



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

November 30, 2023

Prepared for:



New York State Thruway Authority

Prepared by:

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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

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

The forecasts of traffic and revenues set forth herein are based on the Authority’s Board-approved 2024 through 2027 toll modifications, as summarized in Table 1.

Table 1: 2024 - 2027 Approved Future Toll Modifications

Toll Modification Element	Description
GOVERNOR MARIO M. CUOMO BRIDGE TOLL RATE ADJUSTMENTS	
Gov. Mario M. Cuomo Bridge: Increase Base NY E-ZPass to a rate of \$7.75 by 2027	Beginning on January 1, 2024, provide 50-cent annual increases to the base NY E-ZPass passenger toll rates on the Gov. Mario M. Cuomo Bridge during the period 2024-2027. This would result in a base NY E-ZPass rate for passenger vehicles increasing to \$7.75 by 2027 (current rate is \$5.75). Commercial rate increases would be proportionate to the passenger rate increases. (Note that Systemwide adjustments to Non-NY E-ZPass and Tolls by Mail will be applied on top of these base increases.)
40% Commuter Discount Program	Maintain the commuter discounted rate of 40 percent off the NY E-ZPass rate for passenger vehicles that opt into the program. Consistent with the policy prior to the toll adjustment, 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	Increase the resident discount E-ZPass Plan for qualified Westchester and Rockland residents from its current 17 percent discount to a 20 percent discount off the NY E-ZPass rate. This program is only offered to class 2L passenger vehicles with a NY E-ZPass who opt into the plan and provide proof of residency.
SYSTEMWIDE TOLL RATE ADJUSTMENTS	
NY E-ZPass Rates	On January 1, 2024 and January 1, 2027 increase the base NY E-ZPass rates by 5 percent from their prior levels.
Incentivize NY E-ZPass Usage	Beginning on January 1, 2024, increase the current 30 percent Tolls by Mail (“TBM”) rate differential (a toll rate 30 percent above the NY E-ZPass rate) to a 75 percent differential above the NY E-ZPass rate.
Non-NY E-ZPass Rates	Beginning on January 1, 2024, increase the current Non-NY E-ZPass toll rate differential from a 15 percent rate differential (a toll rate 15 percent above the NY E-ZPass rate for Non-NY E-ZPass tolls) to a 75 percent differential above the NY E-ZPass rate.

This follows other events and changes to the system in recent years which included the following:

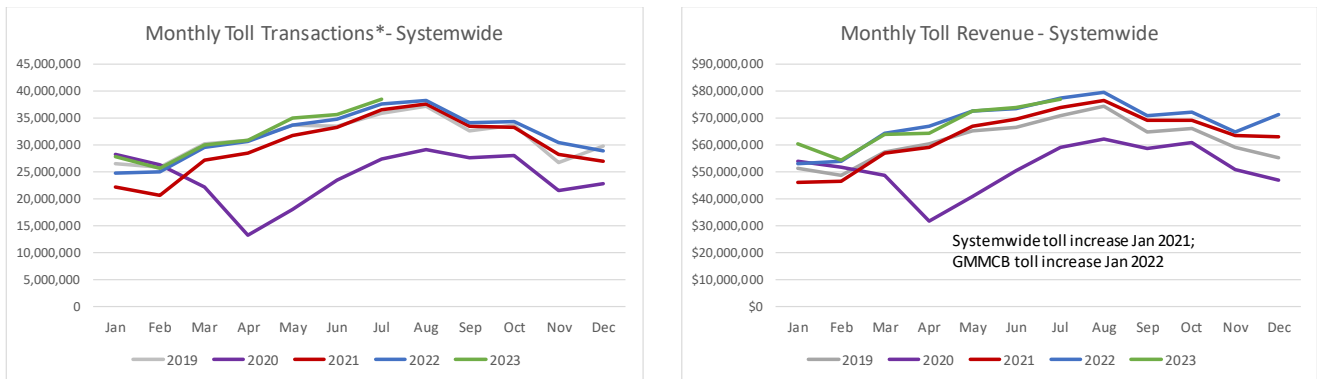
- Toll increases were last implemented at the Gov. Mario M. Cuomo Bridge in January 2021 and January 2022. The base passenger car E-ZPass toll was increased \$0.50 each year with greater increases for large trucks. Qualifying passenger cars avoided toll increases by participating in a new Resident Plan.
- Systemwide, starting in January 2021, Tolls by Mail rates were increased to 30 percent above the NY E-ZPass toll rate, in addition to the assessment of a \$2 administrative surcharge per billing statement. The non-NY E-ZPass toll rate was increased to 15 percent above the NY E-ZPass rate. With the exception of the Gov. Mario M. Cuomo



Bridge, tolls for NY E-ZPass customers systemwide were not increased in 2021 or 2022; they remained at 2010 rates.

- Conversion of the controlled system to all-electronic toll collection (“AETC”), also known as all-electronic tolling (“AET”) or cashless tolling, was completed on November 14, 2020. The Gov. Mario M. Cuomo Bridge (formerly Tappan Zee Bridge) had previously been converted in 2016 and the other barriers had been converted in 2018.
- The COVID-19 pandemic (“COVID-19” or “COVID”) 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 period from 2019 through July 2023. While these declines were most severe during the height of the outbreak in the spring of 2020, significant improvement was seen over the summer and fall of 2021 where transactions often exceeded 2019 levels. In December of 2021 and January of 2022, with the spread of the Omicron variant, traffic experienced a notable decline below 2019 levels, followed by recovery through the spring of 2022. In May through December 2022, traffic grew over 2021 levels. In early 2023 traffic was only slightly above 2022, representing a typical year-over-year growth rate, and suggesting that there is no further growth anticipated as a result of COVID recovery. Toll revenues have exceeded pre-COVID levels since mid-2021 due primarily to the 2021 and 2022 toll increases. As shown below, total 2023 toll transactions and revenues through July were 3 percent and 11 percent above 2019 levels, respectively.

Figure 1: Monthly Toll Transactions and Revenue Showing COVID-19 Impacts, 2019-2023



2023 compared to 2019		Jan	Feb	Mar	Apr	May	Jun	Jul	Total YTD
Monthly Toll Transactions*		5%	-1%	0%	1%	4%	7%	7%	3%
Monthly Toll Revenue		18%	11%	11%	7%	11%	11%	9%	11%

* With the new AETC system, there may now be multiple toll transactions per trip on the Woodbury-Williamsville section, while there was previously only one transaction per trip. From January 2019 through November 2020 these trips were converted to “new system transactions” for graphing purposes to provide a better comparison to pre-AETC conditions.

Future funding needs for 2024 through 2028 were established by the Authority at amounts necessary to maintain current levels of safety and service and good infrastructure conditions, support Thruway operations, and maintain established debt service coverage policy targets appropriate for high level investment-grade credit ratings. The Authority and its independent financial advisors have determined that the forecasted revenues with the programmed 2024 through 2027 toll modifications are sufficient to meet these funding needs throughout the forecast period. In the unlikely event of a shortfall, 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 additional revenues through periodic toll adjustments, and, if implemented, these adjustments would result in only small changes to traffic patterns. We believe, for the period through the final maturity of the Series P Bonds, that the Authority will be able 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 the rates of 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 the accompanying growth of toll revenues throughout the forecast period;
- The Authority's facilities have been maintained at high standards over prior 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; and
- Target levels of future maintenance and capital expenditures beyond the current Capital Program will support the integrity and reliability of the Thruway System.

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 New York State's (the "State") 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 cars 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. Illustrating its importance to the State, region



and nation, Thruway customers traveled approximately 7.7 billion vehicle-miles on the highway in 2022, averaging more than 21.2 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 375.7 million toll transactions occurred on the Thruway in 2022, generating about \$820.4 million in toll revenues¹.

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

The Thruway is comprised of two types of toll systems – a controlled 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.

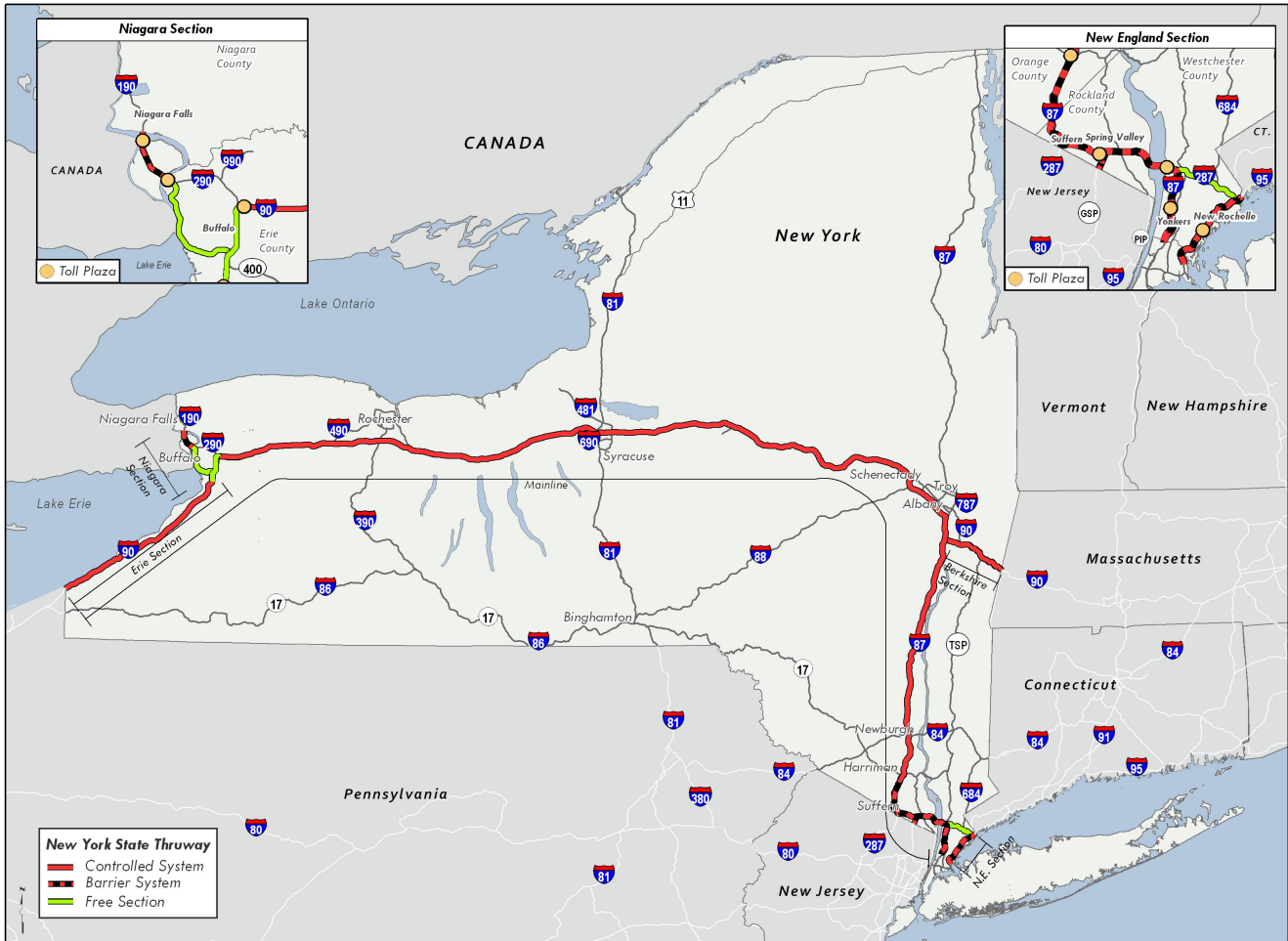
Under the existing policy, toll rates across the Thruway System are based on vehicle classification, related to the number of axles per vehicle and the height of the vehicle over the first two axles. On the controlled system, tolls are charged based on the actual distance traveled by the customer. Meanwhile, 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.

¹ \$852.5 million in gross toll revenues minus \$32.1 million in commercial volume discounts



Figure 2: New York State Thruway Toll Systems



In recent years, the Authority 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”). It should also be noted that the Authority had also been responsible for the operation and maintenance for the New York State Canal System in the past, however, in 2017 the Authority was relieved of all responsibilities related to the Canal System.



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 2.

Table 2: 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, precipitating 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 contained 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 817 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 FIBER OPTIC SYSTEM

The Authority owns a fiber optic system consisting of 550 miles of duct and fiber optic cable located primarily within the right-of-way of the Thruway System. The Authority has entered into twelve agreements with various parties for the irrevocable right to use the system for terms ranging from 3 to 23 years. These agreements generally require users to make a one-time lump sum payment upon execution followed by annual recurring payments that escalate based on the lesser of the year over year change in the consumer price index or 3 percent. Total income over the life of the agreements is estimated to be \$161.3 million. In 2022 the Authority recognized total revenue of \$10.3 million from users of the fiber optic system.

2.5 SERVICE AREAS AND BUILDINGS

The Authority currently owns 666 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:

- 272 section maintenance and storage buildings
- 55 salt sheds
- 80 AET buildings
- 194 service area buildings
- 6 buildings at the three New York State Welcome Centers
- 1 Port Byron Old Erie Canal Heritage Park Visitors Center
- 23 State Police barracks and storage buildings
- 35 radio shelter buildings

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, owned by the Authority and operated through concessionaire agreements, provide fuel, food and other amenities to Thruway customers. Thruway staff maintains the service area fuel station buildings and wastewater treatment plants and conducts winter maintenance of the parking areas. The service areas were originally built in the 1950s, with the last significant redevelopment (prior to the current redevelopment) taking place in the 1990s.

In 2021, the Authority entered into a 33-year agreement with Empire State Thruway Partners, LLC (“Empire”) for the design, construction, finance, operation, and maintenance of the Authority’s 27 Service Areas. Empire assumed control of 16 of the service areas in July 2021 and the remaining 11 service areas in January 2023. Empire will rebuild 23 of the 27 service area restaurant buildings and perform significant renovations to the remaining four. Empire’s initial investment to rebuild and renovate the service areas is estimated to be \$300 million. With the exception of the Thruway being financially responsible for remediation costs associated with pre-existing regulated site conditions, no toll or tax dollars are being used for construction.

Most buildings at the new service areas are being configured to provide entrances from both the parking lot and fuel station facilities. New amenities and services at select service areas include exterior seating, 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 are available to customers as part of the redevelopment project, with diverse food options at all 27 service areas, offering a range of healthy products and meals from nationally recognized restaurants.

Commencing with the reopening of each new restaurant building, the agreement requires Empire to pay rent calculated as a percentage of gross sales, subject to a guaranteed annual minimum per location. In addition, the agreement has ancillary rent provisions tied to the operation of commercial vehicle fueling stations at five of the service areas and advertising opportunities at all service areas. Sales generated by Empire during the operation of a restaurant prior to reconstruction (interim operations) are not subject to rent provisions. Over the life of the agreement, base rent calculated as a percentage of sales is forecasted to be \$85 million, of which \$51 million is guaranteed. By the end of December 2022, three of the newly constructed service area buildings had reopened while 13 were closed for construction. In 2022, the Authority recognized total rental income from the service area restaurants of \$4.4 million, consisting of \$1.8 million from Empire and \$2.6 million from an agreement with McDonald’s Corporation that expired on December 31, 2022.

In addition, there are two leases for the operation of the fueling stations located at the service areas, Dunne Manning (12 facilities) and Sunoco, Inc. (R&M) (15 facilities). The Authority recognized \$3.4 million in revenue from the fuel leases in 2022.

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. Applegreen C-Stores offer an assortment of hot food items as well as grab-and-go sandwiches and wraps, salads, coffee, snacks, drinks and more, and also feature Taste NY products and merchandise. There is also a brand name food vendor at each service area open to the public 24 hours a day, seven days a week. Furthermore, many service areas have seasonal farm markets, gift shops, sell *E-ZPass* On-the-Go (retail *E-ZPass* transponders) and staff a number of Tourist Information Centers.

As of October 2023, eleven of the service areas have been modernized and reopened. Construction is currently underway at thirteen service areas. Fuel services remain available at all locations during construction, and signage alerts motorists of the construction at the service areas and the location of the next open service area on the Thruway.



2.6 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: 117 Permanent Variable Message Signs, 286 Closed Circuit Television cameras, 130 Portable Variable Message Signs, 47 Weather Stations, 5 Weigh-in-Motion Sensors, 97 Lane Control Signs, 3 Variable Speed Limit Signs, and 27 Radar Speed 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 2019, 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. In recent years Troop T has also participated in ‘Operation Hardhat’; this statewide traffic enforcement initiative focuses on enforcing reduced speed limits, use of seatbelts, and distracted driving in the work zones. The greatest proven method, however, to reduce fatalities is the day-to-day visible enforcement of traffic laws by the patrol troopers on the Thruway.

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 2022 fatality rate on the Thruway of 0.16 fatalities per 100 million miles traveled was among the lowest in the nation. This compares to an index of 1.35 nationwide in 2022 (preliminary estimate)² and 1.08 for all of New York State³ in 2021.

2.7 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

² “NHTSA Estimates for 2022 Show Roadway Fatalities Remain Flat After Two Years of Dramatic Increases”, National Highway Traffic Safety Administration, April 10, 2023, <https://www.nhtsa.gov/press-releases/traffic-crash-death-estimates-2022>

³ “Fatality Facts 2021 State by State.” Insurance Institute for Highway Safety Highway Loss Data Institute, May 2023, <https://www.iihs.org/topics/fatality-statistics/detail/state-by-state>



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.

2.8 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 November 1, 2022 through December 9, 2022. 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 infrastructure was less than satisfactory, construction or repair efforts were either underway or scheduled for the near term.

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

As a follow-up to the 2022 review, Stantec conducted interviews in October 2023 with the leadership of each of the Thruway's four Divisions: New York Division, Albany Division, Syracuse Division, and Buffalo Division. Each of the Division's leadership 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;



- 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 late 2022 drive-through inspection and October 2023 interviews with each Division.

2.8.1 New York Division

The New York Division includes I-87 from the New York City line to New Paltz, from milepost (MP) 0 to MP 76.5. It also includes I-95 from the Bruckner Expressway to the Connecticut state line (the New England Section), I-287 which is also known as the Cross-Westchester Expressway (for which the Authority is responsible only for maintenance), and the 2.4-mile Garden State Parkway connector from I-87 to the New Jersey state line. The New York Division is responsible for 578 mainline lane-miles and 101 Interchange lane-miles. Major bridges in the New York Division include the Gov. Mario M. Cuomo Bridge (formerly Tappan Zee) and the Byram River Bridge along the New England Section. New York Division bridges include 185 in total, not including the Cross-Westchester Expressway, with approximately 63 flagged, including 20 Red & 10 Safety.

All toll facilities have been upgraded to AET. There are no longer physical tollbooths along any section of highway – they were demolished and replaced with overhead toll gantries by 2020. The toll canopy structure at the Newburgh interchange (Exit 17), however, was retained and redeveloped for AET. New gantries -which have been in place at all key locations for about three years - obtain the vehicle travel data necessary to assess tolls. The bridges, pavement, and gantries in this Division were generally observed to be in satisfactory condition or better.

At the time of the interview, two (2) of the travel plazas had been replaced and reopened, two (2) were under construction scheduled to be completed in the spring of 2024 with work on the one (1) remaining plaza to start in 2024 and be completed by 2025. There were otherwise no noted construction projects underway in this Division at the time of the drive-through inspection or interview.

Maintenance. The New York Division has more than 230 maintenance personnel for its roadway, bridges, and facilities, plus the Tarrytown Operations unit dedicated to Gov. Mario M. Cuomo Bridge security. 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, operating most equipment until its useful end of life. The Division thereby undergoes a purchase program every few years to enhance its maintenance operations on an as-needed basis and as finance allows. Ongoing preventive maintenance activity continues to include mowing, repairing/sealing pavement, repair of guiderail and safety elements, maintenance of bridge bearings, and snow removal during the winter months (which uses a large majority of the staff). Maintenance is also responsible for safety upgrades, bridge washings, flag repairs, structural repairs, Thruway Utility Building / AET buildings, radio towers, and travel plazas' on-site wastewater treatment facilities. Division leadership noted that there is now the additional task of maintaining the AET infrastructure (cameras, treadles, etc.) at the numerous gantries, which has put added responsibilities on their workforce.

Capital Program. The Capital Program for the New York Division includes current on-going projects, along with various planned future construction projects. For the 2024 season, the most notable planned project is the pavement resurfacing from Harriman to Newburgh, Exit 17 (\$28 million) and the I-95 New England Thruway highway rehabilitation from MP 604.0 to MP 608.8 (\$45 million). Other upcoming notable projects in the 2024 to 2028 Capital Program include I-95 New England Thruway pavement resurfacing from MP 608.8 to 613.0 (\$40 million, 2025), pavement resurfacing from the Major Deegan Expressway/MP 0.0 to Exit 8/Cross Westchester Expressway (\$37 million, 2026), and a pavement reconstruction project from MP 72.5 to MP 76.5 (\$56 million, 2026). Other future programmed projects include bridge maintenance cleaning, bridge



preservation, bridge rehabilitation, bridge joint replacements and bridge replacements, pavement resurfacing, and building additions / renovations.

The New York Division programmed capital Improvements for 2024 to 2028 total \$382.9M.

2.8.2 Albany Division

The Albany Division is responsible for 616.5 mainline lane-miles and 63.5 Interchange lane-miles. The Division runs from MP 76 in New Paltz to MP 197.9 in Canajoharie, and 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. During the late 2022 drive-through inspection, significant construction activities were observed on the bridge. As in the New York Division, all toll plazas have been removed and new gantries put in place with the 2020 conversion to AETC. 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 250 personnel devoted to maintenance who plan and prioritize preventive maintenance activities such as a rotating five-year bridge maintenance program, sealing bridge decks, repairing bridge bearings and substructures, repairing and sealing pavement, maintaining guiderail / safety elements, pothole repairs and mowing. In addition, they provide ITS maintenance, lane closures, and three (3) plowing shifts (24/7), as needed. Ongoing maintenance activity also includes safety upgrades, rock removal, and maintenance of salt sheds and service areas. Albany Division leadership would like to see an expanded future capital program to complete more projects rather than continuing to do limited-term repair work by maintenance department staff.

The Division's maintenance fleet varies widely in age and undergoes a regular program of repair and maintenance since equipment usage is typically through end of life. The Albany Division owns 51 large plow trucks, one Gradall, nineteen (19) loaders, one paver, one ten-ton roller and other miscellaneous equipment. As in most Divisions Albany's major investment in equipment is plow trucks with the goal to maintain the trucks between eight and twelve years with ten years being typical; part of this is driven by the cost of plow trucks, which has risen from \$200K to \$300K in recent years.

Capital Program. The Capital Program in the Albany Division includes current on-going projects, along with various planned future projects. The various upcoming construction projects throughout the Division include bridge replacement and rehabilitation, pavement resurfacing, deck replacements, wastewater treatment plant replacement and various culvert rehabilitation/replacements. In the 2024 to 2028 program, the most notable projects include the bridge over Wallkill River rehabilitation (\$23 million, 2024); pavement resurfacing from MP 154.30 to MP 161.30 (\$21 million, 2024); the Castleton Bridge rehabilitation, MP 801.08 (\$35 million, 2024); pavement resurfacing from MP 76.5 to MP 86.8 (\$19 million, 2025) and pavement restoration from Exit 24 to Exit 25 (\$20 million, 2026).

The Albany Division programmed capital improvements for 2024 to 2028 total \$256.7M.

2.8.3 Syracuse Division

The Syracuse Division extends 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 late 2022, the pavement and bridges in the Syracuse Division were generally observed to be in satisfactory condition or better. The only significant capital construction in this division continues to be the bridge replacement and pavement reconstruction project between Exit 37 and Exit 39. The



eastbound structures were under construction. To facilitate this work, a crossover was installed, and all traffic was carried on the westbound side. Two lanes of traffic were being maintained in both directions. It was planned that the westbound structures be reconstructed in the spring of 2023, requiring a temporary crossover to the eastbound lanes. It was noted there was also a significant profile change in addition to the full-depth pavement reconstruction between the bridges.

At the time of the interview in October 2023, five (5) service areas were completed and five (5) were under construction with the remaining service area scheduled to be completed in fall 2024. It was noted during the interview that there are currently seven (7) bridge replacements taking place, with a pressing need for further bridge work over the next ten to fifteen years, as there are a number of original bridges in this division that are 70-plus years old.

Maintenance. The Syracuse Division has approximately 200 personnel devoted to maintenance who are engaged in maintaining the roadways, 17 interchanges or exits, 189 bridges, 1,833 culverts, 11 travel plazas, and eight wastewater treatment plants. Inventories are kept for facility maintenance and repair and 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. The Syracuse Division is still considering decommissioning structures that are underutilized. By decommissioning them, the Authority could reallocate its maintenance resources to accomplish other tasks.

The on-site wastewater treatment plants are maintained and serviced by the Service Area Maintenance group via trained certified personnel, who must maintain their certification.

Capital Program. The Capital Program for the 2024-2025 construction season highlights pavement rehabilitation from Rochester (Exit 45) to Canandaigua (Exit 44, \$45 million, 2024) and concrete pavement restoration from MP 289.3 (Exit 39) to MP 304.5 (Exit 40, \$60 million, 2025). Other notable funded projects in the 2024-2028 Capital Program are the bridge replacement over Mohawk St., MP 219.21 (\$16.2 million, 2024); pavement resurfacing from MP 197.9 to MP 210.3 (\$17 million, 2024); the bridge replacement over Canandaigua Outlet, MP 327.54 (\$15 million, 2026); pavement resurfacing from MP 253.0 to MP 262.0 (\$18 million, 2026); and pavement resurfacing from MP 220.0 to MP 233.5 (\$17 million, 2028). The program also includes renovations to section maintenance buildings, pavement repairs, safety upgrades, waterline replacement, municipal sewer and water connections, and replacement of wastewater treatment plants at Chittenango, Indian Castle, and Port Byron Service Areas.

The Syracuse Division's programmed capital improvements for 2024 to 2028 total \$374.0M.

2.8.4 Buffalo Division

The Buffalo Division is made up of several sections. The eastern part, which is considered part of the Thruway Mainline, extends from MP 350 (Rochester – Victor – I-490) to MP 426.17 (Exit 53, I-190); the Erie Section extends from MP 426.17 to MP 496.5 at the Pennsylvania State Line; and the Niagara Section extends from MP 426.17 to Niagara Falls. The Erie Section is rural, flat, adjacent to Lake Erie and therefore susceptible to lake effect snowstorms, and it is 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) through the City of Buffalo and four major bridges to Grand Island (two bridges northbound and two southbound). The Buffalo Division is responsible for 806 mainline lane-miles and 274 interchange lane miles and includes more bridges than any other section of the Thruway. As along the other sections of the Thruway, toll plazas have been removed and replaced with AETC gantries. Toll plazas removed include the Williamsville Barrier, Lackawanna Barrier, Ripley Barrier, Tonawanda Barrier, and Niagara Barrier. The Lackawanna segment is one of the busiest toll zones on the Thruway. The Tonawanda and Niagara Barriers, which toll the South and North Grand Island Bridges, respectively, were the first locations in the Division to be converted to AET back in 2018.



At the time of the interview, two (2) service areas were completed, two (2) were under construction with the remaining two (2) remaining open and scheduled to be completed in 2024 to 2025. There were otherwise no noted construction projects underway in this Division.

The pavement and bridges in the Buffalo Division were generally observed to be in satisfactory condition or better. It was noted that the approximately three-mile section crossing the Seneca Nation was recently reconstructed and is performing very well - a noticeable improvement from the previous drive-through inspection in 2019.

Maintenance. The Buffalo Division has approximately 320 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 170 to 180 plow trucks, a paving machine, milling machine and an under-bridge inspection unit among other vehicles. A new Gradall excavator was recently added to the fleet. It was noted during the interview that the Authority has a seasonal preventative maintenance program which prescribes preventative maintenance and annual maintenance plans; however, the Buffalo Division has started to perform bridge substructure repairs during the winter.

Capital Program. The Capital Program for the upcoming construction season includes I-190 pavement rehabilitation (MP 900.7 – MP 904.2) at the south end of the viaduct (\$45 million, 2024), and pavement rehabilitation from MP 467.0 to MP 483.0 (\$40 million, 2024). Other major funded projects in the 2024 - 2028 program include pavement resurfacing from east of the Williamsville Toll Barrier/MP 419.4 to west of Buffalo-Williams Street/Exit 52A/MP 425.9 (\$30 million, 2026), pavement resurfacing from East of Silver Creek (MP 455.2) to Dunkirk/Exit 59/MP 467.0 (\$26.5 million, 2027), steel repairs and seismic upgrades of the South Grand Island Bridges (\$30 million, 2027), pavement resurfacing from I-390/Exit 46/MP 362.5 to LeRoy/Exit 47/MP 378.2 (\$27.5 million, 2028), and pavement resurfacing from Exit 59/MP 467.0 to Exit 60/MP 483.0 (\$23.5 million, 2028), which may be moved into 2024. Other notable projects in the program include a number of bridge rehabilitation and replacement projects, ITS equipment replacement, pavement resurfacing, and steel repairs. Finally, other projects include bridge steel preservation, pavement repairs and resurfacing, and a pumphouse upgrade on the Niagara Section.

The Buffalo Division noted the work on the Grand Island Bridges, which are inspected bi-annually, represents the most critical and essential projects in the Division. Bridge painting is absent from the program as the South bridges were last painted in 2005 and the North bridges in 2000. At that time numerous areas were found that required repair. Project B871.1 Steel Repairs and Seismic upgrades of South Grand Island Bridges has a letting year of 2027, but Division leadership noted it may be beneficial if let earlier.

The Buffalo Division's programmed capital improvements for 2024 to 2028 total \$426.7M.

2.8.5 Statewide

All toll facilities on the system have been upgraded to AETC. There are no longer conventional toll plazas along the mainline or ramps, including the terminus locations at Woodbury, Canaan, Williamsville, Lackawanna, and Ripley. Systemwide AETC went live November 2020, which has reduced congestion, delay, and air pollution while improving safety. Since this upgrade, all Divisions have reported an increase in work for system maintenance and repair either by cleaning or replacing cameras and lasers, and replacing or installing treadles (shoulders). Often this requires lane closures to perform the work, which entails more time and workforce. In addition, a common occurrence across the state is an increase in bridge strikes, which can be attributed to the removal of the overheight bars which had been in place as part of the old tolling structure, and also because there are no longer toll collectors at interchanges or exits to radio in an overheight vehicle to pull it over before a strike happens.



The overall opinion by Division leadership regarding the AETC system is that it was an excellent way to mitigate delay, congestion and improve safety. The original concerns that additional maintenance would be required, and that there would be losses when it came to interchange maneuverability for maintenance, weather monitoring, and monitoring of oversize loads, has come true as noted above. A noted benefit from the AETC system was with regards to snow removal and the ease of plowing the exits and interchanges after removal of the old tolling structures.

There is an ongoing initiative to replace and upgrade all the service areas which was confirmed to be well underway during the interviews. Several service areas were recently replaced and opened, some are still under construction with limited services (gas only), with only a few pending upgrades. It was noted that at the new service areas the bathrooms appear to be small and that there is a lack of storage for both food services and on-site material and equipment.

There was an identified need by Division leadership to upgrade the Thruway Authority's maintenance and building facilities in the future. For example, snowplow trucks are increasing in size, and it is difficult for mechanics to work on them in the existing garages. Another issue reported by the Divisions was the difficulty in filling vacant staff positions.

Statewide programmed capital improvements for 2024 to 2028 total \$1.51B.

2.8.6 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 2024-2028 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 term of the Series P Bonds. We are also of the opinion that sufficient toll revenues can be generated to fund these programs with the recent approval of the 2024 through 2027 toll adjustments. Some of the longer-term needs identified by the Division directors should be addressed in the next Capital Program. If needed, the Thruway has the ability to generate more revenues beyond the 2024-2027 toll adjustments.



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 2.1 percent in 2023 and by 1.0 percent in 2024.⁴

Any forecast of toll traffic and revenues will, of necessity, recognize the significant variations that can and do occur in the national, regional and local economies 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 effects of the COVID-19 pandemic which had major impacts to traffic in 2020, followed by two years of recovery. The pandemic has resulted in some long-term behavioral changes, such as the shift to working from home and increased e-commerce, which have reduced car travel but increased truck travel. Judging by recent monthly trends, we believe that traffic has now essentially reached a “new normal” where little to no further shift is anticipated in terms of COVID-19 recovery.

3.1 RECENT MACROECONOMIC TRENDS

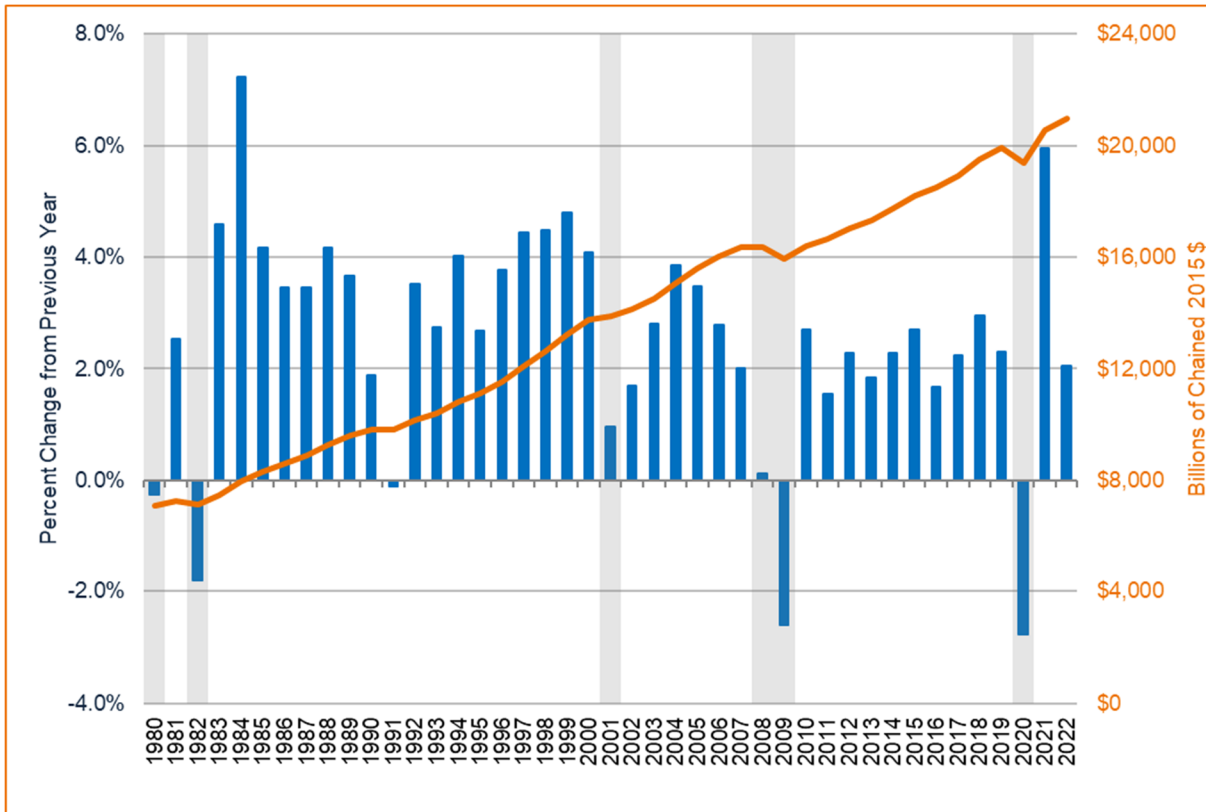
3.1.1 Gross Domestic Product

As noted previously, Thruway passenger car traffic growth trends have been influenced by socio-economic conditions, and correlations have generally been found between car traffic growth and GDP growth. Figure 3 shows the real annual GDP from 1980 through the end of 2022. From 2000 through 2019, the year before the COVID-19 pandemic struck, real GDP in the United States increased at an average annual rate of 2.0 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 increased by only 0.1 percent, and in 2009 the recession reached its lowest point, with real GDP decreasing by 2.6 percent. From 2009 until 2019 the U.S. economy had recovered and shown consistent growth. Real GDP increased on an annual basis by between 1.5 and 2.7 percent in the years 2010 to 2017, then increased at annual rates of 2.9 percent in 2018 and 2.3 percent in 2019. The economic downturn that occurred in the first half of 2020 as a result of COVID-19 reduced annual GDP by 2.8 percent from 2019. GDP rebounded in 2021, growing by nearly six percent over 2020. Growth continued in 2022 with a 2.1 percent GDP increase over the previous year – a rate similar to the growth pre-COVID. Note that gray shaded areas on the figures in this section represent U.S. recessions according to the Federal Reserve Bank of St Louis.

⁴ Blue Chip Economic Indicators: “Top Analysts’ Forecasts of the U.S. Economic Outlook for the Year Ahead”, Wolters and Kluwer Law & Business, September 11, 2023.



Figure 3: Real Gross Domestic Product (GDP), Historical Annual, 1980 –2022



Source: <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD?locations=US>

Note: Gray shaded areas of the graphic represent U.S. recessions according to the Federal Reserve Bank of St Louis.

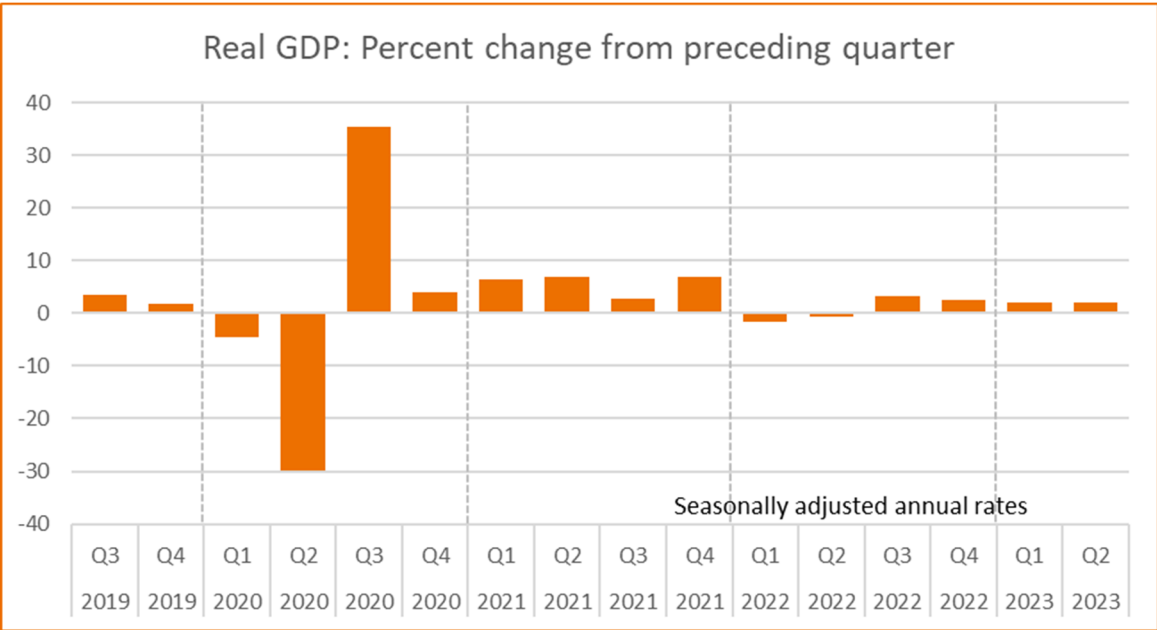
As shown Figure 4, real GDP decreased for two consecutive quarters in the first half of 2020 but recovered thereafter with strong positive growth rates for six consecutive quarters through the end of 2021. Real GDP again decreased slightly during the first two quarters of 2022. Though two consecutive quarters of negative growth is often indicative of a recession, signals of economic strength during those two quarters such as historically low unemployment and increases in consumer and business spending made it such that the National Bureau of Economic Research (“NBER”) - an independent committee of academic economists and the official arbiters of recession - did not declare it a recession. Real GDP increased in the second half of 2022 and continued to increase by 2.0 percent in the first quarter of 2023 and 2.1 percent in the second quarter.⁵ According to the Bureau of Economic Analysis, “the increase in real GDP...reflected increases in consumer spending, exports, state and local government spending, federal government spending, and nonresidential fixed investment that were partly offset by decreases in private inventory investment and residential fixed investment.”⁶

⁵ Second estimate, as published in the U.S. Bureau of Economic Analysis New Release, August 30, 2023.

⁶ U.S. Bureau of Economic Analysis New Release, June 29, 2023, as accessed 7-18-2023 at <https://www.bea.gov/news/2023/gross-domestic-product-third-estimate-corporate-profits-revised-estimate-and-gdp-industry>



Figure 4: Quarterly Changes in Real Gross Domestic Product (GDP)- 2019 – 2nd Quarter 2023



Source: https://www.bea.gov/sites/default/files/2023-08/gdp2q23_2nd.pdf

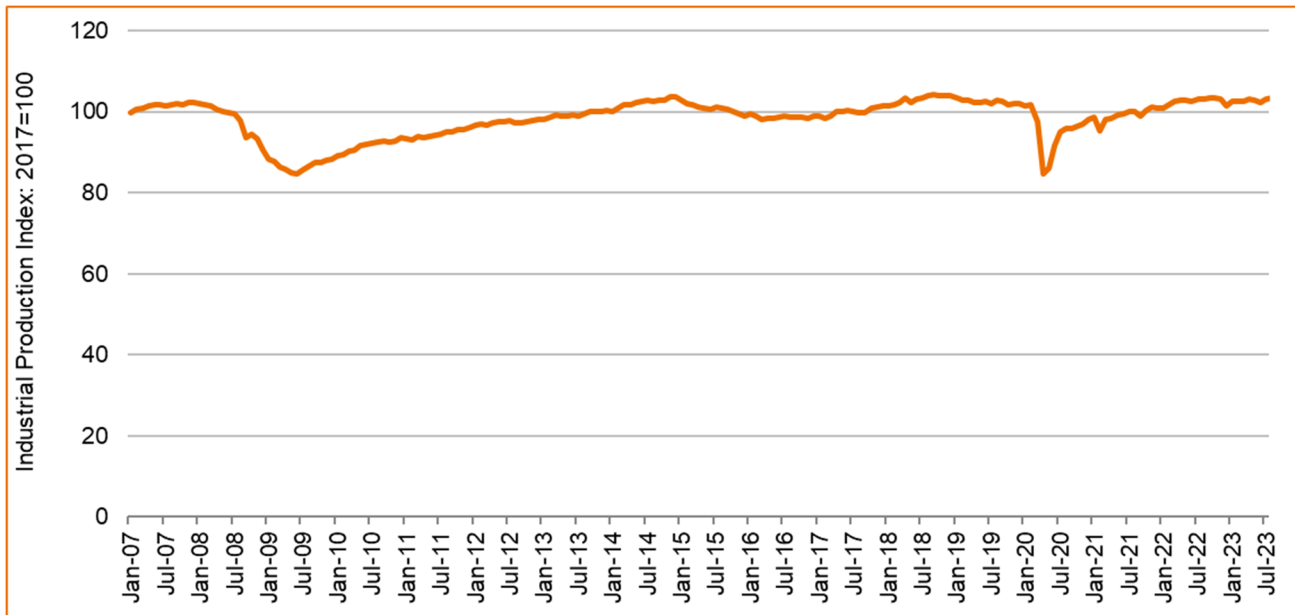
3.1.2 Industrial Production Index

Stantec has tracked traffic volumes on the Thruway and other toll facilities throughout the Northeastern U.S. for over a decade and has found that growth in commercial vehicle traffic generally correlates to growth in the IPI. 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 based off 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 Great Recession (2007 to 2009). 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 the COVID-19 pandemic. From the summer of 2020 through the summer of 2022, the IPI recovered gradually. By the second half of 2022 IPI was close to reaching its pre-COVID high seen in the fall of 2018. The IPI in 2023 has remained similar to 2022.



Figure 5: Industrial Production Index (IPI), Historical Monthly, January 2007 – August 2023



Source: Board of Governors of the Federal Reserve System (U.S.), *Industrial Production: Total Index [INDPRO]*, retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/INDPRO> September 15, 2023.

3.1.3 Trends in Vehicle Miles Traveled (VMT)

After many years of steady growth, the United States experienced an historic dip and 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 sharp growth trend, increasing at an even more rapid rate than in the 1990s, followed by a period of moderate growth in 2017 through early 2020 - a pattern disrupted by COVID-19.

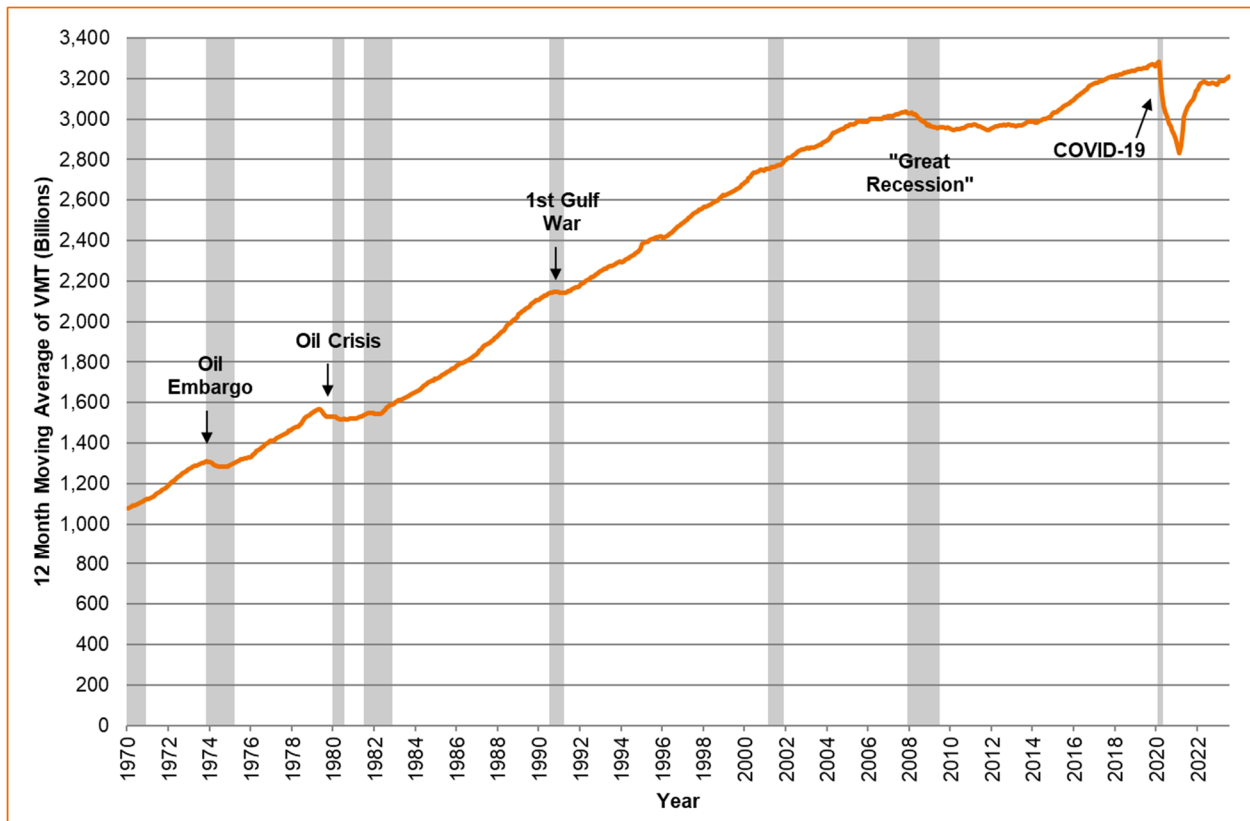
Figure 6 depicts the 12-month moving total of national VMT on all U.S. highways, from 1970 through July 2023. Even before COVID-19, a number of demographic factors were cited as having a downward influence on VMT, including baby boomers retiring and driving less, the ability of many employees to work remotely in the internet era, and communication technologies that can substitute for in-person interaction,⁷ and a rising preference for compact, mixed-use neighborhoods which reduce the need for driving.⁸ By 2022, nationwide VMT began a new trendline, defining a “new normal” where it continues to remain lower than it was prior to the pandemic. A significant factor is the long-term or permanent shift to more working from home.

⁷ Jill Mislinski, “Vehicle Miles Traveled: Another Look at Our Evolving Behavior”, *Talkmarkets*, November 1, 2017, <https://talkmarkets.com/content/us-markets/vehicle-miles-traveled-another-look-at-our-evolving-behavior-wednesday-nov-1?post=154786>

⁸ Chris Cahill, “Per capita VMT drops for ninth straight year; DOTs taking notice”, *State Smart Transportation Initiative*, February 24, 2014, <https://ssti.us/2014/02/24/vmt-drops-ninth-year-dots-taking-notice/>



Figure 6: Vehicle Miles Traveled (VMT) – National, Historical 12-month Moving Average, 1970 – July 2023



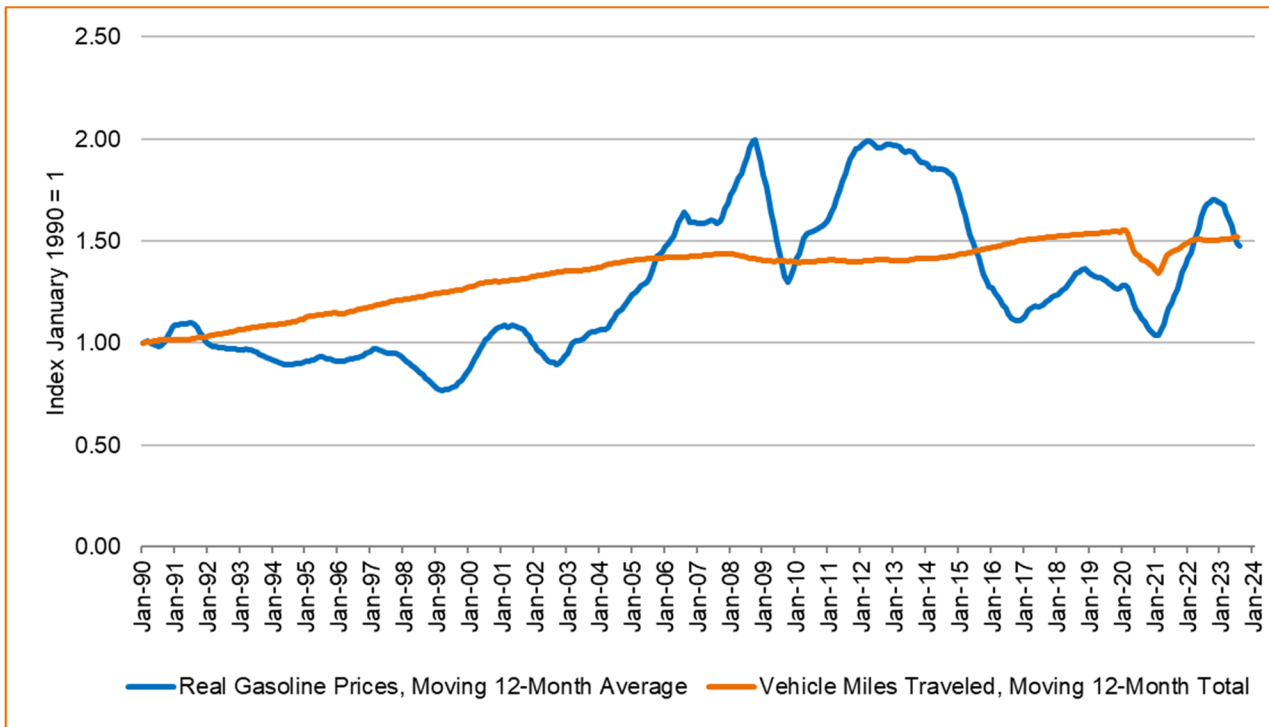
Source: U.S. Department of Transportation, Federal Highway Administration, National Bureau of Economic Research

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

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 the summer of 2023. The VMT and real gas prices represent a 12-month moving average to remove any seasonality; 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 as opposed to 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 and steady rate and did not appear to be affected by fluctuations in real gas prices. The 2020-2021 sharp decline followed by increases in both VMT and real gas prices, however, were both related to COVID-19 and its associated changes in economic activity. The Russian invasion of Ukraine in early 2022 caused oil and gas prices to soar, peaking in June 2022; this was followed by a steep drop into the fall and winter of 2023. Recent data shows that gas prices have been relatively stable this year, and are similar in real dollars to what they were in the summer of 2018. 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.



Figure 7: National Vehicle Miles Traveled (VMT) vs. Real Gas Prices, Historical 12-month Moving Average, Indexed to January 1990, 1990 – August 2023



Source: U.S. Department of Energy, Energy Information Administration’s Short Term Energy Outlook (September 2023) 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. While there was also a notable reduction in VMT during this recession, there otherwise was no distinct correlation between VMT and unemployment. For example, VMT was nearly flat for about four years after the Great Recession, while unemployment dropped by around 40 percent, and unemployment continued to decline in 2018 and 2019 while VMT saw almost no growth. Over the decade that followed the Great Recession, total employment slowly recovered and eclipsed its pre-recession peak, reaching 156.9 million persons in February 2019.⁹ The national unemployment rate had stayed at or below 4 percent from March 2018 through March 2020. In the early months of the COVID-19 pandemic, unemployment peaked at 14.7 percent nationally and 16.5 percent in New York State. As shown in Figure 8, the New York State unemployment rate has closely tracked national trends, except for immediately after the 2007-2009 recession when the state recovered more quickly than the U.S., and during the COVID-19 pandemic from mid-2020 through early 2022.

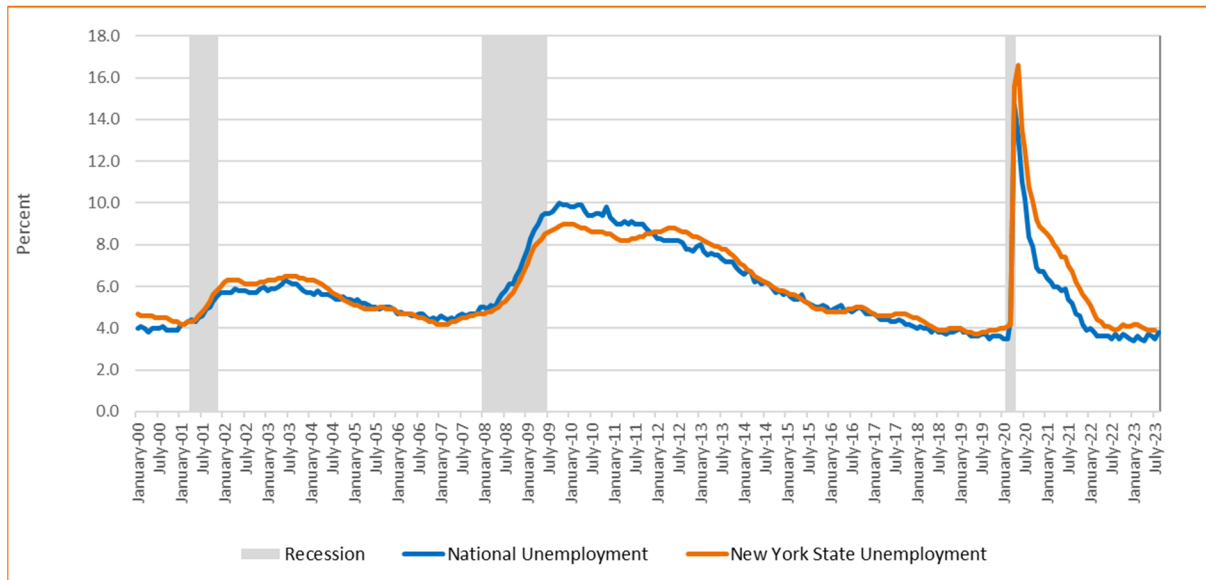
Since the early months of the COVID-19 pandemic, state unemployment was notably higher than the national rate. Both fell sharply in the later months of 2020 through 2021, with statewide recovery lagging behind national. By late 2021, national unemployment dipped below 4.0 percent, while it took until May 2022 for state unemployment to reach 4.1 percent. The

⁹ Bureau of Labor Statistics, “The Employment Situation- February 2019,” as accessed on March 14, 2019, at <https://www.bls.gov/news.release/pdf/empst.pdf>. Employment figure is based on Household Data Summary Table A.



national unemployment rate since March 2022 has stabilized at 3.4 to 3.7 percent, while the state unemployment rate has remained between 3.9 and 4.2 percent since May 2022. In July 2023, the national unemployment rate was 3.5 percent with New York State at 3.9 percent. In August 2023, the national unemployment rate was 3.8 percent.

Figure 8: Civilian Unemployment Rate, National vs. New York State, Historical Monthly, Seasonally Adjusted, January 2000 – August 2023



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

3.2 SHORT-TERM ECONOMIC FORECASTS

Following the sharp contraction in early 2020 due to the COVID-19 pandemic and subsequent recovery, financial and economic analysts had generally expected, in the near future, for the U.S. economy to continue growing but at a much slower rate. Though the economy has proven to be more resilient than expected, there is still the possibility that a recession may be developing. As a point of information, the NBER defines a recession as “a significant decline in economic activity that is spread across the economy and lasts more than a few months.” The Federal Reserve is intentionally slowing economic activity by raising interest rates as a means of reducing inflation. However, this requires a delicate balance, since slowing the economy too much could cause a dip into a recession. Still others point out that if there is a recession, it will be different from previous ones in that news of high-profile company layoffs and regional bank failures are contrasted by a low unemployment rate and robust consumer spending. It should be noted that even with the recent high inflation, domestic leisure travel exhibited strong growth (6.2 percent in 2022) but is expected to see more normalized rates of growth (around 2 percent) in 2023 and 2024¹⁰.

The latest *Blue Chip Economic Indicators* (September 2023) report on projections from more than 50 financial institutions and professional forecasting firms puts the probability of a recession in the next 12 months at 48 percent. It should be noted,

¹⁰ “New Travel Forecast Shows Normalizing of Leisure Travel Demand from Post-Pandemic Surge”, U.S. Travel Association, June 14, 2023, <https://www.ustravel.org/press/new-travel-forecast-shows-normalizing-leisure-travel-demand-post-pandemic-surge>

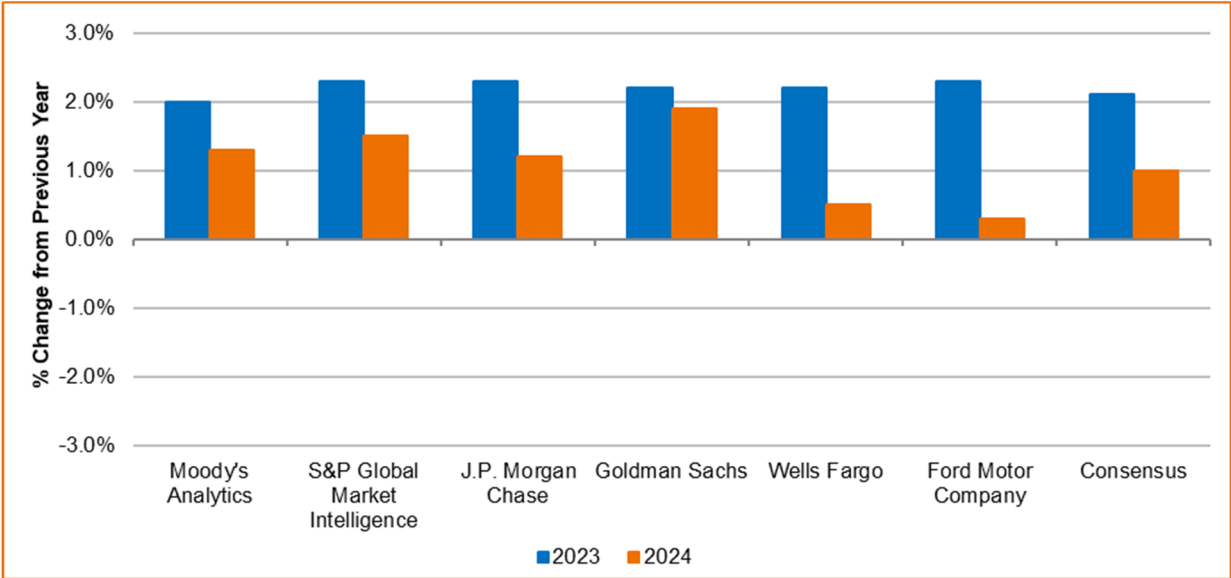


however, that this is down from 56 percent in the July 2023 report and 50 percent in the August 2023 report.¹¹ In the most recent Conference Board report, 84 percent of CEO’s report that they are preparing for a recession in the next 12 to 18 months with the vast majority expecting it to be short and shallow. This is down from 93 percent in the second quarter of 2023¹²

3.2.1 Gross Domestic Product

The most recent (September 2023) consensus forecast, derived from projections from more than 50 financial institutions and professional forecasting firms, is that real GDP will increase by 2.1 percent in 2023 and by 1.0 percent in 2024.¹³ Figure 9 presents real GDP Forecasts by six representative forecasting groups for the short-term timeframe through 2024. In the 2025 through 2029 timeframe, the consensus forecast is for real GDP to continue to grow by an average of 1.9 percent annually.¹⁴

Figure 9: Real GDP, Short-term Forecasts for 2023 and 2024



Source: Blue Chip Economic Indicators: “Top Analysts’ Forecasts of the U.S. Economic Outlook for the Year Ahead”, Wolters and Kluwer Law & Business, September 11, 2023.

Other forecasts indicate faster or slower growth. The Congressional Budget Office (“CBO”) in their June 2023 *Long-Term Budget Outlook* projected a 0.3 percent rate of growth in real GDP in 2023. The CBO also projects an average annual real GDP growth rate of 1.8 percent in 2024, and an annual average of 2.5 percent from 2024 through 2027.¹⁵ The Federal Reserve Bank, in their June 2023 *Summary of Economic Projections*, projects 1.0 percent growth in real GDP in 2023 and 1.1

¹¹ Blue Chip Economic Indicators: “Top Analysts’ Forecasts of the U.S. Economic Outlook for the Year Ahead”, Wolters and Kluwer Law & Business, September 11, 2023.

¹² “US CEO Confidence”, The Conference Board, August 3, 2023, <https://www.conference-board.org/topics/CEO-Confidence>

¹³ Blue Chip Economic Indicators: “Top Analysts’ Forecasts of the U.S. Economic Outlook for the Year Ahead”, Wolters and Kluwer Law & Business, September 11, 2023.

¹⁴ Blue Chip Economic Indicators: “Top Analysts’ Forecasts of the U.S. Economic Outlook for the Year Ahead”, Wolters and Kluwer Law & Business, March 10, 2023.

¹⁵ “The 2023 Long-Term Budget Outlook”, Congressional Budget Office, June 2023, <https://www.cbo.gov/system/files/2023-06/59014-LTBO.pdf>, page 38

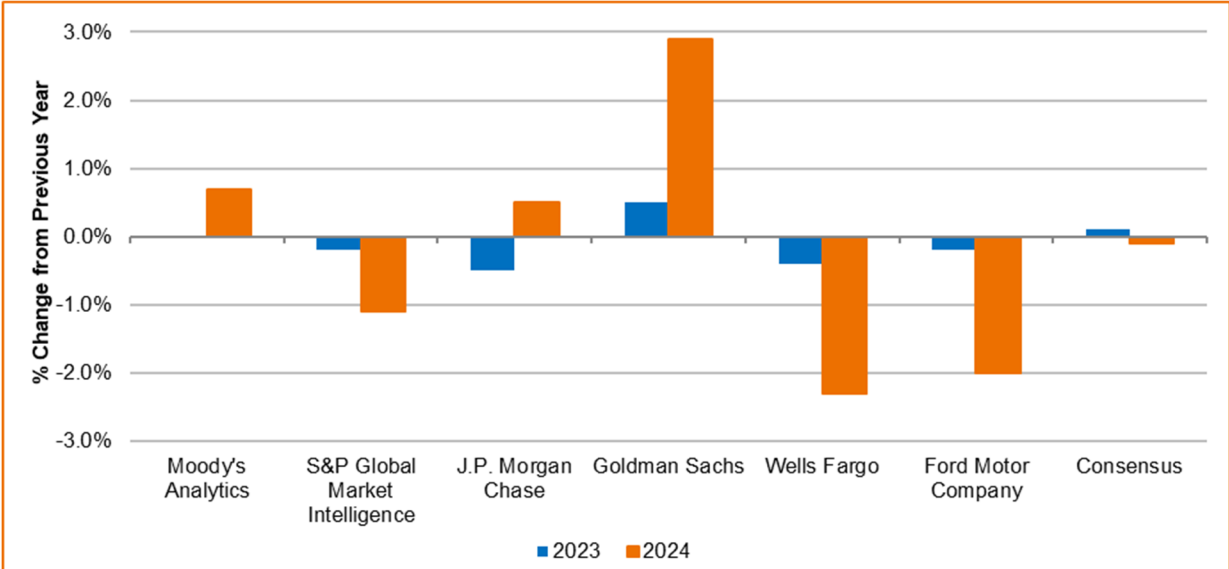


percent growth in 2024, increasing to 1.8 percent growth in 2025. For the longer term beyond 2025, the median real GDP annual growth rate forecast across Federal Reserve Bank Board members and presidents is 1.8 percent.¹⁶

3.2.2 Industrial Production Index

Based on *Blue Chip Economic Indicators* consensus forecasts developed by financial institutions and industry analysts, the IPI is forecasted to increase at 0.1 percent growth in 2023 and decrease by 0.1 percent in 2024.¹⁷ Figure 10 presents a sampling of IPI forecasts by six different forecasting groups for this year and next. Though the full-year 2023 forecast ranges from a slight positive to slight negative growth, there is a very wide variation in the 2024 IPI forecasts. Consensus forecasts for the 2025 to 2029 timeframe, published in March 2023, project the IPI to grow by 2.0 percent annually.¹⁸

Figure 10: IPI, Short-term Forecasts for 2023 and 2024



Source: *Blue Chip Economic Indicators: "Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead"*, Wolters and Kluwer Law & Business September 11, 2023.

3.2.3 Fuel Cost Trends

Figure 11 presents historical and projected gasoline and crude prices from the U.S. Energy Information Administration ("EIA"). In 2019, prices had averaged \$2.60 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 \$2.20 a gallon in the second half of 2020 but increased to \$2.76 a gallon over the first half of 2021. Energy experts attributed those increased prices largely to OPEC cuts in oil production as global energy demand decreased during the pandemic. There was also a jump in prices in the southern U.S. as a result of the Colonial Pipeline shutdown in May 2021 and impacts from Hurricane Ida on several U.S. Gulf Coast refineries. In the summer of 2022, retail gas prices escalated sharply to almost \$5 a gallon due, in part, to Russia's war on Ukraine. Retail gas prices dropped sharply after the summer of 2022 peak and continued to decline until the end of the year, followed by gradual growth

¹⁶ "Summary of Economic Projections", Federal Reserve Bank Open Market Committee, June 14, 2023, <https://www.federalreserve.gov/monetarypolicy/files/fomcproptab120230614.pdf>

¹⁷ *Blue Chip Economic Indicators: "Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead"*, Wolters and Kluwer Law & Business, September 11, 2023.

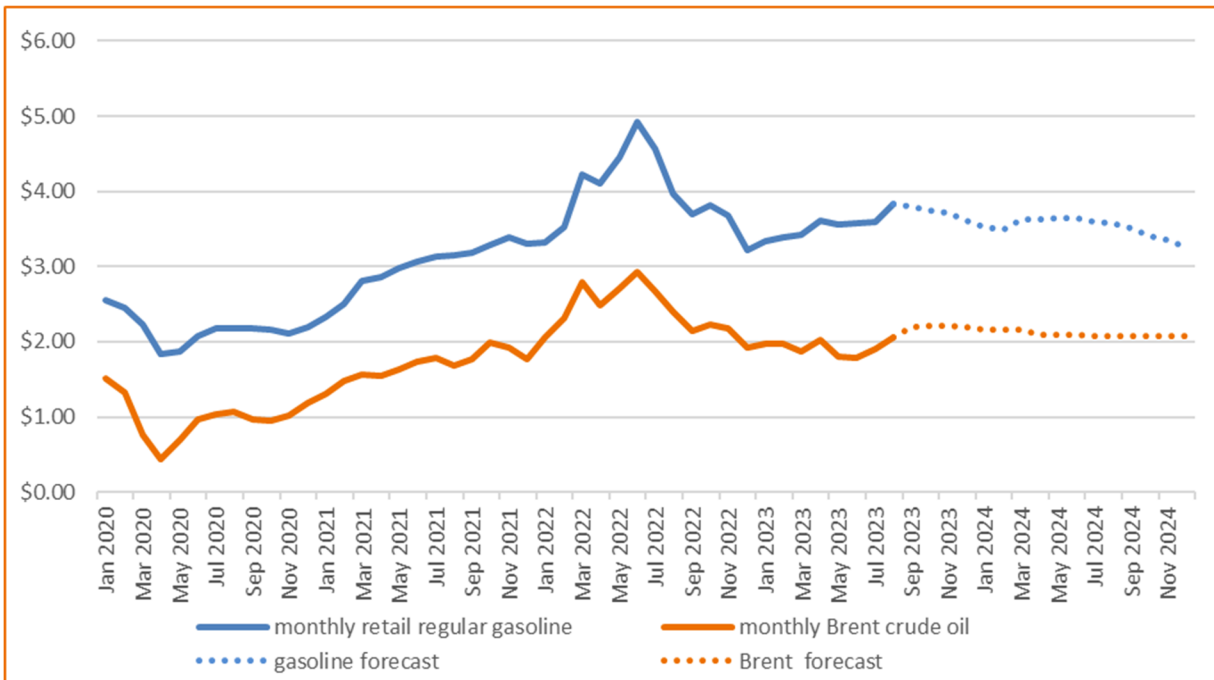
¹⁸ *Blue Chip Economic Indicators: "Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead"*, Wolters and Kluwer Law & Business, March 10, 2023.



through the first half of 2023. The outlook is for retail gas prices to continue to increase slightly in the late summer then fall slightly into the winter, averaging \$3.71 per gallon for the rest of the year. Retail gas prices are forecasted to drop slightly in 2024, averaging \$3.52 per gallon.

It is important to note that average fuel economy for vehicles has increased by 32 percent between 2004 and 2021.¹⁹

Figure 11: Nominal U.S. Gasoline and Brent Crude Oil Prices, Historical and Short-term Forecasts, 2019 – 2024



Source: U.S. Department of Energy, U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

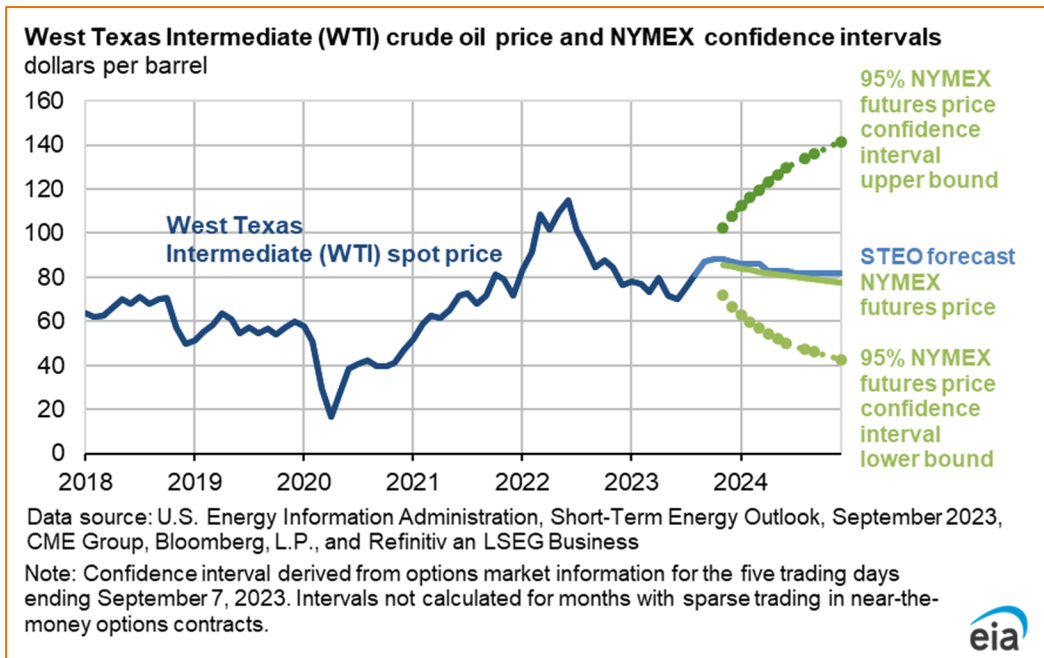
This forecast for steady future oil and gas prices may be reassuring; however, this figure does not show the level of uncertainty in these projections. Figure 12 presents the EIA’s projections for West Texas Intermediate (“WTI”) Crude Oil Price. The base projection is similar to that illustrated in Figure 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 72 percent more to 48 percent less than current forecasts for December 2024.²⁰ 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.

¹⁹ “The 2022 EPA Automotive Trends Report: Greenhouse Gas Emissions, Fuel Economy, and Technology since 1975 Executive Summary”, U.S. Environmental Protection Agency, December 2022, page ES-2 as accessed on July 20, 2023 at <https://www.epa.gov/system/files/documents/2022-12/420s22001.pdf>

²⁰ “Short-Term Energy Outlook”, U.S. Energy Information Administration, September 13, 2023, <https://www.eia.gov/outlooks/steo/>



Figure 12: Crude Oil Prices, Historical and Short-term Forecasts, with Confidence Intervals, 2017 – 2024



Although fuel costs will remain a significant factor to monitor, it should be noted that the electric vehicle share of the U.S. fleet is continuing to grow. The most recent EPA report indicated that electric vehicles, plug-in hybrid vehicles (“PHEVs”), and fuel cell vehicles were projected to make up eight percent of all new vehicles in the 2022 model year. Hybrids (not including PHEVs) were also projected to grow significantly in model year 2022, to ten percent of all vehicles produced.²¹ Given that modern cars last a period of sixteen years on average, it will take some time for electric vehicles to become a significant share of the automotive fleet. Reuters notes that less than one percent of the 250 million cars, SUVs, and light-duty trucks currently on the road in the United States are electric. However, depending on local adoption rates, purchase prices, and incentives, some automotive analysts project that electric vehicles could increase to 45 percent of new car sales by 2035 which means that about half the cars on the road could be electric by 2050.²²

Recently, the share of electric vehicles in the U.S. auto market passed 5 percent. As of March 2023, there were about 158,000 electric vehicles on the road in the New York region. By 2030, analysts predict this number will grow tenfold.²³ As a result, it is expected that a declining share of the nation’s and state’s automotive fleets will be affected by changes in fuel costs in the future.

3.2.4 Inflation

While inflation in the cost of fuel has an obvious potential effect on traffic levels, inflation in other goods and services is also important to consider in terms of potential short-term impacts in discouraging travel. The change in the Consumer Price Index

²¹ “The 2022 EPA Automotive Trends Report: Greenhouse Gas Emissions, Fuel Economy, and Technology since 1975 Executive Summary”, U.S. Environmental Protection Agency, December 2022, page ES-2 as accessed on July 20, 2023 at <https://www.epa.gov/system/files/documents/2022-12/420s22001.pdf>

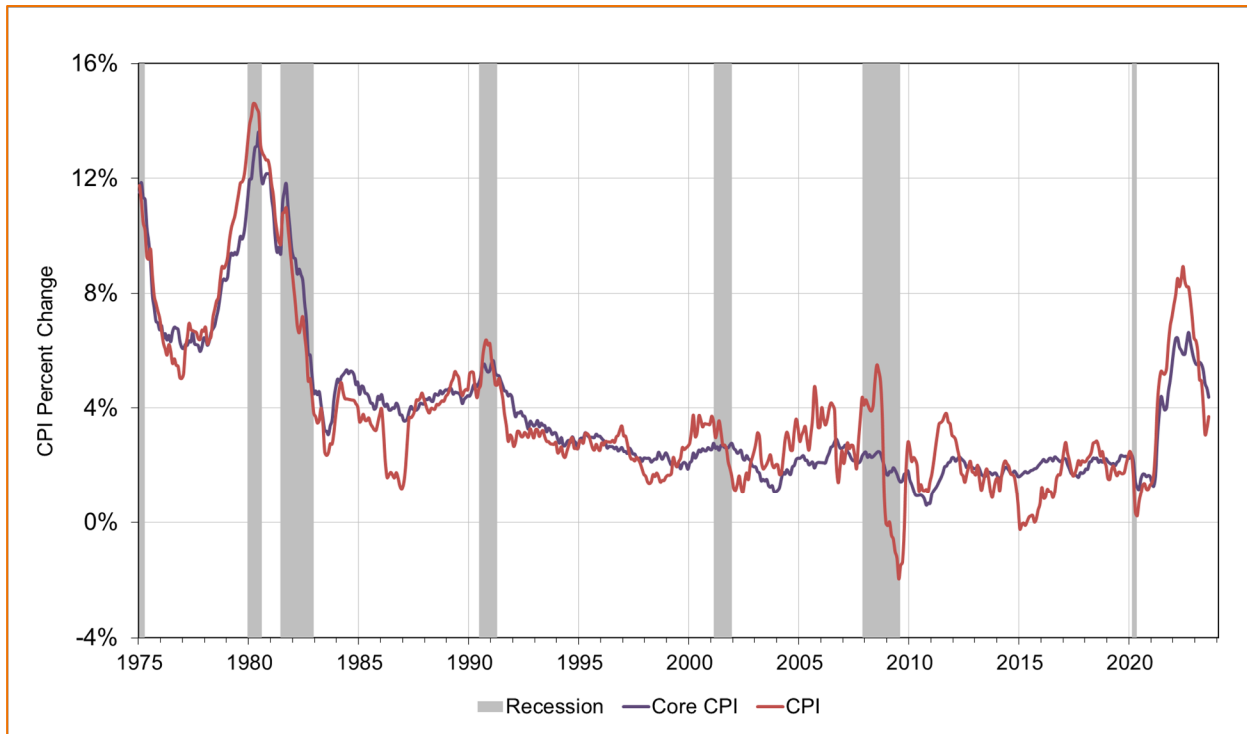
²² IHS Markit, as cited in “The long road to electric cars,” Reuters, February 7, 2022.

²³ Robin Shulman Agüeros, “Why the New York Area Is Seeing an Explosive Growth in Electric Cars”. *New York Times*, March 7, 2023.



for All Urban Consumers (“CPI-U”) is shown in Figure 13 for the period of 1975 through August 2023. Between June 2021 and February 2023, inflation exceeded 5 percent every month - the last time inflation was this high was during the period from 1979 through the early 1980s. The CPI-U has been below 4 percent since June 2023. In August 2023, the CPI-U was 306.3, a 3.7 percent increase over the year prior. This recent period has had the lowest inflation rates since March 2021, driven by a drop in energy prices.²⁴ It is expected that the inflation rate will continue to decline with Blue Chip Economic Indicators predicting a December over December growth of 3.5 percent in 2023 and 2.6 percent in 2024.²⁵

Figure 13: Consumer Price Index for All Urban Consumers Annual Change (1975 - 2023)



Source: U.S. Bureau of Labor Statistics

3.2.5 Unemployment Rate

Based on consensus forecasts developed by financial institutions and industry analysts, the national unemployment rate, which was 3.8 percent in August 2023, is projected to rise to an average of 4.3 percent in 2024²⁶, then decrease to an average of 4.1 percent over the 2025 through 2029 timeframe.²⁷ In the shorter term, the Organization for Economic Co-operation and Development (“OECD”) forecasts that U.S. unemployment will average 3.7 percent in 2023 and 4.4 percent in 2024²⁸. The

²⁴ “United States Inflation Rate”, Trading Economics, as accessed on July 10, 2023, at <https://tradingeconomics.com/united-states/inflation-cpi>

²⁵ Blue Chip Economic Indicators, “Top Analysts’ Forecasts of the U.S. Economic Outlook for the Year Ahead”, Wolters and Kluwer Law & Business, September 11, 2023.

²⁶ Ibid.

²⁷ Blue Chip Economic Indicators, “Top Analysts’ Forecasts of the U.S. Economic Outlook for the Year Ahead”, Wolters and Kluwer Law & Business, March 10, 2023.

²⁸ OECD (2023), Unemployment rate forecast (indicator). doi: 10.1787/b487f2cf-en (Accessed on 29 August 2023)



CBO projects that unemployment will increase to 4.1 percent by the end of 2023 and to 4.7 percent by the end of 2024, reflecting slow economic growth, before falling slightly to 4.5 percent at the end of 2025.²⁹

3.3 LONG-TERM ECONOMIC FORECASTS

3.3.1 Gross Domestic Product and Industrial Production Index

In the longer-term, 2030 to 2034 timeframe, the latest consensus forecast developed by financial institutions and industry analysts on March 10, 2023 projects that real GDP will grow by 1.8 percent annually. In that same timeframe, the consensus forecast for the Industrial Production Index is that it will grow by 1.8 percent annually.³⁰

3.3.2 Vehicle Miles Traveled

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 3.³¹ Interestingly, growth in vehicle mileage for single unit and combination trucks is forecast to be at a higher rate than for light duty vehicles.

Table 3: FHWA Long-Term Growth Forecasts of National VMT

Vehicle Class	Compound Annual Growth Rates					
	Pessimistic Economic Growth Outlook		Baseline Economic Growth Outlook		Optimistic Economic Growth Outlook	
	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	0.4%	0.3%	0.6%	0.5%	0.8%	0.8%
Single-Unit Trucks	1.1%	1.2%	1.8%	1.8%	2.5%	2.5%
Combination Trucks	1.1%	1.1%	1.4%	1.2%	1.7%	1.6%
TOTAL	0.5%	0.4%	0.7%	0.6%	0.9%	0.9%

Source: Office of Highway Policy Information U.S. DOT, Federal Highway Administration, May 2023.

The 2023 forecast from the EIA also projects a differential between light duty vehicles and trucks for the 2022-2050 timeframe. The EIA projected growth rates fall within the same limits as the Federal Highway Administration (“FHWA”) projections shown above for each of the three vehicle categories:³²

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

²⁹ Congressional Budget Office, “An Update to the Economic Outlook: 2023 to 2025”, <https://www.cbo.gov/system/files/2023-07/59258-econ-outlook.pdf>, July 2023.

³⁰ Blue Chip Economic Indicators: Top Analysts’ Forecasts of the U.S. Economic Outlook for the Year Ahead”, Wolters and Kluwer Law & Business, March 10, 2023.

³¹ “FHWA Forecasts of Vehicle Miles Traveled (VMT): Spring 2023,” Office of Highway Policy Information, May 2023, as accessed on September 5, 2023 at https://www.fhwa.dot.gov/policyinformation/tables/vmt/2023_vmt_forecast_sum.pdf

³² Annual Energy Outlook, 2023, Transportation Sector Key Indicators accessed on September 5, 2023 at <https://www.eia.gov/outlooks/aeo/data/browser/#/?id=7-AEO2023&sourcekey=0>



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 4.6 percent in the 2023-2033 time period.³³

Based on consensus forecasts developed by financial institutions and industry analysts, the unemployment rate is projected to average 4.1 percent over both the 2025 through 2029 and 2030 through 2034 timeframes³⁴, slightly lower than the rate forecasted by the CBO.

3.4 TRAVEL RECOVERY FROM COVID-19

The COVID-19 pandemic had an unprecedented effect on traffic throughout the nation, especially in the Northeastern U.S. Its effects were seen as threefold: government-mandated closures, restrictions, and suggested behaviors meant to reduce the spread and severity of the disease; economic repercussions; and long-term behavioral changes that have occurred as a large share of the population shifted to working from home, with many continuing to work from home more often than before the pandemic. This section highlights the impacts of the COVID-19 pandemic, and examines the recovery in vehicle traffic between 2020 and 2023. This was used as background information for developing the Thruway traffic and revenue forecasts.

3.4.1 Timeline of Impacts

After an initial two months of closures and restrictions in March and April 2020, there were several waves of infection over the following two years, with the highest number of cases in the winter of 2022 caused by the Omicron variant. Traffic throughout the northeast was heavily impacted by the December 2021/January 2022 spike in infections with this variant due to the sheer number of people calling out sick because they were infected with or exposed to COVID-19, plus fears of exposure and winter weather which led people who had returned to the office to temporarily switch back to remote work. By the beginning of February 2022, the number of cases plummeted, and in the months that followed, proof of vaccination and mask restrictions were lifted for almost all indoor settings, and testing requirements for passengers on incoming international flights ended. The number of COVID-19 cases has since remained relatively low and the federal public health emergency declaration ended on May 11, 2023.

3.4.2 Remote and Hybrid Working

During the early days of the COVID-19 pandemic, a large share of the population shifted to working from home. As the severity of the disease declined and restrictions were lifted, more and more of these employees returned to the office. However, many companies continued - and still continue - to allow remote or hybrid working (i.e., some days working from home and some days in the office).

Remote and hybrid work impacted travel differently throughout the state of New York. People with longer, more difficult, or costly commutes to an office were more likely to stay home if given the choice – this had a significant impact on transit ridership especially in New York City, but a lesser impact on car traffic as the pandemic continued into its second year. Many offices in urban areas with expensive rental space decided to reduce office space to cut costs, and allowed employees to

³³ The 2023 Long-Term Budget Outlook, June 2023, as accessed September 18, 2023 at <https://www.cbo.gov/system/files/2023-06/59014-LTBO.pdf>

³⁴ Blue Chip Economic Indicators: Top Analysts' Forecasts of the U.S. Economic Outlook for the Year Ahead", Wolters and Kluwer Law & Business, March 10, 2023



continue working from home. New York City had the most restrictive policy in the state in terms of allowed occupancy, vaccination and mask requirements, etc., which kept people away from the office for a longer period of time than the rest of the state. In upstate vacation areas such as the Hudson Valley or Finger Lakes, people could work from their vacation homes all week or all summer, which increased car trips in many of these areas.

This practice of allowing remote and hybrid working has evolved to long-term behavioral changes, and appears to have reached the “new normal”; passenger car traffic is not projected to see additional shifts or growth due to COVID-19 recovery as it has over the past several years. While Figure 19 (page 36) shows that traffic numbers on the Thruway have stabilized, as 2023 monthly traffic is only slightly higher than 2022, New York City office attendance trends provide further confirmation that future behavior is unlikely to shift.

Though much of the Thruway System does not serve New York City directly, the city’s experience may offer additional indication that we are at or close to a “new normal” in terms of the return to work. Partnership for New York City has released several reports over the past few years that include New York City employer survey results to understand return-to-office statistics and evolving hybrid office trends. Table 4 includes the results of surveys between 2021 and 2023. Average weekday office attendance has almost doubled from October 2021 through January 2023, increasing from 28 percent to 52 percent, with more than half of employees (59 percent) spending at least 3 days per week in the office in early 2023. The January 2023 survey shows that average weekday office attendance rose only three percentage points from the previous survey conducted in August/September 2022. Employers taking part in the January 2023 survey expected the eventual average weekday attendance to settle at 56 percent, only four percent higher than the level seen in January 2023. These results suggest that, at the time of this writing, some nine months after the last survey was conducted, we have reached the point where little to no further shift in the average number of days worked in the office is expected. Because New York City has lagged behind the rest of the state in terms of COVID recovery and returning to the office, and office attendance has nearly stabilized there, it can be concluded that on a statewide basis that passenger car traffic will see little or no additional growth or shifts due to COVID-19 recovery as it has over the past several years.

Table 4: New York City In-Office Attendance Rates 2021-2023

Survey Date	Oct 2021	Apr/May 2022	Aug/Sep 2022	Jan 2023
Average Weekday Office Attendance	28%	38%	49%	52%
5 days In Office	8%	8%	9%	9%
3 days In Office	12%	17%	55%	59%
Fully Remote	54%	28%	16%	10%

Source: Return to Office Survey Results, Partnership for New York City, <https://pfnyc.org/research/return-to-office-survey-results-february-2023/>

3.4.3 COVID-19 Impact on Truck Traffic

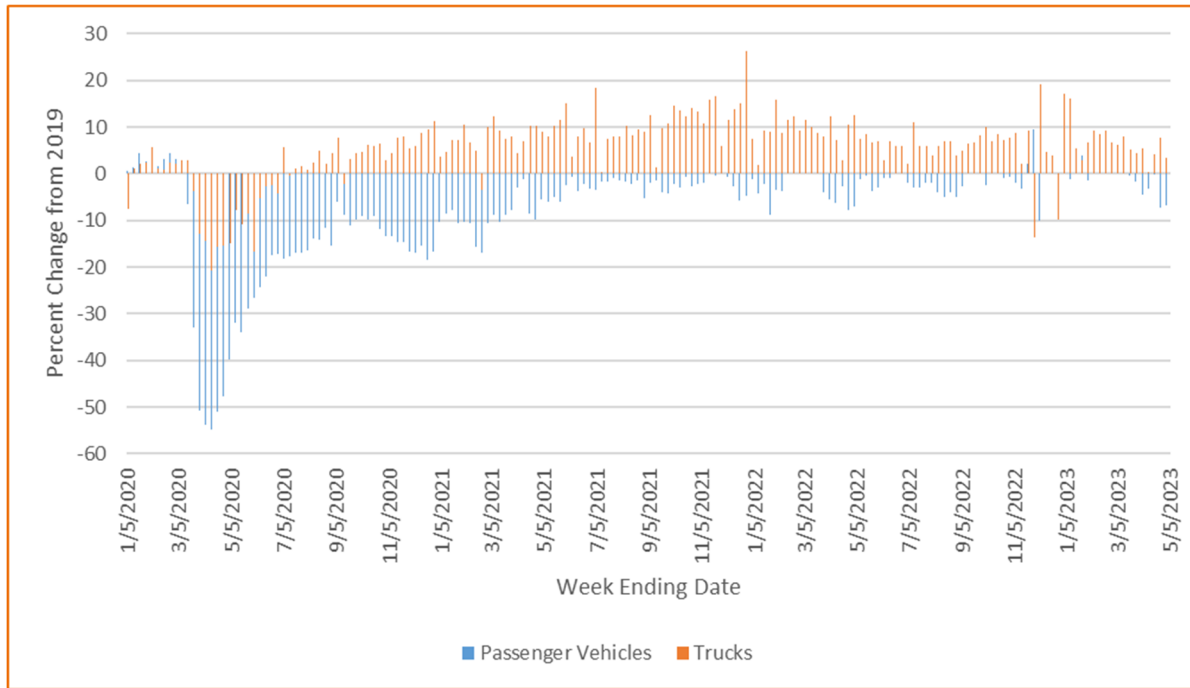
Truck traffic rebounded from COVID-19 more robustly than passenger car traffic. At the national level, Figure 14 shows that in the recovery period between early July 2020 and the end of April 2023, there were only five weeks that truck traffic was equal to or just under the same week in 2019; 142 weeks were above the same week in 2019. This is in stark contrast to 119 weeks



of passenger vehicle VMT being equal to or below the same week in 2019 (with only 28 weeks above 2019 levels).³⁵ Note that FHWA started publishing its Weekly Traffic Volume Report – on which this data is based – in the early days of the COVID-19 pandemic, and discontinued these reports after April 2023.

Some of the higher truck traffic growth reflects the increase in e-commerce, a trend which accelerated during the pandemic with COVID-19 closures, leading to more goods being purchased online instead of in brick-and-mortar stores. More recently, the share of retail sales represented by e-commerce has fallen from its pandemic peak, and has remained relatively stable at around 14.5 or 15.0 percent. Figure 15 illustrates these developments.

Figure 14: Interstate VMT Changes from Same Week of 2019 by Vehicle Type

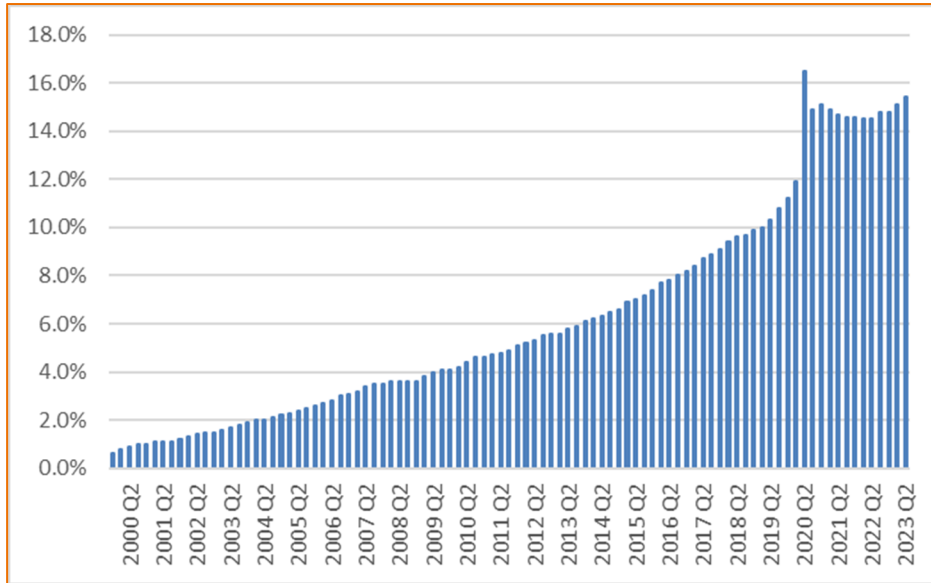


Source: U.S. DOT, Office of Highway Policy Information, Special Monthly Reporting, Weekly Traffic Volume Data, Interstate Travel for Weeks 13, 14, 15, 16, and 17, <https://www.fhwa.dot.gov/policyinformation/weeklyreports/>

³⁵ “Special Monthly Reporting, Weekly Traffic Volume Data Interstate Travel for Weeks 13, 14, 15, 16, and 17, 3/27/2023-4/30/2023”, U.S. Department of Transportation Office of Highway Policy Information, as accessed July 20, 2023 at <https://www.fhwa.dot.gov/policyinformation/weeklyreports/>



**Figure 15: E-Commerce as a Percentage of Retail Sales Excluding Food Service
Q4'99 – Q2'23**



Source: U.S. Census Bureau, <https://www.census.gov/retail/ecommerce.html>

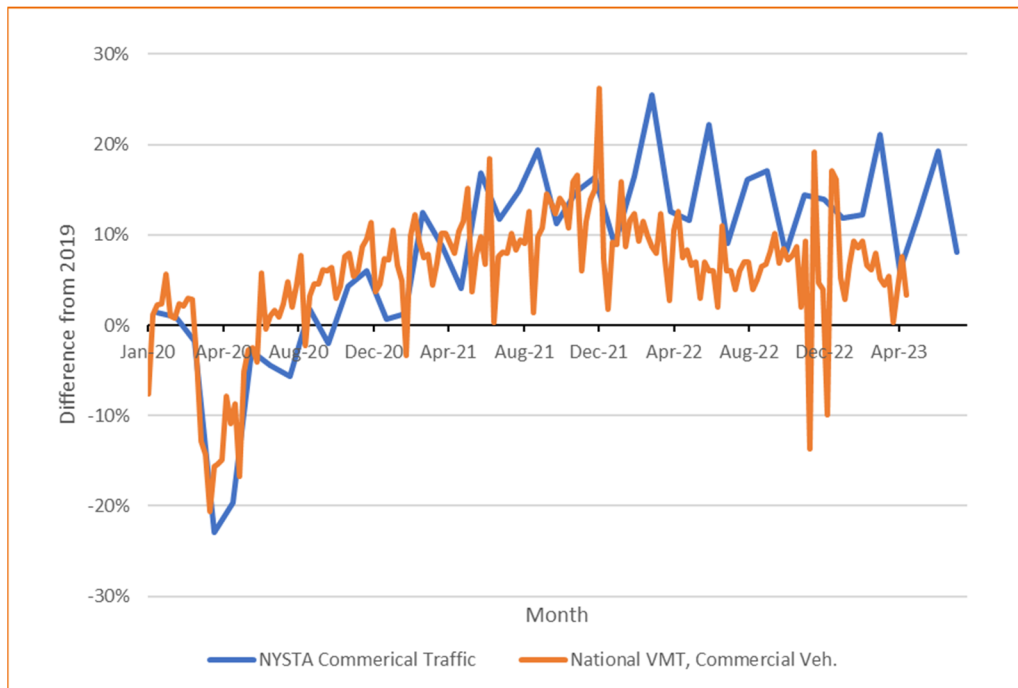
Figure 16 depicts changes in truck traffic over the same month in 2019 both nationally and on Thruway facilities, showing that Thruway truck traffic has generally remained higher than national truck traffic (relative to pre-COVID) since mid-2021. A possible reason for this is that New York (downstate at least) is more heavily dependent on trucks. In Appendix H to the most recent *New York Metropolitan Transportation Council's Regional Transportation Plan* adopted on September 9, 2021, it notes that trucks are responsible for moving more than 92 percent of domestic tonnage in its planning area.³⁶ The American Trucking Association's ("ATA") August 2023 report indicates trucking represents 72.6 percent of tonnage carried by all modes of domestic freight transportation.³⁷ Thus, it is logical that increased shipments would drive relatively greater truck traffic growth in New York as compared to other regions for multiple reasons (including strong consumer demand, substitution of goods for services, and inventory rebuilding).

³⁶ "Moving Forward", New York Metropolitan Transportation Council Regional Transportation Plan Adopted on September 9, 2021, https://www.nymtc.org/movingforward/pdfs/app_h.pdf

³⁷ "ATA Truck Tonnage Index Decreased 0.8% in July," American Trucking Associations, Aug. 22, 2023, <https://www.trucking.org/news-insights/ata-truck-tonnage-index-decreased-08-july>



Figure 16: Commercial Vehicle Volume Difference from 2019



Sources: U.S. DOT, Office of Highway Policy Information, Special Monthly Reporting, Weekly Traffic Volume Data, Interstate Travel for Weeks 13, 14, 15, 16, and 17, <https://www.fhwa.dot.gov/policyinformation/weeklyreports/>; New York State Thruway Authority

Both Thruway System and national truck travel has been declining, however, since the peak in late 2021/early 2022. ATA Chief Economist Bob Costello notes, “as has been the case for several months, a multitude of factors have caused a recession in freight, including sluggish spending on goods by households as consumers traveled more and went to concerts this summer. Less home construction, falling factory output and shippers consolidating freight into fewer shipments compared with the frenzy during the goods buying spree at the height of the pandemic are also significant drags on tonnage.”³⁸

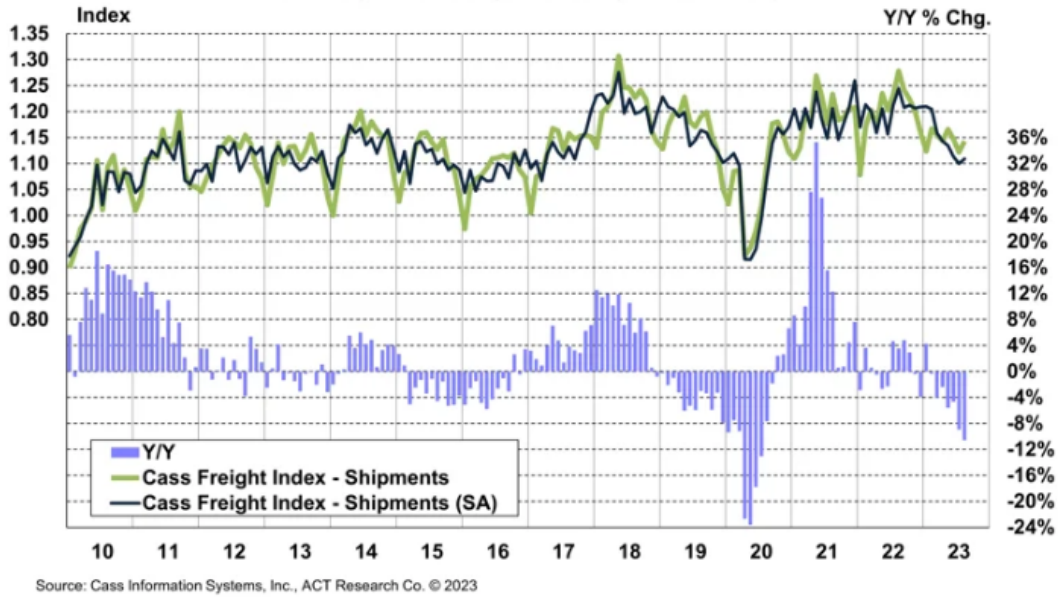
Cass Transportation is one index that tracks shipment volumes. Cass represents the largest U.S. payer of freight bills and covers a broad range of industries and all transport modes. Their most recent available report, covering shipments from January 2010 through August 2023, is included in Figure 17, and clearly shows the quick recovery from the pandemic dip in shipments in 2020. However, Cass predicts that the dynamics are shifting as there is improvement in real incomes and the worst of the destock is now over.³⁹

³⁸ Ibid.

³⁹ “Cass Transportation Index Report, July 2023”, Cass Information Systems, Inc., as accessed August 30, 2023 at <https://www.cassinfo.com/freight-audit-payment/cass-transportation-indexes/july-2023>

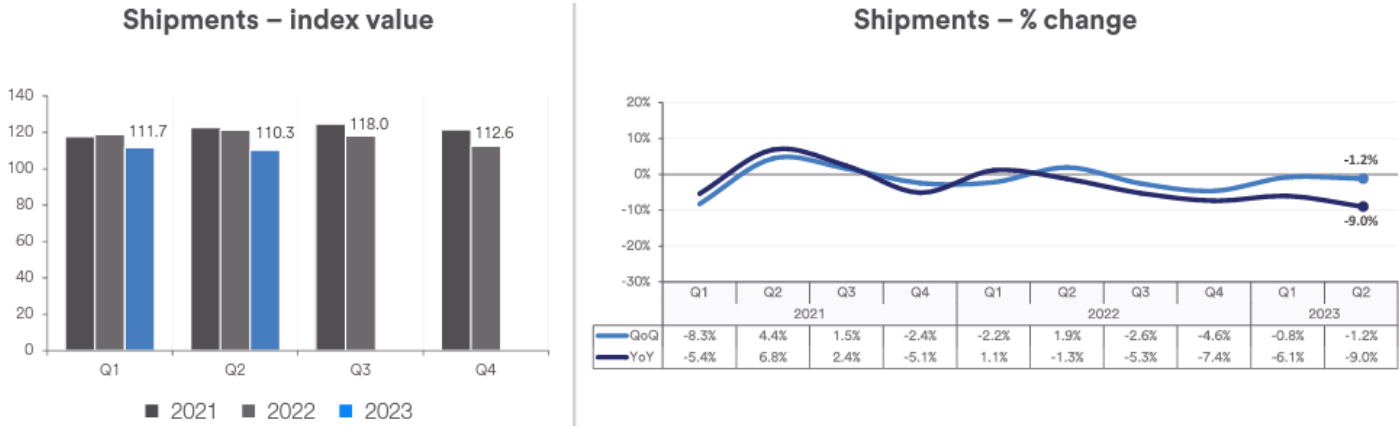


Figure 17: Cass Freight Index® - Shipments
 January 2010 – August 2023 (January 1990=1.00)



U.S. Bank publishes a quarterly freight index representing truckload and less-than-truckload shipments. Figure 18 shows this shipments index from 2021 through the second quarter of 2023, with the most recent quarter showing a 1.2 percent decline in shipments over the first quarter and a 9.0 percent decline compared to a year earlier.

Figure 18: Q2 2023 National Freight Market Overview: Shipments



Source: U.S. Bank Freight Payment Index, Q2 2023, as accessed August 30, 2023 at https://www.usbank.com/dam/documents/pdf/corporate-and-commercial-banking/industry-expertise/transportation/freight-payment-index/04-0170-08_Freight-Index-2023-Q2.pdf

U.S. Bank’s second quarter 2023 report noted that there were a vast range of differences in year-over-year shipment changes when considered regionally. While there was a significant gain in shipments in the Southwest (14.8 percent) this was due to



increased cross-border commercial traffic with Mexico. All other regions saw declines in truck shipments, ranging from -9.0 percent in the Midwest to -27.1 percent in the Northeast.⁴⁰

Freight growth forecasts are generally negative for the next twelve months, but there is cautious optimism as recent trends are indicating gradual recovery, with demand growth potentially returning in 2024 if not sooner.⁴¹ As discussed in a recent S&P Journal of Commerce article on U.S. Freight, "...the freight downturn that began in the fall of 2022 will likely last through the end of the year, and for the US trucking sector, it could stretch into the second quarter of 2024, speakers said during a *Journal of Commerce* webcast...even when demand rebounds, they expect modest growth, absent any unanticipated disruptions."⁴²

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

3.4.4 COVID-19 Impact on Thruway System Monthly Traffic and Revenue

Stantec has been monitoring monthly traffic and revenue data from the Authority. Figure 19 compares total monthly toll transactions and revenue over the 2019 through July 2023 period. Traffic reductions due to the COVID-19 pandemic were most severe during the height of the outbreak in 2020, however, significant improvement was seen over the summer and fall of 2021 where transactions often exceeded 2019 levels. In December of 2021 and January of 2022, with the spread of the Omicron variant, traffic experienced a notable decline below 2019 levels, followed by recovery through the spring of 2022. In May through December 2022, traffic grew over 2021 levels. In 2023 through the month of July, traffic was only slightly above 2022, representing a typical year-over-year growth rate, and suggesting that there is no further growth anticipated as a result of COVID recovery.

Toll revenue began to exceed 2019 levels starting around May 2021; however, higher revenues were already anticipated due to the January 1, 2021 systemwide and January 1, 2022 Governor Mario M. Cuomo Bridge toll increases. Though January 2023 revenue was significantly higher than January 2022, January 2022 had been significantly impacted by the Omicron variant of COVID-19, when there was a considerable, though temporary, surge in people calling out sick from work, working from home, or staying home to avoid potential infection. In February through May 2023, toll revenue was similar to or slightly less than the same months of 2022. Though overall traffic had grown slightly in 2023, there was a slight decline in truck volumes which led to a reduction in revenue for some months when compared to 2022. As shown below, total 2023 toll transactions and revenues through July were 3 percent and 11 percent above 2019 levels, respectively.

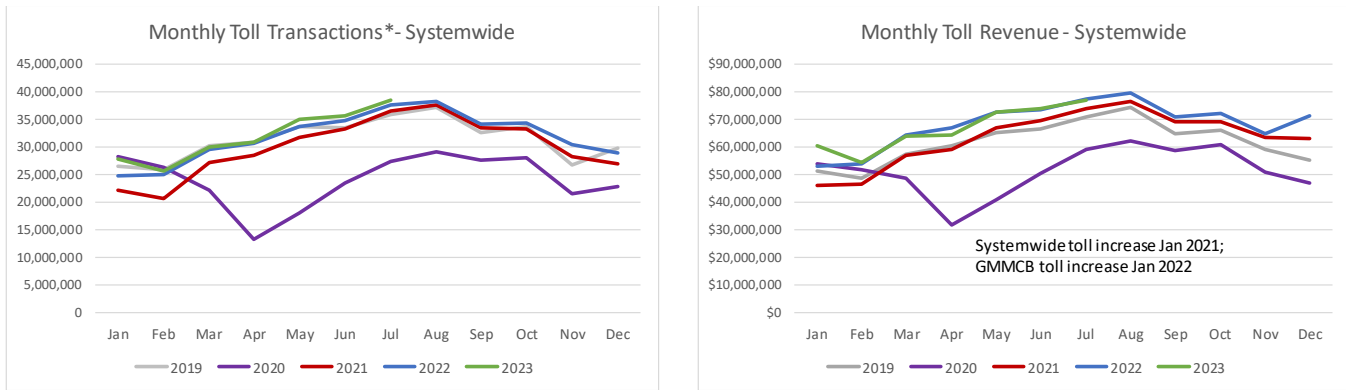
⁴⁰ U.S. Bank Freight Payment Index, as accessed August 30, 2023 at https://www.usbank.com/dam/documents/pdf/corporate-and-commercial-banking/industry-expertise/transportation/freight-payment-index/04-0170-08_Freight-Index-2023-Q2.pdf

⁴¹ ACT Research August 2023 For-Hire Trucking Index, as accessed August 31, 2023 at https://pages.actresearch.net/for-hire-trucking-index?utm_campaign=Freight%20Forecast&utm_medium=email&_hsmi=272387245&utm_content=272386857&%20utm_source=hs_email

⁴² William B. Cassidy, "No US Freight Rebound Until 2024: Analysts," *Journal of Commerce*, S&P Global, August 11, 2023, https://www.joc.com/article/no-us-freight-rebound-until-2024-analysts_20230811.html



Figure 19: Monthly Toll Transactions and Revenue, 2019 through July 2023



2023 compared to 2019
 Monthly Toll Transactions*
 Monthly Toll Revenue

	Jan	Feb	Mar	Apr	May	Jun	Jul	Total YTD
Monthly Toll Transactions*	5%	-1%	0%	1%	4%	7%	7%	3%
Monthly Toll Revenue	18%	11%	11%	7%	11%	11%	9%	11%

* With the new AETC system, there may now be multiple toll transactions per trip on the Woodbury-Williamsville section, while there was previously only one transaction per trip. From January 2019 through November 2020 these trips were converted to “new system transactions” for graphing purposes to provide a better comparison to pre-AETC conditions.

4.0 CAPITAL PROGRAM

In order to better understand the Authority’s current and future financial condition, consideration must be given to the size, complexity and capital needs of its highway and bridge infrastructure. The Authority’s Thruway System is extensive and aging and requires considerable investments to remain reliable. This section summarizes the Authority’s 2024-2028 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 2012 through 2022, and planned expenditures through 2028. These are followed by Table 7 and Table 8 starting on page 39 which provide detail on the funding sources for the recent capital program and projections for future capital programs.

4.1 2024-2028 CAPITAL PROGRAM DETAILS

The Authority’s 2024-2028 Capital Program will provide about \$2.4 billion for Authority capital projects. The Capital Program includes reconstruction and rehabilitation of roadway, bridges, facilities, equipment and support systems. From 2023 through 2028, 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.

Major Thruway projects in the 2024-2028 program include:

- East of Fulton (Exit 39) to west of Weedsport (Exit 40): Concrete Pavement Restoration (2025 letting)
- Pavement Reconstruction around Exit 18 (MP 72.5 to MP 76.5) (2026 letting)
- I-95 New England Thruway (MP 604.0 to MP 608.8) Highway Rehabilitation (2024 letting)



- Canandaigua (Exit 44) to Rochester (Exit 45) Pavement Rehabilitation (2024 letting)
- I-190 South end of Viaduct (MP 900.7 to MP 904.2) Pavement Rehabilitation (2024 letting)
- Thruway-Wide Radio System Upgrade Project – Engineering Analysis and Link Upgrade (2024 letting)
- Pavement Rehabilitation between Exits 59 and 60 (MP 467.0 to MP 483.0) (2024 letting)
- I-95 New England Thruway MP 608.8 to MP 610.8 (SB) 2" Mill and Inlay and MP 610.8 to MP 613.0 Pavement Resurfacing (2025 letting)
- Major Deegan Expressway (MP 0.00) to Cross Westchester Expressway (Exit 8) Pavement Resurfacing (2026 letting)
- Castleton Bridge (MP 801.8) Rehabilitation (2024 letting)
- East of Williamsville Toll Barrier (MP 419.4) to west of Buffalo-Williams Street (Exit 52A, MP 425.9): Pavement Resurfacing (2026 letting)
- Steel Repairs and Seismic Upgrades of the South Grand Island Bridges (2027 letting)
- North of Harriman Toll Barrier (MP 46.0) to Newburgh (MP 60.1) Pavement Resurfacing (2024 letting)
- I-390 (Exit 46) to LeRoy (Exit 47) Pavement Resurfacing (2028 letting)
- East of Silver Creek to Dunkirk (Exit 59) Pavement Resurfacing (MP 455.2 to MP 46.0) (2027 letting)

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

4.2 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 2012 through 2022 are shown in Table 5. Table 6 presents the 2023-2028 planned expenditures. 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, 2012-2022 (millions)

Year	Thruway Highway and Bridges Capital Expenditures	Equipment Replacement and Other Facility Capital Needs ¹	Canal System and Other Authority Projects ²	Subtotal Capital Program Expenditures	New NY Bridge Project Capital Costs	Total Capital Program Expenditures
2012	\$322.4	\$22.9	\$45.7	\$390.9	\$0.0	\$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
2021	120.7	162.4	0.0	283.1	20.8	303.9
2022	237.9	33.6	0.0	271.5	10.3	281.8
Total 2012-2022	\$2,282.7	\$958.1	\$239.0	\$3,479.8	\$3,735.2	\$7,215.1

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 2023-2028 Total Capital Expenditures (millions)

Year	Thruway Highway and Bridges Capital Expenditures	Equipment Replacement and Other Facility Capital Needs	Other Authority Projects	Subtotal Capital Program Expenditures	New NY Bridge Project Capital Costs	Total Capital Program Expenditures
2023	\$293.3	\$ 60.6	\$0.0	\$ 353.9	\$6.0	\$ 359.9
2024	369.7	61.2	0.0	430.9	20.0	450.9
2025	403.1	65.4	0.0	468.5	217.9	686.4
2026	383.0	69.6	0.0	452.6	0.0	452.6
2027	339.4	76.7	0.0	416.1	0.0	416.1
2028	348.2	71.0	0.0	419.2	0.0	419.2
Total 2023-2028	\$2,136.7	\$404.5	\$0.0	\$2,541.2	\$243.9	\$2,785.1

Note: Numbers may not add due to rounding.

Table 7 and Table 8 summarize actual funding sources for the previous Capital Programs and planned funding sources for the 2024-2028 Capital Program. Some \$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 – replacement of the Tappan Zee Bridge with the new Governor Mario M. Cuomo Bridge. At this time no additional federal authorizations are assumed for the 2024-2028 Capital Program.

The Authority issued its Series 2013A Junior Indebtedness Obligations (“JIOs”) 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 was 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 to redeem the 2019A JIO Notes and to refund the TIFIA Loan. 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: 2012-2022 Actual Funding Sources, Thruway Authority (millions)

Year	Funding Sources					
	Federal Aid (A)	Other ¹ (B)	Bond / Note Proceeds (C)	Subtotal Exclusive of Thruway Revenues on Pay-As-You-Go Basis (A+B+C)	Revenues Required from Tolls, etc. (D)	Pay-As-You-Go % (A+B+D)/(A+B+C+D)
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%
2021	0.1	1.9	196.8	198.8	105.1	35.3%
2022	0.0	1.0	231.8	232.8	49.0	17.8%
Total 2012-2022	\$142.5	\$2,139.2	\$3,992.1	\$6,273.8	\$941.4	44.7%

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 2023-2028 Funding Sources, Thruway Authority (millions)

Year	Funding Sources					
	Federal Aid (A)	Other ¹ (B)	Bond / Note Proceeds (C)	Subtotal Exclusive of Thruway Revenues on Pay-As-You-Go Basis (A+B+C)	Revenues Required from Tolls, etc. (D)	Pay-As-You-Go % (A+B+D)/(A+B+C+D)
2023	\$-	\$3.5	\$254.5	\$258.1	\$101.9	29.3%
2024	-	5.8	170.3	176.1	274.9	62.2%
2025	-	12.1	456.9	469.0	217.4	33.4%
2026	-	9.8	254.9	264.7	187.9	43.7%
2027	-	0.5	197.8	198.3	217.8	52.5%
2028	-	1.5	194.6	196.1	223.1	53.6%
Total 2023-2028	\$0.0	\$33.2	\$1,529.0	\$1,562.2	\$1,223.0	45.1%

Note: Numbers may not add due to rounding.

4.3 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 20 displays the historic average rating of Thruway pavement surface conditions since 2014 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 deteriorate slightly but stay in the “fair” category.

Similarly, the Authority maintains ratings for the 817 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 21 shows actual and projected bridge condition ratings from and include a change in the bridge inspection methodology in 2016, which was mandated by the FHWA. As noted, the current capital program will maintain the average rating of all bridges in the “good” category.



Figure 20: Historical and Projected Thruway System Pavement Conditions

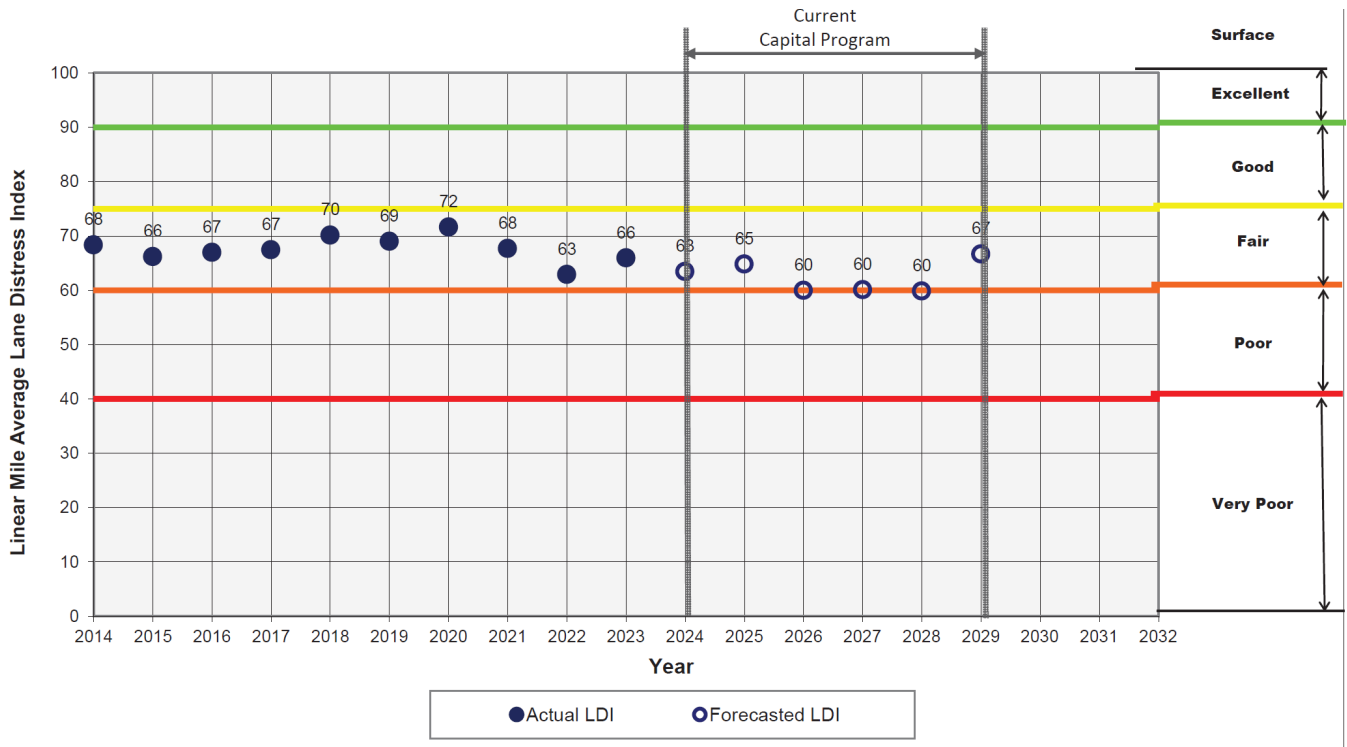
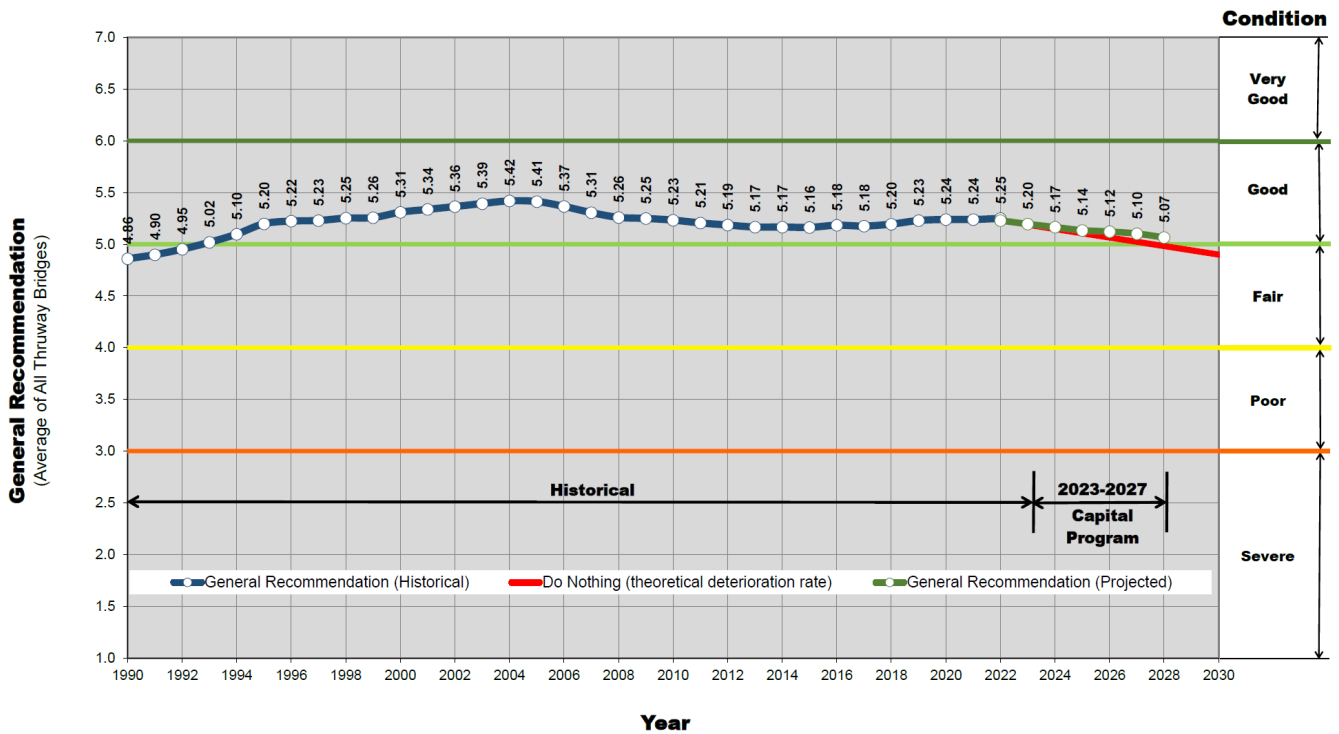


Figure 21: Historical and Projected Thruway System Bridge Condition Ratings



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 2023. The general recommendation is the inspector’s assessment of the overall bridge condition. 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 January 2021, a number of bridges have been improved.

Table 9: Bridge Conditions, January 2021 and January 2023

BRIDGE RATINGS		
CONDITION	NO. OF BRIDGES	
	January 2021	January 2023
GENERAL RECOMMENDATION 5-7 Bridges in generally good condition with only minor to moderate repairs required.	698	710
GENERAL RECOMMENDATION 4 Bridges in good to fair condition requiring reconditioning of some structural elements.	108	97
GENERAL RECOMMENDATION 2-3 Bridges in poor condition requiring major repairs or replacement.	10	10



5.0 OPERATING AND MAINTENANCE EXPENSES

The Authority's operating and maintenance ("O&M") expenses include non-capitalized costs for the maintenance of highway and building facilities; equipment purchases; snow and ice removal; Thruway toll collection; administrative costs and fringe benefits; Thruway traffic operations; and provisions for funding environmental and other liability reserves. In 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 recent 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 2012-2022 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 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). 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. Costs for account management of the Tolls by Mail program were included in the O&M costs for 2016 through 2022.



Table 10: The Thruway System’s Actual Operating and Maintenance Expenses, 2012 – 2022 (millions)

Year	Thruway Operations	Reserves ¹	Total Operating Expenses ²
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 ³	311.6	1.8	313.3
2017	329.7	2.7	332.4
2018 ⁴	339.9	5.0	345.0
2019	350.9	6.0	356.8
2020 ^{5 6}	316.6	2.0	318.6
2021	339.8	6.5	346.3
2022	361.8	16.0	377.8

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 AETC began at the Governor Mario M. Cuomo Bridge formerly Tappan Zee Bridge Barrier on April 23, 2016.

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 controlled system toll locations on November 14, 2020

⁶ COVID-19 impacts began in March 2020

Table 11 shows the 2023 through 2028 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 2023-2028 Operating and Maintenance Expenses (millions)

Year	Thruway Operations	Reserves ¹	Total Operating Expenses
2023	\$401.3	\$(0.7)	\$400.6
2024	410.9	1.0	411.9
2025	419.1	1.0	420.1
2026	427.5	1.0	428.5
2027	436.1	1.0	437.1
2028	444.8	1.0	445.8
Total 2023-2028	\$2,539.8	\$4.3	\$2,544.1

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



6.0 DEBT SERVICE EXPENSES

As a result of a higher level of capital investment and the reduced pay-as-you-go financing in recent years, the Authority utilized additional bond/note proceeds to finance commitments made in the multi-year Capital Programs. As summarized in Table 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 \$200.5 million in 2012 to \$339.6 million in 2021. As the \$51.5 million in line of credit costs in 2021 were paid in full, total debt service decreased to \$309.1 million in 2022. Total debt service is projected to increase from \$354.6 million in 2023 to \$475.3 million in 2028.

Table 12: Actual Debt Service, Thruway System, 2012-2022 (millions)

Year	Senior Debt Service	Bond Anticipation Note (BAN) or Line of Credit Interest	Junior Debt Service	Total Debt Service
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
2021	241.3	51.5	46.7	339.6
2022	240.9	0.6	67.6	309.1

Note: Numbers may not add due to rounding.

¹ Net of defeasance

Table 13: Projected 2023-2028 Debt Service, Thruway System (millions)

Year	Senior Debt Service	Bond Anticipation Note (BAN) or Line of Credit Interest	Junior Debt Service	Total Debt Service
2023	\$247.5	\$0.0	\$107.2	\$354.6
2024	255.3	0.0	108.9	364.2
2025	283.1	0.0	110.2	393.3
2026	318.2	0.0	125.2	443.4
2027	329.8	0.0	131.3	461.1
2028	307.2	0.0	168.1	475.3
Total 2023-2028	\$1,741.1	\$0.0	\$750.9	\$2,492.0

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



7.0 TRAFFIC AND REVENUES

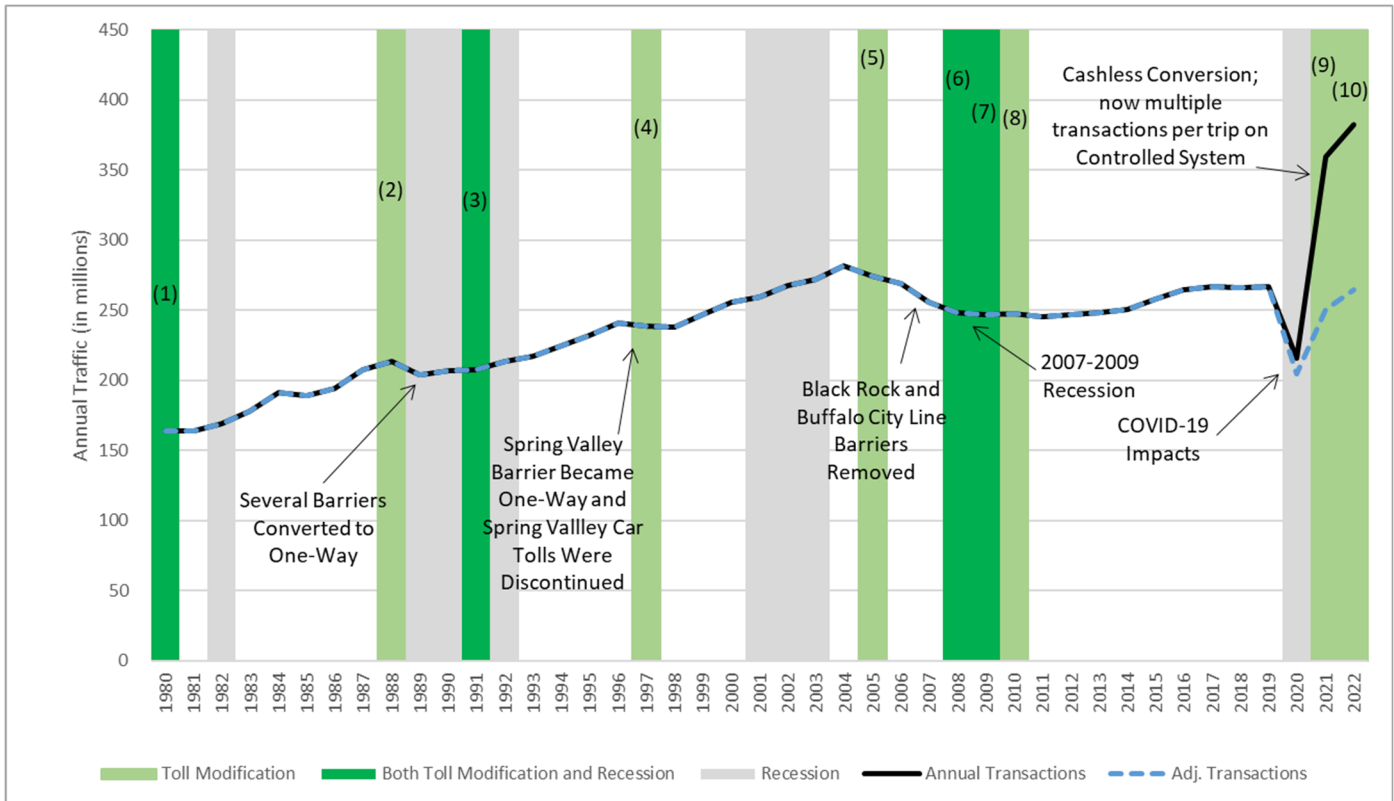
7.1 HISTORICAL TOTAL THRUWAY TRAFFIC

Figure 22 presents historical total traffic on the Thruway since 1980. It is important to note that the volumes shown have not been 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 the 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. 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. The adjustment shows that the amount of traffic in 2022 is similar to those levels exhibited pre-COVID.

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 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. 2021 continued to be impacted by COVID-19, though significant improvement occurred; traffic increased to 6 percent below 2019 levels. Substantial recovery occurred in 2022 with traffic reaching just one percent below the levels seen in 2019. More detail on the Thruway's historical traffic volumes can be found in Table 22 on page 65 and in the Appendix, which presents historical traffic and revenue by facility.



Figure 22: Historical Thruway Toll Transactions



Note: Adjustment made to transactions in 2020 and after to account for AET conversion on the mainline, where one trip on the controlled system (mainline) was previously one transaction, and may now be composed of one to twelve transactions depending on the number of tolling segments traveled.

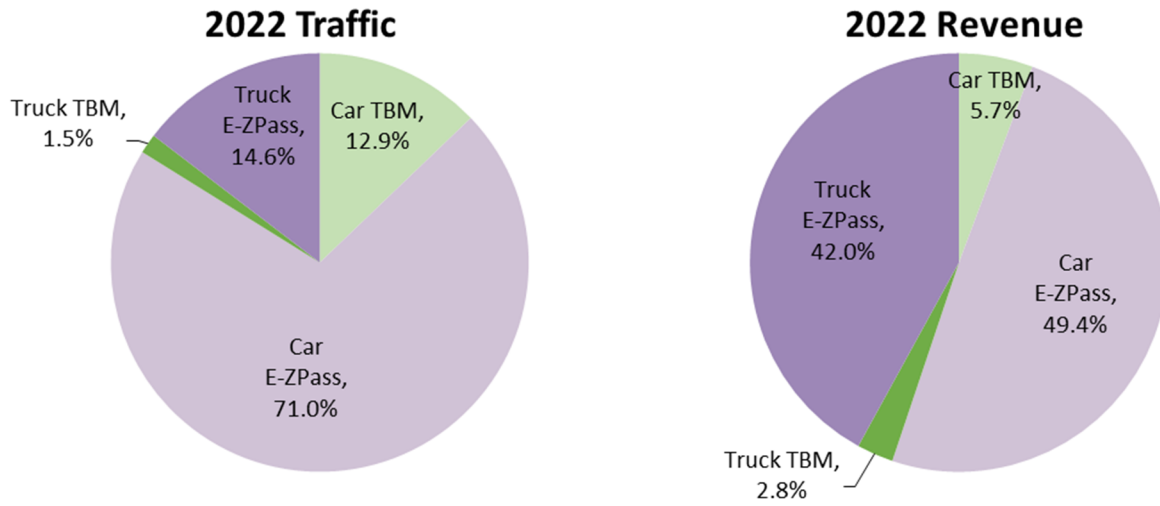
- (1) 1980 – Average Toll Increase of 25% Passenger Cars, 30% Commercial
- (2) 1988 – Average Toll Increase of 32% Passenger Cars, 38% Commercial
- (3) 1991 – Spring Valley Toll Adjustment, Passenger Cars Only
- (4) 1997 – Tappan Zee Corridor Relief (Congestion Pricing)
- (5) 2005 – System Reclassification, 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. The Governor Mario M. Cuomo Bridge had toll increases of 5% for commuters, 11% for non-Resident Plan E-ZPass cars and trucks up to class 4H, 21% for non-NY E-ZPass cars and trucks up to 4H and 37% for Tolls by Mail cars and trucks up to 4H. Class 5H and larger trucks on the Governor Mario M. Cuomo Bridge had toll increases of 31% for NY E-ZPass, 51% for Non-NY E-ZPass and 70% for Tolls by Mail.
- (10) 2022 – The Governor Mario M. Cuomo Bridge had toll increases of 10% for all cars and trucks up to class 4H, with the exception of Resident Plan cars which did not see a toll increase. 5H and larger trucks on the Bridge had a 30% toll increase.

7.2 DEMOGRAPHICS OF TOLL PAYING PATRONS

To better understand Thruway revenue trends and the impact toll policy may have on its patrons, it is important to appreciate the traffic make-up on the Thruway System and its customer base. As shown in Figure 23, in 2022 roughly 84 percent of traffic on the Thruway System was composed of passenger cars, with the remaining 16 percent of traffic coming from a variety of commercial vehicle types. Nearly 86 percent of total vehicles toll transactions were paid with an E-ZPass transponder (approximately 85 percent of passenger vehicles and 91 percent of commercial vehicles). It should be noted that while commercial vehicle traffic made up only 16 percent of systemwide toll transactions, it accounted for almost 45 percent of all Thruway toll revenues.

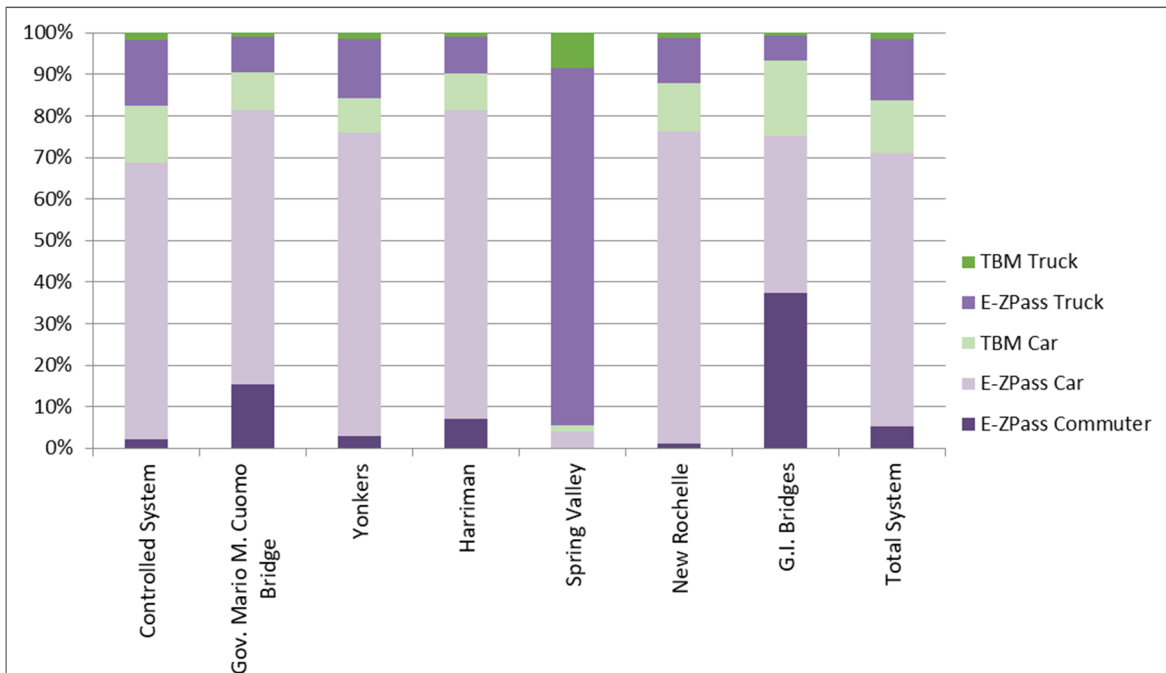


Figure 23: 2022 Systemwide Traffic and Revenue Distribution



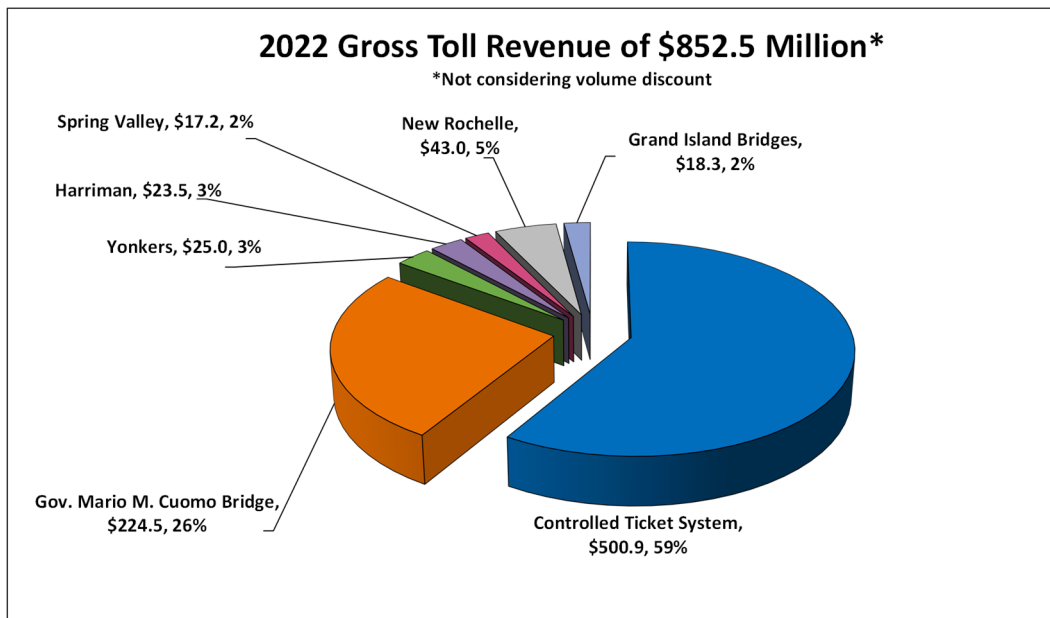
The distributions of vehicle class and payment types vary by facility, as shown in Figure 24. The highest passenger car participation in *E-ZPass* is seen at the Yonkers and Harriman Barriers and Governor Mario M. Cuomo Bridge, while the truck participation rate in *E-ZPass* was consistently very high (89 to 91 percent) at all facilities. Overall, *E-ZPass* transactions accounted for nearly 86 percent of annual transactions on the Thruway in 2022. It should be noted that because the most frequent customers tend to have *E-ZPass* while very infrequent customers generally do not, the majority of *individual customers* using the Thruway over the course of a year do not have an *E-ZPass* account.

Figure 24: 2022 Passenger Car and Commercial Vehicle Traffic Distribution by Facility



2022 total toll revenues were \$852.5 million collected from toll transactions minus \$32.1 million in commercial vehicle volume discounts (discussed on page 53), for a net amount of \$820.4 million. As noted in Figure 25, 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 \$500.9 million in 2022, or about 59 percent of total Thruway toll revenue. The Governor Mario M. Cuomo Bridge generated \$224.5 million, 26 percent of total toll revenue. The New York City metropolitan area barrier tolls generated a combined 13 percent of total toll revenue, or about \$108.7 million. The Grand Island Bridges generated about \$18.3 million, or some 2 percent of toll revenue.

Figure 25: Distribution of 2022 Toll Revenues by Thruway Facility



Specific regions within the controlled system that see the most traffic volume include the Albany area, the Rochester area, the southern terminus of the Woodbury section, and the western part of the Woodbury section approaching Buffalo and Niagara Falls. The five sections of the controlled system mainline with the highest volumes in 2022 are shown in Table 14.

Table 14: Controlled System Mainline Sections with Highest Volumes, 2022

Section of Mainline	Millions of Annual Vehicles
Between Int. 24 & 25, between Albany and Schenectady	28.4
Between Int. 44 & 45, Rochester/Victor/Canandaigua area	21.2
Between Int. 15/16 & 17, Woodbury/Harriman/Newburgh area	19.3
Between Int. 49 & 50, Depew/Lockport/Niagara Falls area	19.3
Between Int. 23 & 24, Albany	18.5

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 72 percent of total *E-ZPass* toll revenues in 2022. As a result, 28 percent of *E-ZPass* toll revenues in 2022 were collected from customers that had a non-New York issued transponder, underscoring the importance of the Thruway System in the regional and national economy.



7.3 TOLL RATES

With the exception of a small amount of federal aid and other funds, tolls collected on the controlled system and through toll barriers support an overwhelming majority of the Authority's budget. The following provides a brief history of toll adjustments on the Thruway System, details the approved 2024 through 2027 toll increases, and compares Thruway toll rates to those on other facilities in the northeast.

7.3.1 Recent History of Toll Adjustments on the Thruway System

In 2005, a two-stage toll adjustment was implemented by the Authority that generally increased toll rates by 25 percent for all passenger vehicles and 35 percent for all commercial vehicles, and increased cash tolls in 2008 for both passenger and commercial vehicles by 10 percent. 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.

With revenue needs projected to be above those generated by the 2010 toll schedule, in 2019 the Authority proposed toll modifications for 2021-2022 to generate the additional revenues needed to successfully meet its future growing capital needs, fund outstanding debt and provide reliable service to its patrons. Note that this toll modification had been based on late 2019 projections of revenue needs, prior to the COVID-19 pandemic which caused a significant initial decline in travel. The modification increased all out-of-state *E-ZPass* tolls to 15 percent above the NY *E-ZPass* rate and increased all Tolls by Mail tolls to 30 percent over the NY *E-ZPass* rate on January 1, 2021. In addition, the base NY *E-ZPass* toll at the Governor Mario M. Cuomo Bridge ("GMMCB") was increased by 50 cents per year over two years (in January 2021 and January 2022) with a 40 percent commuter discount program, and commercial rates increased proportionately to car rates with an additional 20 percent increase for trucks with five or more axles. Residents of Westchester and Rockland Counties with proof of residency and NY *E-ZPass* could sign up for a new Resident Plan, avoiding a car toll increase on the GMMCB in 2021 or 2022. At all locations other than the GMMCB, any vehicle with NY *E-ZPass* (the vast majority of vehicles on the system) also did not see a toll increase in 2021 or 2022. These recent toll increases which occurred on January 1, 2021 (systemwide) and January 1, 2022 (GMMCB only), are summarized in Table 15.

In addition to these toll increases, the Authority made several changes to help cover the additional processing costs associated with AET beginning in 2021. The Authority began to charge the Tolls by Mail rate to *E-ZPass* customers without a properly mounted, readable transponder who are processed through a license plate image review. This charge offsets additional costs related to image review and is also meant to incentivize proper placement of *E-ZPass* transponders, which facilitates toll processing. The Authority also began to assess a \$2 per-bill administrative surcharge for Tolls by Mail trips to offset printing and mailing costs.



Table 15: 2021 and 2022 Toll Modifications

Year	Location and Payment Type	Increases		
		Cars and Trucks up to 4 Axles	Trucks, 5+ Axles	
2021	Governor Mario M. Cuomo Bridge			
	Car Resident <i>E-ZPass</i>	no increase	-	
	Car Commuter <i>E-ZPass</i>	5%	-	
	Standard NY <i>E-ZPass</i>	11%	31%	
	Non-NY <i>E-ZPass</i>	21%	51%	
	Tolls by Mail	37%	70%	
	Remainder of Thruway System			
	NY <i>E-ZPass</i>	no increase	no increase	
	Non-NY <i>E-ZPass</i>	9%	9%	
Tolls by Mail	24%	24%		
2022	Governor Mario M. Cuomo Bridge			
	Car Resident <i>E-ZPass</i>	no increase	-	
	Car Commuter <i>E-ZPass</i>	10%	-	
	Standard NY <i>E-ZPass</i>	10%	30%	
	Non-NY <i>E-ZPass</i>	10%	30%	
	Tolls by Mail	10%	30%	

The Authority's current toll rate structure is presented in Table 16.



Table 16: Current Toll Structure (2022) ¹

New York E-ZPass

Vehicle Class ²	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY		GOV MARIO M. CUOMO BR. (GMMCB)	
							PEAK	OFF PEAK	PEAK	OFF PEAK
2L Commuter ³	⁴		\$0.28	\$0.55	\$0.55	\$1.10			\$3.45	\$3.45
2L Resident			\$0.09						\$4.75	\$4.75
2L Standard	\$0.0447	\$0.62	\$0.95	\$1.19	\$1.19	\$1.66	\$0.00	\$0.00	\$5.75	\$5.75
3L	\$0.0692	\$0.86	\$1.43	\$1.43	\$1.43	\$2.38	\$3.00	\$1.50	\$13.92	\$6.96
4L	\$0.0821	\$1.00	\$1.66	\$1.66	\$1.66	\$2.85	\$4.50	\$2.25	\$16.64	\$8.32
2H	\$0.0886	\$1.05	\$1.90	\$1.90	\$1.90	\$3.33	\$5.25	\$2.63	\$17.86	\$8.93
3H	\$0.1524	\$1.47	\$2.14	\$2.61	\$2.14	\$4.04	\$8.25	\$4.13	\$25.12	\$12.56
4H	\$0.1680	\$1.90	\$2.61	\$2.85	\$2.61	\$4.75	\$8.25	\$4.13	\$29.96	\$14.98
5H	\$0.2271	\$2.57	\$4.04	\$4.04	\$4.04	\$7.60	\$13.50	\$6.75	\$55.77	\$27.89
6H	\$0.2815	\$3.09	\$4.28	\$4.75	\$4.28	\$8.31	\$14.75	\$7.38	\$69.82	\$34.91
7H	\$0.3359	\$3.66	\$4.75	\$5.46	\$4.75	\$9.26	\$16.50	\$8.25	\$83.87	\$41.94

Non-New York E-ZPass

Vehicle Class ²	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY	GMMCB
2L	\$0.0514	\$0.71	\$1.09	\$1.37	\$1.37	\$1.91	\$0.00	\$6.61
3L	\$0.0796	\$0.99	\$1.64	\$1.64	\$1.64	\$2.73	\$3.45	\$16.01
4L	\$0.0944	\$1.15	\$1.91	\$1.91	\$1.91	\$3.28	\$5.18	\$19.14
2H	\$0.1019	\$1.21	\$2.19	\$2.19	\$2.19	\$3.82	\$6.04	\$20.53
3H	\$0.1753	\$1.69	\$2.46	\$3.00	\$2.46	\$4.64	\$9.49	\$28.89
4H	\$0.1932	\$2.19	\$3.00	\$3.28	\$3.00	\$5.46	\$9.49	\$34.45
5H	\$0.2612	\$2.96	\$4.64	\$4.64	\$4.64	\$8.74	\$15.53	\$64.14
6H	\$0.3237	\$3.55	\$4.92	\$5.46	\$4.92	\$9.56	\$16.96	\$80.30
7H	\$0.3863	\$4.21	\$5.46	\$6.28	\$5.46	\$10.65	\$18.98	\$96.45

Tolls by Mail

Vehicle Class ²	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY	GMMCB
2L	\$0.0581	\$0.81	\$1.24	\$1.54	\$1.54	\$2.16	\$0.00	\$7.48
3L	\$0.0900	\$1.12	\$1.85	\$1.85	\$1.85	\$3.09	\$3.90	\$18.10
4L	\$0.1067	\$1.30	\$2.16	\$2.16	\$2.16	\$3.71	\$5.85	\$21.64
2H	\$0.1152	\$1.37	\$2.47	\$2.47	\$2.47	\$4.32	\$6.83	\$23.21
3H	\$0.1981	\$1.91	\$2.78	\$3.40	\$2.78	\$5.25	\$10.73	\$32.65
4H	\$0.2184	\$2.47	\$3.40	\$3.71	\$3.40	\$6.18	\$10.73	\$38.95
5H	\$0.2952	\$3.34	\$5.25	\$5.25	\$5.25	\$9.88	\$17.55	\$72.51
6H	\$0.3660	\$4.02	\$5.56	\$6.18	\$5.56	\$10.81	\$19.18	\$90.77
7H	\$0.4367	\$4.76	\$6.18	\$7.10	\$6.18	\$12.04	\$21.45	\$109.03

¹ Toll structure will change on January 1, 2024

² 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.

³ Customers in the commuter program pay a monthly amount and must meet a monthly minimum number of trips (20 at one-way toll facilities and 35 at two-way toll facilities) to receive the fully discounted prices shown per trip. Once the monthly minimum number of trips is met, the customer is charged the fully discounted price per additional trip.

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

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 resident discount available to residents of Grand Island when crossing through either of the Grand Island toll barriers, a newly-instituted (as of 2021) resident plan available to 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 Authority Commercial Charge Account customers that offers progressively higher discounts based on the monthly toll charges on an account basis:

- \$1,001 to \$2,000 – 10 percent discount
- \$2,001 to \$3,000 – 15 percent discount
- Over \$3,000 – 20 percent discount

7.3.2 2024 Through 2027 Toll Modifications

Due to the need for additional revenues to fulfill system-wide operating, debt service, and capital needs through 2028, on September 18, 2023 the Authority Board of Directors approved a set of future toll modifications on the Governor Mario M. Cuomo Bridge and systemwide. A detailed narrative of these 2024 through 2027 toll increases can be found in Table 17.

As shown in the table, the approved toll schedule will, on January 1, 2024 and January 1, 2027, increase the base NY *E-ZPass* rates by 5 percent from their prior levels. Out-of-state *E-ZPass* and Tolls by Mail tolls will be increased from their current 15 percent and 30 percent differentials above the NY *E-ZPass* rate, respectively, to 75 percent above the NY *E-ZPass* rate. In addition, at the GMMCB, the base NY *E-ZPass* passenger car toll will be increased by 50 cents a year in each year from January 2024 through January 2027. Passenger cars on the Westchester/Rockland Resident Plan will see their discount change from the current 17 percent to 20 percent, and the 40 percent commuter discount program will be maintained. Commercial rates will be increased proportionately to the car rates. By modifying rates in this way, the Authority intends to have less of an impact on frequent and/or local drivers, promote *E-ZPass* usage, and provide a higher level of revenue for the GMMCB that is commensurate with the capital costs incurred for the recent, massive replacement project.



Table 17: Adopted 2024 through 2027 Toll Modifications

Toll Modification Element	Description
GOVERNOR MARIO M. CUOMO BRIDGE TOLL RATE ADJUSTMENTS	
Gov. Mario M. Cuomo Bridge: Increase Base NY E-ZPass to a rate of \$7.75 by 2027	Beginning on January 1, 2024, provide 50-cent annual increases to the base NY E-ZPass passenger toll rates on the Gov. Mario M. Cuomo Bridge during the period 2024-2027. This would result in a base NY E-ZPass rate for passenger vehicles increasing to \$7.75 by 2027 (current rate is \$5.75). Commercial rate increases would be proportionate to the passenger rate increases. (Note that Systemwide adjustments to Non-NY E-ZPass and Tolls by Mail will be applied on top of these base increases.)
40% Commuter Discount Program	Maintain the commuter discounted rate of 40 percent off the NY E-ZPass rate for passenger vehicles that opt into the program. Consistent with the policy prior to the toll adjustment, 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	Increase the resident discount E-ZPass Plan for qualified Westchester and Rockland residents from its current 17 percent discount to a 20 percent discount off the NY E-ZPass rate. This program is only offered to class 2L passenger vehicles with a NY E-ZPass who opt into the plan and provide proof of residency.
SYSTEMWIDE TOLL RATE ADJUSTMENTS	
NY E-ZPass Rates	On January 1, 2024 and January 1, 2027 increase the base NY E-ZPass rates by 5 percent from their prior levels.
Incentivize NY E-ZPass Usage	Beginning on January 1, 2024, increase the current 30 percent TBM rate differential (a toll rate 30 percent above the NY E-ZPass rate) to a 75 percent differential above the NY E-ZPass rate.
Non-NY E-ZPass Rates	Beginning on January 1, 2024, increase the current Non-NY E-ZPass toll rate differential from a 15 percent rate differential (a toll rate 15 percent above the NY E-ZPass rate for Non-NY E-ZPass tolls) to a 75 percent differential above the NY E-ZPass rate.

Table 18 provides details of the adopted 2024 through 2027 toll rate schedules on the Governor Mario M. Cuomo Bridge. Table 19 and Table 20 provide detail of the adopted toll rates for the remainder of the Thruway System in 2024 and 2027, respectively. Note that all the NY E-ZPass discounts currently in place will remain – commuter, permit, and resident plan; motorcycles and 5th wheel/gooseneck vehicles; and the commercial S Class. Customers with these plans will see toll increases similar to the base NY E-ZPass rates. In addition, the commercial volume discount for Thruway Charge Account customers will remain as is through 2027.



Table 18: 2024-2027 Adopted Toll Rate Schedules, Gov. Mario M. Cuomo Bridge

January 1, 2024 Adopted Toll Rates, Gov. Mario M Cuomo Bridge

Vehicle Class	NY E-ZPass Peak	NY E-ZPass Off Peak	Non-NY E-ZPass	Toll By Mail
Commuter	\$3.75	\$3.75		
Resident	\$5.00	\$5.00		
2L	\$6.25	\$6.25	\$10.94	\$10.94
3L	\$15.13	\$7.57	\$26.48	\$26.48
4L	\$18.09	\$9.05	\$31.66	\$31.66
2H	\$19.41	\$9.71	\$33.97	\$33.97
3H	\$27.30	\$13.65	\$47.78	\$47.78
4H	\$32.57	\$16.29	\$57.00	\$57.00
5H	\$60.62	\$30.31	\$106.09	\$106.09
6H	\$75.89	\$37.95	\$132.81	\$132.81
7H	\$91.16	\$45.58	\$159.53	\$159.53

January 1, 2025 Adopted Toll Rates, Gov. Mario M Cuomo Bridge

Vehicle Class	NY E-ZPass Peak	NY E-ZPass Off Peak	Non-NY E-ZPass	Toll By Mail
Commuter	\$4.05	\$4.05		
Resident	\$5.40	\$5.40		
2L	\$6.75	\$6.75	\$11.81	\$11.81
3L	\$16.34	\$8.17	\$28.60	\$28.60
4L	\$19.54	\$9.77	\$34.20	\$34.20
2H	\$20.96	\$10.48	\$36.68	\$36.68
3H	\$29.48	\$14.74	\$51.59	\$51.59
4H	\$35.18	\$17.59	\$61.57	\$61.57
5H	\$65.47	\$32.74	\$114.57	\$114.57
6H	\$81.96	\$40.98	\$143.43	\$143.43
7H	\$98.45	\$49.23	\$172.29	\$172.29

January 1, 2026 Adopted Toll Rates, Gov. Mario M Cuomo Bridge

Vehicle Class	NY E-ZPass Peak	NY E-ZPass Off Peak	Non-NY E-ZPass	Toll By Mail
Commuter	\$4.35	\$4.35		
Resident	\$5.80	\$5.80		
2L	\$7.25	\$7.25	\$12.69	\$12.69
3L	\$17.55	\$8.78	\$30.71	\$30.71
4L	\$20.99	\$10.50	\$36.73	\$36.73
2H	\$22.51	\$11.26	\$39.39	\$39.39
3H	\$31.66	\$15.83	\$55.41	\$55.41
4H	\$37.79	\$18.90	\$66.13	\$66.13
5H	\$70.32	\$35.16	\$123.06	\$123.06
6H	\$88.03	\$44.02	\$154.05	\$154.05
7H	\$105.74	\$52.87	\$185.05	\$185.05

January 1, 2027 Adopted Toll Rates, Gov. Mario M Cuomo Bridge

Vehicle Class	NY E-ZPass Peak	NY E-ZPass Off Peak	Non-NY E-ZPass	Toll By Mail
Commuter	\$4.65	\$4.65		
Resident	\$6.20	\$6.20		
2L	\$7.75	\$7.75	\$13.56	\$13.56
3L	\$18.76	\$9.38	\$32.83	\$32.83
4L	\$22.44	\$11.22	\$39.27	\$39.27
2H	\$24.06	\$12.03	\$42.11	\$42.11
3H	\$33.84	\$16.92	\$59.22	\$59.22
4H	\$40.40	\$20.20	\$70.70	\$70.70
5H	\$75.17	\$37.59	\$131.55	\$131.55
6H	\$94.10	\$47.05	\$164.68	\$164.68
7H	\$113.03	\$56.52	\$197.80	\$197.80



Table 19: 2024 Adopted Toll Rate Schedule, Remainder of Thruway System

January 1, 2024 Adopted Toll Rates, New York E-ZPass customers

Vehicle Class	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY	
							PEAK	OFF PEAK
2L	\$0.0469	\$0.65	\$1.00	\$1.25	\$1.25	\$1.74	\$0.00	\$0.00
3L	\$0.0727	\$0.90	\$1.50	\$1.50	\$1.50	\$2.50	\$3.15	\$1.58
4L	\$0.0862	\$1.05	\$1.74	\$1.74	\$1.74	\$2.99	\$4.73	\$2.37
2H	\$0.0930	\$1.10	\$2.00	\$2.00	\$2.00	\$3.50	\$5.51	\$2.76
3H	\$0.1600	\$1.54	\$2.25	\$2.74	\$2.25	\$4.24	\$8.66	\$4.33
4H	\$0.1764	\$2.00	\$2.74	\$2.99	\$2.74	\$4.99	\$8.66	\$4.33
5H	\$0.2385	\$2.70	\$4.24	\$4.24	\$4.24	\$7.98	\$14.18	\$7.09
6H	\$0.2956	\$3.24	\$4.49	\$4.99	\$4.49	\$8.73	\$15.49	\$7.75
7H	\$0.3527	\$3.84	\$4.99	\$5.73	\$4.99	\$9.72	\$17.33	\$8.67

January 1, 2024 Adopted Toll Rates, Non-New York E-ZPass customers

Vehicle Class	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY
2L	\$0.0821	\$1.14	\$1.75	\$2.19	\$2.19	\$3.05	\$0.00
3L	\$0.1272	\$1.58	\$2.63	\$2.63	\$2.63	\$4.38	\$5.51
4L	\$0.1509	\$1.84	\$3.05	\$3.05	\$3.05	\$5.23	\$8.28
2H	\$0.1628	\$1.93	\$3.50	\$3.50	\$3.50	\$6.13	\$9.64
3H	\$0.2800	\$2.70	\$3.94	\$4.80	\$3.94	\$7.42	\$15.16
4H	\$0.3087	\$3.50	\$4.80	\$5.23	\$4.80	\$8.73	\$15.16
5H	\$0.4174	\$4.73	\$7.42	\$7.42	\$7.42	\$13.97	\$24.82
6H	\$0.5173	\$5.67	\$7.86	\$8.73	\$7.86	\$15.28	\$27.11
7H	\$0.6172	\$6.72	\$8.73	\$10.03	\$8.73	\$17.01	\$30.33

January 1, 2024 Adopted Toll Rates, Tolls by Mail customers

Vehicle Class	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY
2L	\$0.0821	\$1.14	\$1.75	\$2.19	\$2.19	\$3.05	\$0.00
3L	\$0.1272	\$1.58	\$2.63	\$2.63	\$2.63	\$4.38	\$5.51
4L	\$0.1509	\$1.84	\$3.05	\$3.05	\$3.05	\$5.23	\$8.28
2H	\$0.1628	\$1.93	\$3.50	\$3.50	\$3.50	\$6.13	\$9.64
3H	\$0.2800	\$2.70	\$3.94	\$4.80	\$3.94	\$7.42	\$15.16
4H	\$0.3087	\$3.50	\$4.80	\$5.23	\$4.80	\$8.73	\$15.16
5H	\$0.4174	\$4.73	\$7.42	\$7.42	\$7.42	\$13.97	\$24.82
6H	\$0.5173	\$5.67	\$7.86	\$8.73	\$7.86	\$15.28	\$27.11
7H	\$0.6172	\$6.72	\$8.73	\$10.03	\$8.73	\$17.01	\$30.33



Table 20: 2027 Adopted Toll Rate Schedule, Remainder of Thruway System

January 1, 2027 Adopted Toll Rates, New York E-ZPass customers

Vehicle Class	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY	
							PEAK	OFF PEAK
2L	\$0.0492	\$0.68	\$1.05	\$1.31	\$1.31	\$1.83	\$0.00	\$0.00
3L	\$0.0763	\$0.95	\$1.58	\$1.58	\$1.58	\$2.63	\$3.31	\$1.66
4L	\$0.0905	\$1.10	\$1.83	\$1.83	\$1.83	\$3.14	\$4.97	\$2.49
2H	\$0.0977	\$1.16	\$2.10	\$2.10	\$2.10	\$3.68	\$5.79	\$2.90
3H	\$0.1680	\$1.62	\$2.36	\$2.88	\$2.36	\$4.45	\$9.09	\$4.55
4H	\$0.1852	\$2.10	\$2.88	\$3.14	\$2.88	\$5.24	\$9.09	\$4.55
5H	\$0.2504	\$2.84	\$4.45	\$4.45	\$4.45	\$8.38	\$14.89	\$7.45
6H	\$0.3104	\$3.40	\$4.71	\$5.24	\$4.71	\$9.17	\$16.26	\$8.13
7H	\$0.3703	\$4.03	\$5.24	\$6.02	\$5.24	\$10.21	\$18.20	\$9.10

January 1, 2027 Adopted Toll Rates, Non-New York E-ZPass customers

Vehicle Class	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY	
							PEAK	OFF PEAK
2L	\$0.0861	\$1.19	\$1.84	\$2.29	\$2.29	\$3.20	\$0.00	
3L	\$0.1335	\$1.66	\$2.77	\$2.77	\$2.77	\$4.60	\$5.79	
4L	\$0.1584	\$1.93	\$3.20	\$3.20	\$3.20	\$5.50	\$8.70	
2H	\$0.1710	\$2.03	\$3.68	\$3.68	\$3.68	\$6.44	\$10.13	
3H	\$0.2940	\$2.84	\$4.13	\$5.04	\$4.13	\$7.79	\$15.91	
4H	\$0.3241	\$3.68	\$5.04	\$5.50	\$5.04	\$9.17	\$15.91	
5H	\$0.4382	\$4.97	\$7.79	\$7.79	\$7.79	\$14.67	\$26.06	
6H	\$0.5432	\$5.95	\$8.24	\$9.17	\$8.24	\$16.05	\$28.46	
7H	\$0.6480	\$7.05	\$9.17	\$10.54	\$9.17	\$17.87	\$31.85	

January 1, 2027 Adopted Toll Rates, Tolls by Mail customers

Vehicle Class	MAINLINE (PER MILE)	Castleton Bridge Surcharge	GRAND ISLAND BRIDGES	HARRIMAN	YONKERS	NEW ROCHELLE	SPRING VALLEY	
							PEAK	OFF PEAK
2L	\$0.0861	\$1.19	\$1.84	\$2.29	\$2.29	\$3.20	\$0.00	
3L	\$0.1335	\$1.66	\$2.77	\$2.77	\$2.77	\$4.60	\$5.79	
4L	\$0.1584	\$1.93	\$3.20	\$3.20	\$3.20	\$5.50	\$8.70	
2H	\$0.1710	\$2.03	\$3.68	\$3.68	\$3.68	\$6.44	\$10.13	
3H	\$0.2940	\$2.84	\$4.13	\$5.04	\$4.13	\$7.79	\$15.91	
4H	\$0.3241	\$3.68	\$5.04	\$5.50	\$5.04	\$9.17	\$15.91	
5H	\$0.4382	\$4.97	\$7.79	\$7.79	\$7.79	\$14.67	\$26.06	
6H	\$0.5432	\$5.95	\$8.24	\$9.17	\$8.24	\$16.05	\$28.46	
7H	\$0.6480	\$7.05	\$9.17	\$10.54	\$9.17	\$17.87	\$31.85	



7.3.3 Comparison of Thruway Toll Rates to Other Regional Toll Facilities

Figure 26 and Figure 27 compare toll rates on a number of major toll crossings in the northeast. Both current and approved 2024 rates are shown for the GMMCB. Of note is that current and 2024 car tolls on the GMMCB are below current rates on other metro New York crossings and are reasonable when compared to other major crossings on the interstate highway system. The current and 2024 peak rates for 5-axle trucks are also comparable to that of other regional facilities. Nearly 90 percent of the GMMCB commercial vehicles with a NY *E-ZPass* travel during off-peak periods, paying a reduced rate as low as half of the standard peak rate. In addition to the lower off-peak rates, many vehicles further reduce the average toll rate paid through participation in the commercial volume discount program. These reductions in the effective rate make the current and 2024 GMMCB commercial toll rates considerably lower than those on other metro New York tolled crossings. It is also important to note that it is highly likely that most of the locations shown will also see toll increases over the next several years. For example, MTA Bridges and Tunnels, which operates the Verrazano-Narrows, RFK, Whitestone, and Throgs Neck Bridges has had five toll increases - a toll increase every two years - since 2013, and has proposed another increase in 2025. The Port Authority which operates all the crossings between NY and NJ has mandated inflation-based toll increases, and the Delaware River Joint Toll Bridge Commission is also planning a toll increase for 2024.

Figure 26: Round Trip Toll Rates on Major Toll Crossings in the Northeast, Passenger Cars

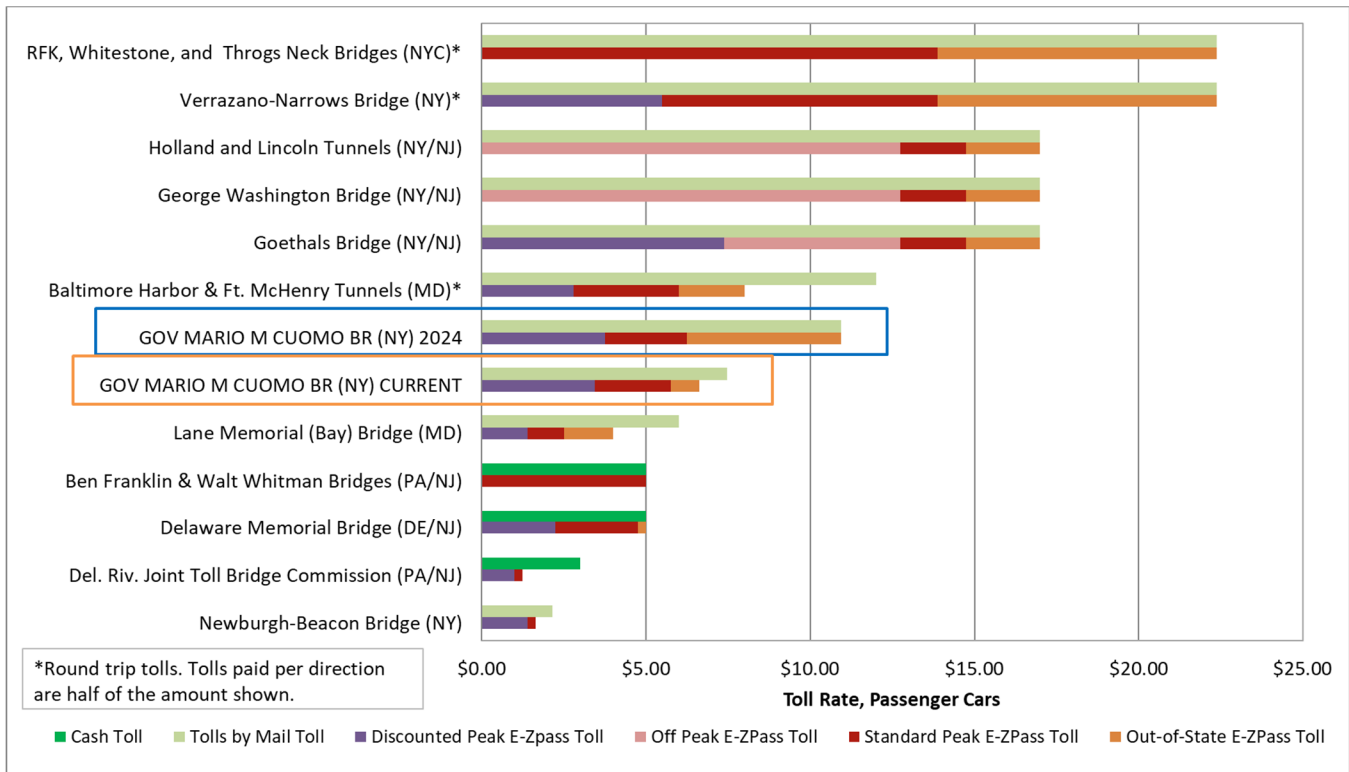


Figure 27: Round Trip Toll Rates on Major Toll Crossings in the Northeast, 5-Axle Trucks

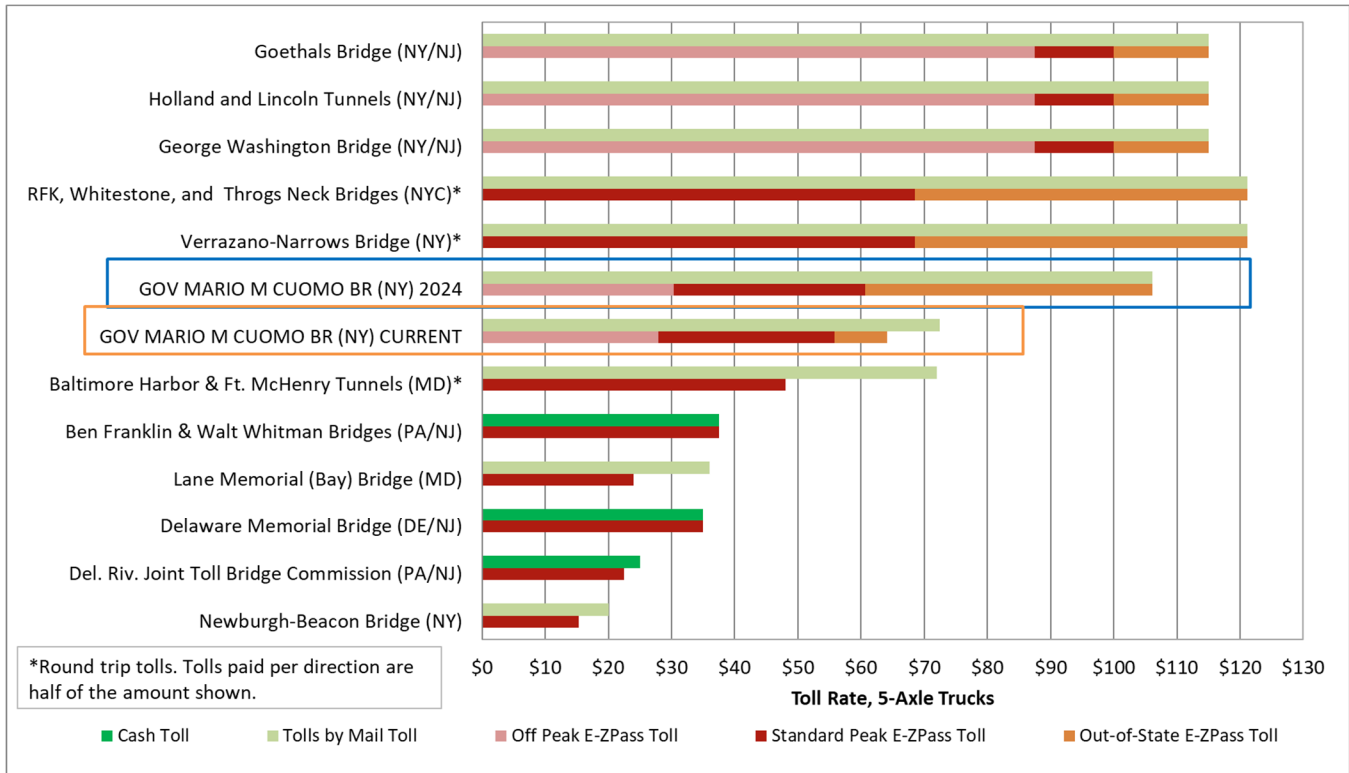
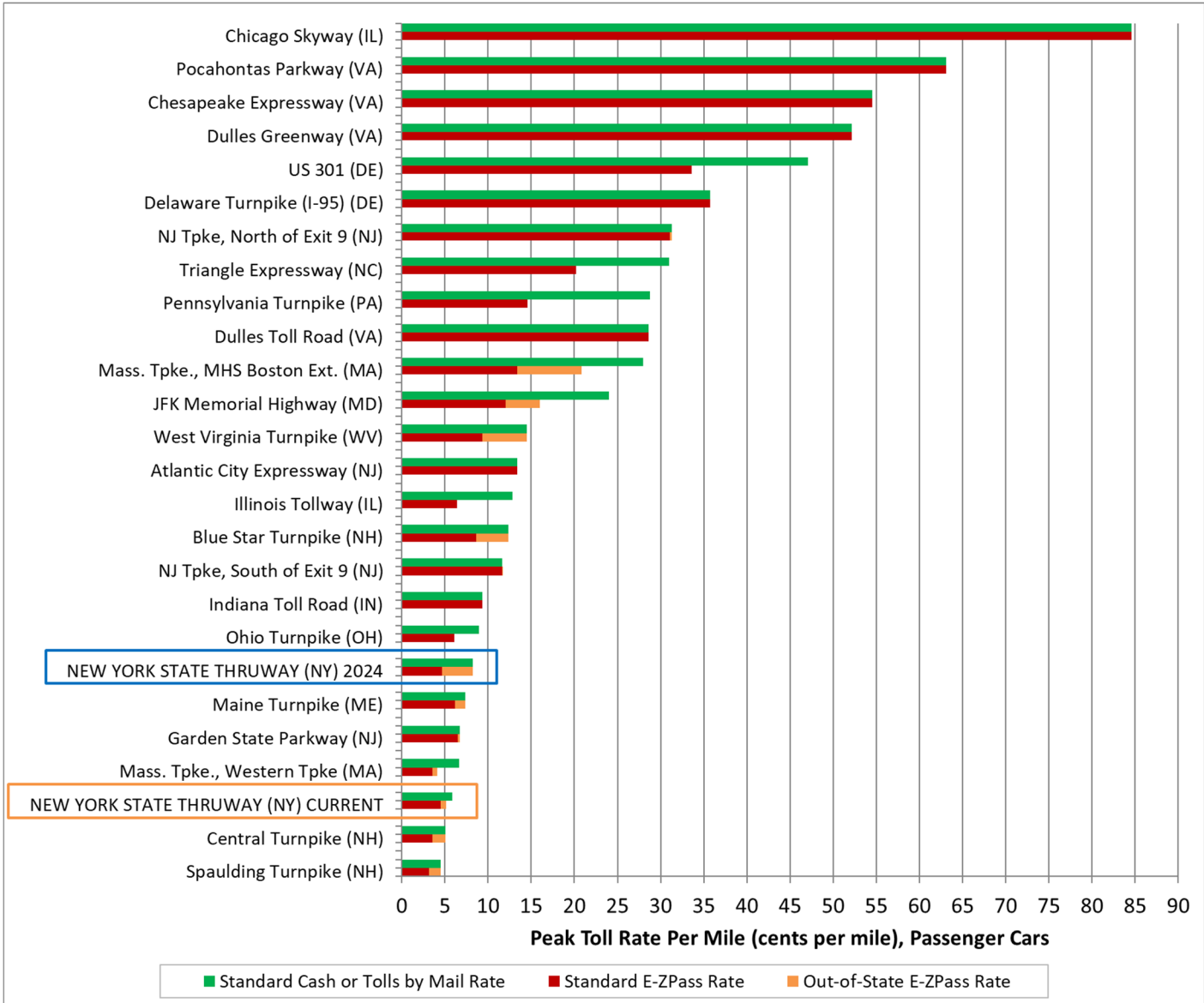


Figure 28 and Figure 29 compare the current and approved 2024 Thruway controlled system toll rates per mile to current rates on a number of major toll roads in the northeastern quadrant of the United States. Rates for Tolls by Mail, in-state standard *E-ZPass*, and out-of-state *E-ZPass* are shown. Note the comparatively low per-mile passenger car toll rates on the Thruway's controlled system when compared to other toll facilities, as shown in Figure 28.



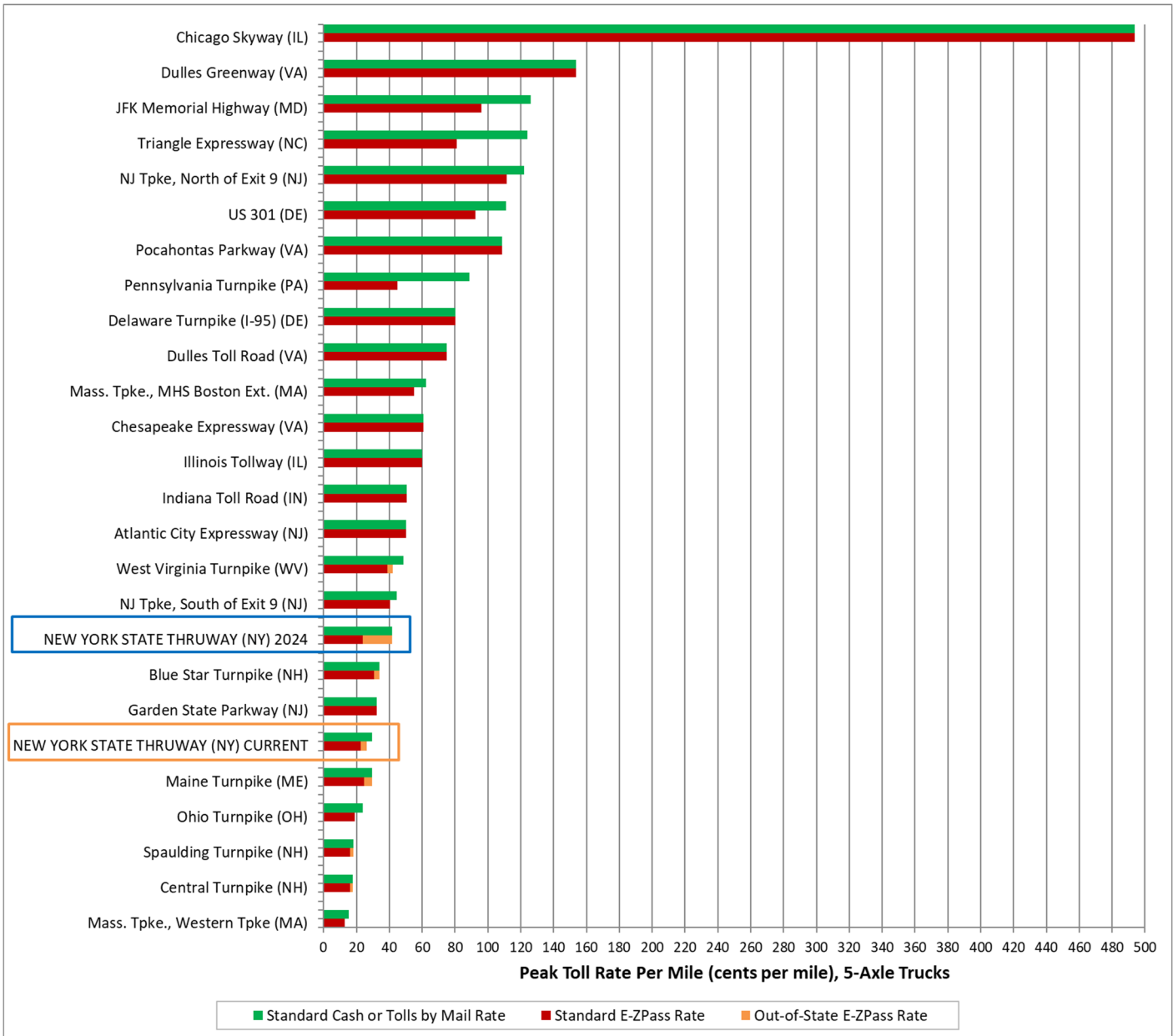
Figure 28: Peak Toll Rates Per-Mile on Toll Roads in the Northeastern Quadrant of U.S., Passenger Cars



The current and approved 2024 5-axle truck rates, as seen in Figure 29, are also comparatively low on the Thruway relative to current rates on other regional facilities and will be 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



7.4 FORECAST METHODOLOGY

Stantec’s forecasting methodology is built upon methodologies for previous forecasts. The following sections provide an overview of the on the process involved in developing the traffic and toll revenue forecasts for the Thruway which are presented in Section 7.5.

We developed toll traffic and revenue forecasts with the aid of a computerized modeling platform created specifically for the Thruway System. The basic function of this model is to take current traffic volumes by general payment class (passenger cars and trucks; 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. Traffic losses due to toll increases are applied based on estimated toll elasticity. Toll revenues are then calculated based on these traffic volumes by applying average toll rates to each payment class volume.

7.4.1 Base Forecasting Methodology

To develop base toll traffic projections for the Thruway for the period 2023-2028, historical traffic information through mid-2023 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 as discussed in Chapter 3.0, 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 GDP growth, whereas trucks have been shown to correlate reasonably well with the corresponding growth in the IPI.

7.4.2 Forecasting Methodology for 2024 through 2027 Toll Modifications

Traffic diversion due to the 2024 through 2027 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 3.2 percent of total traffic. The diversion percentages and estimated toll elasticities, by toll location, are summarized in Table 21. Note that estimated diversions on the Thruway mainline vary by segment due to variation in E-ZPass market share.

Table 21: Estimated Toll Diversion and Elasticity

Toll Location	Diversion Percentage for All Vehicles	Toll Elasticity ³
Mainline, Woodbury Section	3.3% ¹	-0.13
Mainline, Erie Section	3.7% ²	-0.12
Gov. Mario M. Cuomo Bridge	2.0%	-0.04
Spring Valley	2.9%	-0.08
New Rochelle	3.8%	-0.17
Yonkers	3.0%	-0.17
Harriman	3.6%	-0.16
Grand Island Bridges	3.4%	-0.16
Thruway Average	3.2%	-0.09

¹ Overall trips on this section. Diversion varies by segment from 2.8% - 3.5%

² Overall trips on this section. Diversion varies by segment from 3.5% - 3.9%

³ Toll elasticity is the percent change in volume divided by the percent change in average toll rate. For example, an elasticity of -0.13 means that with a 100 percent toll increase, 13 percent of the vehicles would no longer use the toll facility (or, with a 10 percent toll increase, 1.3 percent of vehicles would no longer use the facility).



7.4.3 Other Forecast Considerations and Assumptions

Stantec's forecast of traffic and revenue for 2023 through 2028 considered additional factors and assumptions as discussed below.

Uncollectable Tolls by Mail Revenue

There are some uncollectable toll revenues associated with Tolls by Mail due to a number of independent variables which include:

- 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.
- 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 is not sent.
- Nonpayment of Toll Bills / Violators: The majority of customers that receive a toll bill pay their toll. Late fees and fines (see section 7.6) are assessed on the second and third bills, respectively, in order to motivate Tolls By Mail customers to pay on time. In addition, drivers of New York State registered vehicles with three toll violations over a five-month period will have their registration suspended. Even with these measures, some toll revenue remains uncollected.
- 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.

AETC has now been on the full Thruway System for nearly three years (and on most of the barrier system for five years), therefore it is assumed that the collectability of the Tolls by Mail revenue has stabilized; 2022 Tolls by Mail car and truck revenues were divided by traffic at each location to estimate the average Tolls by Mail toll collected per transaction by location and vehicle type, and similar collectability was applied to future forecast years.

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. Toll revenue is forecasted on a cash basis; therefore, in the year 2024 (for example) we have assumed three months of Tolls by Mail revenue would be collected at the previous (2023) toll rate and nine months collected at the new, higher, January 2024 toll rate.

COVID-19 Recovery

Based on monthly trends over the past several years, including 2023 data through July (see Section 3.4.4, page 35), we believe that the post-COVID "new normal" for passenger cars has essentially been reached. We have assumed that there will be little to no future additional COVID recovery in terms of increasing return-to-office behavior.



Truck traffic, however, has decreased in the first half of 2023 when compared to the same months of 2022; much of this is due to the lingering impacts of COVID-19. Freight forecasters are predicting further losses in 2023 into part of 2024, but are cautiously optimistic that there could be small positive growth in the later part of 2024 (see Section 3.4.3). There are also indications that e-commerce has declined from its early COVID highs and is now at a steady plateau of about 15 percent of retail sales, but remains significantly higher than before the pandemic. Based on this information and recent monthly trends, we expect commercial vehicle traffic to decline systemwide for the full year of 2023, with some further losses in 2024.

The NYC Congestion Pricing Plan

The New York City Central Business District Tolling Program, otherwise known as “CBD Tolling” or “The NYC Congestion Pricing Plan,” which will charge a toll to vehicles that enter local Manhattan streets south of 60th Street, has been considered in the forecasts. This plan passed several hurdles in recent years, receiving final federal approval in June 2023; however, rates charged, discounts, and exemptions are still being discussed. We have assumed the “Base Case” scenario for tolling as presented in the April 2023 *Central Business District (CBD) Tolling Program Environmental Assessment*, which has estimated a 15 percent reduction in trips into the CBD. In late June 2023, Governor Hochul announced that CBD toll collection could begin as early as May 2024; we have assumed that it would begin halfway through 2024. It is expected to have a de minimis impact on Thruway System revenues.

7.5 HISTORICAL AND FORECASTED TRAFFIC AND TOLL REVENUE

Table 22 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 low traffic growth in 2013 and 2014, followed by moderate growth in 2015 and 2016, with toll transactions exceeding the pre-2007 recession volumes. In 2017 through 2019, overall transactions had remained relatively flat, following the nationwide trend in vehicle miles traveled as shown previously in Figure 6 (page 20). COVID-19 impacts on traffic began in March 2020, leading to a significant decline in toll transactions that year. Note that commercial traffic was impacted much less than passenger car traffic. In 2021, there was a systemwide toll increase and passenger car traffic continued its recovery from COVID impacts, reaching closer to pre-COVID levels, while commercial traffic exceeded pre-COVID levels. This truck traffic growth was mainly due to the sharp increase in e-commerce and disruptions to supply chains that resulted from the pandemic. It is important to note that due to the November 2020 AETC conversion, traffic appears to have more than doubled 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 trip was recorded as one toll transaction, and with AETC there may now be multiple toll transactions per controlled system trip.

In 2022 traffic continued its recovery with a 6.4 percent increase in overall toll transactions over 2021. The Governor Mario M. Cuomo Bridge had another toll increase in 2022, and though there was a small loss in commercial vehicle trips, passenger car trips increased.



Table 22: The Thruway System’s Actual 2012-2022 Tolled Traffic (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		
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 ¹	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 ²	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 ³	108.7 ⁴	19.2	56.0	20.5 ⁴	2.4	8.6	215.5 ⁴	N/A ⁴
2021 ⁵	208.2 ⁴	24.0	67.3	47.1 ⁴	2.7	9.9	359.2 ⁴	N/A ⁴
2022 ⁶	226.7	25.0	68.8	48.6	2.6	10.5	382.1	6.4%

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

¹ AETC began at the Governor Mario M. Cuomo Bridge formerly Tappan Zee Bridge Barrier April 23, 2016.

² 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.

³ COVID-19 impacts began in March 2020

⁴ AETC began at all Controlled System toll locations on November 14, 2020; with the new configuration a vehicle can have multiple transactions per trip. The toll transactions in 2020 and 2021 are therefore not indicative of traffic growth.

⁵ Systemwide toll increase; first full year of systemwide AETC

⁶ Toll increase at Governor Mario M. Cuomo Bridge only

Table 23 shows Stantec’s forecast of traffic through 2027 considering the economic information, future approved toll modifications, and other assumptions and considerations as discussed within this study. Data from the first half of 2023 indicates that passenger car traffic will grow this year over 2022. Based on recent monthly trends (see Figure 19 on page 36), we believe that the post-COVID “new normal” has essentially been reached, and that there will be little to no future additional car traffic recovery in terms of increasing return-to-office behavior. Truck traffic, however, has seen some loss in the first part of 2023 and is expected to decline further in 2024. Based on economic forecasts and Thruway System growth trends, we are projecting low-to-moderate background growth in passenger car and commercial vehicle traffic between 2024 and 2027, however, this growth will be tempered (with a loss projected in 2024) by some traffic diversion due to the toll increases.

Table 23: The Thruway System’s Forecasted 2023-2027 Tolled Traffic (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		
2023	233.4	25.7	71.1	47.5	2.5	10.4	390.5	2.2%
2024 ¹	229.7	25.5	69.9	45.2	2.4	9.9	382.6	-2.0%
2025 ²	231.4	25.5	70.2	45.5	2.5	9.9	384.9	0.6%
2026 ²	233.5	25.7	70.5	45.7	2.5	9.9	387.9	0.8%
2027 ¹	233.5	25.9	70.3	45.6	2.5	9.9	387.8	0.0%

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

¹ Future systemwide toll modifications

² Future toll modifications on Gov. Mario M. Cuomo Bridge only



Table 24 includes 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. With AETC there is the inability to bill or collect revenue from some Tolls by Mail customers due to factors such as bad license plate images, inability to find customer mailing addresses through their state's department of motor vehicles, or customers not paying the invoice. All of the remaining toll barriers were converted to AETC throughout 2018, which, due to some uncollectable Tolls by Mail revenue, led to a small reduction in revenue at these locations in 2018 and 2019. Even with the conversion, there was still a small amount of total systemwide toll revenue growth in those two years. In 2020, toll revenues dropped by 16.8 percent primarily due to COVID-19. With the conversion of the controlled system to AETC in mid-November 2020, there were additional losses due to some uncollectable Tolls by Mail revenue along with the lag between the time a Tolls by Mail trip is made and the toll is collected. These impacts continued into 2021, the first full year of AETC on the controlled system. With the January 2021 systemwide toll increase, plus traffic growth related to COVID recovery, the 2021 forecasted toll revenue reached \$760.3 million - more than \$20 million higher than the 2019 pre-COVID annual toll revenue. In 2022, with the Governor Mario M. Cuomo Bridge toll increase and further recovery from COVID, toll revenue grew 7.9 percent to \$820.4 million.

Table 24: The Thruway System's Actual 2012-2022 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		
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 ¹	245.2	103.4	84.0	227.6	38.2	36.4	(26.6)	708.3	2.4%
2017 ²	251.6	103.4	84.1	233.3	47.8	38.7	(27.4)	731.5	3.3%
2018 ³	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 ^{4,5}	177.2	80.6	59.9	240.8	48.2	37.7	(29.0)	615.3	-16.8%
2021 ⁶	215.7	112.8	76.0	261.9	77.2	46.5	(29.9)	760.3 ⁷	23.6%
2022 ⁸	233.5	128.1	78.4	267.5	96.5	48.6	(32.1)	820.4 ⁷	7.9%

Notes: Totals may not add due to rounding.

¹ AETC began at the Governor Mario M. Cuomo Bridge (formerly Tappan Zee Bridge Barrier).

² Removal of discounts for vehicles with out-of-state E-ZPass

³ AETC began at the remaining toll barriers

⁴ AETC began at all controlled system toll locations on November 14, 2020

⁵ COVID-19 impacts began in March 2020

⁶ Toll modification on January 1, 2021 systemwide; first full year of systemwide AETC

⁷ The Authority later made adjustments to these published revenue numbers; 2022 toll revenues had included some \$6.5 million from 2021. When accounting adjustments were made, the 2021 revenue was adjusted up to \$766.8 million and the 2022 revenue was adjusted down to \$813.9 million.

⁸ Toll modification on January 1, 2022 Gov. Mario M. Cuomo Bridge only

Table 25 presents Stantec's gross toll revenue forecasts for the Thruway System from 2023 through 2027. Toll revenue of \$817.7 million is forecasted for 2023 based on nearly half a year of actual data. This is slightly less than the annual amount recorded for 2022; however, the Authority later made an accounting adjustment, shifting some \$6.5 million in 2022 revenue to 2021 (see footnote under table) resulting in an adjusted 2022 total toll revenue amount of \$813.9 million. 2023 projected revenue growth is 0.5 percent above the adjusted 2022 amount. With the systemwide 2024 toll increase, we are projecting toll



revenue growth of 20.6 percent that year to \$986.0 million. Annual 2025 and 2026 revenues, which include toll increases at the Governor Mario M. Cuomo Bridge only, are anticipated to increase year-over-year total revenues by 3.5 and 3.0 percent, to \$1.02 and \$1.05 billion, respectively. With another systemwide toll increase in 2027, revenue of \$1.11 billion is projected that year, a 5.6 percent increase over 2026.

Table 25: The Thruway System’s Forecasted 2023-2027 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		
2023	\$238.1	\$143.8	\$81.0	\$257.6	\$80.6	\$47.8	\$(31.2)	\$817.7	-0.3% ¹
2024 ²	281.4	176.7	92.1	304.9	108.0	56.4	(33.4)	986.0	20.6%
2025 ³	286.3	192.1	92.9	308.6	117.8	56.7	(34.1)	1,020.2	3.5%
2026 ³	289.0	207.6	93.5	311.6	127.2	57.1	(34.9)	1,051.0	3.0%
2027 ²	302.5	223.4	97.6	327.1	136.8	59.8	(36.8)	1,110.3	5.6%

Notes: Totals may not add due to rounding.

¹ Based on unadjusted 2022 revenue. 2023 projected revenue growth is 0.5 percent above the adjusted 2022 amount (see footnote 7 of Table 24)

² Future systemwide toll modifications

³ Future toll modifications on Gov. Mario M. Cuomo Bridge only

Table 26 compares the year-over-year growth in toll revenue to the growth in toll traffic. Toll revenue growth differs from traffic growth mainly due to toll increases and a change in the vehicle mix (truck versus car share). In 2017, the *E-ZPass* discount for customers with non-NY *E-ZPass* was discontinued leading to toll revenue growth (3.3 percent) that was noticeably higher than the traffic growth (0.9 percent). Because truck traffic has not been as affected by the pandemic as car traffic, and trucks pay higher tolls, the revenue loss (-16.8 percent) was not as deep as the traffic loss (-23.3 percent) in 2020. In 2023, while car traffic increased, truck traffic decreased, leading to a projected overall growth in traffic but a slight revenue loss. Traffic diversion during toll increase years is expected to lead to low traffic growth or losses, but increases in toll revenue.



Table 26: Toll Revenue Growth versus Toll Traffic Growth, Actual 2013-2022 and Projected 2023-2027

Year	Year over Year Growth	
	Toll Traffic	Toll Revenue
2013	0.7%	1.8%
2014	1.0%	2.3%
2015	3.0%	4.2%
2016	2.3%	2.4%
2017 ¹	0.9%	3.3%
2018	-0.1%	0.7%
2019	0.2%	0.5%
2020 ^{2 3}	-23.3%	-16.8%
2021 ^{3 4}	24.6%	23.6%
2022 ⁵	6.4%	7.9%
2023	2.2%	-0.3%
2024 ⁴	-2.0%	20.6%
2025 ⁵	0.6%	3.5%
2026 ⁵	0.8%	3.0%
2027 ⁴	0.0%	5.6%

¹ E-ZPass discount for customers with non-NY E-ZPass was discontinued

² COVID-19 impacts began in March 2020

³ AETC began at all Controlled System toll locations on November 14, 2020; with the new configuration a vehicle can have multiple transactions per trip. The toll traffic growth has been adjusted to account for this change.

⁴ Systemwide toll modifications

⁵ Toll modifications on Gov. Mario M. Cuomo Bridge only

7.6 OTHER REVENUES/TOTAL REVENUES

In addition to toll revenues, the Authority collects a variety of non-toll revenues derived from payments received from concessionaires at the Thruway service areas' restaurant and gasoline stations, sales of surplus property, revenues from special hauling permits, E-ZPass violations and other E-ZPass fees, fiber optic agreements, interest on various invested funds, and other miscellaneous sources. In addition, since the start of AETC at the Governor Mario M. Cuomo Bridge in April 2016, "other revenues" have also included fines and fees collected from Tolls by Mail customers. 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. If a second bill is not paid, on the third bill sent to Tolls by Mail Customers – a violation notice – a violation fee of \$50 is charged. 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 fines and 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.
- During the period of transitioning to a new collection agent in the fall of 2020 the Authority temporarily suspended sending violations to collections; this resumed 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.
- Starting in 2021, a \$2 billing fee was added to Tolls by Mail invoices, and the Tolls by Mail violation fee, previously \$50 per transaction, was changed to \$50 *per violation notice* for all Thruway toll locations.

In 2016, the first year with cashless tolling on the Governor Mario M. Cuomo Bridge, \$5.3 million was collected in *E-ZPass* violation fees. 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 (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 \$8.3 million, respectively. This decline was expected because *E-ZPass* violation fees also included non-*E-ZPass* customers at facilities where cash was collected, and by the end of 2018 all barriers had been converted to cashless toll collection.

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 occurred 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 and then 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 fee revenue from Tolls by Mail customers; the Authority collected \$0.9 million in second bill late fees plus \$10.6 million in Tolls by Mail violations during this year. These revenues grew to \$1.4 million in late fees plus \$14.2 million in Tolls by Mail violations in 2019, the first full year with cashless tolling at all barriers.

COVID-19 impacts on traffic slightly reduced the total fee and violation revenue in 2020, with \$1.1 million collected in late fees plus \$14.3 million collected in Tolls by Mail violations. The Authority also began charging the \$2 Tolls by Mail billing fee in April 2021 after the entire system was converted to cashless and collected \$6.2 million in billing fees that year; this increased to \$10.0 million in 2022. Tolls by Mail late fees and violations increased to \$2.6 million and \$23.3 million, respectively, in 2021, and to \$3.6 million and \$33.8 million, respectively, in 2022. Much of this growth is attributable to COVID recovery. There were declines in systemwide *E-ZPass* violation revenue (to \$1.9 million in 2021 and to \$0.5 million in 2022) after the completion of systemwide cashless tolling. These losses occurred because *E-ZPass* violation revenues include both *E-ZPass* and cash customer violations, and by 2021 there were no longer any cash customers on the system; most of this 2021 *E-ZPass* violation revenue collected was from cash customers traveling on the system in 2020, before the AETC conversion.



Table 27 provides actual amounts collected in billing fee, late fee, and violation fee revenues, and future forecasts of these revenues. The current Tolls by Mail billing fee of \$2 per bill, late fee of \$5 per bill, and violation fee of \$50 per violation notice has been assumed at all facilities going forward. Based on five months of fee collection data this year, a total of \$43.1 million in annual violation and fee revenues is projected for 2023. As it has now been more than two full years since the systemwide AETC conversion, further changes in fee or violation charges are not anticipated, and future growth in Tolls by Mail traffic is expected to be small, we project that total fee and violation revenue will remain close to \$40 million per year over the 2024-2027 forecast period.

Table 27: Historical and Forecasted Violation, Late Fee, and Billing Fee Revenue (in millions)

Year	E-ZPass Violations ¹	Tolls by Mail Violations ²	Tolls by Mail Late Fees	Tolls by Mail 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 ^{3,6}	1.9	23.3	2.6	\$6.2	34.0
2022 ^{3,7}	0.5	33.8	3.7	10.0	48.0
2023	0.4	31.6	2.3	8.8	43.1
2024 ⁸	0.4	30.1	2.1	8.0	40.6
2025 ⁹	0.4	29.9	2.0	8.0	40.3
2026 ⁹	0.4	29.8	2.0	7.9	40.2
2027 ⁸	0.4	29.3	2.0	7.8	39.6

¹ Includes both E-ZPass and cash customer violations; since the completion of the controlled system conversion to AETC in late 2020, there have been no cash customers. The E-ZPass violation fee increased from \$25 in 2016 to \$50 in 2017.

² AETC violation fee increased from \$25 in 2016 to \$50 on January 1, 2017 and to \$100 on January 17, 2017 at the Gov. Mario M. Cuomo Bridge. This was reduced back to \$50 on May 15, 2018. In 2021, after the controlled system was converted to AETC, the \$50 violation changed from per transaction to per bill.

³ Actual amounts collected

⁴ An amnesty program ran for five weeks, waiving violation fees for customers who paid outstanding tolls. The remaining toll barriers were converted to AETC.

⁵ COVID-19 impacts began in March 2020. The controlled system began operating with AETC in mid-November 2020

⁶ Toll modification on January 1, 2021 systemwide; first full year of systemwide AETC

⁷ Toll modification on January 1, 2022 Gov. Mario M. Cuomo Bridge only

⁸ Future systemwide toll modifications

⁹ Future toll modifications on Gov. Mario M. Cuomo Bridge only

Historical gross total revenues, including both toll revenues and other revenues between 2012 and 2022, are summarized in Table 28. "Other revenues" in the table include the fee and violation revenues from Table 27 and a variety of the 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, fiber optic agreements, interest on various invested funds, and other miscellaneous sources.



Table 28: Summary of 2012 – 2022 Actual Thruway System Gross Total Revenues (millions)

Year	Toll Revenues	Other Revenues ¹	Total Revenues
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	749.4
2017 ³	731.5	60.6	792.1
2018 ⁴	736.5	62.3	798.8
2019	739.9	72.2	812.1
2020 ⁵	615.3	53.2	668.5
2021 ⁶	760.3 ⁷	66.2	826.5
2022 ⁸	820.4 ⁷	95.6	916.0

Note: Totals may not add due to rounding

¹ Includes actual fines and fees collected from Tolls by Mail customers beginning in 2016, presented in Table 27.

² AETC began at the Governor Mario M. Cuomo Bridge (formerly Tappan Zee Bridge Barrier).

³ Removal of discounts for vehicles with out-of-state E-ZPass

⁴ AETC began at the remaining toll barriers

⁵ COVID-19 impacts began in March 2020. AETC began at all controlled system toll locations on November 14, 2020.

⁶ Toll modification on January 1, 2021 systemwide; first full year of systemwide AETC

⁷ The Authority later made adjustments to these published revenue numbers; 2022 toll revenues had included some \$6.5 million from 2021. When accounting adjustments were made, the 2021 revenue was adjusted up to \$766.8 million and the 2022 revenue was adjusted down to \$813.9 million.

⁸ Toll modification on January 1, 2022 Gov. Mario M. Cuomo Bridge only

Table 29 presents the forecasts of 2023-2028 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”. The decrease from 2024 to 2025 represents a combination of a more conservative forecast for interest earnings in the outer years and higher real property sales expected in 2024 that are not in 2025 or beyond.

Table 29: Forecasted 2023-2028 Thruway System Total Gross Revenues (millions)

Year	Toll Revenues	Other Revenues ¹	Total Revenues
2023	\$817.7	\$102.0	\$919.7
2024 ²	986.0	101.0	1,087.0
2025 ³	1,020.2	83.2	1,103.4
2026 ³	1,051.0	82.8	1,133.8
2027 ²	1,110.3	81.2	1,191.5
2028	1,145.4	75.9	1,221.3

Note: Totals may not add due to rounding.

¹ Includes fines and fees collected from Tolls by Mail customers as presented in Table 27.

² Future systemwide toll modifications

³ Future toll modifications on Gov. Mario M. Cuomo Bridge only



8.0 FLOW OF FUNDS

Table 30 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. In recent years, 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.

The Authority and its independent financial advisors have determined that the forecasted revenues are sufficient for the Authority to fulfill its system-wide operating, debt service, and capital needs through the forecast period. Future funding needs through 2028 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 30 shows the future net revenues and debt service coverage ratios through 2028. 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 exceeded every year of the forecast through 2028. 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 beyond the programmed 2024 through 2027 toll modifications. In the unlikely event of a shortfall, 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. It is our opinion that with the essentiality of the Thruway System and its currently low relative toll rates (compared to other toll roads nationally), the Authority has the ability to generate additional revenues if required.



Table 30: Historical and Projected Thruway Flow of Funds and Debt Service Coverage (millions)

	ACTUAL			FORECAST						2023-2028
	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total
Total Revenues	\$ 668.5	\$ 826.5	\$ 916.1	\$ 919.7	\$ 1,087.0	\$ 1,103.4	\$ 1,133.8	\$ 1,191.5	\$ 1,221.3	\$ 6,656.7
Less:										
Operating Expenses	(316.6)	(339.8)	(361.8)	(401.3)	(410.9)	(419.1)	(427.5)	(436.1)	(444.8)	\$ (2,539.7)
Operating Reserves	(2.0)	(6.5)	(16.0)	0.7	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(4.3)
Total Operating Costs	(318.6)	(346.3)	(377.8)	(400.6)	(411.9)	(420.1)	(428.5)	(437.1)	(445.8)	(2,544.0)
Net Revenues	349.9	480.2	538.2	519.1	675.1	683.3	705.3	754.4	775.5	4,112.7
Less: Gen. Rev. Bonds Debt Service ⁽¹⁾	(166.8)	(241.3)	(240.9)	(247.4)	(255.3)	(283.1)	(318.2)	(329.8)	(307.2)	(1,741.0)
Net Revenues After Gen. Rev. Debt Service	183.1	238.9	297.3	271.7	419.8	400.2	387.1	424.6	468.3	2,371.7
Less Reserve Maintenance Provisions ⁽²⁾	(97.3)	(100.3)	(177.7)	(95.7)	(239.7)	(217.4)	(187.8)	(217.8)	(223.1)	(1,181.6)
Less Junior Indebtedness Debt Service	(23.1)	(46.7)	(67.6)	(107.2)	(108.9)	(110.2)	(125.2)	(131.3)	(168.1)	(750.9)
Net Revenues After Jun. Ind. Debt Service	62.6	91.9	52.1	68.8	71.2	72.6	74.1	75.5	77.1	439.2
+/- Operating Reserves Adjustment/AETC Lag/Working Capital Provision	(2.5)	24.2	22.3	-	-	-	-	-	-	-
Less: Facil Cap Imp Fund	-	-	(7.5)	-	-	-	-	-	-	-
Less: General Reserve Fund ⁽³⁾	(59.1)	(64.6)	(66.3)	(68.8)	(71.2)	(72.6)	(74.0)	(75.5)	(77.0)	(439.2)
Less: Gen Res Fund - Subordinate Debt	(1.1)	(51.5)	(0.6)	-	-	-	-	-	-	-
Balance After Reserve Maintenance Provisions, Other Authority Projects	-	-	-	-	-	-	-	-	-	-
Senior Debt Service Coverage ⁽⁴⁾	2.10	1.99	2.23	2.10	2.64	2.41	2.22	2.29	2.52	
Junior & Senior Coverage ⁽⁴⁾	1.84	1.67	1.74	1.46	1.85	1.74	1.59	1.64	1.63	
Pay go % ROS Capital	12.0%	35.3%	17.8%	29.3%	62.2%	33.4%	43.7%	52.5%	53.6%	

Notes: Totals may not add due to rounding.

⁽¹⁾ Does not reflect anticipated General Revenue Bonds Series P refunding debt service savings.

⁽²⁾ 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.

⁽³⁾ 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.

⁽⁴⁾ 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.



9.0 CONCLUSION

The Authority and its independent financial advisors have determined that the forecasted revenues are sufficient to meet the Authority's needs throughout the forecast period. 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 additional revenues through periodic toll adjustments, and, if needed, these adjustments will result in only small changes to traffic patterns. We believe through the final maturity of the Series P Bonds that the Authority will be able 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; 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.



10.0 LIMITS AND DISCLAIMERS

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

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

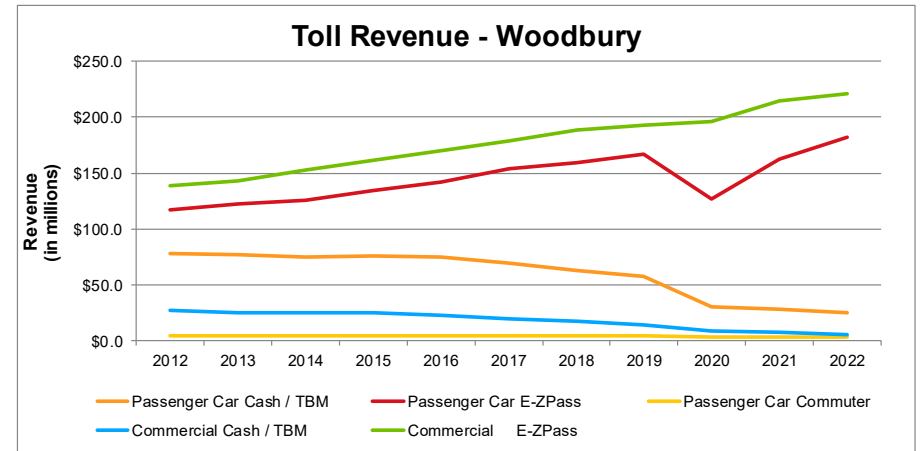
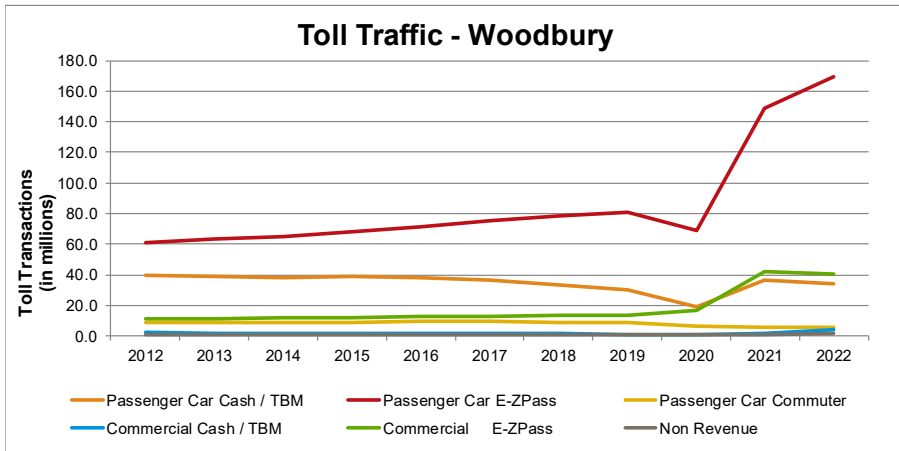


APPENDIX: HISTORICAL TRAFFIC AND REVENUE BY FACILITY

Traffic and Revenue - Woodbury Section

Toll Traffic - Woodbury							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
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
2021	36.4	148.5	5.9	1.5	41.8	1.3	235.5
2022	33.8	169.6	5.5	4.1	40.8	1.4	255.1

Toll Revenue - Woodbury							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
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
2021	\$28.1	\$162.7	\$3.4	\$8.1	\$214.8	\$0.0	\$417.0
2022	\$25.3	\$181.8	\$3.5	\$5.7	\$220.7	\$0.0	\$437.1

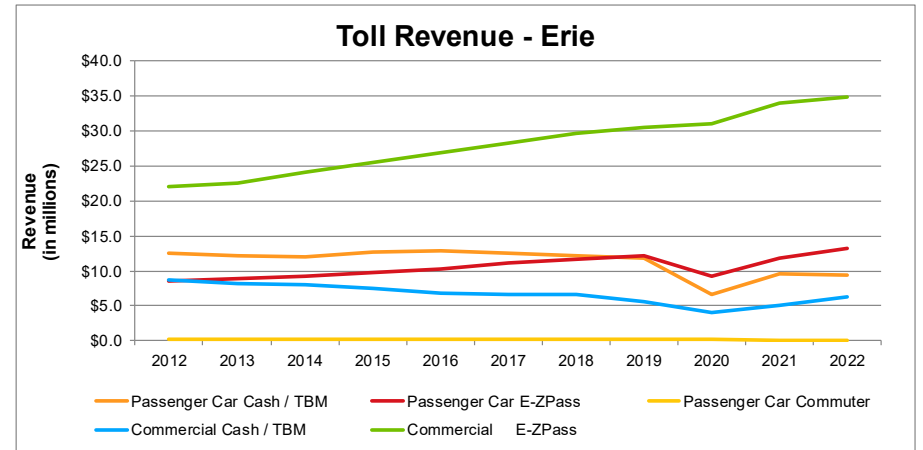
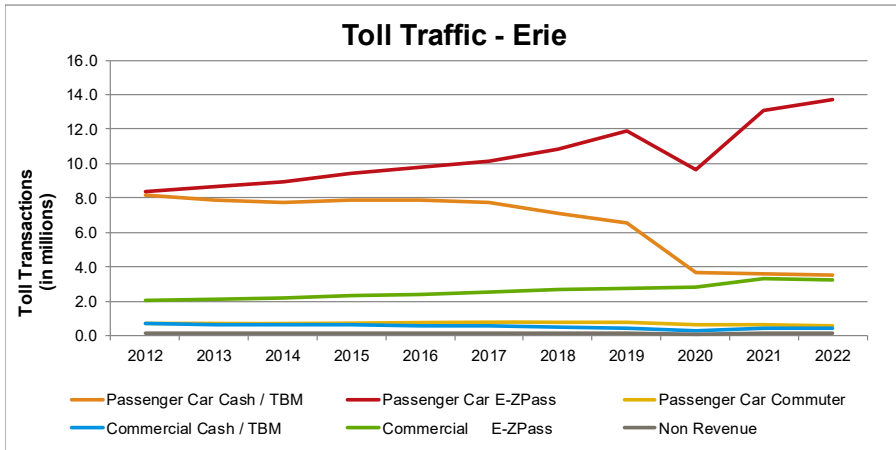


Note: AETC (cashless tolling) began on the Controlled System on November 14, 2020 with a new tolling configuration, whereby a vehicle may now have multiple transactions per trip on the Woodbury Section. Before AETC there was only one transaction per trip.

Traffic and Revenue - Erie Section

Toll Traffic - Erie							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
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
2021	3.6	13.1	0.6	0.5	3.3	0.1	21.2
2022	3.5	13.7	0.6	0.4	3.3	0.1	21.7

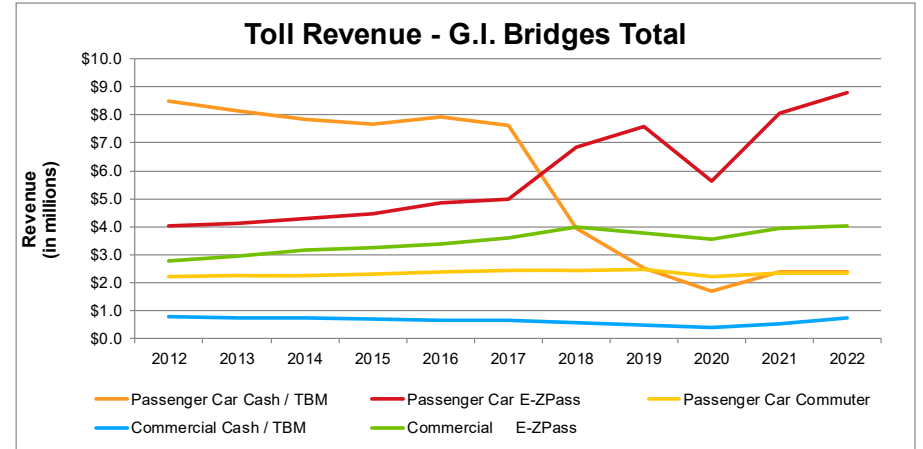
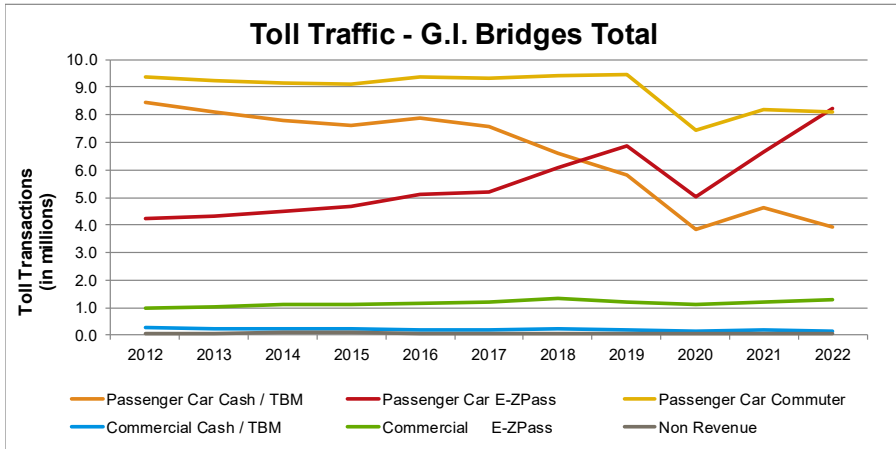
Toll Revenue - Erie							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
2012	\$12.5	\$8.5	\$0.2	\$8.8	\$22.0	\$0.0	\$51.9
2013	\$12.2	\$8.9	\$0.2	\$8.2	\$22.6	\$0.0	\$52.2
2014	\$12.1	\$9.2	\$0.2	\$8.0	\$24.1	\$0.0	\$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
2021	\$9.6	\$11.8	\$0.1	\$5.1	\$33.9	\$0.0	\$60.6
2022	\$9.4	\$13.2	\$0.1	\$6.3	\$34.8	\$0.0	\$63.9



Traffic and Revenue - Grand Island Bridges

Toll Traffic - G.I. Bridges Total							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
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
2021	4.6	6.6	8.2	0.2	1.2	0.1	20.9
2022	3.9	8.2	8.1	0.2	1.3	0.1	21.8

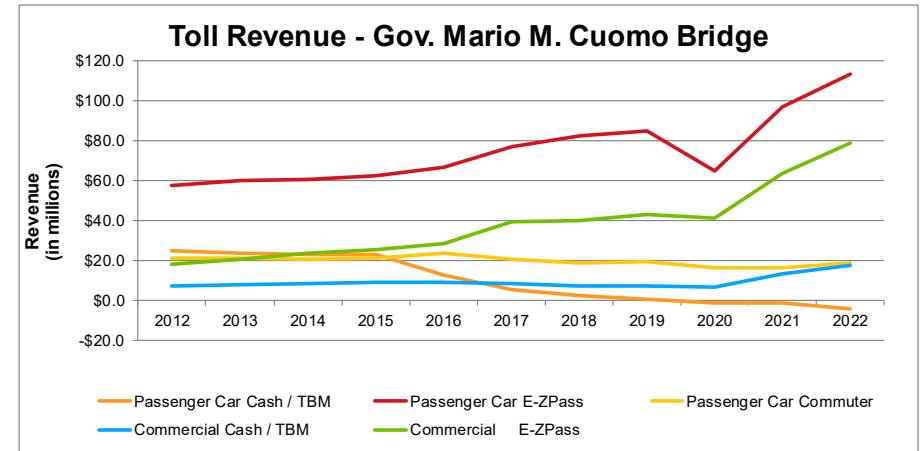
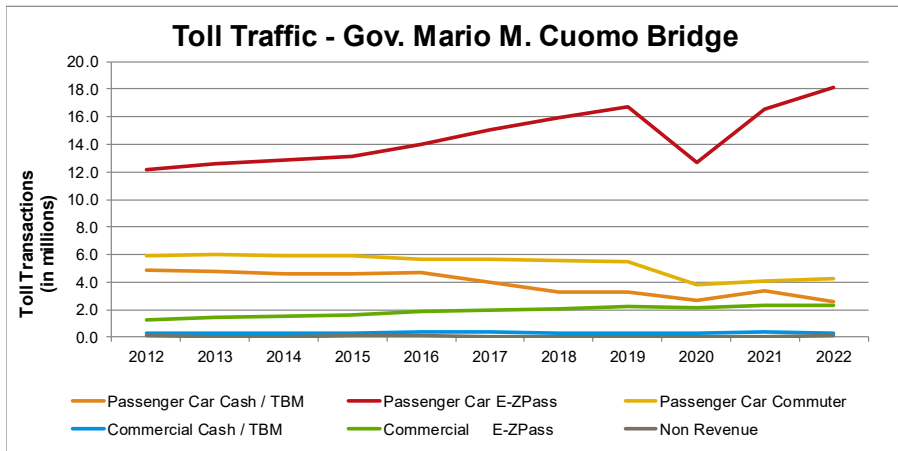
Toll Revenue - G.I. Bridges Total							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
2012	\$8.5	\$4.0	\$2.2	\$0.8	\$2.8	\$0.0	\$18.3
2013	\$8.1	\$4.1	\$2.3	\$0.8	\$2.9	\$0.0	\$18.2
2014	\$7.8	\$4.3	\$2.3	\$0.8	\$3.2	\$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
2021	\$2.4	\$8.0	\$2.3	\$0.5	\$4.0	\$0.0	\$17.2
2022	\$2.4	\$8.8	\$2.3	\$0.7	\$4.1	\$0.0	\$18.3



Traffic and Revenue - Governor Mario M. Cuomo Bridge

Toll Traffic - Gov. Mario M. Cuomo Bridge							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
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
2021	3.4	16.6	4.1	0.4	2.3	0.1	26.8
2022	2.6	18.2	4.2	0.3	2.3	0.1	27.7

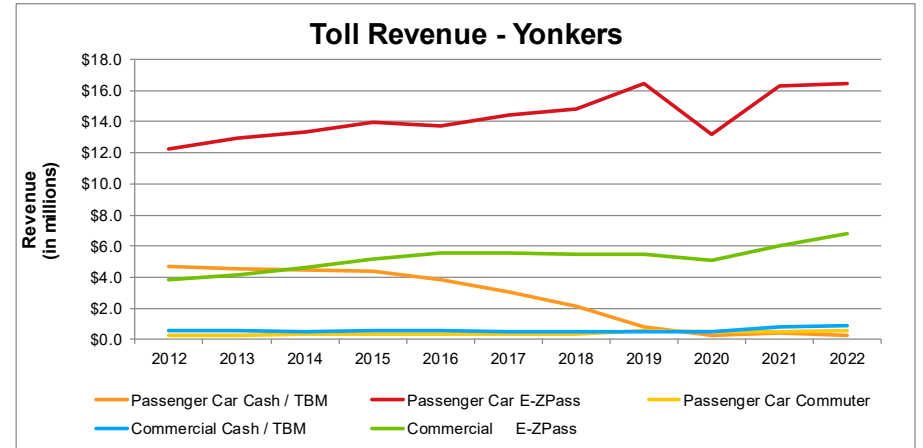
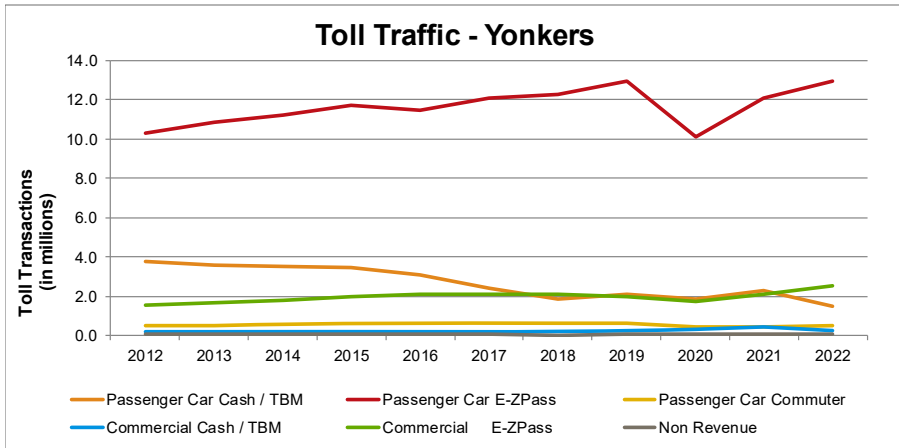
Toll Revenue - Gov. Mario M. Cuomo Bridge							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
2012	\$24.7	\$57.6	\$21.1	\$7.6	\$18.5	\$0.0	\$129.6
2013	\$23.9	\$59.9	\$21.3	\$8.0	\$20.8	\$0.0	\$133.9
2014	\$23.2	\$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
2021	-\$0.8	\$97.3	\$16.3	\$13.3	\$63.9	\$0.0	\$190.0
2022	-\$4.1	\$113.0	\$19.2	\$17.7	\$78.7	\$0.0	\$224.5



Traffic and Revenue - Yonkers Barrier

Toll Traffic - Yonkers							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
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
2021	2.3	12.1	0.5	0.4	2.1	0.1	17.4
2022	1.5	12.9	0.5	0.3	2.5	0.1	17.8

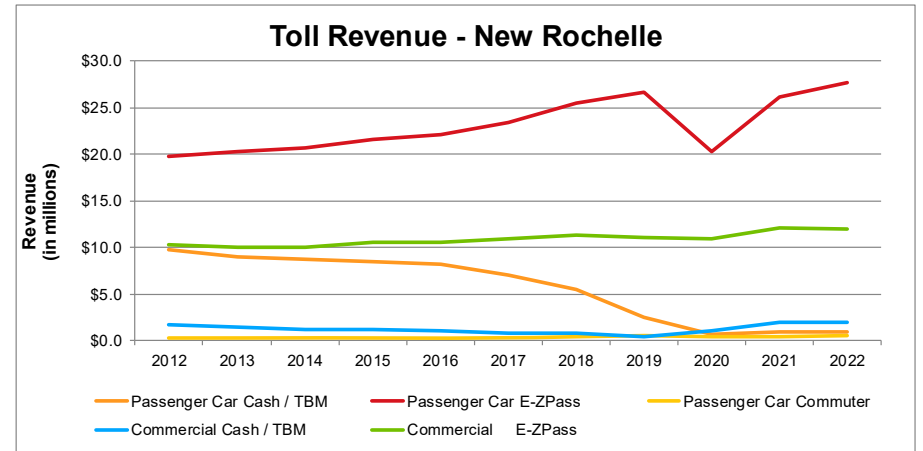
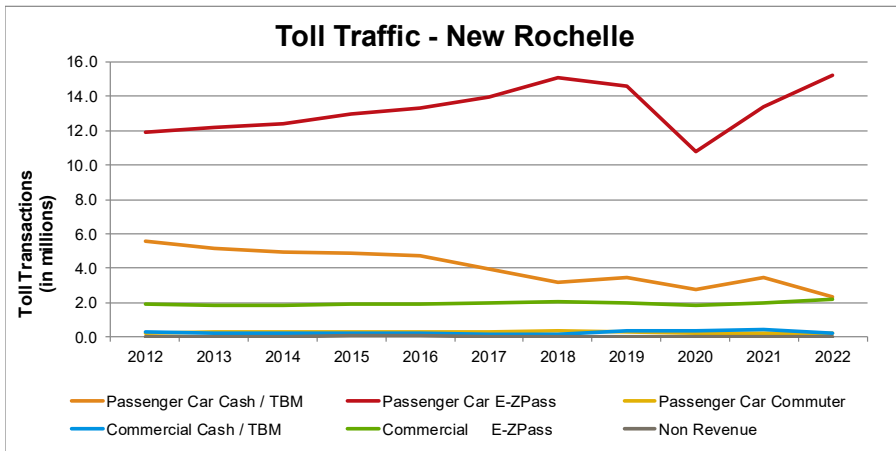
Toll Revenue - Yonkers							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
2012	\$4.7	\$12.2	\$0.3	\$0.5	\$3.8	\$0.0	\$21.6
2013	\$4.5	\$12.9	\$0.3	\$0.5	\$4.2	\$0.0	\$22.4
2014	\$4.4	\$13.3	\$0.3	\$0.5	\$4.6	\$0.0	\$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
2021	\$0.4	\$16.3	\$0.5	\$0.8	\$6.1	\$0.0	\$24.1
2022	\$0.3	\$16.5	\$0.6	\$0.9	\$6.8	\$0.0	\$25.0



Traffic and Revenue - New Rochelle Barrier

Toll Traffic - New Rochelle							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
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
2021	3.5	13.4	0.2	0.4	2.0	0.0	19.6
2022	2.4	15.2	0.2	0.3	2.2	0.0	20.3

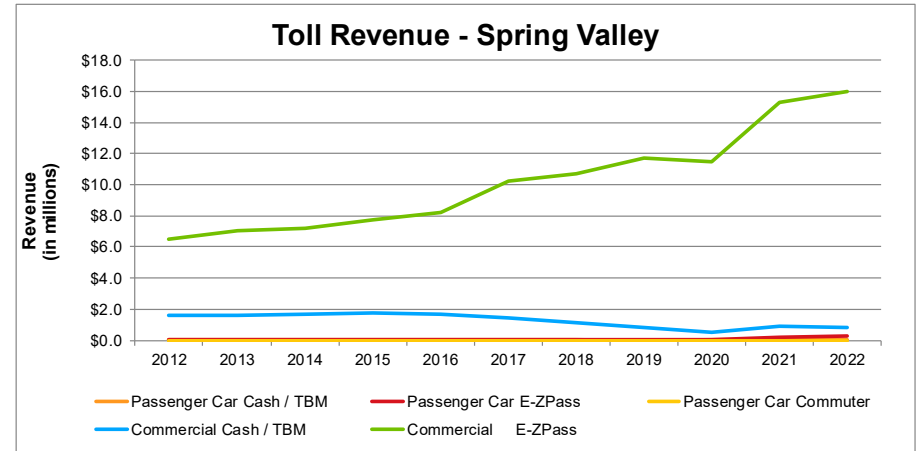
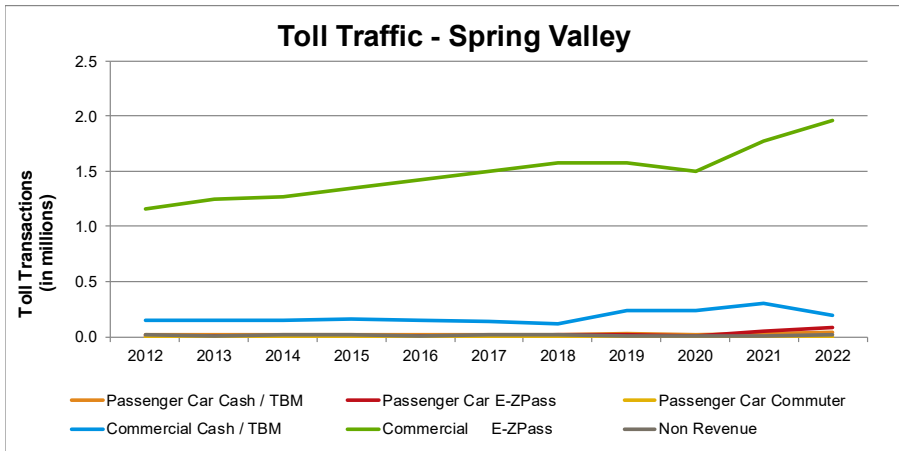
Toll Revenue - New Rochelle							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
2012	\$9.8	\$19.7	\$0.3	\$1.7	\$10.3	\$0.0	\$41.7
2013	\$9.0	\$20.3	\$0.3	\$1.4	\$10.1	\$0.0	\$41.1
2014	\$8.7	\$20.6	\$0.3	\$1.2	\$10.0	\$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
2021	\$1.0	\$26.1	\$0.5	\$1.9	\$12.1	\$0.0	\$41.5
2022	\$0.9	\$27.7	\$0.5	\$1.9	\$12.0	\$0.0	\$43.0



Traffic and Revenue - Spring Valley Barrier

Toll Traffic - Spring Valley							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
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
2021	0.0	0.0	0.0	0.3	1.8	0.0	2.2
2022	0.0	0.1	0.0	0.2	2.0	0.0	2.3

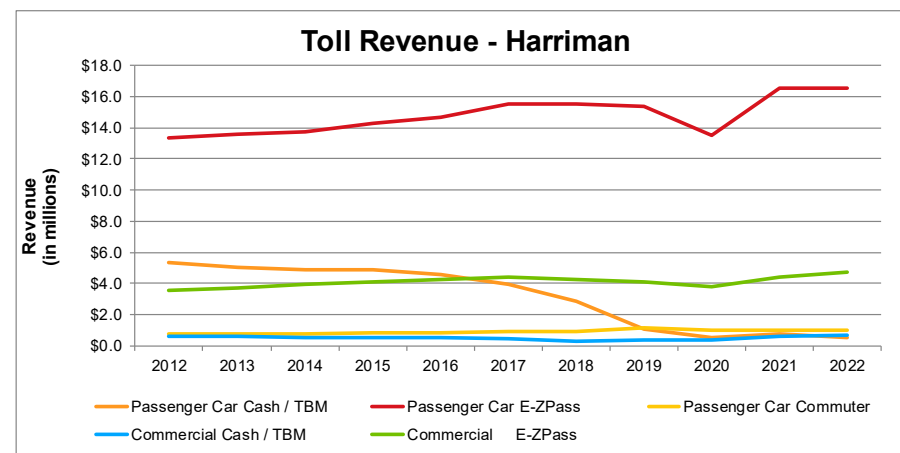
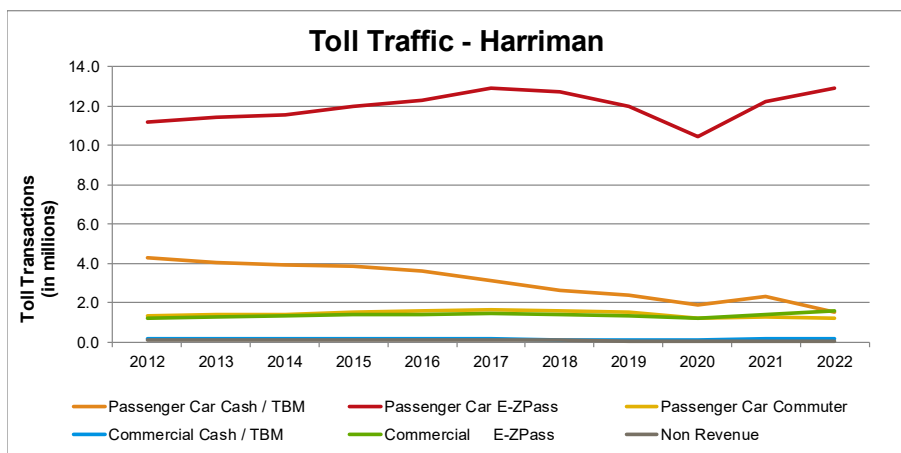
Toll Revenue - Spring Valley							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
2012	\$0.1	\$0.0	\$0.0	\$1.6	\$6.5	\$0.0	\$8.2
2013	\$0.1	\$0.0	\$0.0	\$1.6	\$7.1	\$0.0	\$8.8
2014	\$0.1	\$0.0	\$0.0	\$1.6	\$7.2	\$0.0	\$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
2021	\$0.0	\$0.2	\$0.0	\$0.9	\$15.3	\$0.0	\$16.4
2022	\$0.0	\$0.3	\$0.0	\$0.9	\$16.0	\$0.0	\$17.2



Traffic and Revenue - Harriman Barrier

Toll Traffic - Harriman							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
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
2021	2.3	12.2	1.3	0.2	1.4	0.1	17.4
2022	1.5	12.9	1.2	0.1	1.6	0.1	17.4

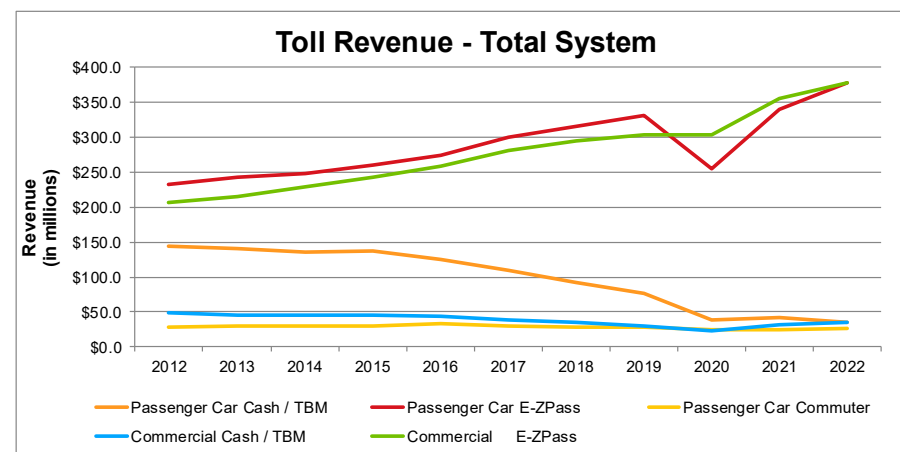
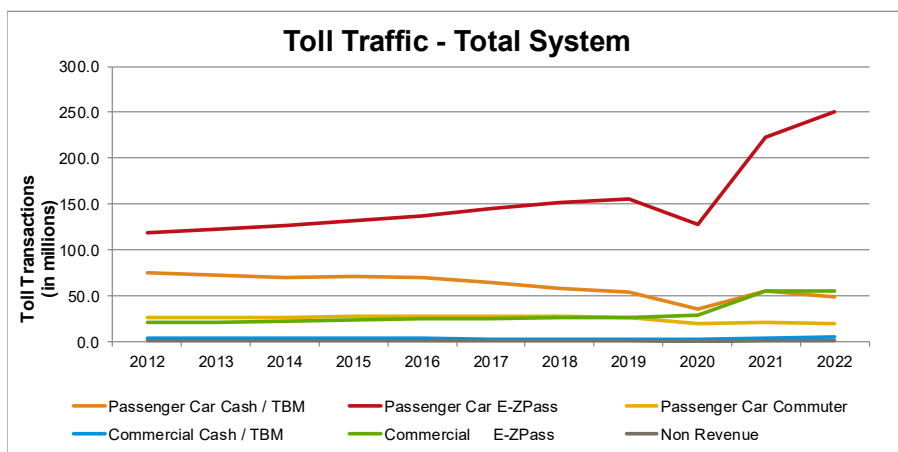
Toll Revenue - Harriman							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
2012	\$5.3	\$13.3	\$0.7	\$0.6	\$3.5	\$0.0	\$23.5
2013	\$5.0	\$13.6	\$0.8	\$0.6	\$3.7	\$0.0	\$23.7
2014	\$4.9	\$13.7	\$0.8	\$0.6	\$3.9	\$0.0	\$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
2021	\$0.8	\$16.6	\$1.0	\$0.6	\$4.4	\$0.0	\$23.3
2022	\$0.6	\$16.5	\$1.0	\$0.7	\$4.7	\$0.0	\$23.5



Traffic and Revenue - Total System

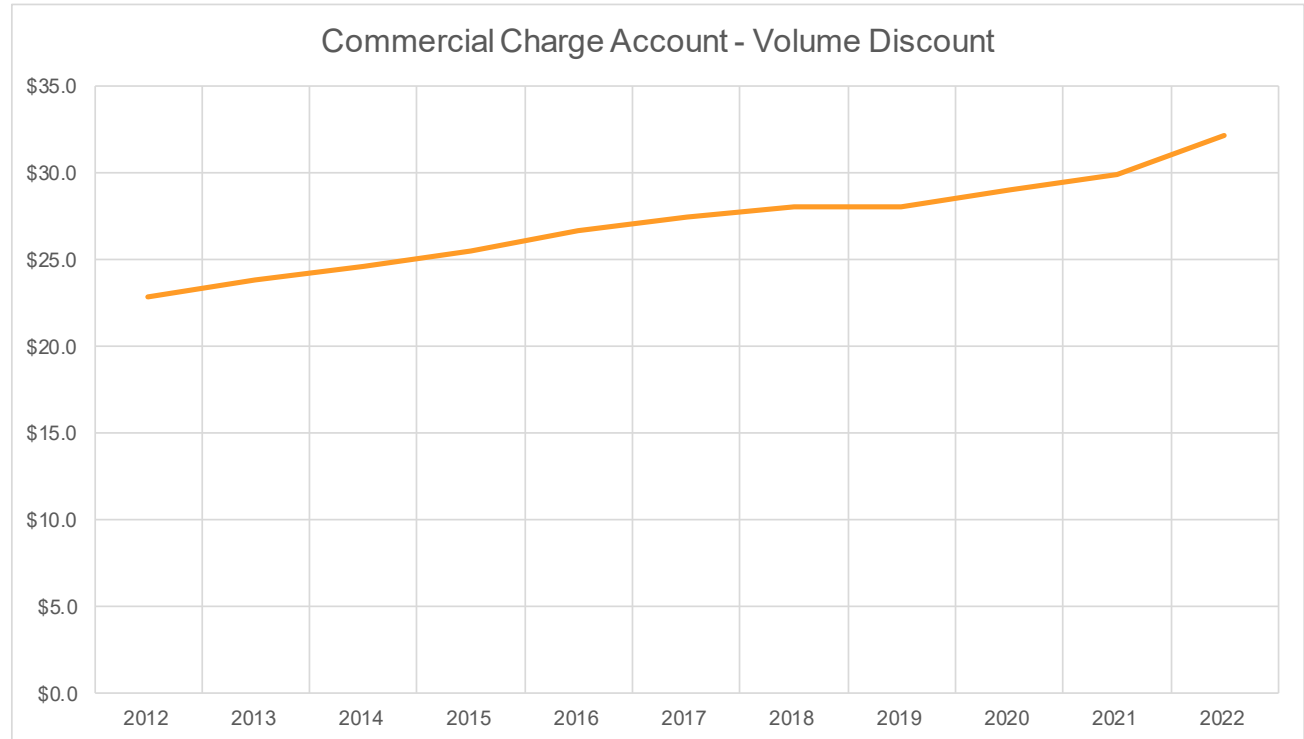
Toll Traffic - Total System							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
2012	75.1	119.5	26.7	4.3	21.0	1.5	248.1
2013	72.4	123.4	26.8	4.0	21.7	1.4	249.8
2014	70.7	126.5	27.0	3.9	22.7	1.5	252.3
2015	71.0	132.2	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
2021	56.1	222.6	20.8	3.9	55.9	1.7	361.0
2022	49.2	250.9	20.4	5.8	55.9	1.9	384.0

Toll Revenue - Total System							
Year	Passenger Car Cash / TBM	Passenger Car E-ZPass	Passenger Car Commuter	Commercial Cash / TBM	Commercial E-ZPass	Non Revenue	Total
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
2021	\$41.5	\$338.8	\$24.1	\$31.3	\$354.4	\$0.0	\$790.1
2022	\$34.8	\$377.8	\$27.3	\$34.8	\$377.8	\$0.0	\$852.5



Note: AETC (cashless tolling) began on the Controlled System on November 14, 2020 with a new tolling configuration, whereby a vehicle may now have multiple transactions per trip on the Woodbury Section. Before AETC there was only one transaction per trip.

Year	Vol. Discount
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
2021	\$29.9
2022	\$32.1



Note: Discounts available to Thruway Authority Commercial Charge Account customers based on monthly toll spending by account as follows:

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