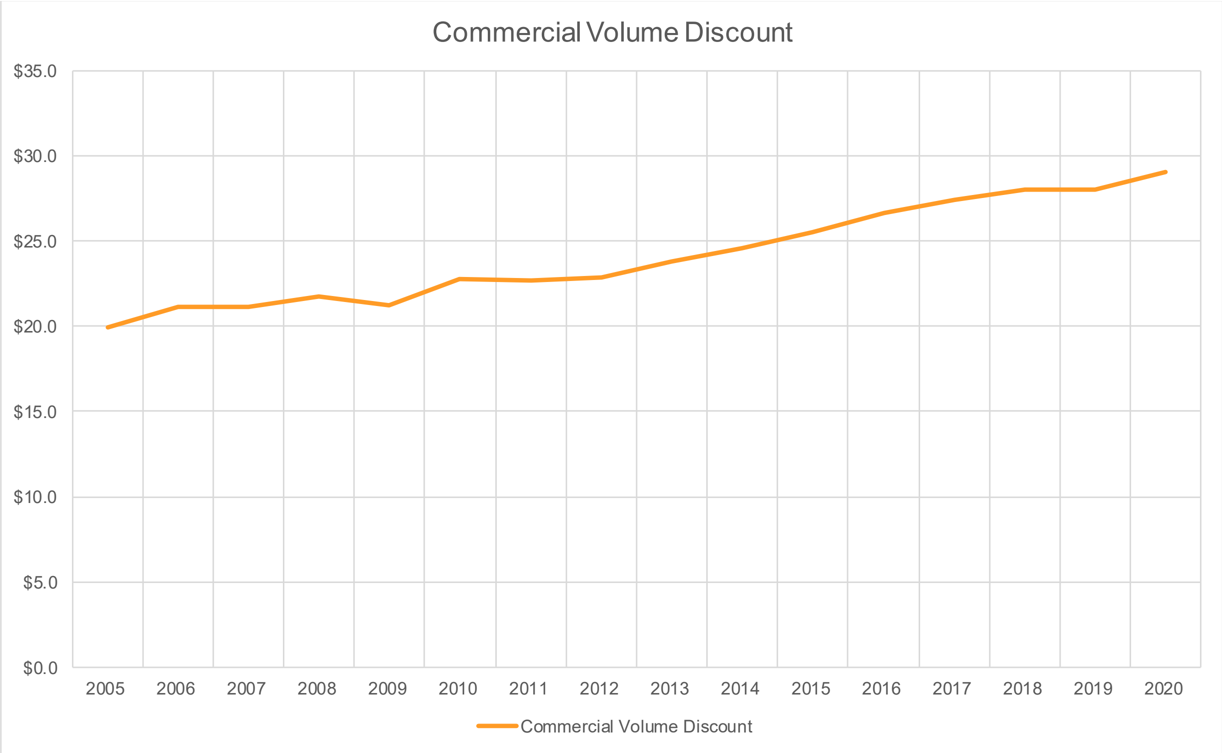
Toll Traffic - Total System							
Year	Passenger Car Cash	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash	Commercial E-Zpass	Non Revenue	Total
2009	84.3	111.8	26.5	4.8	19.4	1.8	248.5
2010	81.5	114.8	26.4	4.8	20.0	1.8	249.4
2011	77.1	116.5	26.5	4.6	20.6	1.7	246.9
2012	75.1	119.5	26.7	4.3	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
2019	54.0	156.1	27.2	3.1	26.6	1.4	268.4
2020	36.1	127.8	20.0	2.7	28.8	1.3	216.7

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
2019	$76.7	$330.3	$28.8	$29.6	$302.5	$0.0	$767.9
2020	$39.1	$254.0	$24.6	$23.1	$303.6	$0.0	$644.3





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
2019	$28.0
2020	$29.0



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APPENDIX B

AUDITED FINANCIAL STATEMENTS OF THE AUTHORITY FOR THE YEARS ENDED DECEMBER 31, 2020 AND 2019

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New York State Thruway Authority

(A Component Unit of the State of New York)

Financial Statements

December 31, 2020 and 2019

New York State Thruway Authority

(A Component Unit of the State of New York)

Financial Statements

December 31, 2020 and 2019

C O N T E N T S

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, 2020 and 2019, 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, 2020 and 2019, 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.

Other Matter

Accounting principles generally accepted in the United States of America require that management's discussion and analysis and the information listed under required supplementary information in the accompanying table of contents be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of 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 audits 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 March 29, 2021, 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
March 29, 2021

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, 2020 and 2019. 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.

2020 Financial Highlights

- Total operating revenue was $670.2 million, a decrease of $143.9 million, or 17.7% compared to 2019. Tolls and related revenue for the year was $648.7 million, a decrease of $126.3 million, or 16.3% compared to 2019.

- Total operating expenses, excluding depreciation and amortization, were $462.4 million, an increase of $0.5 million, or 0.1% compared to 2019.

- Net position as of December 31, 2020 was $940.1 million, a decrease of $282.5 million, or 23.1% compared to December 31, 2019.

- Total capital assets (net of depreciation) as of December 31, 2020 were $7.64 billion, an increase of $135.8 million, or 1.8% compared to December 31, 2019.

- In November 2020, the Authority completed its conversion of the entire Thruway system to cashless tolling. A total of $360.3 million has been invested in the project through December 31, 2020, of which $229.3 million was invested during 2020. 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.

2019 Financial Highlights

- Total operating revenue was $814.1 million, an increase of $14.7 million, or 1.8% compared to 2018. Tolls and related revenue for the year was $775.0 million, an increase of $8.6 million, or 1.1% compared to 2018.

- Total operating expenses, excluding depreciation and amortization, were $461.8 million, an increase of $4.6 million, or 1.0% compared to 2018.

- Net position as of December 31, 2019 was $1.22 billion, an increase of $111.8 million, or 10.1% compared to December 31, 2018.

- Total capital assets (net of depreciation) as of December 31, 2019 were $7.51 billion, an increase of $195.0 million, or 2.7% compared to December 31, 2018.

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.

Financial Analysis of the Authority

Net Position

The Authority's net position at December 31, 2020 was approximately $940.1 million, a 23.1% decrease compared to December 31, 2019 (see Table A-1). In 2020, total assets increased 2.9% to $9.0 billion, and total liabilities increased 10.0% to $8.3 billion. The Authority's net position at December 31, 2019 was approximately $1.22 billion, a 10.1% increase compared to December 31, 2018. In 2019, total assets increased 3.2% to $8.78 billion and total liabilities increased 0.6% to $7.52 billion.

Table A-1

Net Position
December 31, 2020, 2019, and 2018
(In millions of dollars)

	2020	2019	2018	Percentage Change 2020-2019
Unrestricted current assets	$ 545.6	$ 473.9	$ 480.3	15.1
Restricted assets	853.7	803.2	719.7	6.3
Capital assets	7,642.0	7,506.2	7,311.2	1.8
Total assets	9,041.3	8,783.3	8,511.2	2.9
Deferred outflows	282.9	113.3	149.2	149.7
Current liabilities	665.0	584.0	604.6	13.9
Noncurrent liabilities	7,606.8	6,935.1	6,868.6	9.7
Total liabilities	8,271.8	7,519.1	7,473.2	10.0
Deferred inflows	112.3	154.9	76.4	(27.5)
Total net position	$ 940.1	$ 1,222.6	$ 1,110.8	(23.1)

Financial Analysis of the Authority - Continued

Net Position - Continued

Unrestricted assets increased $71.7 million, or 15.1% compared to 2019. In response to the COVID-19 pandemic, the Authority used proceeds from General Revenue Bonds, Series N issued in March 2020 to refund certain capital program costs that were originally funded in late 2019 and early 2020 with Authority revenues and Thruway Stabilization program funds. In addition, the Authority drew $50 million of proceeds from a revolving credit agreement with JP Morgan Chase. Additional information regarding the Authority's response to the COVID-19 pandemic is presented in the Other Significant Matters section of the Management's Discussion and Analysis. Additional information regarding short-term debt and the Thruway Stabilization Program is presented in Notes 6 and 11, respectively.

Restricted assets increased $50.5 million, or 6.3% compared to 2019. The increase is primarily due to the issuance of General Revenue Bonds, Series N which generated $536.7 million of proceeds that will be primarily used to fund the Authority's capital program. This increase was partially offset by the use of restricted assets, consisting primarily of General Revenue Junior Indebtedness Obligations, Series 2019B proceeds to fund the Governor Mario M. Cuomo Bridge project costs, as well as to fund certain debt service payments Additional information regarding restricted assets and issuance of General Revenue Bonds, Series N, is presented in Notes 4 and 5, respectively.

Capital assets increased $135.8 million, or 1.8% compared to 2019. The increase is primarily due to the Authority's significant investment in cashless tolling in 2020 and ongoing investment in infrastructure. Additional information regarding capital assets is presented in Note 3.

Current liabilities increased $81.0 million, or 13.9% compared to 2019. The increase is primarily due to $50 million payable to JP Morgan Chase in June 2021 related to funds drawn in 2020 on a revolving credit agreement. An increase in principal and interest due in 2021 compared to 2020 on long-term debt also contributed to the increase. Additional information regarding long-term and short-term debt is presented in Notes 5 and 6, respectively.

Noncurrent liabilities increased $671.7 million, or 9.7% compared to 2019. The increase is primarily due to the issuance of General Revenue Bonds, Series N, as well as increases in retirement and other postemployment benefit obligations. Additional information regarding long-term debt, retirement and other postemployment benefit obligations is presented in Notes 5, 8 and 10, respectively.

Changes in Net Position

Net position decreased by $282.5 million in 2020 (see Table A-2). The Authority's total operating revenues for 2020 were $670.2 million, a decrease of $143.9 million, or 17.7% compared to 2019. Total operating expenses for 2020 were $818.2 million, an increase of $28.4 million, or 3.6% compared to 2019. Net Position increased by $111.8 million in 2019. The Authority's total operating revenues for 2019 were $814.1 million, an increase of $14.7 million, or 1.8% compared to 2018. Total operating expenses for 2019 were $789.8 million, a decrease of $21.1 million, or 2.6% compared to 2018.

Financial Analysis of the Authority - Continued

Changes in Net Position - Continued

Table A-2

Changes in Net Position
Years ended December 31, 2020, 2019, and 2018
(In millions of dollars)

	2020	2019	2018	Percentage Change 2020-2019
OPERATING REVENUE				
Tolls and related revenues	$ 648.7	$ 775.0	$ 766.4	(16.3)
Concessions	6.8	14.8	14.9	(54.1)
Other	14.7	24.3	18.1	(39.5)
Total operating revenue	670.2	814.1	799.4	(17.7)
OPERATING EXPENSES				
Salaries	137.0	143.6	146.0	(4.6)
Post employment obligations	88.4	60.0	83.3	47.3
Employee benefits	93.0	70.9	64.6	31.2
State Police - Troop T services	56.4	62.6	58.1	(9.9)
Professional and other services	47.1	61.8	51.1	(23.8)
Supplies, materials and rentals	17.0	27.9	26.2	(39.1)
Maintenance and repairs	13.2	20.3	16.6	(35.0)
Utilities	6.0	6.0	6.3	0.0
Insurance and claims	3.2	7.6	4.3	(57.9)
Equipment	0.4	1.0	0.6	(60.0)
Other	0.7	0.1	0.1	600.0
Depreciation and amortization	355.8	328.0	353.7	8.5
Total operating expenses	818.2	789.8	810.9	3.6
Operating income (loss)	(148.0)	24.3	(11.5)	(709.1)
NON-OPERATING ITEMS				
Investment income	4.5	6.1	5.5	(26.2)
Interest expense	(206.5)	(205.7)	(178.9)	0.4
Debt issuance expense	(0.8)	(13.0)	(2.9)	(93.8)
Non-operating revenue	0.6	3.4	8.1	(82.4)
Loss on disposals and other	(0.1)	(0.8)	(0.5)	(87.5)
Net non-operating items	(202.3)	(210.0)	(168.7)	(3.7)
Loss before capital contributions	(350.3)	(185.7)	(180.2)	88.6
Capital contributions	67.8	297.5	496.9	(77.2)
CHANGE IN NET POSITION	**(282.5)**	**111.8**	**316.7**	(352.7)
NET POSITION, *beginning of year*	1,222.6	1,110.8	794.1	10.1
NET POSITION, *end of year*	**$ 940.1**	**$ 1,222.6**	**$ 1,110.8**	**(23.1)**

Financial Analysis of the Authority - Continued

<u>Changes in Net Position</u> - Continued

Tolls and related revenues decreased $126.3 million, or 16.3% compared to 2019. This decrease is primarily due to reduced passenger traffic resulting from the COVID-19 pandemic.

Concession revenues decreased $8.0 million, or 54.1% compared to 2019. This decrease is primarily due to reduced traffic resulting from the COVID-19 pandemic.

Other revenues decreased $9.6 million or 39.5% compared to 2019. This decrease is primarily due to lower interest rates; as well as interest earned in 2019 on $1.6 billion of Transportation Infrastructure Finance and Innovation Act (TIFIA) Loan proceeds. Additional information regarding the TIFIA Loan is presented in Note 5.

Salary costs decreased $6.6 million, or 4.6% compared to 2019. This decrease is primarily due to the elimination of toll collection staff in conjunction with the implementation of cashless tolling in November 2020. A reduction in overtime costs due to milder winter weather in 2020 also contributed to the decrease.

Postemployment benefit obligations increased $28.4 million, or 47.3% compared to 2019. Postemployment benefit obligations consist primarily of health insurance benefits provided to retirees. Additional information regarding postemployment benefits other than pensions is presented in Note 10.

Employee benefit costs increased $22.1 million, or 31.1% compared to 2019. This increase is primarily due to higher costs related to the Authority's participation in the New York State and Local Employees' Retirement System (ERS). Additional information regarding the Authority's participation in ERS is presented in Note 8.

State Police Troop T costs decreased $6.2 million, or 9.9%. State Police Troop T is dedicated exclusively to the patrol of the Thruway system. This decrease is primarily due to a reduction in Troop T staffing and overtime costs.

Professional and other services decreased $14.7 million, or 23.8% compared to 2019. This decrease is primarily due to timing of credit card fee reimbursements from toll roads that have E-ZPass reciprocity agreements with the Authority. In addition, reduced traffic levels due to COVID-19 resulted in reduced costs to administer the Authority's Tolls by Mail program.

Supplies, materials, and rentals decreased $10.9 million, or 39.1% compared to 2019. This decrease is primarily due to a milder winter in 2020 that resulted in less salt and fuel usage. Lower fuel prices also contributed to the decrease.

Maintenance and repairs decreased $7.1 million, or 35.0% compared to 2019. This decrease is primarily due to a settlement with ExxonMobil in which they agreed to reimburse the Authority $7.5 million for soil remediation costs at fueling stations they previously operated at Authority owned service areas. A reduction in general maintenance to infrastructure because of the COVID-19 pandemic also contributed to the decrease.

Depreciation and amortization increased $27.8 million, or 8.5% compared to 2019. This increase is primarily due to the Authority's continued investment in infrastructure.

Financial Analysis of the Authority - Continued

Changes in Net Position - Continued

Debt issuance costs decreased $12.2 million, or 93.8% compared to 2019. In 2019, the Authority issued General Revenue Bonds, Series M, General Revenue Junior Indebtedness Obligation Anticipation Notes, Series 2019A and General Revenue Junior Indebtedness Obligations, Series 2019B which had combined issuance costs of $13.0 million. In 2020, the Authority issued General Revenue Bonds, Series N with an issuance cost of $0.6 million. The difference was due to a decrease in debt issuance transactions, the differing types of debt issued, the par amounts and maturities, the type of sale (negotiated vs. competitive) and market conditions during each issuance.

Capital contributions decreased $229.7 million, or 77.2% compared to 2019. The decrease is primarily due to a decrease in 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 is presented in Note 11.

Capital Assets and Debt Administration

Capital Assets

As of December 31, 2020, the Authority had invested approximately $13.15 billion in capital assets, including roads, bridges, buildings, land and equipment. Net of accumulated depreciation, the Authority's capital assets totaled approximately $7.64 billion (see Table A-3) representing a net increase (including additions, disposals and depreciation) of approximately $135.8 million or 1.8% compared to December 31, 2019.

As of December 31, 2019, the Authority had invested approximately $12.76 billion in capital assets, including roads, bridges, buildings, land and equipment. Net of accumulated depreciation, the Authority's capital assets totaled approximately $7.51 billion (see Table A-3) representing a net increase (including additions, disposals and depreciation) of approximately $195.0 million, or 2.7% compared to December 31, 2018.

Table A-3

Capital Assets
December 31, 2020, 2019, and 2018
(In millions of dollars)

	2020	2019	2018	Percentage Change 2020-2019
Land and land improvements	$ 816.6	$ 815.5	$ 806.1	0.1
Construction in progress	190.5	497.5	363.3	(61.7)
Thruway System	11,872.8	11,197.2	10,900.0	6.0
Equipment	268.3	246.3	241.2	8.9
Less accumulated depreciation	(5,506.2)	(5,250.3)	(4,999.4)	4.9
Total net capital assets	$ 7,642.0	$ 7,506.2	$ 7,311.2	1.8

Capital Assets and Debt Administration

Capital Assets - Continued

In 2020, construction work in progress decreased $307 million, or 61.7%. This decrease is primarily due to the completion of maintenance and state police buildings at the Governor Mario M. Cuomo Bridge, as well as a shared use path on the bridge and the conversion of the mainline of the Thruway System to cashless tolling. Significant projects in progress as of December 31, 2020 include a project to rehabilitate Interstate 95 from Port Chester to the Connecticut state line and a safety upgrade project near Amsterdam.

Net additions to the Thruway System during 2020 were $675.5 million, or 6.0%. This increase was primarily due to the completion of cashless tolling, as well as the shared use path on the Governor Mario M. Cuomo Bridge. New maintenance and state police buildings adjacent to the Governor Mario M Cuomo Bridge, as well as replacement of the Interstate 287 ramp over Interstate 95 also contributed to the increase.

In 2019, construction work in progress increased $134.2 million, or 36.9%. This increase is primarily due to the ongoing construction of new maintenance and state police buildings at the Governor Mario M. Cuomo Bridge, as well as a shared use path on the bridge. Other significant projects in progress as of December 31, 2019 include a project to convert the mainline of the Thruway System to cashless tolling and a project to rehabilitate Interstate 95 from Port Chester to the Connecticut state line.

Net additions to the Thruway System during 2019 were $297.2 billion and 2.7%. This increase was primarily due to the completion of five bridge replacements at various locations across the system and a pavement rehabilitation project between mileposts 427.7 and 430.4 in Buffalo. Additional investments in 2020 for assets previously put into service also contributed to this increase. These assets include the Governor Mario M. Cuomo Bridge, as well as cashless tolling implementations 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.

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. 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 were used solely to fund New NY Bridge project costs incurred through project completion.

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, 2020, the Authority had approximately $6.43 billion in general revenue bonds and junior indebtedness obligations outstanding, an increase of $397.6 million or approximately 6.6% compared to the amount of general revenue bonds and junior indebtedness obligations outstanding as of December 31, 2019 (see Table A-4).

Capital Assets and Debt Administration - Continued

<u>Debt Administration</u> – Continued

Short-term debt includes subordinated indebtedness of varying rates and maturities up to two years from the date of agreement and were entered into to provide liquidity to the Authority during the COVID-19 pandemic. At December 31, 2020, the Authority had $50 million outstanding and an additional $175 million in unused commitments available under short term debt agreements (see Table A-4).

In March 2020, the Authority issued General Revenue Bonds, Series N which generated proceeds of $536.7 million. The proceeds were used to fund a portion of the Multi-Year Capital Plan, fund capitalized interest and provide for a required deposit to the Senior Debt Service Reserve Fund. These bonds mature in various amounts through January 1, 2050.

In June 2020, the Authority executed a Revolving Credit Agreement providing a line of credit with an available commitment not to exceed $125 million dollars. A draw of this line in the amount of $50 million was made in June 2020 and was used to partially defease debt service due in July 2020. The remaining line of credit commitment amount available is $75 million and expires in June 2021.

In October 2020, the Authority executed a Noteholder's Agreement providing liquidity funding through a drawdown process to issue and sell short-term notes up to a total combined commitment not to exceed $100 million. The Authority has not drawn on the commitment, and the full commitment amount is available. The agreement expires in October 2022.

Of the $3.60 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 $2.83 billion in junior indebtedness obligations outstanding, approximately $362.2 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.

At December 31, 2019, the Authority had approximately $6.03 billion in general revenue bonds and junior indebtedness obligations, an increase of $169.7 million, or 2.9% from December 31, 2018. The Authority had no short-term debt outstanding as of December 31, 2019.

Table A-4

Outstanding Debt
Years ended December 31, 2020 and 2019
(In millions of dollars)

	Year Ended December 31, 2020			
	Beginning Balance	Additions	Reductions	Ending Balance
General revenue bonds	$ 3,190.4	$ 536.7	$ (126.4)	$ 3,600.7
Junior indebtedness obligations	2,837.4	-	(12.7)	2,824.7
Total bonds and notes	6,027.8	536.7	(139.1)	6,425.4
Revolving credit agreement	-	50.0	-	50.0
Total bonds, notes and other debt	$ 6,027.8	$ 586.7	$ (139.1)	$ 6,475.4

Capital Assets and Debt Administration - Continued

Debt Administration - Continued

Table A-4 (Continued)

Outstanding Debt
Years ended December 31, 2020 and 2019
(In millions of dollars)

	Year Ended December 31, 2019			
	Beginning Balance	Additions	Reductions	Ending Balance
General revenue bonds	$ 3,274.2	$ 857.6	$ (941.4)	$ 3,190.4
Junior indebtedness obligations	2,583.9	5,072.4	(4,818.9)	2,837.4
Total bonds and notes	$ 5,858.1	$ 5,930.0	$ (5,760.3)	$ 6,027.8

More detailed information regarding the Authority's debt is presented in Notes 5 and 6.

Other Significant Matters

COVID-19

The COVID-19 pandemic that began affecting the United States in March 2020 had an adverse and material impact on the financial condition and operating results of the Authority. Operating revenues in 2020 were $670.2 million, a decrease of $143.9 million, or 17.7% compared to 2019. This decrease was primarily due to a reduction in passenger traffic caused by stay at home orders and travel restrictions implemented to control the spread of the virus. Toll revenue generated by passenger traffic was $317.7 million, a decrease of $118.1 million, or 27.1% compared to 2019. Commercial traffic levels remained relatively stable compared to 2019. Toll revenue generated by commercial traffic was $297.6 million, a decrease of $6.5 million, or 2.1% compared to 2019.

Several actions were taken in 2020 to counter the loss of revenues caused by COVID-19. The Authority entered into credit agreements with JP Morgan Chase and the Royal Bank of Canada that together provide a credit commitment of $225 million. As of December 31, 2020, the Authority has drawn $50 million of proceeds using these agreements. In addition, the Authority used proceeds from General Revenue Bonds, Series N issued in March 2020 to refund certain capital program costs that were originally funded in late 2019 and early 2020 with Authority revenues and Thruway Stabilization program funds.

Cashless Tolling

In November 2020, the Authority implemented cashless tolling on the interchange (ticketed) portion of the Thruway system and with it completed a system-wide conversion to cashless tolling. Tolling at the Governor Mario M. Cuomo and Grand Island Bridges, as well as Harriman, Yonkers, New Rochelle, and Spring Valley locations were converted to cashless tolling prior to 2020. Cashless tolling allows customers to pay their tolls at highway speed 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). A total of $360.3 million has been invested in cashless tolling infrastructure improvements and equipment through December 31, 2020, of which $229.3 million was invested during 2020. Work to remove toll booths and reconfigure interchanges is ongoing and expected to be completed during 2021.

Other Significant Matters - Continued

Governor Mario M. Cuomo Bridge and Tappan Zee Constructors, LLC

In January 2013, the Authority entered into a design-build agreement with Tappan Zee Constructors, LLC to construct the Governor Mario M. Cuomo Bridge (then known as the New NY Bridge) to replace the existing Tappan Zee Bridge. 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 a shared use path to accommodate bicycle and pedestrian use on the bridge. New maintenance and state police buildings were also constructed adjacent to the bridge as part of the project. The westbound span of the bridge was placed in service in 2017 and the eastbound span was placed in service in 2018. The shared use path, as well as the new maintenance and state police buildings were completed in 2020. Since 2013, the Authority has invested $3.7 billion in the project. Additional investments in the project include capitalized interest costs of $168.4 million, as well as planning costs of $152.8 million incurred prior to 2013.

Tappan Zee Constructors, LLC has submitted requests for payment to the Authority claiming they are owed, as of December 31, 2020, $923 million, plus interest, in excess of their approved contract value and anticipated change orders. Their claims relate to issues of time, extra work, and oversight of the project. The Authority disputes these claims.

In February 2021, Tappan Zee Constructors, LLC filed a claim against the Authority in the NYS Court of Claims with respect to the dispute. Additional information regarding Tappan Zee Constructors, LLC's claims is presented in Note 12a.

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. As of December 31, 2020, all program funds have been received. The program provided $1.2 billion for the Governor Mario M. Cuomo Bridge, $752.8 million for other Thruway capital projects and $32.2 million for working capital needs. Additional information regarding the Thruway Stabilization Program is presented in Note 11.

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, 2020	December 31, 2019
ASSETS AND DEFERRED OUTFLOWS OF RESOURCES		
CURRENT ASSETS		
Cash and cash equivalents	$ 441,304	$ 379,282
Investments	1,346	6,288
Receivables, net	78,696	64,150
Material and other supplies	19,603	20,129
Prepaid items	4,635	4,047
Restricted assets	328,261	299,702
Total current assets	873,845	773,598
NON-CURRENT ASSETS		
Restricted assets	525,454	503,462
Capital assets, not being depreciated	1,007,110	1,313,048
Capital assets, net of accumulated depreciation	6,634,861	6,193,156
Total non-current assets	8,167,425	8,009,666
Total assets	9,041,270	8,783,264
DEFERRED OUTFLOWS OF RESOURCES	282,920	113,344
LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION		
CURRENT LIABILITIES		
Accounts payable and accrued expenses	224,946	257,348
Unearned revenue	119,588	112,888
Accrued interest payable	125,339	87,308
Revolving credit agreement	50,000	-
Bonds payable, due within one year	145,170	126,482
Total current liabilities	665,043	584,026
NON-CURRENT LIABILITIES		
Bonds payable	6,280,239	5,901,315
Other long-term liabilities	1,326,498	1,033,718
Total non-current liabilities	7,606,737	6,935,033
Total liabilities	8,271,780	7,519,059
DEFERRED INFLOWS OF RESOURCES	112,280	154,930
NET POSITION		
Net investment in capital assets	1,669,892	1,948,527
Restricted for		
Debt service	96,602	96,644
Capital	98,438	45,103
Unrestricted (deficit)	(924,802)	(867,655)
Total net position	**$ 940,130**	**$ 1,222,619**

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, 2020	2019
OPERATING REVENUES		
Tolls and related revenues	$ 648,715	$ 774,979
Concessions	6,760	14,778
Other	14,679	24,400
Total operating revenues	670,154	814,157
OPERATING EXPENSES		
Salaries	136,964	143,552
Postemployment obligations	88,381	60,033
Employee benefits	93,030	70,931
State Police - Troop T services	56,374	62,563
Professional and other services	47,117	61,838
Supplies, materials and rentals	17,016	27,933
Maintenance and repairs	13,171	20,284
Utilities	6,044	6,047
Insurance and claims	3,188	7,584
Equipment	375	1,007
Other	727	94
Depreciation and amortization	355,788	327,953
Total operating expenses	818,175	789,819
Operating income (loss)	**(148,021)**	**24,338**
NON-OPERATING REVENUES AND EXPENSES		
Investment income	4,479	6,104
Interest expense	(206,453)	(205,742)
Debt issuance cost	(817)	(12,994)
Federal, state and other aid	608	3,371
Loss on disposal of assets	(62)	(783)
Net non-operating items	(202,245)	(210,044)
Loss before capital contributions	**(350,266)**	**(185,706)**
CAPITAL CONTRIBUTIONS	67,777	297,522
CHANGE IN NET POSITION	**(282,489)**	**111,816**
NET POSITION, ***beginning of year***	1,222,619	1,110,803
NET POSITION, ***end of year***	**$ 940,130**	**$ 1,222,619**

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, 2020	2019
CASH PROVIDED (USED) BY OPERATING ACTIVITIES		
Cash received from collection of tolls and related revenues	$ 641,504	$ 804,881
Cash received from concession sales	5,966	14,485
Other operating cash receipts	14,635	23,214
Personal service payments	(140,048)	(144,041)
Employee benefits payments	(98,199)	(101,850)
E-ZPass and Tolls by Mail account management payments	(41,833)	(47,006)
Payments to New York State for Troop T services	(57,298)	(63,722)
Cash payments to vendors and contractors	(49,029)	(48,081)
	275,698	**437,880**
CASH FLOWS PROVIDED BY NON-CAPITAL FINANCING ACTIVITIES		
Federal, state and other aid	2,272	1,277
Proceeds from revolving credit agreement	50,000	-
	52,272	**1,277**
CASH FLOWS PROVIDED (USED) FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Proceeds from issuance of debt	536,718	4,329,992
Proceeds from TIFIA Loan	-	1,600,000
Federal, state and other capital contributions	70,896	246,745
Acquisition/construction of capital assets	(503,783)	(411,740)
Principal paid on debt	(100,945)	(5,709,258)
Interest and issuance costs paid on debt	(211,320)	(318,286)
Proceeds from sale of capital assets	3	1,006
	(208,431)	**(261,541)**
CASH FLOWS PROVIDED (USED) BY INVESTING ACTIVITIES		
Purchase of investments	(827,982)	(748,291)
Proceeds from sales and maturities of investments	698,256	846,442
Interest and dividends on investments	3,731	6,521
	(125,995)	**104,672**
Net increase (decrease) in cash and cash equivalents	**(6,456)**	**282,288**
CASH AND CASH EQUIVALENTS, *beginning of year*	958,611	676,323
CASH AND CASH EQUIVALENTS, *end of year*	**$ 952,155**	**$ 958,611**

See accompanying Notes to Financial Statements.

New York State Thruway Authority

(A Component Unit of the State of New York)

Statements of Cash Flows - Continued
(in thousands of dollars)

	Years Ended December 31, 2020	2019
RECONCILIATION OF OPERATING INCOME (LOSS) TO NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES		
Operating income (loss)	$ (148,021)	$ 24,338
Adjustments to reconcile operating income (loss) to net cash provided by operating activities		
Depreciation and amortization	355,788	327,953
Net changes in assets, liabilities, deferred outflows and deferred inflows		
Receivables	(16,211)	14,125
Material and other supplies	526	(1,147)
Other assets	(780)	(62)
Accounts payables and accrued expenses	286,955	(56,607)
Deferred outflows	(170,934)	34,286
Deferred inflows	(38,324)	80,089
Unearned revenue	6,700	14,905
	$ 275,698	**$ 437,880**
RECONCILIATION TO STATEMENTS OF NET POSITION		
Cash and cash equivalents	$ 441,304	$ 379,282
Restricted cash and cash equivalents	510,851	579,329
	$ 952,155	**$ 958,611**
NON-CASH CAPITAL ACTIVITIES		
Payments made to vendors by the State of New York under Thruway Stabilization Program	**$ 12,733**	**$ 149,078**

See accompanying Notes to Financial Statements.

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 Governmental 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 7.

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.

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.

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 amounts attributable to the Authority's cashless tolling system, receivables from commercial transportation companies and Federal and State governments under various grant programs. Receivables attributable to commercial transportation companies with post-paid accounts are guaranteed by surety bonds and/or cash deposits. Receivables are reported net of an allowance for uncollectible amounts. The allowance for doubtful receivables amounted to $18,493,000 and $12,895,000 at December 31, 2020 and 2019, 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, 2020 and 2019, E-ZPass accounts with negative balances, net of allowances for doubtful accounts, amount to $1,816,000 and $1,765,000, respectively.

Note 1 - Organization and Summary of Significant Accounting Policies - Continued

h. Restricted Assets

Certain proceeds of Thruway revenue bonds and notes, as well as certain Thruway revenues, 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 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 of $29,021,000 and $28,010,000 for the years ended December 31, 2020 and 2019, 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 8.

k. Other Postemployment Benefits

The Authority recognizes in its financial statements the financial impact of other postemployment benefits, principally employer funded retiree health care costs. The impact on the Authority's financial position and results of operations is more fully disclosed in Note 10.

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 $9,597,000 and $9,007,000 at December 31, 2020 and 2019, 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 10.

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 basis that approximates the effective interest method. Net amortization related to bond and note premiums were approximately $38,161,000 and $48,430,000 for 2020 and 2019, respectively, and are included as an offset to interest expense.

Note 1 - Organization and Summary of Significant Accounting Policies - Continued

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 therefore will not be recognized as an outflow of resources (expense/expenditure) until that time. Deferred outflows include amounts related to pensions (Note 8), other postemployment benefit obligations (Note 10), losses related to bond refunding's (Note 5) and obligations associated with the retirement of certain assets (Note 12f).

The following schedule summarizes the Authority's deferred outflows of resources as of December 31, 2020 and 2019 (in thousands):

	2020	2019
Net pension liability	$ 104,530	$ 43,951
Postemployment benefit obligation	167,691	57,335
Loss on bond refundings	7,499	8,333
Asset retirement obligations	3,200	3,725
Totals	$ 282,920	$ 113,344

Deferred inflows of resources represent an acquisition of net position that applies to a future period and therefore will not be recognized as an inflow of resources (revenue) until that time. Deferred inflows include amounts related to pensions (Note 8), other postemployment benefit obligations (Note 10) and gains related to bond refunding's (Note 5).

The following schedule summarizes the Authority's deferred inflows of resources as of December 31, 2020 and 2019 (in thousands):

	2020	2019
Net pension liability	$ 4,203	$ 13,042
Postemployment benefit obligation	88,452	117,936
Gain on bond refundings	19,625	23,952
Totals	$ 112,280	$ 154,930

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."

Note 1 - Organization and Summary of Significant Accounting Policies - Continued

p. Capital Contributions

Capital contributions consist primarily of funds provided by the State of New York. Additional information regarding the State of New York's Thruway Stabilization Program is presented in Note 11.

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 relatable 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, 2020 and 2019.

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 is they are assessed against customers who have failed to pay their toll and/or follow the terms of their E-ZPass account agreement or regulations governing the Tolls by Mail program. The Authority's policy for recognizing revenue associated with non-exchange fees is to record the revenue at the time the fee is collected.

Tolls and related revenues include fees of $33,422,000 and $35,095,000 for the years ended December 31, 2020 and 2019, respectively.

Other non-exchange transactions of the Authority are disclosed in Note 11.

t. Reclassification

Certain amounts have been reclassified in the previously issued 2019 financial statements. Payments made to the State of New York for State Police Troop T services were previously included in Cash Payments to Vendors and Contractors on the Statement of Cash Flows. Payments of $63,722,000 have been reclassified as Payments to New York State for Troop T services. Other reclassifications are immaterial.

u. Subsequent Events

The Authority has evaluated subsequent events for potential recognition or disclosure through March 29, 2021, the date the financial statements were available to be issued.

Note 2 - Cash and Investments

The Authority's cash and investments as of December 31, 2020 and 2019, were as follows (in thousands):

	Carrying Value	
	2020	2019
Unrestricted		
Cash		
Demand deposits	$ 251,310	$ 123,911
Toll change funds	-	128
Total unrestricted cash	251,310	124,039
Cash equivalents		
U.S. government discount notes	-	18,208
U.S. treasury securities	189,994	89,320
Commercial paper	-	147,715
Total unrestricted cash equivalents	189,994	255,243
Total unrestricted cash and cash equivalents	$ 441,304	$ 379,282

	Carrying Value	
	2020	2019
Restricted		
Cash		
Demand deposits	$ 316,456	$ 44,039
Other deposits	2,183	2,362
Total restricted cash	318,639	46,401
Cash equivalents		
U.S. government discount notes	-	92,578
U.S. treasury securities	140,213	358,258
Commercial paper	51,999	82,092
Total restricted cash equivalents	192,212	532,928
Total restricted cash and cash equivalents	$ 510,851	$ 579,329

Note 2 - Cash and Investments - Continued

	Carrying Value	
	2020	2019
Investments		
Unrestricted		
U.S. treasury securities	$ -	$ 5,467
Time deposits	1,346	821
Total unrestricted investments	$ 1,346	$ 6,288
Restricted		
Commercial paper	$ -	$ 23,883
U.S. treasury securities	333,257	174,545
Total restricted investments	$ 333,257	$ 198,428

At December 31, 2020 and 2019, 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, 2020 and 2019. Amounts are collateralized with securities transferred to and held by the Authority's trustee/custodian in the Authority's name.

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.

Note 2 - Cash and Investments - Continued

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 owns approximately $74,900,000 in U.S. Government investments at December 31, 2020 that mature in 2022 and beyond.

As of December 31, 2020, the Authority had the following concentrations of cash equivalents and investments:

	Credit Exposure Security	% of Total (Rating)
Certificates of Deposit		0.18%
Commercial Paper		
Toronto Dominion HDG USA, INC	A-1+/P-1/na	6.87%
U.S. Government Securities		
Treasury Bills	A-1+/P-1/F1+	92.95%

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.

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:

Category	Useful Life	Capitalization Threshold
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

Note 3 - Capital Assets - Continued

The following schedules summarize the capital assets of the Authority and related changes for the years ended December 31, 2020 and 2019 (in thousands):

	December 31, 2019	Additions	Reductions	December 31, 2020
Capital assets, not being depreciated				
Land and land improvements	$ 815,530	$ 1,084	$ (17)	$ 816,597
Construction in progress	497,518	459,627	(766,632)	190,513
Total capital assets, not being depreciated	1,313,048	460,711	(766,649)	1,007,110
Capital assets, being depreciated				
Thruway System	11,197,183	774,534	(98,988)	11,872,729
Equipment	246,328	22,345	(371)	268,302
Total capital assets, being depreciated	11,443,511	796,879	(99,359)	12,141,031
Less accumulated depreciation for				
Thruway System	(5,120,617)	(333,937)	98,999	(5,355,555)
Equipment	(129,738)	(21,184)	307	(150,615)
Total accumulated depreciation	(5,250,355)	(355,121)	99,306	(5,506,170)
Net value of capital assets, being depreciated	6,193,156	441,758	(53)	6,634,861
Capital assets, net	$ 7,506,204	$ 902,469	$ (766,702)	$ 7,641,971

	December 31, 2018	Additions	Reductions	December 31, 2019
Capital assets, not being depreciated				
Land and land improvements	$ 806,165	$ 9,469	$ (104)	$ 815,530
Construction in progress	363,335	420,571	(286,388)	497,518
Total capital assets, not being depreciated	1,169,500	430,040	(286,492)	1,313,048
Capital assets, being depreciated				
Thruway System	10,899,960	348,263	(51,040)	11,197,183
Equipment	241,211	31,939	(26,822)	246,328
Total capital assets, being depreciated	11,141,171	380,202	(77,862)	11,443,511
Less accumulated depreciation for				
Thruway System	(4,865,787)	(305,973)	51,143	(5,120,617)
Equipment	(133,652)	(21,102)	25,016	(129,738)
Total accumulated depreciation	(4,999,439)	(327,075)	76,159	(5,250,355)
Net value of capital assets, being depreciated	6,141,732	53,127	(1,703)	6,193,156
Capital assets, net	$ 7,311,232	$ 483,167	$ (288,195)	$ 7,506,204

Depreciation expense related to capital assets was $355,121,000 and $327,075,000 for the years ended December 31, 2020 and 2019, respectively. The Authority periodically reviews and, when deemed necessary, adjusts the estimated useful lives of its capital assets.

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.

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, 2020 and 2019 (in thousands):

The related balances at December 31, 2020 and 2019 are as follows:

	2020	2019
Restricted current		
Cash and cash equivalents	$ 267,397	$ 220,745
Investments	60,082	63,830
Interest receivable	782	109
Receivables	-	15,018
Total	328,261	299,702
Restricted non-current		
Cash and cash equivalents	243,454	358,584
Investments	273,175	134,598
Interest receivable	973	1,059
Receivables	4,395	2,697
Prepaid items	3,457	6,524
Total	525,454	503,462
Total restricted assets	$ 853,715	$ 803,164

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, 2020 and 2019 were $177,198,000 and $152,313,000, 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, 2020 and 2019 were $198,619,000 and $180,843,000, 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. As of December 31, 2019, the fund also held 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, 2020 and 2019 were $135,374,000 and $19,361,000, 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, 2020 and 2019 were $82,115,000 and $65,094,000, respectively.

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, Series 2016A and Series 2019B Junior Indebtedness Obligations; and 3) satisfy the Junior Indebtedness Debt Service Reserve requirements on the Series 2016A and Series 2019B Junior Indebtedness Obligations. The amounts held in this restricted fund at December 31, 2020 and 2019 were $229,952,000 and $334,947,000, 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, 2020 and 2019, were $28,274,000 and $48,244,000, 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, 2020 and 2019 were $2,183,000 and $2,362,000, respectively.

Note 5 - Long-Term Liabilities

The Authority's bond indebtedness and other long-term liabilities at December 31, 2020 and 2019, are comprised of the following obligations (in thousands):

	Date of Issuance	December 31, 2019 Balance	Additions	Reductions	December 31, 2020 Balance	Due Within One Year
General revenue bonds						
2012 Series I	7/12	$ 202,330	$ -	$ (24,390)	$ 177,940	$ 25,560
2014 Series J	2/14	623,220	-	(14,725)	608,495	15,355
2014 Series K	12/14	739,040	-	(25,470)	713,570	26,760
2018 Series L	3/18	566,625	-	(36,360)	530,265	38,050
2019 Series M	10/19	857,625	-	-	857,625	-
2020 Series N	3/20	-	450,000	-	450,000	-
Unamortized bond premiums		201,598	86,718	(25,526)	262,790	25,983
General revenue bonds and unamortized premiums		3,190,438	536,718	(126,471)	3,600,685	131,708
Junior indebtedness obligations and notes						
Series 2016 A	5/16	850,000	-	-	850,000	250
Series 2019 B	10/19	1,693,245	-	-	1,693,245	580
Unamortized bond premiums		294,114	-	(12,635)	281,479	12,632
Junior indebtedness obligations and unamortized premiums		2,837,359	-	(12,635)	2,824,724	13,462
Total bonds and unamortized premiums		$ 6,027,797	$ 536,718	$ (139,106)	$ 6,425,409	$ 145,170
Other long-term liabilities						
Postemployment benefit obligation		$ 983,462	$ 228,222	$ (30,482)	$ 1,181,202	$ -
Net pension liability		37,249	115,698	(21,249)	131,698	-
Compensated absences		9,007	590	-	9,597	-
Asset retirement obligations		4,500	-	(270)	4,230	229
Service based retention-incentive		3,621	-	3,621	-	-
Total other long-term liabilities		$ 1,037,839	$ 344,510	$ (48,380)	$ 1,326,727	$ 229

Note 5 - Long-Term Liabilities - Continued

	Date of Issuance	December 31, 2018 Balance	Additions	Reductions	December 31, 2019 Balance	Due Within One Year
General revenue bonds						
2012 Series I	7/12	$ 1,019,500	$ -	$ (817,170)	$ 202,330	$ 24,390
2014 Series J	2/14	637,250	-	(14,030)	623,220	14,725
2014 Series K	12/14	743,865	-	(4,825)	739,040	25,470
2018 Series L	3/18	596,220	-	(29,595)	566,625	36,360
2019 Series M	10/19	-	857,625	-	857,625	-
Unamortized bond premiums		277,350		(75,752)	201,598	15,031
General revenue bonds and unamortized premiums		3,274,185	857,625	(941,372)	3,190,438	115,976
Junior indebtedness obligations and notes						
Series 2013 A	12/13	1,600,000	-	(1,600,000)	-	-
Series 2016 A	5/16	850,000	-	-	850,000	-
Series 2019 A Notes	4/19	-	1,587,210	(1,587,210)	-	-
Series 2013 B (TIFIA)	9/19	-	1,600,000	(1,600,000)	-	-
Series 2019 B	10/19	-	1,693,245	-	1,693,245	-
Unamortized bond premiums		133,872	191,912	(31,670)	294,114	10,506
Junior indebtedness obligations and unamortized premiums		2,583,872	5,072,367	(4,818,880)	2,837,359	10,506
Total bonds and unamortized premiums		$ 5,858,057	$ 5,929,992	$ (5,760,252)	$ 6,027,797	$ 126,482
Other long-term liabilities						
Postemployment benefit obligation		$ 1,083,760	$ -	$ (100,298)	$ 983,462	$ -
Net pension liability		15,619	21,630	-	37,249	-
Compensated absences		8,970	37	-	9,007	-
Asset retirement obligations		4,500	-	-	4,500	500
Service based retention-incentive		3,506	115	-	3,621	3,621
Total other long-term liabilities		$ 1,116,355	$ 21,782	$ (100,298)	$ 1,037,839	$ 4,121

No other long-term liabilities were due within one year at December 31, 2020.

The debt service requirements for the Authority's senior bonds as of December 31, 2020 are as follows (in thousands):

Due	Principal	Interest	Total
2021	$ 105,725	$ 140,105	$ 245,830
2022	104,005	134,978	238,983
2023	131,705	129,221	260,926
2024	126,545	123,123	249,668
2025	137,085	117,181	254,266
2026-2030	771,300	481,860	1,253,160
2031-2035	888,090	294,118	1,182,208
2036-2040	561,130	153,516	714,646
2041-2045	352,385	53,595	405,980
2046-2050	159,925	12,935	172,860
Unamortized premiums	262,790	-	262,790
	$ 3,600,685	$ 1,640,632	$ 5,241,317

Note 5 - Long-Term Liabilities - Continued

The debt service requirements for the Authority's junior indebtedness obligations as of December 31, 2020 are as follows (in thousands):

Due	Principal	Interest	Total
2021	830	107,424	108,254
2022	1,340	107,373	108,713
2023	1,390	107,307	108,697
2024	1,450	107,239	108,689
2025	3,260	107,122	110,382
2026-2030	120,545	526,733	647,278
2031-2035	102,095	493,039	595,134
2036-2040	474,825	433,690	908,515
2041-2045	562,990	324,945	887,935
2046-2050	690,705	198,575	889,280
2051-2055	524,470	59,850	584,320
2056	59,345	1,433	60,778
Unamortized premiums	281,479	-	281,479
	$ 2,824,724	$ 2,574,730	$ 5,399,454

General Revenue Bonds - Series I (Series I Bonds): During July 2012, the Authority issued $1,122,560,000 in Series I Bonds 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; and (3) make a deposit to the Senior Debt Service Reserve Fund; and (4) pay bond issuance costs.

The Series I Bonds are comprised of both Serial Bonds and Term Bonds with varying rates and maturities. The amounts outstanding at December 31, 2020, are as follows:

Type	Rates	Maturity	Amount (in thousands)
Serial Bonds	4.00% to 5.00%	2021 - 2023	$ 80,495
Term Bonds	4.13%	2037	27,445
Term Bonds	4.13%	2042	70,000
			$ 177,940

Principal payments under the Series I Serial Bonds began in 2014. The Series I Term Bonds require sinking fund installments in 2036 through 2042, in amounts ranging from $12,700,000 to $15,370,000 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. The Series I bonds were partially defeased in October 2019 using the proceeds of the General Revenue Bonds – Series M – Federally Taxable.

Note 5 - Long-Term Liabilities - Continued

General Revenue Bonds - Series J (Series J Bonds): During February 2014, the Authority issued $677,460,000 in Series J Bonds 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, 2020, are as follows:

Type	Rates	Maturity	Amount (in thousands)
Serial Bonds	3.00% to 5.00%	2021 - 2036	$ 457,975
Term Bonds	5.00%	2041	87,235
Term Bonds	4.63%	2044	63,285
			$ 608,495

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 (Series K Bonds): During December 2014, the Authority issued $743,865,000 in Series K Bonds 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.

The Series K Bonds are comprised of Serial Bonds with varying rates and maturities. The amounts outstanding at December 31, 2020, are as follows:

Type	Rates	Maturity	Amount (in thousands)
Serial Bonds	3.25% to 5.00%	2021 - 2032	$ 713,570

Principal payments under the Series K Serial Bonds began 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 Refunding Bonds - Series L (Series L Bonds): During March 2018, the Authority issued $596,220,000 of Series L 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, 2029, are callable at the option of the Authority, in whole or in part, beginning January 1, 2028, at par plus accrued interest.

Note 5 - Long-Term Liabilities - Continued

The Series L Bonds are comprised of Serial Bonds with varying rates and maturities. The amounts outstanding at December 31, 2020 are as follows:

Type	Rates	Maturity	Amount (in thousands)
Serial Bonds	3.00% to 5.00%	2021 - 2037	$ 530,265

General Revenue Bonds - Series M – Federally Taxable (Series M Bonds): During October 2019, the Authority issued $857,625,000 of Series M Bonds to: (1) provide funds to refund certain of the Authority's outstanding Series I Bonds (for a net present value savings of $92,477,000); and (2) pay bond issuance costs.

The Series M Bonds are comprised of Serial Bonds and Term Bonds with varying rates and maturities. The amounts outstanding at December 31, 2020 are as follows:

Type	Rates	Maturity	Amount (in thousands)
Serial Bonds	2.12% to 2.55%	2024 - 2028	$ 133,500
Term Bonds	2.90%	2035	380,030
Term Bonds	3.50%	2042	344,095
			$ 857,625

Principal payments under the Series M Bonds begin in 2024. Series M Term Bonds require sinking fund installments in 2031 through 2042, in amounts ranging from $42,800,000 to $102,235,000 annually. Series M Bonds maturing on or prior to January 1, 2035 are callable at the option of the Authority, in whole or in part, subject to make whole redemption provisions. Series M Bonds maturing on January 1, 2042, are: (i) callable at the option of the Authority, in whole or in part, prior to January 1, 2030, subject to make whole redemption provisions; and (ii) callable at the option of the Authority, in whole or in part, on or after January 1, 2030 at par plus accrued interest.

General Revenue Refunding Bonds - Series N (Series N Bonds): During March 2020, the Authority issued $450,000,000 of Series N Bonds to: (i) fund a portion of the Authority's Multi-Year Capital Program; (ii) make a deposit to the Senior Debt Service Reserve Fund; (iii) fund capitalized interest on the Series N Bonds; and (iv) pay the Costs of Issuance of the Series N Bonds. Series N Bonds maturing on or after January 1, 2033, are callable at the option of the Authority, in whole or in part, beginning January 1, 2030, at par plus accrued interest.

The Series N Bonds are comprised of Serial Bonds with varying rates and maturities. The amounts outstanding at December 31, 2020 are as follows:

Type	Rates	Maturity	Amount (in thousands)
Serial Bonds	3.00% to 5.00%	2033 - 2050	$ 450,000

Note 5 - Long-Term Liabilities - Continued

General Revenue Senior Bonds - Revenue Pledge and Security: The General Revenue Bonds (Series I through N) 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, 2020 and 2019, 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 (Series 2013A JIO's): 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 were term bonds, payable in a single bullet maturity on May 1, 2019, with varying interest rates from 3.00% to 5.00% and were not subject to redemption prior to maturity.

The Series 2013A JIO's were fully repaid on April 30, 2019 using the proceeds of the Series 2019A General Revenue Junior Indebtedness Obligation Anticipation Notes.

General Revenue Junior Indebtedness Obligations (JIO) - Series 2016A (Series 2016A JIO's): 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 JIO's; (3) make a deposit to the Series 2016A Subaccount of the Junior Indebtedness Debt Service Reserve Account; and (4) pay the costs of issuance.

The Series 2016A JIO's are comprised of both Serial and Term Bonds with varying rates and maturities. The amounts outstanding at December 31, 2020 are as follows:

Type	Rates	Maturity	Amount (in thousands)
Serial Bonds	3.00% to 5.00%	2021 - 2038	$ 190,665
Term Bonds	5.00%	2041	71,830
Term Bonds	5.00%	2046	145,745
Term Bonds	4.00% to 5.00%	2051	184,960
Term Bonds	4.00% to 5.25%	2056	256,800
			$ 850,000

Series 2016A JIO Term Bonds require sinking fund installments in 2041 through 2056, in amounts ranging from $10,000,000 to $39,345,000 annually. Series 2016A JIO's maturing on or after January 1, 2027, are callable at the option of the Authority, in whole or in part, beginning January 1, 2026, at par plus accrued interest.

Note 5 - Long-Term Liabilities - Continued

General Revenue Junior Indebtedness Obligation Anticipation Notes – Series 2019A (Series 2019A JIO Anticipation Notes): During April 2019, the Authority issued $1,587,210,000 Series 2019A JIO Anticipation Notes to: (1) pay the principal of the Authority's General Revenue Junior Indebtedness Obligations, Series 2013A; and (2) pay note issuance costs.

The Series 2019A JIO Anticipation Notes were payable on February 1, 2020. The Series 2019A JIO Anticipation Notes bore interest at a rate of 4.00%.

The Series 2019A JIO Anticipation Notes were partially defeased on September 17, 2019 in the amount of $400,000,000 and fully defeased on October 24, 2019 using the proceeds of the Transportation Infrastructure Finance and Innovation Act Loan (TIFIA Loan) secured by General Revenue Junior Indebtedness Obligations, Series 2013B.

General Revenue Junior Indebtedness Obligations (JIO) - Series 2013B (Series 2013B JIO's) and TIFIA Loan: During 2013, the Authority entered into a TIFIA Loan with the United States Department of Transportation (USDOT) authorizing a loan for an amount up to $1,600,000,000 to finance a portion of the cost of the New NY Bridge Project, a twin-span replacement of the Tappan Zee Bridge. Series 2013B JIO's were issued to secure the TIFIA Loan. During September 2019, USDOT disbursed $1,600,000,000 of TIFIA Loan proceeds to the Authority. As a result, the Series 2013B JIO's became outstanding in the amount of $1,600,000,000. The TIFIA Loan proceeds were used to defease the Series 2019A JIO Anticipation Notes in part on September 17, 2019, and in full on October 24, 2019.

The TIFIA Loan bore interest at a rate of 3.89%. Payment of TIFIA Loan debt service interest was scheduled to begin in 2022 with principal payments of various amounts payable beginning in 2024 and ending in 2053. The TIFIA Loan was eligible for prepayment at any time without penalty. The TIFIA Loan was fully defeased on October 30, 2019 using the proceeds of General Revenue Junior Indebtedness Obligations, Series 2019B.

General Revenue Junior Indebtedness Obligations (JIO) - Series 2019B: During October 2019, the Authority issued $1,693,245,000 of Series 2019B Junior Indebtedness Obligations to: (1) refund the outstanding General Revenue Junior Indebtedness Obligations, Series 2013B (TIFIA Loan), (2) fund or reimburse approximately $75,000,000 of costs related to the Authority's New NY Bridge Project, (3) fund capitalized interest on the Series 2019B Junior Indebtedness Obligations, (4) purchase a Reserve Credit Facility for the Series 2019B Subaccount of the Junior Indebtedness Debt Service Reserve Account, and (5) pay bond issuance costs incurred in connection with the issuance of the Series 2019B Junior Indebtedness Obligations, including the premium on an insurance policy for certain maturities of the Series 2019B Junior Indebtedness Obligations.

The Series 2019B JIO's are comprised of both Serial and Term Bonds with varying rates and maturities. The amounts outstanding at December 31, 2020 are as follows:

Type	Rates	Maturity	Amount (in thousands)
Serial Bonds	3.00% to 5.00%	2021 - 2046	$ 438,345
Term Bonds	4.00%	2041	75,855
Term Bonds	4.00%	2045	330,685
Term Bonds	3.00%	2046	96,505
Term Bonds	4.00%	2050	410,945
Term Bonds	3.00% to 4.00%	2053	340,910
			$ 1,693,245

Note 5 - Long-Term Liabilities - Continued

Series 2019B JIO's Term Bonds require sinking fund installments in 2040 through 2053, in amounts ranging from $10,000,000 to $109,045,000 annually. Series 2019B JIO's maturing on or after January 1, 2031, are callable at the option of the Authority, in whole or in part, beginning January 1, 2030, at par plus accrued interest.

The Authority's General Revenue Junior Indebtedness Obligations are subordinate to the Authority's General Revenue Bonds.

The Authority has defeased certain obligations under financing arrangements whereby proceeds of new obligations were placed in irrevocable trusts to provide all future debt service payments on the defeased obligations. At December 31, 2020, approximately $793,860,000 of such defeased obligations were outstanding. The assets and liabilities related to defeased obligations are not reported in the accompanying financial statements.

Note 6 - Short-term Debt

The Authority's short-term debt at December 31, 2020 and 2019, are comprised of the following obligations (in thousands):

	Agreement Date	December 31, 2019 Balance	Draws	Repayments	December 31, 2020 Balance
JP Morgan Chase	6/2020	$ -	$ 50,000	$ -	$ 50,000
Royal Bank of Canada	10/2020	-	-	-	-
		$ -	$ 50,000	$ -	$ 50,000

<u>JP Morgan Chase Revolving Credit Agreement</u>: During June 2020, the Authority entered into a Revolving Credit Agreement with JP Morgan Chase that provides the Authority with a revolving credit line of up to $125 million through June 2021. The Authority drew $50 million of tax-exempt proceeds from this line of credit. These proceeds were used to partially fund an escrow to defease a portion of General Revenue Bond interest due on July 1, 2020. An unused commitment of $75 million remains available under this agreement. The interest rate on the agreement is based on 80% of the greater of the agreement's Adjusted Daily LIBOR rate or 1.00%, plus an applicable rate based on Junior Indebtedness Obligations ratings of 1.70%. Additionally, a commitment fee of .50% per annum is calculated quarterly on the unused balance of the line. Agreements are collateralized by pledged revenues but subordinated to senior and junior indebtedness.

<u>Royal Bank of Canada Noteholder's Agreement</u>: During October 2020, the Authority entered into a Noteholder's Agreement with the Royal Bank of Canada (RBC) that provides the Authority with the ability to sell short term notes to RBC in amounts not to exceed $100 million in combined notes outstanding. Under the terms of the Noteholder's Agreement, the RBC commitment to purchase notes extends through October 2022. As of December 31, 2020, the Authority has not sold notes or drawn on proceeds from the sale of notes to date, and the full $100 million remains available. The interest rate on the agreement is based on a SIFMA Index, reset weekly, plus an applicable rate based on Authority ratings assigned to its Senior bonds of 1.45%. Additionally, a commitment fee of 0.75% per annum is calculated quarterly on the unused balance of the commitment. Agreements are collateralized by pledged revenues but subordinated to senior and junior indebtedness.

Note 7 - 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 outstanding CHIPs bonds were defeased as of October 30, 2019. No CHIPS bonds were outstanding at December 31, 2020 and 2019.

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 2020 or 2019. The Authority receives funds from New York State for debt service on these bonds and related administrative costs. Bonds outstanding under this program were $899,150,000 and $1,285,390,000 at December 31, 2020 and 2019, 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 2020 and 2019. The Authority receives funds from New York State for debt service on these bonds and related administrative costs. Bonds outstanding under this program were $553,550,000 and $1,117,475,000 at December 31, 2020 and 2019, respectively.

Note 8 - 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.

Note 8 - Retirement Benefits - Continued

a. Plan Description and Benefits Provided - Continued

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 51.

c. Pension Liabilities, Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

The Authority reported liabilities of $131,698,000 and $37,249,000 at December 31, 2020 and 2019, respectively. The net pension liability was measured as of March 31, 2020 and 2019, respectively, and the total pension liability was determined by actuarial valuations as of April 1, 2019 and 2018, 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 0.50% and 0.53% as of March 31, 2020 and 2019, respectively.

The Authority recognized pension expense of $46,279,000 and $25,859,000 for the years ended December 31, 2020 and 2019, respectively. The Authority reported deferred outflows of resources and deferred inflows of resources for 2020 and 2019 as follows (in thousands):

	2020		2019	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 7,751	$ -	$ 7,335	$ 2,500
Changes of assumptions	2,652	2,290	9,363	-
Net differences between projected and actual investment earnings on pension plan investments	67,515	-	-	9,560
Changes in proportion and differences between employer contributions and proportionate share of contributions	5,363	1,913	5,706	982
Authority contributions subsequent to the measurement date	21,249	-	21,547	-
Totals	$ 104,530	$ 4,203	$ 43,951	$ 13,042

Note 8 - Retirement Benefits - Continued

c. Pension Liabilities, Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions - Continued

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,	
2021	$ 13,950
2022	20,163
2023	25,272
2024	19,693
Total	$ 79,078

d. Actuarial Assumptions

The pension liabilities at March 31, 2020 and 2019 were determined by using actuarial valuations as of April 1, 2019 and April 1, 2018, respectively, with updated procedures used to roll forward the total pension liability to March 31, 2020 and March 31, 2019. 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, unless otherwise specified:

Actuarial cost method	Entry Age Normal
Inflation rate	2.5 percent
Salary scale	3.8 percent, indexed by service (2020) 4.2 percent, indexed by service (2019)
Investment rate of return, including inflation	
2020	6.8 percent compounded annually, net of expenses
2019	7.0 percent compounded annually, net of expenses
Cost of living adjustment	1.3 percent
Decrement	Based on FY 2011-2015 experience
Mortality improvement	Society of Actuaries Scale MP-2018

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.

Note 8 - Retirement Benefits - Continued

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	36.0%	4.1%
International equity	14.0%	6.2%
Private equity	10.0%	6.8%
Real estate	10.0%	5.0%
Bonds and mortgages	17.0%	0.8%
Other	13.0%	0.0-5.7%
	100.0%	

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.

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 6.8% and the impact of using a discount rate that is 1% higher or lower than the current rate (in thousands):

	1% Decrease (5.8%)	Current Discount (6.8%)	1% Increase (7.8%)
Authority's proportionate share of the net pension liability	$ 241,703	$ 131,698	$ 30,383

Note 8 - Retirement Benefits - Continued

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, 2020 and 2019 respectively, were as follows (amounts in thousands):

	2020	2019
Employers' total pension liability	$ 194,596,261	$ 189,803,429
Plan net position	(168,115,682)	(182,718,124)
Employers' net pension liability	$ 26,480,579	$ 7,085,305
Ratio of plan net position to the employers' total pension liability	86.4%	96.3%

Note 9 - 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 10 - 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.

A summary of participants as of the July 1, 2019 actuarial measurement date is as follows:

Actives	1,955
Vestees	2
Retirees (includes surviving spouse and disabled)	2,409
Total	4,366

Note 10 - Other Postemployment Benefits - Continued

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 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 HMOs, 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.

e. Funding Policy

The Authority contributes to the plan to satisfy obligations on a pay-as-you-go basis. For the years ended December 31, 2020 and 2019, the Authority paid $30,482,000 and $28,636,000, respectively, annually on behalf of retirees.

Note 10 - Other Postemployment Benefits - Continued

Net OPEB Liability

The total OPEB liability for the Authority's years ended December 31, 2020 and December 31, 2019 were measured as of December 31, 2019 and December 31, 2018, respectively, using an actuarial valuation date of July 1, 2019 adjusted to the measurement date.

The total OPEB liability was determined using the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

Discount rate	
December 31, 2019 measurement date	2.75 percent
December 31, 2018 measurement date	3.71 percent
Annual payroll growth rate	2.20 percent
Healthcare cost trend rates	Society of Actuaries Long Term Medical Trend Model, updated October 2018. The December 2019 Federal Appropriations Bill eliminated the Excise Tax on high-cost plans that was part of the Affordable Care Act. Accordingly, the Excise Tax was removed from the Trend Assumption.
Mortality rates	Recommended Actuarial Assumptions for New York State for Other Post-Employment Benefit Plan Actuarial Valuations, updated June 2019

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)

	2020	2019
Balance, beginning of year	$ 983,462	$ 1,083,760
Changes for the year		
Service cost	30,884	35,341
Interest	35,921	35,398
Benefit payments	(30,482)	(28,636)
Change in assumptions and other inputs	161,417	(142,401)
Net changes	197,740	(100,298)
Balance, end of year	$ 1,181,202	$ 983,462

Note 10 - 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 1.75%	Current Discount 2.75%	1% Increase 3.75%
Postemployment benefit obligation	$ 1,405,524	$ 1,181,202	$ 1,005,016

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	Current Medical Trend Rate	1% Increase
Postemployment benefit obligation	$ 988,663	$ 1,181,202	$ 1,431,892

OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

The Authority recognized OPEB expense of $88,381,000 and $60,033,000 for the years ended December 31, 2020 and 2019, respectively. The Authority reported deferred outflows of resources and deferred inflows of resources at December 31, 2020 and 2019 related to OPEB as follows (in thousands):

	2020		2019	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 3,011	$ -	$ 4,015	$ -
Changes of assumptions	164,680	88,452	53,320	117,936
Totals	$ 167,691	$ 88,452	$ 57,335	$ 117,936

Amounts reported as deferred outflows of resources and deferred inflows of resources related to the OPEB liability will be recognized as expense as follows (in thousands):

Year ending December 31,	
2021	$ 21,576
2022	21,576
2023	3,803
2024	32,284
Total	$ 79,239

Note 11 - 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. In 2020 and 2019, capital contributions of $69.8 million and $295.3 million resulting from this program were reported in the Authority's statement of revenues, expenses and changes in net position, respectively. As of December 31, 2020, all available program funds have been received. The program contributed a total of $1.985 billion to the Authority, consisting of $1.2 billion for the Governor Mario M. Cuomo Bridge, $752.8 million for other Thruway capital projects and $32.2 million for working capital needs.

Note 12 - Contingencies, Commitments and Uncertainties

a. Governor Mario M. Cuomo Bridge Claims

In 2013, the Authority entered 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. Through December 31, 2020, contract change orders totaling $340.8 million have been approved, increasing the value of TZC's contract to $3.48 billion.

In 2018, TZC began submitting claims to the Authority in excess of their approved contract value and anticipated contract change orders. TZC supplemented these claims in 2019 and 2020. As of December 31, 2020, TZC alleges they are owed approximately $923 million, plus interest, in excess of their approved contract value and anticipated change orders. The claims submitted by TZC relate to issues of time and extra work. The Authority disputes these claims ("Dispute"). 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.

In February 2021, TZC filed a claim against the Authority in the New York State Court of Claims ("Claim") with respect to the Dispute. The Claim alleges that the Authority made multiple breaches of the contract between the parties. The Claim seeks a declaration that the Authority breached the contract by its failure to render a determination on the Dispute within a reasonable time, and either: (a) imposes a set time frame within which each decision maker set forth in the contract must take action on the Dispute and any other dispute; or (b) finding that the Authority abandoned the contract's administrative dispute resolution process and allowing the claims set forth in the Claim to be heard in the 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.

Note 12 - Contingencies, Commitments and Uncertainties

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.

The Authority's claims liability approximates $5.5 million and $6.5 million at December 31, 2020 and 2019, respectively.

In addition, there are claims where liability is not probable, but is possible and estimable. The estimated loss on these claims approximates a range of $8.6 million to $9.3 million at December 31, 2020, 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 $15.0 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 $13.8 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, 2020, the amounts of remaining unexpended commitments for projects undertaken and the detail by type of contract are as follows:

Project	Commitments (in thousands)
Highway, bridge and facility, construction, and design	$ 374,800
Personal service and miscellaneous	223,800
Total	$ 598,600

Note 12 - Contingencies, Commitments and Uncertainties - 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 remediation contractors based on the nature of remediation needed and review of comparable clean-up costs at similar sites. The estimates are updated annually to reflect payments made and changes to estimated future costs.

Estimating environmental remediation obligations requires that several assumptions be made. Project cost changes due to price fluctuations, changes in technology, changes in potential responsible parties, results of environmental studies, and other factors can result in revisions to these estimates.

From 1984 to 2006, the ExxonMobil Corporation operated fueling stations at twelve service areas owned by the Authority. As a result, ExxonMobil was named by the New York State Department of Environmental Conservation as a potential responsible party for soil contamination at these service areas. As of December 31, 2019, the Authority's environmental remediation liabilities were offset by an estimated recovery from ExxonMobil. In 2020, a settlement was reached with ExxonMobil under which the Authority received $7,500,000 in exchange for releasing ExxonMobil from remediation liabilities at the locations they previously operated. As part of the settlement, ExxonMobil released the Authority from ExxonMobil's claim for costs of remediation at one of the locations.

The Authority has estimated its environmental remediation liabilities, net of expected recoveries from other responsible parties, to be $4,260,000 and zero, as of December 31, 2020 and 2019, respectively.

f. Asset Retirement Obligations

The Authority records in its financial statement legally enforceable liabilities associated with the retirement of tangible capital assets. The Authority currently owns and operates seventeen wastewater treatment facilities. The retirement of these facilities is subject to rules and regulations established by the New York State Department of Environmental Conservation. The Authority has measured the estimated cost to comply with these rules and regulations using historical costs for similar work. The Authority retires wastewater treatment facilities when the opportunity arises to tie into municipal sewer systems. The estimated remaining life of the Authority's wastewater treatment facilities ranges between one to ten years. The Authority's liability for asset retirement obligations approximates $4,230,000 and $4,500,000 at December 31, 2020 and 2019, respectively.

g. Lease Revenue

The Authority has entered 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.

Note 12 - Contingencies, Commitments and Uncertainties - Continued

g. Lease Revenue - Continued

The following schedule summarizes the future minimum rental revenues to be earned as of December 31, 2020:

Year	Future Minimum Lease Revenue (in thousands)
2021	$ 13,343
2022	4,484
2023	482
2024	482
2025	482
2026 - 2030	2,411
2031 - 2035	2,411
2036 - 2040	2,411
Total	$ 26,506

h. COVID-19 Pandemic

The COVID-19 pandemic that began affecting the United States in March 2020 had an adverse and material impact on the financial condition and operating results of the Authority. Toll revenues and other operating revenues experienced substantial declines during the year ended December 31, 2020, with decreases continuing into the year ending December 31, 2021. Management of the Authority continues to monitor the impact that the COVID-19 pandemic will have on its financial position and results of operating during the year ending December 31, 2021 and beyond.

Note 13 - Accounting Standards Issued But Not Yet Implemented

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, as delayed by GASB 95, are effective for reporting periods beginning after June 15, 2021.

GASB Statement No. 91, *Conduit Debt Obligations.* The primary objectives of this statement are to provide a single method of reporting conduit debt obligations by issuers and eliminate diversity in practice associated with: (1) commitments extended by issuers; (2) arrangements associated with conduit debt obligations; and (3) related note disclosures. This statement achieves those objectives by clarifying the existing definition of a conduit debt obligation; establishing that a conduit debt obligation is not a liability of the issuer; establishing standards for accounting and financial reporting of additional commitments and voluntary commitments extended by issuers and arrangements associated with conduit debt obligations; and improving required note disclosures. The requirements of this statement, as delayed by GASB 95, are effective for reporting periods beginning after December 15, 2021.

Note 13 - Accounting Standards Issued But Not Yet Implemented - Continued

GASB Statement No. 92, *Omnibus 2020.* This statement addresses a variety of topics including leases, intra-entity transfers, fiduciary activities, public entity risk pools/reinsurance recoveries, fair value measurements, and derivative instrument terminology. Guidance related to leases, reinsurance recoveries and derivative instrument terminology was effective upon the issuance of the standard in January 2020. The remaining components of this standard, as delayed by GASB 95, are effective for periods beginning after June 15, 2021.

GASB Statement No. 93, *Replacement of Interbank Offered Rates*. This statement addresses governments that have entered into agreements in which variable payments made or received depend on an interbank offered rate (IBOR) – most notably, the London Interbank Offered Rate (LIBOR). As a result of global reference rate reform, LIBOR is expected to cease to exist in its current form at the end of 2021, prompting governments to amend or replace financial instruments for the purpose of replacing LIBOR with other reference rates, by either changing the reference rate or adding or changing fallbacks provisions to the reference rate. The objective of this statement is to address accounting and financial reporting implications that result from the replacement of IBOR, such as providing exceptions for certain hedging derivative instruments to the hedge accounting termination provisions when an IBOR is replaced as the reference rate of the hedging derivative instrument's variable payment, clarifying the hedge accounting termination provisions when a hedged item is amended to replace the reference rate, removing LIBOR as an appropriate benchmark interest rate for the qualitative evaluation of the effectiveness of an interest rate swap, and clarifying the definition of reference rate. The removal of the London IBOR as an appropriate benchmark interest rate is effective for reporting periods beginning after December 31, 2021. The requirements to lease modifications, as delayed by GASB 95, are effective for reporting periods beginning after June 15, 2021. All other requirements of this statement are effective for reporting periods beginning after June 15, 2020.

GASB Statement No. 94, *Public-Private and Public-Public Partnerships and Availability Payment Arrangements*. The primary objective of this statement is to improve financial reporting by addressing issues related to public-private and public-public partnership arrangements (PPPs). As used in this statement, a PPP is an arrangement in which a government (the transferor) contracts with an operator (a government or nongovernment entity) to provide public services by conveying control of the right to operate or use a nonfinancial asset, such as infrastructure or other capital assets (the underlying PPP asset), for a period of timing in an exchange or exchange-like transaction. Some PPP's meet the definition of a service concession arrangement (SCA), which GASB defines in this statement as a PPP in which: (1) the operator collects and is compensated by fees from third parties; (2) the transferor determines or has the ability to modify or approve which services the operator to require to provide, to whom the operator is required to provide the services, and the prices or rates that can be charged for the services; and (3) the transferor is entitled to significant residual interest in the service utility of the underlying PPP asset at the end of the arrangement. This statement also provides guidance for accounting and financial reporting for availability payment arrangements (APAs). As defined in this statement, an APA is an arrangement in which a government compensates an operator for services that may include designing, constructing, financing, maintaining, or operating an underlying nonfinancial asset for a period of time in an exchange or exchange-like transaction. The requirements of this statement are effective for fiscal years beginning after June 5, 2022.

Note 13 - Accounting Standards Issued But Not Yet Implemented - Continued

GASB Statement No. 96, *Subscription-Based Information Technology Arrangements*. This statement provides guidance on the accounting and financial reporting of subscription-based information technology arrangements (SBITA) including the definition of a SBITA, establishment of a right-to-use subscription asset and related liability, providing capitalization criteria, and requiring note disclosures. The requirements of this statement are effective for reporting periods beginning after June 15, 2022.

GASB Statement No. 97, *Certain Component Unit Criteria, and Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans, and amendment of GASB Statements No 14 and No. 84, and a supersession of GASB Statement No. 32*. This statement has three objectives: (1) to increase consistency and comparability related to the reporting of fiduciary component units in circumstances in which a potential component unit does not have a governing board and the primary government performs the duties that a governing board would typically perform; (2) to mitigate costs associated with the reporting of certain defined contribution pension plans, defined contribution other postemployment benefit plans (OPEB), and employee benefit plans other than pension plans or OPEB plans as fiduciary component units in fiduciary fund financial statements; and (3) to enhance the relevance, consistency, and comparability of the accounting and financial reporting for the Internal Revenue Code Section 457 deferred compensation plans that meet the definition of a pension plan and for benefits provided through those plans. Certain requirements of this statement are effective immediately, and certain requirements are effective for reporting periods beginning after June 15, 2021.

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)

Required Supplementary Information
Schedule of Other Postemployment Benefits Liability
(in thousands of dollars)

	2020	2019	2018
Beginning of the year	$ 983,462	$ 1,083,760	$ 959,969
Changes for the year			
Service cost	30,884	35,341	29,485
Interest	35,921	35,398	35,993
Changes in assumptions and other inputs	161,417	(142,401)	88,866
Benefit payments	(30,482)	(28,636)	(30,553)
Net changes	197,740	(100,298)	123,791
End of year	$ 1,181,202	$ 983,462	$ 1,083,760
Covered payroll	138,700	140,500	146,100
OPEB liability as a percentage of covered payroll	851.62%	699.97%	741.79%

Schedule is intended to display ten years of information. Additional years will be displayed as they become available.

See Independent Auditor's Report.

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)

	2020	2019	2018	2017	2016	2015
Proportion of the net pension liability (asset)	0.497338%	0.525726%	0.483932%	0.492207%	0.617656%	0.633266%
Proportionate share of the net pension liability (asset)	$ 131,698	$ 37,249	$ 15,619	$ 46,249	$ 99,135	$ 21,393
Covered-employee payroll	148,723	155,806	148,206	141,550	164,506	173,658
Proportionate share of the net pension liability (asset) as a percentage of its covered-employee payroll	88.55%	23.91%	10.54%	32.67%	60.26%	12.32%
Plan fiduciary net position as a percentage of total pension liability	86.4%	96.3%	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.

Schedule is intended to display ten years of information. Additional years will be displayed as they become available.

See Independent Auditor's Report.

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)

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Contractually required contribution	$ 21,249	$ 21,547	$ 22,454	$ 21,026	$ 24,795	$ 28,815	$ 30,537	$ 35,800	$ 34,627	$ 37,125
Contributions in relation to the contractually required contribution	21,249	21,547	22,454	21,026	24,795	28,815	30,537	35,800	34,627	37,125
Contribution deficiency (excess)	-	-	-	-	-	-	-	-	-	-
Authority's covered-employee payroll	142,979	150,638	157,528	145,099	163,041	164,994	176,546	174,784	183,464	181,625
Contributions as a percentage of covered-employee payroll	14.9%	14.0%	14.0%	14.0%	15.2%	17.5%	17.3%	20.5%	18.9%	20.4%

Years prior to 2017 include the New York State Canal Corporation.

See Independent Auditor's Report.

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APPENDIX C

SUMMARY OF CERTAIN PROVISIONS OF THE BOND RESOLUTION

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SUMMARY OF CERTAIN PROVISIONS OF THE BOND RESOLUTION

The following is a general summary of certain provisions of the Bond Resolution*. This summary is not to be considered a full statement of the terms of the Bond Resolution and, accordingly, is qualified by reference thereto and is subject to the full text thereof. Copies of the Bond Resolution are available at the office of the Authority.

Definitions

The following are definitions in summary form of certain terms contained in the Bond 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 Bonds, calculating the Debt Service that has accrued with respect to each Series of Bonds as an amount equal to the sum of (1) the interest on the Bonds of such Series 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, Qualified Reverse Swap or 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") 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 Bonds" means additional Series of Bonds authenticated and delivered on original issuance pursuant to the Bond Resolution.

"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 required by the Bond Resolution and any New Interchange or New Extension; and once designated as an Additional Project, any subsequent Facility Capital Improvements related thereto. See "Additional Projects" hereinafter.

"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" means, for any period and as of any date of calculation, the sum of the amounts of Debt Service for such period with respect to all Series of Bonds then Outstanding.

"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

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* Omitted from this summary is mention of most of the provisions of the Bond Resolution respecting the Authority's "Guaranteed Bonds" (the last maturity of which was paid in 1995), "Prior General Revenue Bonds" (the outstanding balance of which was refunded in 1992 by the first issue of Bonds under the Bond Resolution) and the Restaurant Concession Bonds (the final maturity of which was January 1, 2006 and which are no longer Outstanding).

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 Director of Thruway Finance 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.

"Bond" or "Bonds" means any bond or bonds payable from amounts in the Senior Debt Service Fund or, to the extent provided in a Supplemental Resolution, any other indebtedness of the Authority payable from amounts in the Senior Debt Service Fund, which indebtedness may include, but is not limited to, any additional payment obligations in connection with a Qualified Swap, a Qualified Reverse Swap, a Parity Reimbursement Obligation or a capital lease undertaken in connection with the issuance of certificates of participation; provided, however, that such terms shall not include any Bond Anticipation Notes, Junior Indebtedness or Subordinated Indebtedness.

"Bondholder," "Holder" or "Holder of Bonds," or any similar term, means any person who shall be the registered owner of any Outstanding Bond or Bonds.

"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.

"Certificate of Determination" means a certificate of an Authorized Officer of the Authority fixing terms, conditions and other details of Bonds 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 Bond Resolution, including the Bonds or the use of Bond proceeds.

"Cost or Costs of Issuance" means the items of expense incurred in connection with the authorization, sale and issuance of a Series of Bonds or Bond Anticipation Notes, 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 Bonds, premiums, fees and charges for Credit Facilities, Reserve Credit Facilities, Qualified Swaps, Qualified Reverse Swaps and other similar financial arrangements, costs and expenses of refunding such Bonds 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 in respect of the Bonds of any Series (and with respect to a policy of bond insurance, guarantees the payment of principal of and interest on the Bonds), not including any Reserve Credit Facility.

"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).

"Debt Service" for any period means, as of any date of calculation and with respect to any Series, an amount equal to the sum of (i) interest accruing during such period on the Bonds 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 Qualified Swap, Qualified Reverse Swap or 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 Bonds of such Series); provided, however, that in calculating Aggregate Debt Service for purposes of the calculation of "Net Revenue Requirement" in connection with the test for the issuance of Additional Bonds and Refunding Bonds, the rate covenant and the test for an Other Authority Project to become an Authority Project, Debt Service on Outstanding Bonds for which the Authority has entered into a Qualified Swap shall be calculated assuming that the interest rate on such Bonds shall equal the stated fixed rate on the Qualified Swap. Such interest and Principal Installments shall be calculated on the assumption that no Bonds of such Series 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 "Debt Service" (1) interest on Bonds to the extent that Escrowed Interest is available to pay such interest, (2) Principal Installments on Bonds to the extent that Escrowed Principal is available to pay such Principal Installments, and (3) interest funded from Bond proceeds to the extent that such amounts are held by the Trustee in the Senior Debt Service Fund for such purpose. See "Additional Bonds", "Tolls, Fees and Charges" and "Additional Projects".

"Defeased Municipal Obligations" means pre-refunded municipal obligations rated "AAA" by S&P and "Aaa" by Moody's 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.

"Estimated Aggregate Debt Service" means, for any period and as of any particular date of calculation, the sum of the amounts of Debt Service for such period with respect to all Series of Bonds then Outstanding; provided, however, that in computing such Estimated Aggregate Debt Service, any particular Variable Interest Rate Bonds shall be deemed to bear at all times, to the maturity date thereof, the Estimated Average Interest Rate applicable thereto.

"Estimated Average Interest Rate" means as to any Variable Interest Rate Bonds the interest rate that would have been borne by such Bonds if such Bonds had been sold as fixed interest rate Bonds of the Authority (i) without the benefit of any credit enhancement and (ii) with the same final maturity or maturities (without giving effect to puts or tenders) as the Variable Interest Rate Bonds actually sold, as estimated by the Authority on the date of sale of such Bonds.

"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, 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.

"Fund" means any one of the funds created and established pursuant to the Bond Resolution.

"Government Obligations" means (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, depositary 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; and (c) Defeased Municipal 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 Bond 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 Bond Resolution.

"Interest Payment Date" means, with respect to a Series of Bonds, each date on which interest, if any, is payable pursuant to the Supplemental Resolution authorizing such Bonds.

"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) (i) Government Obligations and (ii) 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,

(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 or S&P, 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 and Moody's,

(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 and Moody's,

(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 and Moody's,

(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 and Moody's, 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 Bonds hereunder and the Bonds are then rated by Moody's or S&P, 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" means any evidence of indebtedness of the Authority payable out of the Junior Indebtedness Fund.

"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 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 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 Bonds for so long as the aggregate Outstanding principal amount of all such fixed interest rate Bonds deemed to be Variable Interest Rate Bonds is less than or equal to 5% of the aggregate principal amount of all 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.

"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 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, (B) amounts required to make deposits to the Senior Debt Service Reserve Fund, if any, (C) amounts required to make Reserve Maintenance Payments, and (D) amounts required to be deposited in the Junior Indebtedness Fund pursuant to the Supplemental Resolution or other Bond Resolution or agreement authorizing outstanding Junior Indebtedness or (ii) 1.20 times the sum of the Aggregate Debt Service for such period; provided, however, that "Aggregate Debt Service" for purposes of calculating the Net Revenue Requirement may be reduced by an amount equal to investment income on the Senior Debt Service Fund and on 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, such amount to be calculated at the rate per annum equal to the lesser of (A) the then current yield on five year obligations of the United States Treasury and (B) the actual income to be earned as estimated by an Authorized Officer.

"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 Bonds 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 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). See "Proposed New Interchanges and New Extensions".

"New Interchange" means an interchange on any Facility constituting a tolled roadway which fully satisfies the requirements of the 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). See "Proposed New Interchanges and New Extensions".

"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 Bond 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 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 Bond 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 Bonds, means, as of any date, all Bonds theretofore or thereupon being authenticated and delivered under the Bond Resolution except:

(i) Any Bond cancelled or delivered for cancellation at or prior to such date;

(ii) Any Bond (or portion of a Bond) deemed to have been paid in accordance with the Bond Resolution; or

(iii) Any Bond in lieu of or in substitution for which other Bonds shall have been authenticated and delivered pursuant to the Bond Resolution.

provided, however, that, unless required pursuant to a Supplemental Resolution, a Qualified Swap, Qualified Reverse Swap or Parity Reimbursement Obligation shall not, by itself, increase the Outstanding principal amount of Bonds.

"Principal" or "principal" means (1) with respect to any capital appreciation bond, 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 Bonds and (b) the order of priority of payments of Bonds after an Event of Default, "Principal" or "principal" means the original principal amount of a capital appreciation bond (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 Bondholders of the requisite principal amount of Outstanding Bonds 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 bond, the appreciated value thereof, and (3) with respect to any current interest bond, the principal amount of such bond payable at maturity.

"Principal Installment" means, as of any date of calculation and with respect to any Series, (a) the Principal amount of Outstanding Bonds 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 Bonds which would be retired by reason of the payment when due and application in accordance with the Bond 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 Bonds 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.

"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 indebtedness of the Authority, the payment of which is included as a Project Cost under clause (iii) below), (ii) amounts, if any, required by the Bond Resolution to be paid into any Fund or account upon the issuance of any Series, (iii) payments when due (whether at the maturity of principal or the due date of interest or upon redemption) on Bond 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 Bonds 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 are referred to as "Other Authority Project Costs".

"Qualified Reverse Swap" means, to the extent from time to time permitted by law, with respect to Bonds, any financial arrangement (i) that is entered into by the Authority in connection with 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 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.

"Qualified Swap" means, to the extent from time to time permitted pursuant to law, with respect to 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 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 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 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 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 Bonds.

"Qualified Swap Provider" means, with respect to a Series of 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 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 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 Bonds Outstanding subject to such Qualified Swap that is in effect prior to entering into such Qualified Swap.

"Rating Categories" means one of the generic rating categories of either Moody's or S&P 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 Bonds, 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 Bond Resolution.

"Record Date" means with respect to any Interest Payment Date, unless the applicable Supplemental Resolution authorizing a particular Series of Bonds or a Certificate of Determination relating thereto provides otherwise with respect to Bonds of such Series, the fifteenth (15th) day of the calendar month next preceding such Interest Payment Date.

"Redemption Date" means the date upon which Bonds are to be called for redemption pursuant to the Bond Resolution.

"Redemption Price" means, with respect to any Bonds, the Principal amount thereof plus the applicable premium, if any, payable upon the redemption thereof.

"Refunding Bonds" means all Bonds, whether issued in one or more Series of Bonds, authenticated and delivered pursuant to the Bond Resolution, on original issuance to refund Bonds or Junior Indebtedness or any Subordinated Indebtedness that was issued to finance or refinance Project

Costs or Other Authority Project Costs, and any Bonds thereafter authenticated and delivered in lieu of or in substitution for such Bonds pursuant to the Bond Resolution.

"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 Series of Bonds, or if no Series of Bonds 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 Series of Bonds, or if no Series of Bonds 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 the Senior Debt Service Reserve Fund 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 Bond 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. See "Additional Projects" and "Proposed New Interchanges and New Extensions".

"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 Bond Resolution other than investment income on amounts held in the Rebate Fund, 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 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 and Debt Service.

"S&P" means Standard & Poor's Ratings Services, a corporation organized and existing under the laws of the State of New York, 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 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 Bonds secured by the Senior Debt Service Reserve Fund; provided that (i) with respect to Variable Interest Rate Bonds, interest on such 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 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 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 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.

"Series" means all of the Bonds 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 Bonds upon transfer of registration or exchange, partial redemption and amendment of the Bond Resolution regardless of variations in maturity, interest rate, Sinking Fund Installments or other provisions.

"Sinking Fund Installment" means, with respect to any Series of Bonds, as of any date of calculation and with respect to any Bonds of such Series, the amount of money required by the applicable Supplemental Resolution pursuant to which such Bonds were issued, to be paid in all events by the Authority on a single future date for the retirement of any Outstanding 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 Bond.

"State" means the State of New York.

"Subordinated Indebtedness" means any evidence of indebtedness of the Authority payable out of amounts available in the General Reserve Fund.

"Supplemental Resolution" shall mean any Bond Resolution supplemental to or amendatory of the Bond Resolution, adopted by the Authority and becoming effective in accordance with the Bond Resolution.

"Term Bonds" means with respect to Bonds of a Series, the Bonds so designated in an applicable Supplemental Resolution or the applicable Certificate of Determination and payable from Sinking Fund Installments.

"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.

"Trustee" means a trustee appointed by the Authority pursuant to the Bond 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 Bond Resolution.

"Variable Interest Rate Bonds" means Bonds which bear a variable interest rate but does not include any Bond which, during the remainder of the term thereof to maturity, bears interest at a fixed rate; provided, however, that 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 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 Bonds are issued concurrently in equal principal amounts with other Bonds bearing a variable rate of interest, (ii) such Bonds and such other 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) 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 Bonds.

Bond Resolution to Constitute Contract

In consideration of the purchase and acceptance of any and all of the Bonds authorized to be issued under the Bond Resolution by those who shall hold the same from time to time, the Bond Resolution shall be deemed to be and shall constitute a contract between the Authority and the Holders from time to time of the Bonds; and the pledge made in the Bond Resolution and the covenants and agreements therein set forth to be performed on behalf of the Authority shall be for the equal benefit, protection and security of the Holders of any and all of the Bonds, all of which, regardless of the time or times of their issue or maturity, shall be of equal rank without preference, priority or distinction of any of the Bonds over any other thereof except as expressly provided in or permitted by the Bond Resolution.

The Pledge Effected by the Bond Resolution

The Bonds shall be direct and general obligations of the Authority, and the full faith and credit of the Authority are pledged for the payment of such principal, Redemption Price, interest, and Sinking Fund Installments.

There are pledged for the payment of the principal and Redemption Price of, interest on, and Sinking Fund Installments for, the Bonds, in accordance with their terms and the provisions of the Bond Resolution, subject only to the provisions of the Bond Resolution permitting the application thereof (and to the subordination provisions set forth in the Bond Resolution) for the purposes and on the terms and conditions set forth in the Bond Resolution, (i) the proceeds of the sale of the Bonds, (ii) the Revenues and (iii) all Funds and accounts established by the Bond Resolution (except the Rebate Fund, the Junior Indebtedness Fund and, with respect to any Series of Bonds not secured by the Senior Debt Service Reserve Fund, the Senior Debt Service Reserve Fund), including the investments, if any, thereof. The pledge and lien created by the Bond Resolution for the Bonds is superior in all respects to any pledge or lien created for Junior Indebtedness or Subordinated Indebtedness.

General Provisions for Issuance of Bonds

The Bonds of each Series shall be executed by the Authority, authenticated by the Trustee and delivered to or upon the order of the Authority upon receipt by 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 Bond Resolution, and the Bond Resolution has been duly and lawfully adopted by the Authority, is in full force and effect and is valid and binding upon the Authority and enforceable in accordance with its terms, and no other authorization for the Bond Resolution is required, (ii) the Bond Resolution creates the valid pledge to the payment of the Bonds of the proceeds of sale of Bonds, the Revenues, the Funds and accounts established by the Bond Resolution (other than the Rebate Fund, the Junior Indebtedness Fund and, to the extent any Series of Bonds is not secured by the Senior Debt Service Reserve Fund, the Senior Debt Service Reserve Fund), and investment income on pledged Funds and accounts, subject to the provisions of the Bond Resolution permitting the withdrawal, payment, setting apart or appropriation thereof for the purposes and on the terms and conditions set forth in the Bond Resolution, and (iii) upon the execution and delivery thereof and upon authentication by the Trustee, the Bonds of such Series will be valid, binding, direct and general obligations of the Authority payable as provided in, and enforceable in accordance with their terms and the terms of, the Bond Resolution and entitled to the benefits of the Act and the Bond Resolution, and such Bonds 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 Bond 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.

Additional Bonds

One or more Series of Additional 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 Bonds would not be used for such purpose to the extent that insurance proceeds relating to such occurrence were then available.

(A) The 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 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 Bonds Outstanding immediately after the authentication and delivery of the Bonds being issued.

(B) Any Series of Additional 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 Bonds 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 (A)(1)(i) above; provided that there shall not be counted in the calculation of such Maximum Annual Debt Service any Bonds initially issued to finance or refinance an Other Authority Project (1) if such 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 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 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.

Refunding Bonds

One or more Series of Refunding Bonds may be authenticated and delivered to refund all Outstanding Bonds of one or more Series of Bonds, a portion of a Series of Outstanding Bonds, a portion of a maturity of a Series of Outstanding 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 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 Bonds. Refunding Bonds of any Series issued to refund Outstanding Bonds shall be authenticated by the Trustee only upon satisfaction of the requirements of subparagraph (A) set forth under the heading "Additional 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 Bonds of any Series then Outstanding matures (i) with respect to the Bonds of all Series Outstanding immediately prior to the date of authentication and delivery of such Refunding Bonds, and (ii) with respect to the 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.

Provisions Regarding Bonds Secured by a Credit Facility

The Authority may include such provisions in a Supplemental Resolution or related Certificate of Determination authorizing the issuance of a Series of Bonds 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 Series of Bonds 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 Series of Bonds 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 Series of Bonds 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 "Reimbursement Obligation"); provided, however, that no Reimbursement Obligation shall be created, for purposes of the Bond Resolution, until amounts are paid under such Credit Facility. Any such Reimbursement Obligation (a "Parity Reimbursement Obligation") may be secured by a pledge of, and a lien on, Revenues on a parity with the lien created by the Bond Resolution. Any such Parity Reimbursement Obligation shall be deemed to be a part of the Series of Bonds to which the Credit Facility which gave rise to such Parity Reimbursement Obligation relates.

Bond Anticipation Notes

Whenever the Authority shall have, by Supplemental Resolution, authorized the issuance of a Series of Bonds, the Authority Board may by resolution authorize the issuance of Bond Anticipation Notes in anticipation of the issuance of such authorized Series of Bonds, in a principal amount not exceeding the principal amount of the Bonds of such Series so authorized. The principal of and premium, if any, and interest on such Bond Anticipation Notes and any renewals of such Bond Anticipation Notes shall be payable only (i) from the proceeds of any renewals of such Bond Anticipation Notes issued to repay such Bond Anticipation Notes, (ii) from the proceeds of the sale of the Series of Bonds in anticipation of which such Bond Anticipation Notes are issued, (iii) from any amounts provided by the State and/or the federal government expressly for payment of such Bond Anticipation Notes, or (iv) from the proceeds of such Bond Anticipation Notes deposited in any Fund or account under the Bond Resolution. 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 Bond Anticipation Notes and any such pledge shall have priority over any other pledge created by the Bond Resolution. In any case, such Bond Anticipation Notes shall be retired or provision shall be made for their retirement not later than the date of authentication and delivery of the Series of Bonds in anticipation of which they are issued.

Redemption of Bonds

In the case of any redemption of Bonds of a Series at the election of the Authority, or on a mandatory basis, such Bonds may be redeemed at the option of the Authority, or on a mandatory basis, as provided in the Supplemental Resolution authorizing such Bonds or the Certificate of Determination. In addition, pursuant to the Act, the State may, upon furnishing sufficient funds therefor, require the Authority to redeem, prior to maturity, as a whole, any Series of Bonds on any interest payment date not less than fifteen years after the date of issuance of such Bonds at one hundred four per centum of their face value and accrued interest or at such lower redemption price as may be provided in the Bonds in case of the redemption thereof as a whole on the redemption date.

Funds and Revenues

The 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 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 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 the 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 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 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 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 Authority may, at any time or from time to time, issue evidences of indebtedness payable out of, and which may be secured by a pledge of, such amounts in the Junior Indebtedness Fund as may from time to time be available for the purpose of payment thereof and of Revenues; provided, however, that any pledge of Revenues shall be, and shall be expressed to be, subordinate in all respects to the pledge created by the Bond Resolution with respect to the Bonds.

Subject to the terms of any pledge securing Junior Indebtedness, amounts in the Junior Indebtedness Fund may be applied to payment of the principal or redemption price of and interest on any Junior Indebtedness. Junior Indebtedness may be issued by the Authority to provide for any Facilities or Other Authority Projects constituting a lawful transportation or transportation-related (including related necessary or appropriate economic development activities) corporate purpose of the Authority.

The Authority shall have the right to covenant with the holders from time to time of Junior Indebtedness to add to the conditions, limitations and restrictions under which any Additional Bonds may be issued; provided, however, that the Supplemental Resolution or indenture or other agreement providing for the issuance of such Junior Indebtedness shall not permit the holders of such obligations to declare the same or instruct such holders' trustee to declare the same to be immediately due and payable notwithstanding the occurrence of an event that would give rise to such a declaration unless all Outstanding Bonds shall have been declared immediately due and payable in accordance with the Bond Resolution.

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 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 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 Bonds or Junior Indebtedness, (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 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 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 Bonds so purchased or redeemed bears to the total amount of all remaining Sinking Fund Installments for the Bonds of the same Series and maturity to be credited.

Subordinated Indebtedness

Subordinated Indebtedness may be issued to finance any lawful corporate purpose of the Authority. Subordinated Indebtedness may be secured by a pledge of such amounts in the Subordinated Indebtedness Fund as may from time to time be available for the payment thereof and of Revenues; provided, however, that any pledge of Revenues shall be, and shall be expressed to be, subordinate in all respects to the pledge created by the Bond Resolution with respect to the Bonds and any pledge of Revenues with respect to Junior Indebtedness.

The Authority shall have the right to covenant with the holders from time to time of Subordinated Indebtedness to add to the conditions, limitations and restrictions under which any Additional Bonds or Junior Indebtedness may be issued; provided, however, that the Supplemental Resolution or indenture or other agreement providing for the issuance of such Subordinated Indebtedness shall not permit the holders of such obligations to declare the same or instruct such holders' trustee to declare the same to be immediately due and give rise to such a declaration unless all Outstanding Bonds and Junior Indebtedness shall have been declared immediately due and payable in accordance with the Bond Resolution.

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 Bonds. Moneys which the Authority determines to be in excess of the amount required to be so rebated shall be deposited to the Revenue Fund.

Construction Fund

There shall be paid into the Construction Fund the amounts (if any) required to be so paid by the provisions of the Bond Resolution, and there may be paid into the Construction Fund, at the option of the Authority, any moneys received by the Authority for or in connection with any Facility or Other Authority Project, as appropriate, from any other source, unless required to be otherwise applied as provided by the Bond Resolution.

Amounts deposited in the Construction Fund (i) from proceeds of Bonds shall be applied by the Authority to Project Costs or Costs of Issuance, as appropriate; provided, however, that proceeds from Bonds issued to finance Other Authority Project Costs shall be applied by the Authority to finance such Other Authority Project Costs or, to the extent permitted by a Supplemental Resolution, Project Costs, and (ii) other amounts deposited in the Construction Fund shall be applied to the purpose or purposes specified in the Supplemental Resolutions authorizing Bonds to finance a Facility, or if no Bonds are so issued, to the purpose or purposes specified in a resolution of the Authority, a copy of which, certified by an Authorized Officer, shall be filed with the Trustee. Notwithstanding the foregoing, amounts in the Construction Fund may be applied to the payment of Principal Installments and interest on the applicable Series of Bonds when due (including payments when due under a Qualified Swap or Qualified Reverse Swap), and to the extent that other moneys are not available therefor, amounts in the Construction Fund shall be applied to the payment of Principal Installments and interest on the Bonds when due (including payments when due under a Qualified Swap or Qualified Reverse Swap).

Investment income on amounts in the Construction Fund from proceeds of a Series of Bonds, to the extent permitted in a Supplemental Resolution, may be retained by the Authority in such Fund or transferred to the Revenue Fund, the Senior Debt Service Fund or the Rebate Fund.

Application of Moneys in the Senior Debt Service Fund For Redemption of Bonds and Satisfaction of Sinking Fund Installments

Moneys in the Senior Debt Service Fund to be used for redemption of Bonds of a Series shall be applied by the Authority to the purchase of Outstanding Bonds of such Series at purchase prices not exceeding the Redemption Price applicable on the next Interest Payment Date on which such Bonds are redeemable, plus accrued interest to such date, at such times, at such purchase prices and in such manner as the Authority shall direct.

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, Bonds acquired by purchase or redemption (except Bonds acquired by purchase or redemption pursuant to the preceding paragraph), of the maturity and interest rate entitled to such Sinking Fund Installment. All Bonds 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 Bonds.

Extension of Payment of Bonds

The Authority shall not directly or indirectly extend or assent to the extension of the maturity of any of the Bonds or the time of payment of any claims for interest by the purchase or funding of such Bonds or claims for interest or by any other arrangement and, in case the maturity of any of the Bonds or the time for payment of any claims for interest shall be extended, such Bonds or claims for interest shall not be entitled, in case of any default under the Bond Resolution to the benefit of the Bond Resolution or to any payment out of any assets of the Authority or the Funds and accounts (except Funds and accounts held in trust for the payment of particular Bonds or claims for interest pursuant to the Bond Resolution) held by the Trustee, except subject to the prior payment of the principal of all Bonds issued and Outstanding the maturity of which has not been extended and of such portion of the accrued interest on the Bonds as shall not be represented by such claims for interest. Nothing in the Bond Resolution shall be deemed to limit the right of the Authority to issue Refunding Bonds as permitted thereby and by the Act and such issuance shall not be deemed to constitute an extension of the maturity of the Bonds refunded.

Particular Covenants of the Authority

The Authority shall duly and punctually pay or cause to be paid the principal, Sinking Fund Installments, if any, Redemption Price of, and interest on every Bond, at the dates and places and in the manner set forth in the Bonds according to the true intent and meaning thereof.

The Authority has and shall have good right and lawful authority to take jurisdiction over, construct, reconstruct, improve, maintain and operate the Original Project and any Additional Project or Other Authority Project and to fix and collect tolls, fees, rentals and other charges, if any, as provided in the Bond Resolution or applicable Supplemental Resolution.

The Authority shall not hereafter issue any bonds or other evidences of indebtedness, other than the Bonds, secured by an 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 Bond Resolution, and shall not create or cause to be created any equal or prior lien or charge on the Revenues, or such moneys, securities or funds except as provided in the Bond Resolution; provided, however, that nothing contained in the Bond 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 Bond Resolution shall be discharged and satisfied as provided under "Defeasance", or (ii) Junior Indebtedness or 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 Bond 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 Bond 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 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 Net Revenue Requirement for such year.

(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 revenue covenant described above; provided that, for purposes of determining the portion of the Net Revenue Requirement relating to Variable Interest Rate Bonds for any prospective period of time, such amounts shall be calculated for each Series or subseries of 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 Bond 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 revenue covenant described above 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 paragraph (a) under this heading 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 no 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 was subject to tolls on August 3, 1992 when the Bond Resolution was adopted 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 Bondholders.

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 Bond 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 the Bonds 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 a summary of statement with respect to each Fund and account established under the Bond Resolution.

Tax Covenants

The Authority shall at all times do and perform all acts and things necessary or desirable in order to assure that interest paid on the Bonds shall be not included in the gross income of the owners thereof for purposes of federal income taxation.

The Authority shall not permit at any time any of the proceeds of the Bonds 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 Bond to be an "arbitrage bond" as defined in Section 148 of the Code.

The Authority shall not permit at any time any proceeds of any Bonds or any other funds of the Authority to be used, directly or indirectly, in a manner which would result in the classification of any Bond 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 obligations the interest on which is not exempt from federal income taxation, if such election is made prior to the issuance of such obligations, and the covenants contained under this heading shall not apply to such obligations.

Notice as to Event of Default

The Authority shall notify each issuer of a Credit Facility and the Trustee in writing that an "Event of Default" has occurred and is continuing, which notice shall be given within five (5) days after the Authority has obtained actual knowledge thereof; provided, however, that the Authority shall provide the issuer of a Credit Facility with immediate notice of any payment default after the Authority has obtained actual knowledge thereof. See "Events of Default" hereinafter.

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 Bonds of any one or more Series that shall enhance the security or the value of such Bonds and thereby reduce the principal and interest requirements on such Bonds. 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 Bonds the same as if such covenants were set forth in full in the Bond Resolution.

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 Bonds, 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 subparagraph (1) above, 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 amount of 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 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, 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.

Additional Project Revenues

The Authority shall not designate a project as an Additional Project, unless the Authority has jurisdiction and control of such project and the Supplemental Resolution designating the same provides that all tolls, rentals and other charges and other earned income or receipts, if any, derived by the Authority from such Project are and shall be deemed to be Additional Project Revenues.

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 and provision for anticipated deposits into each Fund under the Bond 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. 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.

Proposed New Interchanges and New Extensions

The Authority may construct, acquire or accept any additional tolled roadway or any extension to or expansion of any Facility constituting a tolled roadway or any interchange on any Facility constituting a tolled roadway if and only if there has been submitted to the Trustee with respect to such proposed New Interchange or such proposed New Extension at or prior to the date of undertaking the construction, acquisition or acceptance thereof the following:

1. 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 New Interchange or New Extension, as applicable, and, if so required, that such license, order or other authority has been obtained;

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 New Interchange or New Extension, and to establish, levy, maintain, collect and adjust, during the term of the Bonds, tolls, rentals, rates, fees or other charges in connection therewith, which establishment, levy, maintenance, collection or adjustment shall not then require or be subject to any governmental approval not applicable to the Original Project;

3. An Independent Consultant's Certificate setting forth (A) the estimated Net Revenues for all Facilities, together with estimated Reserve Maintenance Payments, excluding the proposed New Interchange or New Extension, for each of the successive five complete Authority fiscal years following the later of (i) two complete Authority fiscal years following its estimated Date of Completion and (ii) the date of its acquisition or acceptance by the Authority, and (B) the estimated Net Revenues for all Facilities, together with estimated Reserve Maintenance Payments, including the proposed New Interchange or New Extension for each of the same five complete Authority fiscal years;

4. A certificate of an Authorized Officer to the effect that the amount of the estimated Net Revenues less estimated Reserve Maintenance Payments determined pursuant to subparagraph 3(B) above in each of the five Authority fiscal years is not less than 100% of the estimated Net Revenues less estimated Reserve Maintenance Payments for each of the same five years determined pursuant to subparagraph 3(A) above;

5. Solely with respect to New Interchanges, the Independent Consultant shall include in its estimate of Net Revenues for each year calculated for purposes of subsection 3(B) above, the amount of any payments to be received in cash upon undertaking such New Interchange together with any payment obligations that have or would have a long-term rating of "A" or better (if so determined by the Authority, such cash payments to be allocated pro rata for each of the years of the test period, whether such payments are in fact applied for capital or operating expenses of such New Interchange); provided, however, that if the Authority Board determines that a period longer than five years will be necessary for the New Interchange to meet the test in paragraph 4 without the benefit of such cash payments or payment obligations, the test period shall be expanded accordingly; provided further that no such cash payments or payment obligations may be included for purposes of Subsection 3(B) above in estimating Net Revenues for a New Extension; and

6. A copy of the Supplemental Resolution designating such project to be an Additional Project certified by an Authorized Officer.

The foregoing requirements do not apply to an interchange or an extension that meets the requirements under the Bond Resolution for a "Facility Capital Improvement" (See the definition hereinabove) or an "Additional Project" (see "Additional Projects" hereinabove).

Limitation on Certain Acquisitions

Except for amounts released from the lien of the Bond Resolution pursuant to the provisions relating to the General Reserve Fund, the Authority covenants that no Revenues, Bond proceeds, 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 of a public corporation transferring such facility.

Investment of Funds

Amounts in the Funds and accounts established by the Bond Resolution may be invested only in Investment Obligations. Investment Obligations on deposit in the Funds and accounts held under the 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; provided that in no event shall the remaining term to maturity or redemption upon the demand of the holder thereof of any Investment Obligation credited to the Senior Debt Service Reserve Fund be greater than seven (7) years from the date such Investment Obligation is credited to such Fund. The Authority, or the Trustee, upon the instructions of an Authorized Officer, shall sell any Investment Obligations held in any Fund or account to the extent required for payments from such Fund or account. The proceeds of such sales, and of all payments at maturity or upon redemption of such investments, shall be held in the applicable Fund or account to the extent required to meet the requirements of such Fund or account. Losses, if any, realized on Investment Obligations held in any Fund or account shall be debited to such Fund or account. In computing the amount of such Funds and accounts, investments shall be valued at par, or if purchased at other than par, shall be valued at Amortized Value. Accrued interest received upon the sale of any Investment Obligation to the extent such amount exceeds any accrued interest paid on the purchase of such Investment Obligation shall be treated as interest earned on such Investment Obligation.

Trustee

The Trustee may at any time resign and be discharged of its duties and obligations under the Bond 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 Bond 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 modify any of the provisions of the Bond Resolution in any respect whatever, provided that (i) such modification shall be, and be expressed to be, effective only after all Bonds of any Series 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 Bonds of any Series authenticated and delivered on original issuance after the date of the adoption of such Supplemental Resolution and of Bonds issued in exchange therefor or in place thereof;

2. To insert such provisions clarifying matters or questions arising under the Bond Resolution as are necessary or desirable and are not contrary to or inconsistent with the Bond Resolution as theretofore in effect;

3. To authorize Bonds of a Series;

4. To designate or confirm the designation of any project as an Other Authority Project or to designate an Other Authority Project, New Interchange or New Extension as an Additional Project under the Bond Resolution;

5. To modify, amend, insert or delete such provisions of the Bond Resolution as, in Counsel's Opinion, shall be necessary or desirable to ensure the continued federal tax exemption of the interest on any Series of Bonds Outstanding under the Bond 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 Bonds;

6. To modify, amend or supplement the Bond Resolution in any manner in order to provide for a Credit Facility or a Reserve Credit Facility for any Series of Bonds, under the Bond 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 Bonds;

7. To cure any ambiguity, supply any omission, or cure or correct any defect or inconsistent provision in the Bond Resolution, under the Bond 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 Bonds;

8. To provide for the application of the proceeds of any sale, exchange, lease or other disposition of any Facility permitted by the Bond Resolution;

9. To provide for additional investments that may be delivered in lieu of Government Obligations in order to cause Bonds of a Series then or thereafter being initially issued and delivered to be deemed paid by the Bond 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 Bonds for federal income tax purposes for any Bonds issued on a tax-exempt basis, to provide for the delivery of Bonds that are not in registered form;

11. To the extent authorized by law and to the extent that it will not adversely affect the exclusion of interest from the income of holders of Bonds for federal income tax purposes for any Bonds issued on a tax-exempt basis, to provide for the delivery of a Series of Bonds or a portion of a Series of Bonds incorporating detachable call options.

In addition, the Authority may adopt a Supplemental Resolution amending any provision of the Bond 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 Bonds.

Powers of Amendment

Any modification or amendment of the Bond Resolution and of the rights and obligations of the Authority and of the Holders of the Bonds thereunder, in any particular, may be made by a Supplemental Resolution, with the written consent given, and not revoked, as provided in the Bond Resolution, (a) by the Holders of at least a majority in principal amount of the Bonds Outstanding at the time such consent is given, and (b) in case less than all of the Bonds then Outstanding are affected by the modification or amendment, by the Holders of at least a majority in principal amount of the Bonds so affected and Outstanding at the time such consent is given; provided, however, that if such modification or amendment will, by its terms, not take effect so long as any Bonds of any specified like Series and maturity remain Outstanding, the consent of the Holders of such Bonds shall not be required and such Bonds shall not be deemed to be Outstanding for the purpose of any calculation of Outstanding Bonds under this heading. No such modification or amendment shall permit a change in the terms of redemption or maturity of the principal of any Outstanding Bond or of any installment of interest thereon or a reduction in the principal amount or the Redemption Price thereof or in the rate of interest thereon without the consent of the Holders of such Bonds, or shall reduce the percentages or otherwise affect the classes of Bonds the consent of the Holders of which is required to effect any such modification or amendment, or shall change or modify any of the rights or obligations of the Trustee without its written assent thereto. A Series shall be deemed to be affected by a modification or amendment of the Bond Resolution if the same materially adversely affects or diminishes the right, security and interest of the Holders of Bonds of such Series. The Authority may in its discretion determine whether or not in accordance with the foregoing, Bonds of any particular Series or maturity would be affected by any modification or amendment of the Bond Resolution and any such determination shall be binding and conclusive on all Holders of Bonds. The Authority shall, prior to making any such determination, receive a Counsel's Opinion as conclusive evidence as to whether the Bonds of a Series or maturity would be so affected by any such modification or amendment thereof.

Events of Default

The occurrence of one or more of the following events shall constitute an "Event of Default":

(a) payment of principal, Sinking Fund Installments, interest or premium on any Bond shall not be made when the same shall have become due, whether at maturity or upon call for redemption or otherwise, which default shall continue for a period of five (5) days; or

(b) failure by the Authority to observe any of the covenants, agreements or conditions on its part contained in the Bond Resolution or in the Bonds contained, 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 Bonds 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

(c) 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, or (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.

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 Bonds then Outstanding, shall:

(a) by mandamus or other suit, action or proceeding at law or in equity enforce all rights of the Holders of Bonds under the Bond Resolution;

(b) bring suit upon such Bonds;

(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 Bonds;

(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 Bonds;

(e) declare all such Bonds due and payable, and if all defaults shall be made good then with the consent of the Holders of not less than a majority in aggregate principal amount of such Bonds then outstanding, annul such declaration and its consequences.

The Supreme Court of the State shall have jurisdiction of any suit, action or proceeding by the Trustee on behalf of the Holders of Bonds, and venue of any such suit, action or proceeding shall be laid in the County of Albany.

No remedy by the terms of the Bond Resolution conferred upon or reserved to the Trustee or the Holders of the Bonds 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 Bond Resolution or existing at law or in equity or by statute on or after the date of adoption of the Bond Resolution, except that the Bondholders 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.

No Holder of any of the Bonds shall have any right to institute any suit, action or proceeding in equity or at law for the enforcement of any trust under the Bond Resolution, or any other remedy thereunder or under the Bonds, unless such Holder previously shall have given to the Trustee written notice of an Event of Default as provided in the Bond Resolution and unless also the Holders of not less than a majority in aggregate principal amount of the Bonds 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 under the Bond 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 Bond Resolution, or to enforce any right thereunder or under the Bonds, except in the manner therein provided, and that all proceedings at law or in equity shall be instituted, had and maintained in the manner therein provided and for the equal benefit of all Holders of Outstanding Bonds, subject, however, to the provisions of the Bond Resolution regarding the extension of payment for the Bonds. Nothing in the Bond Resolution or in the Bonds contained shall affect or impair the right of action, which is also absolute and unconditional, of any Holder of any Bond to enforce payment of the principal of and premium, if any, and interest on such Bond at the respective dates of maturity of each of the foregoing and at the places therein expressed.

All rights of action under the Bond Resolution or under any of the Bonds which are enforceable by the Trustee may be enforced by it without the possession of any of the Bonds, 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 the Bonds, subject to the provisions of the Bond Resolution.

No delay or omission of the Trustee or of any Holder of the Bonds 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 the Bond Resolution to the Trustee and to the Holders of the Bonds, respectively, may be exercised from time to time as often as may be deemed expedient.

No Cross-Default

Except as provided in the Bond Resolution, a Supplemental Resolution or a Certificate of Determination, no default under the Act or any resolution, agreement, or other instrument shall constitute or give rise to a default under the Bond Resolution.

Priority of Payments After Default

In the event that the funds held by the Authority, the Trustee or by the Paying Agents shall be insufficient for the payment of principal, Sinking Fund Installments, if any, or Redemption Price and interest then due on the Bonds, such funds (other than funds held for the payment of particular Bonds which have theretofore become due at maturity or by call for redemption and funds which at the time of their deposit into any Fund or account under the Bond Resolution have been designated to be applied solely to the payment of the principal of and premium, if any, and interest on any series of Bond Anticipation Notes and subject to the provisions governing the application of any separate account in the Senior Debt Service Reserve Fund for a particular Series of Bonds established in the Supplemental Resolution authorizing such Series of Bonds) and any other moneys received or collected by the Trustee or any Paying Agents, or a trustee appointed pursuant to the terms of the Bond Resolution and in accordance with the Act, after making provision for the payment of any expenses necessary in the opinion of the Authority to preserve the continuity of the Revenues, or otherwise protect the interests of the Holders of the Bonds, and 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 Bond Resolution, shall be applied as follows:

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.

SECOND: To the payment to the persons entitled thereto of the unpaid principal, Sinking Fund Installments or Redemption Price of any Bonds which shall have become due whether at maturity or by call for redemption.

If the principal of all of the Bonds 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 Bonds without preference or priority.

Defeasance

Any Bonds of any Series shall prior to the maturity or Redemption Date thereof be deemed to have been paid within the meaning and with the effect expressed in the Bond Resolution if (a) in case any of said Bonds are to be redeemed on any date prior to their maturity, the Authority shall have published or caused to be published notice of redemption on said date of such Bonds, (b) there shall have been deposited with the Authority either moneys in an amount which shall be sufficient, or Government Obligations or other investments authorized for such purpose ("Other Authorized Investments") 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, Sinking Fund Installments, if any, or Redemption Price, if applicable, and interest due and to become due on said Bonds on and prior to the Redemption Date or maturity date as the case may be, and (c) in the event such Bonds are not by their terms subject to redemption within the next succeeding sixty (60) days, the Authority shall (i) publish, as soon as practicable, at least twice, at an interval of not less than seven (7) days between publications, in an Authorized Newspaper a notice to the Holders of such Bonds, and (ii) mail by registered or certified mail, postage prepaid, a notice to the Holders of such Bonds, in each case that the deposit required by (b) above has been made and that said Bonds are deemed to have been paid in accordance with the Bond Resolution and stating such maturity date or Redemption Date upon which moneys are to be available for the payment of the principal, Sinking Fund Installments, if any, or Redemption Price, if applicable, on said Bonds. The Authority shall select which Bonds of a Series and which maturity thereof shall be paid in accordance with the Bond Resolution. Neither Government Obligations, Other Authorized Investments or moneys deposited pursuant to this heading 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, Sinking Fund Installments, if any, or Redemption Price, if applicable, and interest on said Bonds; provided that any moneys received from such principal or interest payments on such Government Obligations or Other Authorized Investments so deposited, if not then needed for such purpose, shall, to the extent practicable, be reinvested in Government Obligations or Other Authorized Investments maturing at times and in amounts sufficient to pay when due the principal, Sinking Fund Installments, if any, or Redemption Price, if applicable, and interest to become due on said Bonds on and prior to such Redemption Date, payment date or maturity date thereof, as the case may be. Any income or interest earned by, or increment to, the investment of any such moneys so deposited shall, to the extent in excess of the amounts required in the Bond Resolution to pay principal, Sinking Fund Installments, if any, or Redemption Price, if applicable, of and interest on such Bonds, as realized, be applied as follows: first to the Rebate Fund, the amount, if any, required to be deposited therein; and, then the balance thereof to the Authority, and any such moneys so paid shall be released of any trust, pledge, lien, encumbrance or security interest created by the Bond Resolution.

Payments due on Saturdays, Sundays and Holidays

In any case where the date of maturity of interest on or principal of the Bonds or the date fixed for redemption of any Bonds 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 or the date fixed for redemption, as the case may be.

No Additional Restaurant Concession Bonds

The Authority covenants that it shall not further amend or supplement the Restaurant Concession Bonds resolution, or take any other action, to allow the authentication and delivery of additional indebtedness under such resolution

Reserve Credit Facilities in the Senior Debt Service Reserve Fund

Pursuant to Supplemental Resolutions adopted in 1995 and 2004, the Authority Board authorized the deposit or substitution of Reserve Credit Facilities for cash and Investment Obligations that would otherwise have been required to be on deposit to the credit of the Senior Debt Service Reserve Fund. See "SOURCES OF PAYMENT AND SECURITY FOR THE BONDS ― Senior Debt Service Reserve Fund" in the forepart of this Official Statement. The Authority has entered into agreements with the municipal bond insurance companies (collectively, the "Providers") providing such Reserve Credit Facilities ("Reserve Fund Policies") that, together with such Supplemental Resolutions (collectively, the "SDSRF Contracts"), provide in effect that in the event that the Trustee shall be required to draw on the Senior Debt Service Reserve Fund to pay principal or interest due and payable on any Bonds, the Trustee shall first exhaust any cash and Investment Obligations to the credit of such Fund and then to the extent necessary and subject to the respective maximum amounts of the Reserve Fund Policies, after giving the required notice, demand payment on such Policies pro rata. The SDSRF Contracts obligate the Authority to reimburse the Providers the amounts of such payments, with interest, within 12 months of such payments. Reimbursement of the Providers in accordance with the SDSRF Contracts will reinstate the amounts that can be drawn on the Reserve Fund Policies. Under the SDSRF Contracts and the Bond Resolution, the obligation of the Authority to reimburse the Providers with interest for any payments on the Reserve Fund Policies ranks on a parity with the Authority's obligation to maintain the Senior Debt Service Reserve Fund at the Senior Debt Service Reserve Fund Requirement.

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APPENDIX D

BOOK-ENTRY ONLY SYSTEM

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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 O Bonds. The Series O Bonds 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 O Bond certificate will be issued for each stated maturity of the Series O Bonds, 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 O BONDS, AS PARTNERSHIP NOMINEE FOR DTC, REFERENCES HEREIN TO BONDHOLDERS OR OWNERS OF THE SERIES O BONDS (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 O BONDS.

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 O Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the Series O Bonds on DTC's records. The ownership interest of each actual purchaser of each Series O Bond ("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 O Bonds 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 O Bonds, except in the event that use of the book-entry system for the Series O Bonds is discontinued.

To facilitate subsequent transfers, all Series O Bonds 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 O Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee does not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Series O Bonds; DTC's records reflect only the identity of the Direct Participants to whose accounts such Series O Bonds 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 O Bonds may wish to take certain steps to augment transmission to them of notices of significant events with respect to the Series O Bonds, such as redemptions, tenders, defaults, and proposed amendments to the security documents. For example, Beneficial Owners of Series O Bonds may wish to ascertain that the nominee holding the Series O Bonds 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 O Bonds 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 Bonds to be redeemed.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to the Series O Bonds unless authorized by a Direct Participant in accordance with DTC's MMI Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the Authority as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts Series O Bonds 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 O Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit 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, 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 O Bonds 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 O Bond certificates are required to be printed and delivered.

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

NEITHER THE AUTHORITY NOR THE INITIAL PURCHASERS 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 O BONDS; (iii) ANY NOTICE WHICH IS PERMITTED OR REQUIRED TO BE GIVEN TO SERIES O BONDHOLDERS; (iv) ANY CONSENT GIVEN BY DTC OR OTHER

ACTION TAKEN BY DTC AS A SERIES O BONDHOLDER; 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 O BONDS.

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 Initial Purchasers take any responsibility for the accuracy thereof.

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FORM OF APPROVING OPINION OF BOND COUNSEL

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APPENDIX E

Upon delivery of the Series O Bonds in definitive form,
Harris Beach PLLC, Bond Counsel to the Authority,
proposes to render its Approving Opinion in substantially the following form:

[Date of Delivery]

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 $549,480,000 aggregate principal amount of General Revenue Bonds, Series O (herein called the "Series O Bonds"), 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 Resolutions (hereinafter defined).

The Series O Bonds 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 General Revenue Bond Resolution of the Authority, adopted by the Authority on August 3, 1992 and amended January 5, 2007 (herein called the "General Resolution"), as supplemented, including as supplemented by the Twentieth Supplemental Revenue Bond Resolution Authorizing General Revenue Bonds, Series O adopted by the Authority on June 7, 2021 (the "Series O Resolution"), and a Certificate of Determination of the Authority, dated the date hereof, relating to the Series O Bonds. The Bond Resolution, as so supplemented and amended is referred to herein as the "Resolutions". The Series O Bonds are being issued for the purposes set forth in the Series O Resolution.

The Authority reserves the right to issue additional Bonds under the Bond Resolution on the terms and conditions, and for the purposes, stated in the Bond Resolution. Under the Bond Resolution, all such Bonds will rank equally as to security and payment with the Series O Bonds, except as otherwise provided for a Series of Bonds in a Supplemental Resolution with respect to the Senior Debt Service Reserve Fund.

The Internal Revenue Code of 1986, as amended (the "Code"), establishes certain requirements that must be met at the time of, and subsequent to, the issuance and delivery of the Series O Bonds in order that interest on the Series O Bonds be and remain excluded from gross income for federal income tax purposes. Included among these continuing requirements are certain restrictions and prohibitions on the use of proceeds of Series O Bonds, restrictions on the investment of proceeds of Series O Bonds and other moneys or properties, and the rebate to the United States of certain earnings in respect of investments. Noncompliance with such continuing requirements may cause the interest on the Series O Bonds to be included in gross income for federal income tax purposes retroactive to the date of issuance of the Series O Bonds irrespective of the date on which such noncompliance occurs. The Resolutions and the Arbitrage and Use of Proceeds Certificate dated the date hereof of the Authority (the "Arbitrage Certificate"), contain certain factual certifications, covenants, representations and warranties as to compliance with the requirements of the Code. In rendering the opinions set forth in paragraph 5 herein, we have assumed the accuracy of such factual certifications of, and continuing compliance by the Authority, with such covenants, representations, warranties, provisions and procedures set forth in the Resolutions and the Arbitrage Certificate.

Based on the foregoing, and subject to the further qualifications and limitations noted below, 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 O Bonds 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 their terms, and no other authorization for the Resolutions is required.

3. The Resolutions create the valid pledge which they purport to create of the proceeds of sale of the Series O Bonds, the Revenues, and the Funds and accounts established by the Bond Resolution (other than the Rebate Fund, the Junior Indebtedness Fund and, to the extent any Series of Bonds is not secured by the Senior Debt Service Reserve Fund, the Senior Debt Service Reserve Fund) and certain investment income referred to therein subject to the application thereof to the purposes and on the terms and conditions permitted by the Resolution.

4. The Series O Bonds are valid and binding direct and general obligations of the Authority payable as provided in the Bond Resolution and the full faith and credit of the Authority are pledged to the payment thereof. The Series O Bonds are enforceable against the Authority in accordance with their terms and the terms of the Resolutions and entitled to the benefits of the Act and of the Resolutions, and such Series O Bonds have been duly and validly authorized and issued in accordance with the Constitution and statutes of the State, including the Act, and in accordance with the Resolutions.

5. Under existing statutes, regulations, administrative rulings and court decisions, interest on the Series O Bonds is excluded from gross income for federal income tax purposes pursuant to Section 103 of the Code and is not an item of tax preference for purposes of calculating the federal alternative minimum tax imposed on individuals.

6. Under existing statutes, including the Act, interest on the Series O Bonds is exempt from personal income taxes imposed by the State or any political subdivision thereof.

We have examined a fully executed Series O Bond and, in our opinion, the form of said Series O Bond and its execution are regular and proper.

Except as stated in paragraphs 5 and 6 above, we express no opinion as to the federal, state and local tax consequences of the ownership or disposition of, or the accrual or receipt of interest on, the Series O Bonds. Furthermore, we express no opinion as to any federal, state or local tax consequences with respect to the Series O Bonds, or the interest thereon, if any change occurs or action is taken or omitted under the Resolutions, the Arbitrage Certificate or any other relevant documents, upon the advice or approval of any bond counsel other than Harris Beach PLLC. In addition, we have not undertaken to determine, or to inform any person, whether any actions taken, or not taken, or events occurring, or not occurring, after the date of issuance of the Series O Bonds may affect the tax status of interest on the Series O Bonds. Further, although interest on the Series O Bonds is not included in gross income for purposes of federal income taxation, receipt or accrual of the interest may otherwise affect the tax liability of a holder of a Series O Bond depending upon the tax status of such holder and such holder's other items of income and deduction.

The foregoing opinions are qualified only to the extent that the enforceability of the Resolutions and the Series O Bonds 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 O Bonds.

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.

Respectfully submitted,

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APPENDIX F

THE REFUNDED BONDS

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APPENDIX F

THE REFUNDED BONDS

The following is a list of the bonds that will be refunded with a portion of the proceeds of the Series O Bonds, together with other available funds. All of the bonds listed below are the Refunded Bonds as described in "PLAN OF FINANCE AND REFUNDING".

New York State Thruway Authority General Revenue Bonds, Series I

Maturity Date	Interest Rate	Principal Amount	First Optional Redemption Date	Redemption Price	CUSIP Number†
Serial Bonds					
01/01/2023	4.00 %	$ 2,730,000	January 1, 2022	100%	650009YA5
01/01/2023	5.00	25,395,000	January 1, 2022	100	650009YZ0
2037 Term Bond					
01/01/2036	4.125	13,435,000	January 1, 2022	100	650009S87
01/01/2037	4.125	14,010,000	January 1, 2022	100	650009S87
2042 Term Bond					
01/01/2038	4.125	12,700,000	January 1, 2022	100	650009YM9
01/01/2039	4.125	13,310,000	January 1, 2022	100	650009YM9
01/01/2040	4.125	13,975,000	January 1, 2022	100	650009YM9
01/01/2041	4.125	14,645,000	January 1, 2022	100	650009YM9
01/01/2042	4.125	15,370,000	January 1, 2022	100	650009YM9
		$125,570,000			

† CUSIP® is a registered trademark of the American Bankers Association ("ABA"). CUSIP numbers have been assigned by CUSIP Global Services, which is managed on behalf of the ABA by S&P Global Market Intelligence, a division of S&P Global Inc. The CUSIP numbers listed above are being provided solely for the convenience of the holders of the Refunded Bonds. The Authority is not responsible for the selection or uses of these CUSIP numbers, nor is any representation made as to their correctness on the Refunded Bonds or as indicated above. The CUSIP numbers have been and are subject to change after the original issuance of the Refunded Bonds as a result of various subsequent actions including, but not limited to, a refunding in whole or in part of one or more maturities of the Refunded Bonds 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 one or more maturities of the Refunded Bonds.

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