



Congestion Management Process

2025 CMP Status Report

NEW YORK METROPOLITAN TRANSPORTATION COUNCIL
ADOPTED - SEPTEMBER 5, 2025





NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

RESOLUTION #2025-4

COUNCIL ADOPTION OF THE FEDERAL FISCAL YEARS (FFYs) 2026-2055 REGIONAL TRANSPORTATION PLAN AND RELATED 2025 CONGESTION MANAGEMENT PROCESS STATUS REPORT

WHEREAS, the New York Metropolitan Transportation Council (NYMTC) is a regional council of governments which is the metropolitan planning organization for New York City, Long Island and the lower Hudson Valley; and

WHEREAS, pursuant to 23 CFR 450.324, NYMTC is responsible for the development of a Regional Transportation Plan (Plan) for the downstate New York region; and

WHEREAS, NYMTC's existing FFYs 2022-2050 Plan was adopted by the Council on September 9, 2021, having addressed all federal planning requirements set forth in 23 CFR 450.324, and, per federal regulations, expires on September 30, 2025; and

WHEREAS, NYMTC has prepared a draft FFYs 2026-2055 Plan (*Moving Forward 2055*) to address the federal planning requirements set forth in 23 CFR 450.324, beginning on October 1, 2025; and

WHEREAS, in conjunction with the draft Plan, NYMTC has also prepared a draft 2025 Status Report for the Congestion Management Process (CMP) to address regulations set forth in 23 CFR 450.322 and 23 CFR 500.109; and

WHEREAS, these draft products meet all applicable federal requirements and have undergone public involvement and public review per federal regulations and NYMTC's Operating Procedures; and

WHEREAS, at its August 21, 2025 meeting, NYMTC's Program, Finance, and Administration Committee recommended that the *Moving Forward 2055* draft and the 2025 CMP Status Report draft be adopted by the Council .

NOW, THEREFORE BE IT RESOLVED, the New York Metropolitan Transportation Council adopts *Moving Forward 2055*, the 2026-2055 Regional Transportation Plan, and the 2025 CMP Status Report.

This resolution shall take effect on the fifth day of September, two thousand and twenty-five.

ADOPTED: September 5, 2025

"I hereby certify that the above is a true copy of Resolution #2025-4, Council Adoption Of The Federal Fiscal Years (FFYs) 2026-2055 Regional Transportation Plan And Related 2025 Congestion Management Process Status Report. This Resolution was adopted and passed unanimously."

Debra Nelson
Council Secretary

Congestion Management Process (CMP) Status Report

prepared for

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date

August 2025

Table of Contents

1.0	Introduction	1-1
2.0	Overview	2-1
3.0	Transportation System Characteristics	3-3
4.0	The Congestion Management Process	4-1
4.1	Strategic Framework	4-2
4.2	The Congestion Management Process and the Planning Process	4-4
5.0	Analysis and Forecasting Methodology	5-1
5.1	Analysis and Forecasting Tools	5-1
5.2	Levels of Analysis	5-4
5.3	Analysis Methodology	5-5
6.0	Planning Area	6-1
6.1	Urban Area Comparisons	6-1
6.2	Congestion and Travel Time Reliability	6-5
6.3	Roadways with High Unreliability and Delay	6-12
7.0	County/Borough Congestion Analysis	7-1
7.1	Level of Travel Time Reliability (LOTTR)	7-1
7.2	Truck Travel Time Reliability (TTTR)	7-1
7.3	Peak Hours of Excessive Delay (PHED)	7-1
7.4	Bronx	7-2
7.5	Brooklyn	7-7
7.6	Manhattan	7-12
7.7	Queens	7-17
7.8	Staten Island	7-22
7.9	Nassau	7-27
7.10	Suffolk	7-32
7.11	Putnam	7-37
7.12	Rockland	7-42
7.13	Westchester	7-47
8.0	Congestion Management Strategies	8-1

8.1 CMP Toolbox 8-1

8.2 Relevant Vision Goals, Objectives, Strategies, and Actions 8-2

8.3 System Enhancements Investments 8-8

Appendix A. Public Comment & Responses..... 8-10

List of Tables

Table 1 Hours of Analysis Comparison Between Data Sources 5-5

Table 2 Peer UAs 6-1

Table 3 Urban Area Comparisons 6-2

Table 4 Base Year Travel Time Indicators by County 6-6

Table 5 Truck Mobility Focus Areas in the NYMTC Planning Area 6-10

Table 6 Major System Enhancement Projects and Program 8-9

List of Figures

Figure 1	Map of NYMTC Planning Area	2-1
Figure 2	NYMTC Organization and Membership.....	2-2
Figure 3	National Distribution of Sources of Congestion	3-5
Figure 4	Actions Commonly Part of a Congestion Management Process	4-2
Figure 5	CMP and the Metropolitan Planning Process.....	4-5
Figure 6	Vehicle Miles Traveled Comparison	6-2
Figure 7	Measures of Systemwide Annual Hours of Delay	6-3
Figure 8	Annual Hours of Delay Per Commuter	6-4
Figure 9	Comparison of Travel Time and Planning Time Indices.....	6-5
Figure 10	Average Annual Daily Single Unit Truck Volumes in and Surrounding the NYMTC Planning Area, 2022	6-8
Figure 11	Average Annual Daily Combination Truck Volumes in and Surrounding the NYMTC Planning Area, 2022	6-9
Figure 12	High Levels of Unreliability and Delay, New York City	6-12
Figure 13	High Levels of Unreliability and Delay, Suburban Long Island	6-13
Figure 14	High Levels of Unreliability and Delay, Lower Hudson Valley.....	6-14
Figure 15	Level of Travel Time Reliability, Bronx	7-3
Figure 16	Truck Travel Time Reliability, Bronx.....	7-4
Figure 17	Peak Hours of Excessive Delay, Bronx.....	7-6
Figure 18	Bronx Population and Travel Characteristics	7-7
Figure 19	Level of Travel Time Reliability, Brooklyn.....	7-8
Figure 20	Truck Travel Time Reliability, Brooklyn	7-10
Figure 21	Peak Hours of Excessive Delay, Brooklyn	7-11
Figure 22	Brooklyn Population and Travel Characteristics.....	7-12
Figure 23	Level of Travel Time Reliability, Manhattan	7-13
Figure 24	Truck Travel Time Reliability, Manhattan	7-14
Figure 25	Peak Hours of Excessive Delay, Manhattan	7-16
Figure 26	Manhattan Population and Travel Characteristics.....	7-16
Figure 27	Level of Travel Time Reliability, Queens	7-18
Figure 28	Truck Travel Time Reliability, Queens.....	7-20
Figure 29	Peak Hours of Excessive Delay, Queens.....	7-21

Figure 30	Queens Population and Travel Characteristics	7-22
Figure 31	Level of Travel Time Reliability, Staten Island	7-23
Figure 32	Truck Travel Time Reliability, Staten Island	7-24
Figure 33	Peak Hours of Excessive Delay, Staten Island	7-26
Figure 34	Staten Island Population and Travel Characteristics.....	7-27
Figure 35	Level of Travel Time Reliability, Nassau County	7-28
Figure 36	Truck Travel Time Reliability, Nassau County	7-29
Figure 37	Peak Hours of Excessive Delay, Nassau County.....	7-31
Figure 38	Nassau Population and Travel Characteristics	7-31
Figure 39	Level of Travel Time Reliability, Suffolk County	7-33
Figure 40	Truck Travel Time Reliability, Suffolk County.....	7-34
Figure 41	Peak Hours of Excessive Delay, Suffolk County	7-36
Figure 42	Suffolk Population and Travel Characteristics.....	7-37
Figure 43	Level of Travel Time Reliability, Putnam County.....	7-38
Figure 44	Truck Travel Time Reliability, Putnam County	7-40
Figure 45	Peak Hours of Excessive Delay, Putnam County	7-41
Figure 46	Putnam Population and Travel Characteristics	7-42
Figure 47	Level of Travel Time Reliability, Rockland County	7-43
Figure 48	Truck Travel Time Reliability, Rockland County.....	7-44
Figure 49	Peak Hours of Excessive Delay, Rockland County.....	7-46
Figure 50	Rockland Population and Travel Characteristics.....	7-46
Figure 51	Level of Travel Time Reliability, Westchester County	7-47
Figure 52	Truck Travel Time Reliability, Westchester County.....	7-49
Figure 53	Peak Hours of Excessive Delay, Westchester County.....	7-50
Figure 54	Westchester Population and Travel Characteristics.....	7-51

1.0 Introduction

Under current Federal planning regulations, metropolitan areas with populations greater than 200,000 are designated as Transportation Management Areas (TMAs) and are required to engage in a Congestion Management Process (CMP) to provide for “safe and effective integrated management and operation of the transportation system” (Sections 23 Code of Federal Regulations [CFR] 450.320 and 23 CFR 500.105). The CMP is required to (1) include methods to monitor and evaluate performance; (2) define congestion management objectives; (3) establish data collection and system performance monitoring programs, (4) identify and evaluate performance and benefits of management strategies; (5) identify an implementation schedule and responsibilities; and (6) include a process for periodic assessment of the effectiveness of implemented strategies.

The planning area of the New York Metropolitan Transportation Council's (NYMTC) meets the Federal definition of a TMA. Therefore, NYMTC must systematically forecast traffic congestion in its planning area, produce specific performance measurements to identify levels of congestion, and prepare a program to reduce that congestion. NYMTC's CMP fulfills these requirements and identifies strategies for congestion reduction as defined through its Regional Transportation Plan (Plan) and Transportation Improvement Program (TIP).

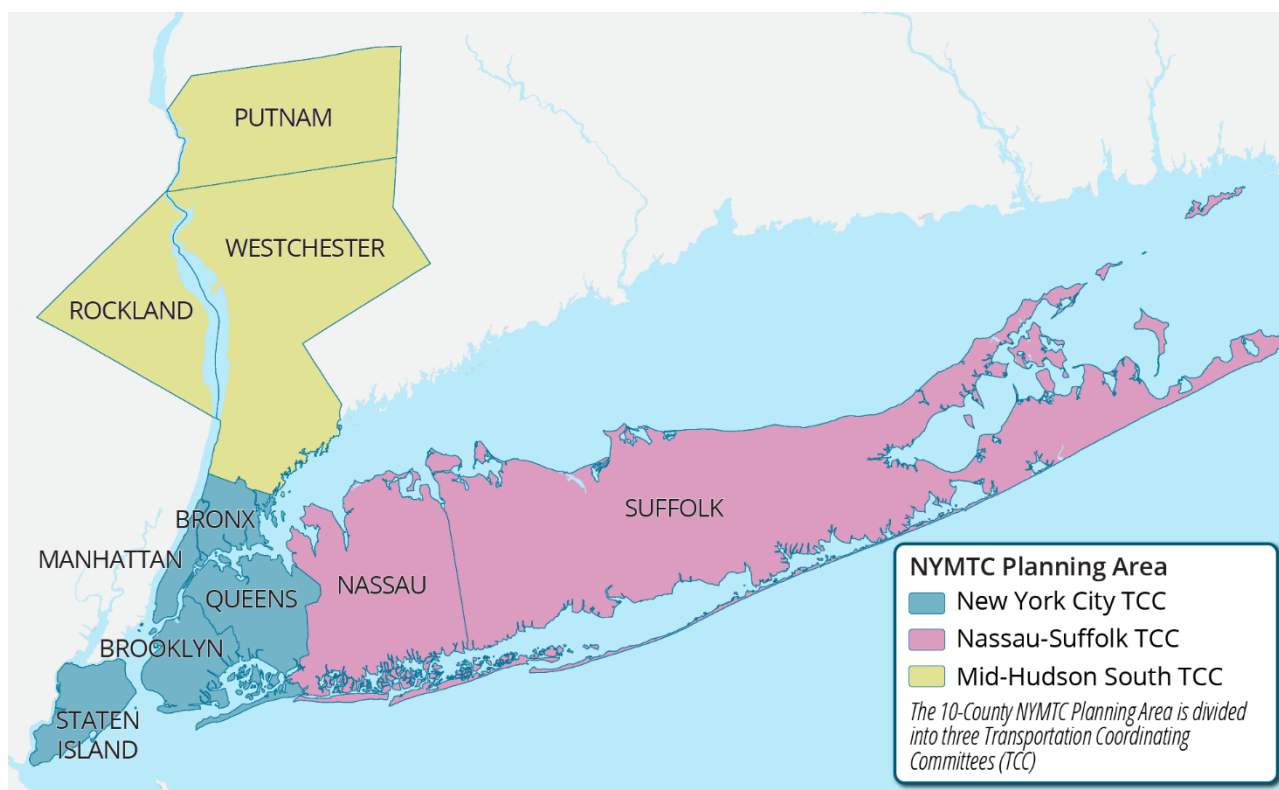
NYMTC's CMP Operating Procedures stipulate that a status report should be issued every four years with each new Plan. The first CMP Status Report was issued in 2005. This 2025 CMP Status Report, organized into the eight sections described below, has been developed in conjunction with NYMTC's 2055 Regional Transportation Plan, hereafter known as *Moving Forward 2055*.

- Section 1 (this section) provides an introduction to CMP process.
- Section 2 provides an overview and summarizes the purpose of the CMP and the work conducted to produce the status report.
- Section 3 describes the transportation characteristics within the NYMTC planning area.
- Section 4 describes the Federal regulations related to NYMTC's CMP.
- Section 5 describes the methodology used for the CMP analysis, including tools used for analyzing congestion, selected performance measures, types of analysis performed, reporting periods, and scenarios.
- Section 6 and Section 7 present the results of the CMP analysis at two levels—regionally, in Section 6, and at the county/borough level in Section 7.
- Section 8 describes the strategies committed to and further discussed in *Moving Forward 2055*.

2.0 Overview

NYMTC is a regional council designated by the Governor of the State of New York and certified by the Federal Government as the metropolitan planning organization (MPO) for New York City, Long Island, and the Lower Hudson Valley. The NYMTC planning area includes 10 counties (5 suburban counties and the 5 boroughs of New York City) with an area of approximately 2,440 square miles and a 2022 population of more than 12.5 million people (64.6 percent of the population of New York State). Figure 1 presents the counties of the NYMTC planning area.

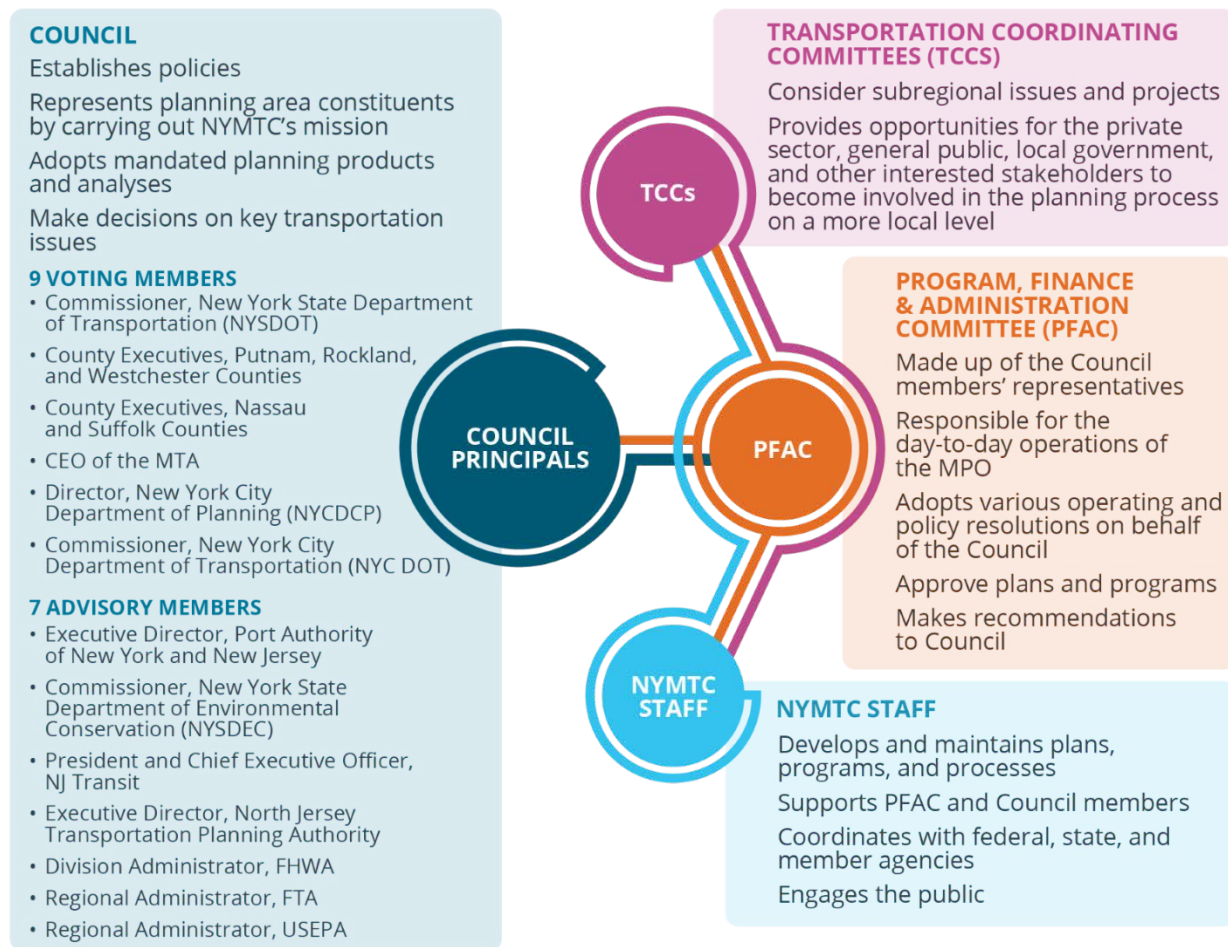
Figure 1 Map of NYMTC Planning Area



Source: NYMTC *Moving Forward 2055*

Designated in 1982, NYMTC provides a collaborative forum for regional transportation planning for its 16 members. Those members (depicted in Figure 2) include five suburban counties (Nassau, Suffolk, Westchester, Rockland, and Putnam) and the City of New York as represented by the New York City Department of Transportation and the New York City Department of City Planning, the New York State Department of Transportation (NYSDOT), the Metropolitan Transportation Authority (MTA), and seven advisory members, including the Port Authority of New York and New Jersey.

Figure 2 NYMTC Organization and Membership



Source: NYMTC *Moving Forward 2055*

NYMTC's Plan, titled *Moving Forward 2055*, acknowledges that roadway congestion will continue to be a major issue in the NYMTC planning area given the increased demand on the transportation system from forecasted population, employment, and economic growth. The CMP is intended to help NYMTC's members to: (1) monitor and advise the regional planning processes by establishing an objective set of performance measures to define and quantify transportation system congestion; (2) provide a toolbox of strategies to address congestion; (3) provide a methodology to evaluate and prioritize congestion-reducing projects and strategies; and (4) provide a mechanism to periodically assess the effectiveness of implemented strategies relative to previously established performance measures.

3.0 Transportation System Characteristics

The transportation system of the multi-state metropolitan region is large, complex, and aging, and tied together by a network of highways, rail lines, bridges, tunnels, and other infrastructure. As the largest metropolitan area in the Nation, the multi-state region is traversed by numerous major limited access highways and rail lines. The reader is directed to Chapter 2, How Transportation Planning Happens, in *Moving Forward 2055* for a more complete description of the transportation system in the region.

On a typical weekday, the NYMTC planning area's multimodal transportation network handles millions of passenger trips and thousands of tons of freight shipments. The share of travelers using public transportation is much higher than in other areas of the United States.

Major Components of the Federally Supported Transportation System in NYMTC's Planning Area

A network of 1,300 track miles of commuter rail; 665 mainline track miles of subway tracks; hundreds of route miles of local, express, commuter and intercity bus routes; and an aerial tramway.

An extensive network of passenger hubs, such as bus terminals and subway transfer facilities, ferry landings, and transportation stations where people transfer between modes, including one of the most successful rail-to-airport links in the country.

More than 1,300 miles of bicycle facilities, ranging from shared-use bike trails to onboard bike lanes, in addition to pedestrian sidewalks, trails, and paths.

More than 50,000 lane miles of roads and highways, including more than 30 major bridge crossings navigable waterways (there are over 3,200 bridges of all types in the planning area), 4 major underwater vehicular tunnels, and special lanes for high occupancy vehicles and buses.

Five commercial service airports, major passenger and air cargo operations and supporting infrastructure, and general aviation and heliport facilities.

Major deep-water seaport facilities owned and operated by a mix of public and private sector entities, plus an extensive network of marine cargo support infrastructure and services.

An extensive network of docking facilities along inland waterways supporting barge and ferry services.

More than 400 route miles of freight rail, using track miles often shared with commuter rail services.

A widespread network of freight hubs, including intermodal transfer facilities, rail yards, and truck-oriented warehouse and distribution centers.

Supporting infrastructure like rail yards and highway maintenance facilities, highway rest areas, parking lots and garage bus depots and transit storage yards, bicycle parking areas, toll plazas, signage, signals, electronics, and other equipment.

Adjacent to NYMTC's planning area, the northern New Jersey and southwestern Connecticut subregions contain transportation infrastructure inextricably linked with the New York subregion. New Jersey Transit operates an extensive network of commuter rail, light rail, and bus services, including services that enter the NYMTC planning area. MTA Metro-North contracts with NJ Transit to operate commuter rail service on the Pascack Valley and Port Jervis lines for New York State residents in Rockland and Orange Counties west of the Hudson. New Jersey's highways interface with New York at six bridges and tunnels and with roads crossing the state line into Rockland County. Connecticut contracts with the MTA Metro-North Railroad to operate service on the New Haven Line, and Connecticut Transit operates regional bus routes such as the I-Bus linking Stamford with White Plains. Numerous roads, bridges, and tunnels of all functional classifications also cross state lines, and ferries regularly cross from New Jersey and Connecticut to New York destinations.

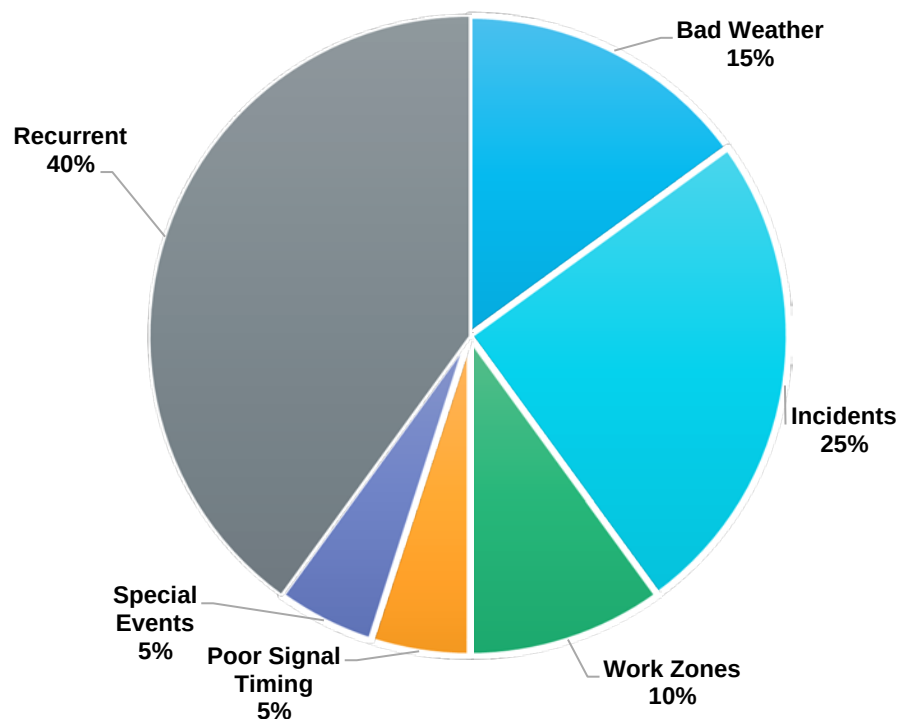
Congestion occurs when a transportation facility or service experiences demand exceeding the capacities of the facilities or services. This results in overcrowded facilities and services, reduced throughput, reduced travel speeds, increased travel time, and increased crashes and incidents.

The Federal Highway Administration (FHWA) defines seven categories of the causes of traffic congestion:¹

- **Physical Bottlenecks**—where demand exceeds capacity: along roadways at intersections, interchanges, transit facilities.
- **Traffic Incidents**—nonrecurring event that causes a reduction of roadway capacity or an abnormal increase in demand (e.g., crashes, disabled vehicles).
- **Weather**—weather events such as snowstorms or flooding due to rainfall.
- **Work Zones**—construction activities on the roadway that temporarily reduce capacity like lane reductions, lane shifts, and detours.
- **Special Events**—events that create a surge in traffic beyond normal traffic patterns such as sporting events, concerts, street festivals, and visiting dignitaries.
- **Traffic Demand and Flow Fluctuations**—day-to-day variability in traffic and peaking of demand that can be as much as 15 to 20 percent on an individual roadway depending on the day of the week.
- **Traffic Operations**—disruption of traffic flow due to non-optimized or non-integrated signals and/or insufficient intersection capacity.

The national averages in Figure 3 provide insights regarding the sources of traffic congestion. Bottlenecks (40 percent) are the greatest source of congestion, followed by traffic incidents, which account for 25 percent of congestion. In the NYMTC planning area, signal timing may contribute more than 5 percent of congestion because the signal density is greater than in most large cities in the United States. The NYMTC planning area is a huge attraction for tourists and special events. In 2022, 56.4 million people visited New York City. In 2022, visitors generated an economic impact totaling more than \$58 billion. It is probably safe to assume that congestion from special events in the NYMTC planning area contributes more than 5 percent to total congestion in the region.

¹ FHWA. 2020. Traffic Congestion and Reliability: Trends and Advanced Strategies for Congestion Mitigation. https://ops.fhwa.dot.gov/congestion_report/chapter2.htm#2_1.

Figure 3 National Distribution of Sources of Congestion

Source: Figure ES.2 The Sources of Congestion National Summary, FHWA.

Several specific factors/issues contribute to traffic congestion in the NYMTC planning area, including:

- The region's topography. NYMTC's planning area includes three large islands (Staten Island, Manhattan Island, and Long Island) that, along with the Hudson River and Long Island Sound, create the need for numerous water crossings for roadways, rail lines, and waterborne services. Limitations to the capacity at these crossing facilities are a major cause for congestion.
- Major transportation hubs, such as the regional and international airports in and around the NYMTC planning area, as well as major rail and bus stations and port facilities. Traffic to and from these transportation hubs creates major congestion issues along roadways and on rail lines.
- Large event venues, such as stadiums, arenas, and convention centers that generate considerable vehicle, transit, and foot traffic.
- Tourist and recreational attractions, generating considerable visitor traffic on the public transit system, the pedestrian and bicycle networks, as well as on roadways.
- Significant goods movement, whether by truck, rail or barge, moving into, out of, within, and through the NYMTC planning area.

4.0 The Congestion Management Process

The CMP is required to (1) include methods to monitor and evaluate performance, (2) define congestion management objectives, (3) establish data collection and system performance monitoring programs, (4) identify and evaluate performance and benefits of management strategies, (5) identify an implementation schedule and responsibilities, and (6) include a process for periodic assessment of the effectiveness of implemented strategies.

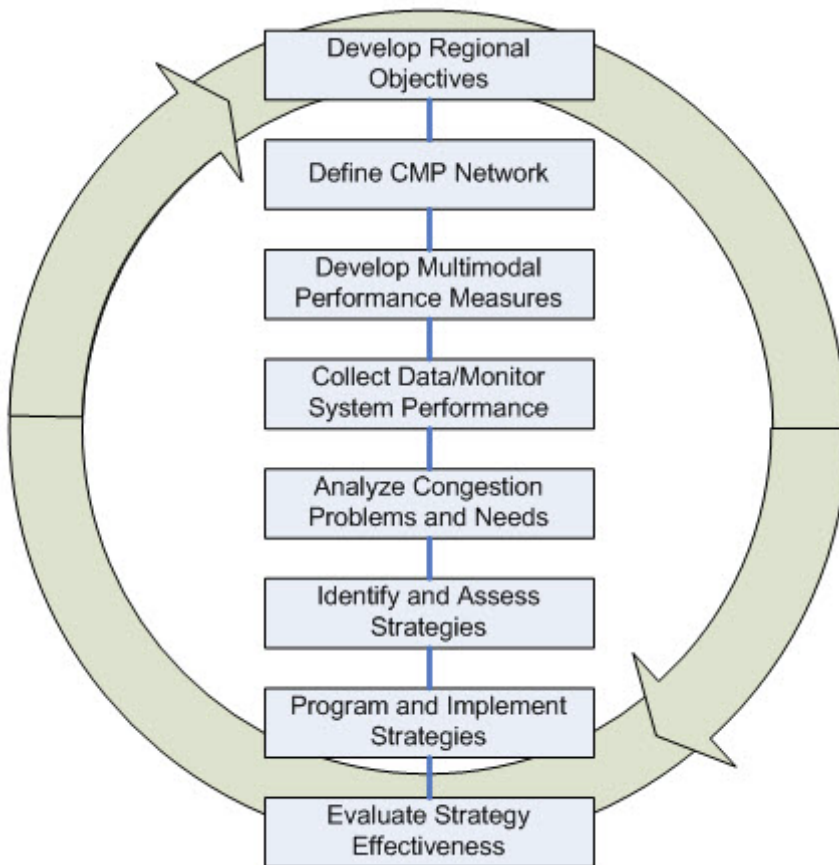
In addition, the CMP must include requirements for the addition of roadway capacity in specific corridors or locations, including:

- All reasonable, multimodal Transportation Systems Management and Operations (TSM&O) strategies must be analyzed in corridors where roadway capacity increase is proposed.
- If the analysis demonstrates that the TSM&O strategies cannot offset the need for additional capacity, the CMP must identify all reasonable strategies for managing the increased roadway capacity effectively.
- All TSM&O strategies identified in the CMP must be incorporated into roadway capacity projects or committed to by the State and MPO.
- Federal funds may not be programmed in a non-attainment TMA for any roadway capacity project unless based on an approved CMP.

Consistent with Federal requirements, NYMTC's CMP is a systematic planning process to address system- and corridor-level congestion by exploring the basic questions of where, when, and to what extent congestion occurs. The CMP also identifies strategies that NYMTC members can consider for reducing and managing congestion. NYMTC's CMP is one component of the metropolitan transportation planning process, and congestion, although very important, is not the sole factor under consideration when planning the priority of transportation improvements. The proper role of the CMP is as a specific element that adds value to the metropolitan transportation planning process by providing agencies, the public, and decision-makers with a tool by which congestion can be examined in greater detail and more effectively addressed.

In 2011, FHWA issued an advisory document entitled Congestion Management Process: A Guidebook.² The Guidebook is intended to provide guidance on “how to create an objective driven, performance- based” congestion management process. The Guidebook sets out an eight-step process model comprising elements or “actions” common to successful CMPs. The actions, shown in Figure 4, are considered essential to CMP formulation but can be performed in varying sequences and, potentially, iteratively.

² Congestion Management Process Guidebook, FHWA.

Figure 4 Actions Commonly Part of a Congestion Management Process

Source: Fig 2. Congestion Management Process Guidebook, FHWA.

The Guidebook provides in-depth reviews of the recommended considerations, processes, and partners that should be involved in formulating each action. Of particular applicability to NYMTC are the actions that underpin and promote performance-based CMP development: Action 1 (develop regional objectives), Action 3 (develop multimodal performance measures), Action 6 (identify and assess strategies), and Action 8 (evaluate strategy effectiveness). The Guidebook includes a companion document that focuses on the visualization of results.

4.1 Strategic Framework

This CMP Status Report is presented in the context of NYMTC's Shared Vision for Regional Mobility as described in *Moving Forward 2055*, its Federal Fiscal Years 2026–2055 Regional Transportation Plan. The Shared Vision establishes a strategic framework for NYMTC's regional planning process.

4.1.1 A Shared Vision for Regional Mobility

The elected and appointed officials who make up NYMTC recognize that mobility—the ability of people and goods to move easily and safely to, from and between locations—is crucial to the lives of everyone who resides in, works in, or visits within the NYMTC planning region. Therefore, NYMTC’s Vision for its planning region as identified in *Moving Forward 2055* states:

- » **All people, regardless of race, disability status, age, or socioeconomic background have a right to live, work, and play in communities that are safe, healthy, and free of harmful environmental conditions. Our shared vision is one in which safe, accessible, and efficient mobility for people and goods is made possible by well-maintained and reliable infrastructure.**

When we come together as NYMTC, we form a regional council that is the federally required MPO for New York City, Long Island, and the Lower Hudson Valley. As NYMTC, we pursue our shared vision through the metropolitan transportation planning process built from the regional transportation plan. To do this, we envision a transportation system for which:

1. Safety and security are maximized for people and goods across all uses and modes;
2. Infrastructure is maintained and improved in a sustainable manner;
3. Resiliency is supported through mitigating, adapting to, and responding to chronic and acute stresses and disruptions;
4. Congestion is mitigated through investments and technology in support of healthier communities, more seamless travel, improved quality of life, and regional economic competitiveness;
5. Land use decisions are encouraged in support of strategic transportation enhancements and improving modal choices;
6. Fairness in transportation is advanced and access to opportunities is improved for all communities;
7. Environmental impacts—including harmful air pollutants—are significantly reduced through technology applications, increased use of greener travel options, and improved system efficiency.

As we pursue these goals through our regional transportation planning process, the following guiding principles inform our planning.

- We will value the needs of all users across our region;
- We will seek to use funding for transportation efficiently, no matter its source;
- We will consider all modes of transportation to achieve connected networks that accommodate all modes and all users;

- We will plan for modal shifts, first/last mile connections, and multi-system accessibility and operability;
- We will support multi-agency approaches to better integrate the regional transportation system;
- We will collaborate and coordinate with other Government entities to address regional challenges;
- We will engage the public and community stakeholders through workshops, webinars, and other outreach to help guide key decisions in the planning process;
- We will invest in the collection and sharing of quality metrics and data related to transportation.;
- We will be open to innovation and technological advancements to enhance our transportation system.

4.2 The Congestion Management Process and the Planning Process

4.2.1 Planning Process

Traffic congestion occurs when vehicle volumes exceed the available capacity of a roadway. Generally, traffic congestion can be categorized as either recurring or nonrecurring. Recurring traffic congestion is caused by the predictable daily use of roadways for work, school, services, and family and leisure activities. Recurring congestion is exacerbated as demand for road space continues to grow through population and job growth, decreasing land use densities, higher rates of automobile ownership, and rapid growth in truck freight. In contrast, nonrecurring traffic congestion is caused by atypical events, such as highway crashes, other incidents that close lanes or roads, weather conditions, or an increase in traffic demand caused by special events.

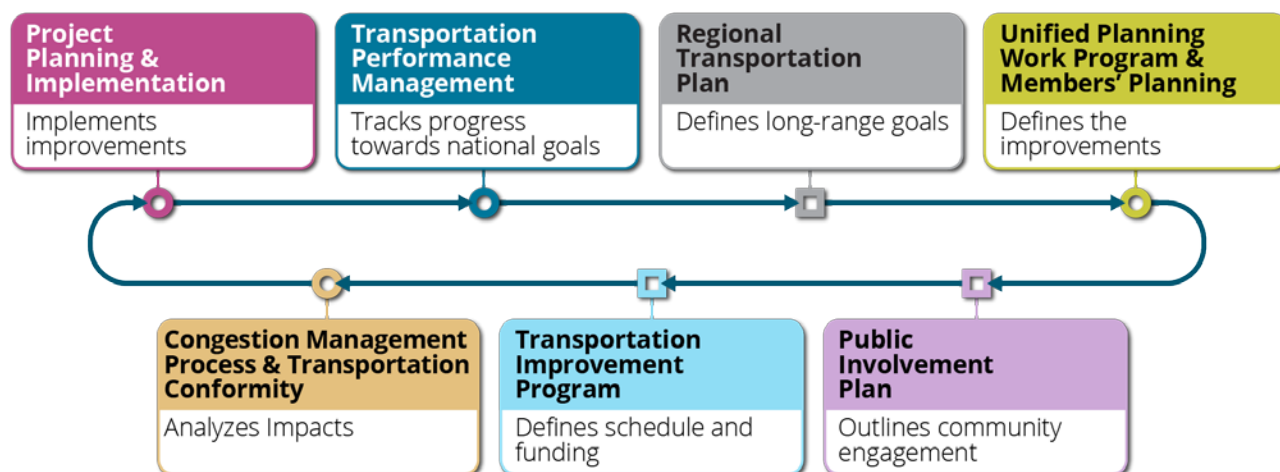
According to the 2023 Texas A&M Transportation Institute Mobility Report, the New York Urban Area (UA) (New York-Newark-Jersey City, NY-NJ), of which the NYMTC planning area is part, ranks third in the country in terms of yearly delay per auto commuter (92 hours), eighth in Travel Time Index (1.32), and third in congestion cost per auto commuter (\$2,239 annually). Traffic congestion is a significant impediment to mobility in the NYMTC planning area and has many negative effects, including increased fuel consumption, air quality impacts, increased vehicular travel costs, and increased costs for shipping goods.

NYMTC's CMP is intended to be integrated with the metropolitan transportation planning process, as illustrated in Figure 5. Additionally, NYMTC's CMP provides a toolbox of strategies to address congestion for consideration by the member agencies (see Section 8).

Performance monitoring is a critical element of the integration of the CMP into NYMTC's overall planning process. Monitoring provides feedback on the effectiveness of strategies at various levels, which ultimately influences regional policy, planning, and programming of projects for addressing congestion.

The CMP can also be an important input into the development of major project analyses and subarea or corridor studies. First, it provides county/borough level and corridor level performance information, which may be used to target corridors or locations for detailed analysis. Second, the CMP Toolbox identifies alternative congestion management strategies for consideration in studies of this type, which ultimately define transportation improvements. This does not preclude the study from considering other strategies that may not be in the CMP, nor does it require that the study select a strategy from the CMP as the preferred alternative.

Figure 5 CMP and the Metropolitan Planning Process



Source: NYMTC Moving Forward 2055.

5.0 Analysis and Forecasting Methodology

This section describes the methodology used to identify, quantify, and forecast traffic congestion in the NYMTC planning area, the tools used to analyze and forecast congestion, and selected performance measures. NYMTC's CMP considers all roadway functional classes from freeways to minor arterial roadways.

5.1 Analysis and Forecasting Tools

5.1.1 *Albany Visualization and Informatics Labs System*

To analyze existing conditions, the Albany Visualization and Informatics Labs (AVAIL) system was employed for this CMP Status Report.

Developed by the State University of New York at Albany with funds from NYSDOT, AVAIL provides a web-based application to compile performance measures for the NYMTC planning area and its constituent counties and boroughs. It also provides visualization tools to define roadway network performance and analyze roadway corridors. AVAIL is sourced from the National Performance Management Research Data Set (NPMRDS). NPMRDS is national database used for monitoring and reporting transportation system performance measures, and is free to State and Local transportation agencies.

NPMRDS contains field-observed travel time and speed data, and is an aggregated dataset compiled from data obtained from multiple sources, including mobile phones, vehicles, and portable navigation devices. The data is provided for the National Highway System (NHS). NYSDOT purchased an expanded dataset that includes other principal and major arterials, expanding the available data beyond the NHS. The NPMRDS data is provided at spatial resolutions known as Traffic Message Channels (TMCs). The TMCs range from half a mile to up to ten miles. Data is updated monthly, and 2023 data was used for this CMP Status Report.³ Three different performance measures, described in subsequent sections, were obtained from AVAIL for the NYMTC planning area.

For the 2025 CMP Status Report, NPMRDS data through the AVAIL web application was used to define 2023 base year traffic reliability and congestion snapshots, including a screening of congestion and reliability as well as an identification of the unreliable and congested segments across the NYMTC region.

5.1.2 *New York Best Practice Model*

The NYMTC CMP leverages the New York Best Practice Model (NYBPM) to forecast travel in the region. The NYBPM is an activity-based travel demand forecasting model that simulates travel at an individual level, in 28 contiguous counties in New York, New Jersey, and Connecticut, including the 10-county NYMTC planning area. Travel is simulated for both roadways and transit services. The roadway network in the NYBPM is represented by more than 67,000 highway links, and the transit network is represented through around 7,000 transit routes that include route variations for all forms of public transportation, such as commuter rail, subway, express bus, local bus, and ferry. The NYBPM can be used to forecast travel patterns by time periods, trip purposes, and modes of travel.

³ FHWA, The National Performance Management Research Data Set (NPMRDS)
<https://ops.fhwa.dot.gov/publications/fhwahop20028/index.htm>.

Some examples of data sources that the NYBPM employs as inputs to the model or as validation sources include:

- Socioeconomic and demographic (SED) forecasts (household, population, and employment county forecasts disaggregated to 16 variables at the NYBPM zonal level, with future year forecasts extending to 2055);
- U.S. Census data
- Travel characteristics and travel behavior represented in the Regional Household Travel Survey used to estimate the model parameters (i.e. coefficients);
- Twenty-four-hour traffic counts at screen- line locations; and
- Transit ridership counts.

For the 2025 CMP Status Report, the NYBPM was used to forecast aggregate vehicle miles traveled and vehicle hours traveled. The most recent NYBPM forecasts, outlined in Chapter 3 of *Moving Forward 2055*, includes the programs and projects contained in the fiscally constrained element of *Moving Forward 2055* and the Federal Fiscal Years 2026–2030 TIP).

NYMTC's SED forecasts establish the likelihood that the multi-state metropolitan region will experience moderate growth in population, jobs, economic activity, and travel over the *Moving Forward 2055* planning period. The current SED forecasts produce metrics including population, employment, labor force, and number of households, in five-year intervals projected out to the horizon year of Moving Forward. The SED forecast geography comprises 28 counties in the multi-state metropolitan region, consisting of the following subregions:

- New York City
- Long Island
- Lower- and Mid-Hudson Valley
- Northern New Jersey
- Southwestern Connecticut

Because of the interdependencies between multi-state region and the NYMTC planning area, forecasting for the broader 28-county region is important for understanding the NYMTC planning area's prospective SED trends and future needs.

As required, NYMTC's CMP employs performance measures to assess the effectiveness and efficiency of the roadway system. These measures are separate and apart from those defined under Federal Transportation Performance Management requirements. See Chapter 3, *Moving Forward 2055* for NYMTC's System Performance Report for more information on TPM performance metrics. NYMTC's [Moving Forward 2055 Interactive Map](#) also provides visualizations of the 2055 SED forecasts and system performance measures.

5.1.3 Performance Measures

The Project Team identified performance metrics that were compatible with the National Performance Management Measures. Upper and lower thresholds were also established based on compatibility with the NYMTC's target setting, as well as a statistical analysis of the metrics across the NYMTC region. The CMP-related performance measures obtained from AVAIL are described below:

- **Level of Travel Time Reliability (LOTTR)** represents the consistency or dependability of travel times from day-to-day or across different times of day. LOTTR is calculated by dividing the 80th percentile travel time for a segment during peak travel times by the annual 50th percentile travel time.
 - **1.5—mildly unreliable:** A reliability value of 1.5 suggests that, during the worst 20 percent of time periods, travel will take 1.5 times longer than the median travel time. A 30-minute commute may take 45 minutes to travel to be on time at least 80 percent of the time.
 - **2.0—very unreliable:** A reliability value of 2.0 suggests that, during the worst 20 percent of time periods, travel will take two times longer than the median travel time. A 30-minute commute may take 60 minutes to travel to be on time at least 80 percent of the time.
- **Truck Travel Time Reliability (TTTR)** represents the consistency or dependability of truck travel times from day to day or across different times of day. TTTR is calculated by dividing the 95th percentile travel time for a segment during peak travel times by the annual 50th percentile truck travel time.
 - **2.0—mildly unreliable:** A reliability value of 2.0 suggests that, during the worst 5 percent of time periods, travel will take two times longer than the median travel time. A 30-minute trip may take 60 minutes to travel to be on time at least 95 percent of the time.
 - **4.0—very unreliable:** A reliability value of 4.0 suggests that, during the worst 5 percent of time periods, travel will take four times longer than the median travel time. A 30-minute trip may take 120 minutes to travel to be on time at least 95 percent of the time.
- **Peak Hours of Excessive Delay (PHED)** represents the extra amount of time spent in congested conditions during peak hours defined by speed thresholds that are lower than a normal delay threshold times by traffic estimates for each segment to determine vehicle hours times the average vehicle occupancy rate for person hours. This metric is only available for the AM and PM peak periods.

Higher PHED represents more vehicles/persons experiencing delay during peak hours, where the speed threshold is 20 mph or 60 percent of the posted speed limit (lowest speed limit would be 35 mph, where 60 percent is 21 mph). This delay metric quantifies the total person hours (AADT * Occupancy rate) experiencing slower travel speeds.

 - 40,000 person miles—mildly congested
 - 100,000 person miles—very congested
- **Travel Time Index (TTI)** is the ratio of the average cross-peak peak (AM Peak & PM Peak) travel time over the free flow travel time.

- **Planning Time Index (PTI)** is the ratio of the 95th percent peak period travel time to the free flow travel time.

The CMP-related performance measures obtained from NYBPM are described below:

- **Vehicle Hours of Delay (VHD)** is the sum total of delay experienced by all vehicles on the network. Delay is defined as the difference between estimated actual travel speed and free-flow travel speed
- **Vehicle Miles Traveled (VMT)** is another performance measure developed by the post processor. VMT is the sum of distances traveled by all motor vehicles in a specified region. Travel demand forecasting is used to generate the average trip lengths for a region. The average trip length measure is then used to estimate VMT, which in turn is used in estimating gasoline usage or air pollutants produced by mobile sources. It should be noted that VMT estimated by the travel model was adjusted for consistency with the observed travel in the base year that is reported for the federally mandated Highway Performance Monitoring System. For the 2025 CMP analysis base year VMT adjustments were made based on the 2019 version of the NYBPM.

5.2 Levels of Analysis

Various levels of analyses and forecasting were performed for the 2025 CMP Status Report for the planning area, for the constituent counties and boroughs, roadway corridors and congested locations.

5.2.1 Geography

The planning area analysis was performed to assess traffic congestion and the performance of the transportation system on a regional scale across the 10-county NYMTC planning area. The CMP regional analysis allows a means for assessing the effectiveness of planned transportation improvements in addressing future traffic congestion in the NYMTC planning area.

The county/borough analyses are a subset of the regional analysis, focusing on congestion and system performance in each county/borough in the NYMTC planning area.

5.2.2 Analysis Years

In this CMP Status Report, congestion has been defined in the 2023 base year and the *Moving Forward 2055* Forecast Year. For the AVAIL data, the 2023 base year reflects real travel time and speed data collected through cell phone, GPS, and vehicle system data, made available through the NPMRDS dataset. For the NYBPM, the Moving Forward Forecast Year includes all transportation improvements NYMTC has programmed in the 2026–2030 TIP and the fiscally constrained element of *Moving Forward 2055*. This version uses a 2019 base year with a 2055 forecast year.

5.2.3 Hours of Analysis

At each of these spatial levels, two peak time periods (weekday AM peak period, weekday PM peak period) were defined for both a base year and the Plan's horizon year. Weekday (off-peak and daily) and weekend time periods were also included. The AVAIL NPMRDS data and NYBPM hours of analysis are different, as seen in Table 5.1. This difference has a lower significance since all NYBPM statistics presented are at a daily level.

Table 1 Hours of Analysis Comparison Between Data Sources

	AVAIL	NYBPM
Weekday AM Peak	6 a.m.– 10 a.m.	6 a.m.– 10 a.m.
Weekday PM Peak	4 p.m.– 8 p.m.	3 p.m.– 7 p.m.
Off-Peak	10 a.m.– 4 p.m.	10 a.m. – 3 p.m.
Daily	–	Entire 24-hour Weekday Period
Weekend	6 a.m.–8 p.m.	–

Source: AVAIL and NYBPM.

Congestion in the AM peak period is typically of greater intensity and shorter duration than the PM peak period and consists primarily of trips between work and home. Congestion in the PM peak period is typically of longer duration and lesser intensity than the AM peak period. Trip-making characteristics also are different; while some trips are the reverse of the AM peak period trips (such as work-to-home trips); a significant number of trips are from work to other locations, or from home to other destinations such as retail or recreational.

5.3 Analysis Methodology

5.3.1 AVAIL

Using the AVAIL tool, the congestion and reliability screening highlights all segments on the NPMRDS network above the metric thresholds (identified in Section 5.1.3). The AVAIL network includes the NHS network plus other principal and minor arterials. The value of screening for unreliable and congested segments shows the bigger picture snapshot of annual congestion and reliability across the analysis periods within the NYMTC region in 2023.

The AVAIL tool was also used to identify the worst performing corridors across the three planning subregions, or Transportation Coordinating Committees (TCC)'s of NYMTC, namely New York City TCC, Nassau/ Suffolk TCC and the Mid- Hudson South TCC. This deeper level of analysis will look at congestion across a corridor, not just individual segments, and can help partner agencies as a data point for next steps in the congestion management process, including project prioritization.

In addition, the NYBPM was used to estimate the growth at a county level for VMT and VHD between the base year (2019) and horizon year (2055). Population growth was also presented for the same period.

5.3.2 Highest Levels of Unreliability and Delay

The AVAIL tool was used to do a qualitative analysis at the County and TCC level to identify the worst performing segments across the reliability and congestion measures segments. Section 6.3 identifies the methodology and worst performing segments (segments with high unreliability and delay) at the TCC level. Section 7.0 provides a qualitative analysis of the worst performing segment at the County/Borough level.

6.0 Planning Area

For this analysis, current and forecasted levels of traffic congestion for the entire NYMTC planning area are first benchmarked against congestion in peer Urban Areas (UAs) across the United States (see Table 6.1). Performance metrics are then presented for the base year.

Table 2 Peer UAs

Urban Area (UA)	Population
New York City	19,200,000
Los Angeles	12,450,000
Chicago	8,690,000
Miami	6,085,000
Dallas	5,930,000
Philadelphia	5,620,000
Houston	5,600,000
Atlanta	5,250,000
Washington, DC	5,065,000
Boston	4,565,000
Phoenix	4,180,000
Detroit	3,780,000
Seattle	3,550,000
San Francisco	3,530,000
San Diego	3,190,000

Source: Texas A&M Transportation Institute, 2023 Urban Mobility Scorecard.

6.1 Urban Area Comparisons

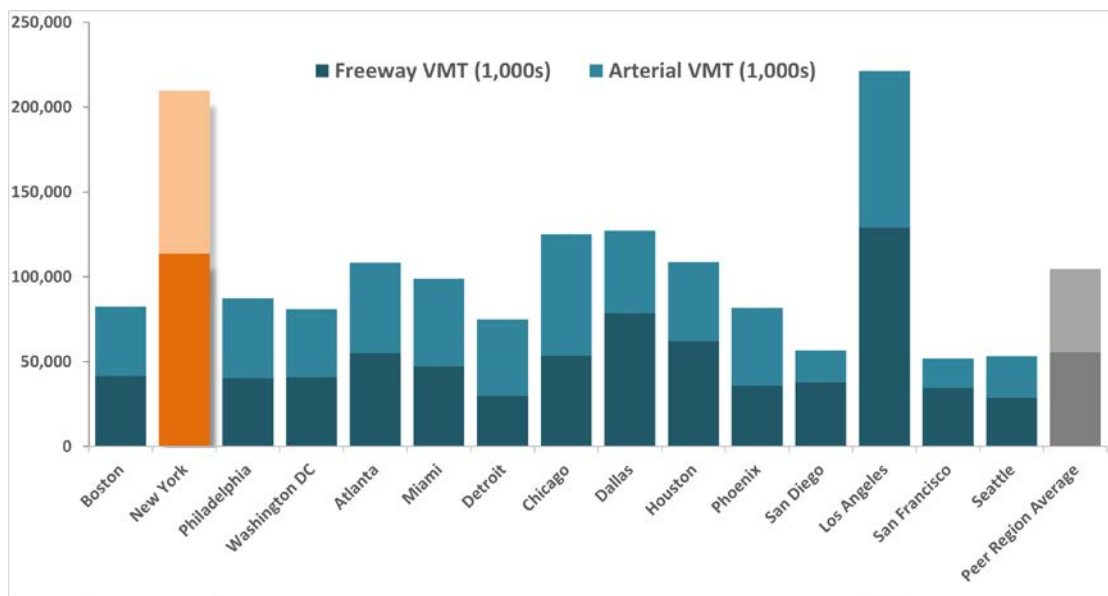
As defined by the U.S. Census Bureau, the New York-Newark-Jersey City NY-NJ UA is the largest in the country by population, with 6.25 million more residents than the Los Angeles-Long Beach-Anaheim CA UA. Among peer UAs, New York-Newark-Jersey City has the lowest daily Vehicle Miles Travelled (VMT) per capita but a higher-than-average Travel Time Index (TTI). The lower VMT per capita is likely due to the greater availability and use of public transportation throughout the New York UA. Comparison data are presented in Table 3.

Table 3 Urban Area Comparisons

Metropolitan Area	Population (million)	Daily VMT/Capita (Freeway + Arterial)	Travel Time Index
Boston	4.57	18.09	1.22
New York City	19.20	10.92	1.32
Philadelphia	5.62	15.56	1.23
Washington D.C.	5.07	15.99	1.25
Atlanta	5.20	20.62	1.25
Miami	6.09	16.25	1.34
Detroit	3.78	19.86	1.20
Chicago	8.69	14.39	1.30
Houston	5.60	19.42	1.27
Dallas	5.93	21.45	1.23
Phoenix	4.18	19.56	1.22
San Diego	3.19	17.80	1.29
Los Angeles	12.45	17.79	1.50
San Francisco	3.53	14.72	1.48
Seattle	3.55	15.01	1.32
Peer Region Average	6.45	17.16	1.29

Source: Texas A&M Transportation Institute, 2023 Urban Mobility Scorecard.

In terms of total travel, only the Los Angeles-Long Beach-Anaheim UA exceeds the volume of travel experienced in the New York-Newark-Jersey City NY-NJ UA, as measured in VMT. See Figure 6.

Figure 6 Vehicle Miles Traveled Comparison


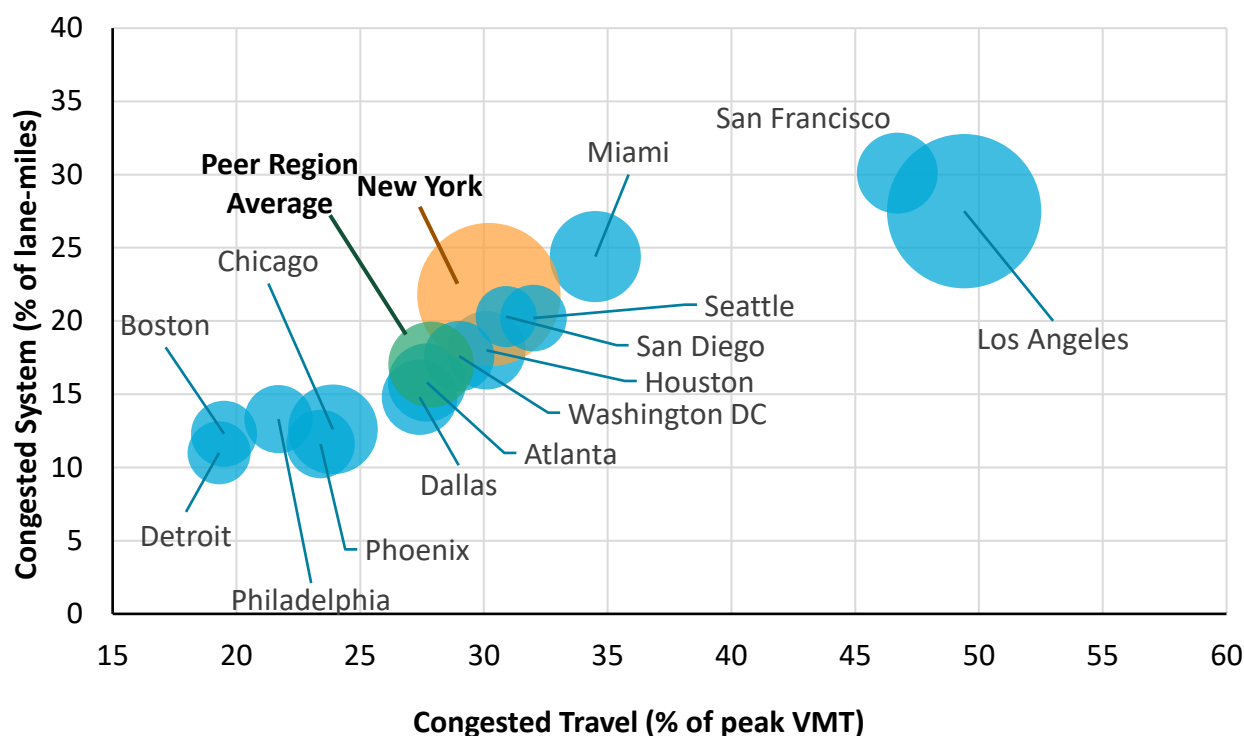
Source: Texas A&M Transportation Institute, 2023 Urban Mobility Scorecard.

Figure 7 combines three indicators of total congestion for New York-Newark-Jersey City and peer UAs:

- The percentage of roadway lane miles that are congested (y-axis)
- The percentage of peak period VMT that is congested (x-axis)
- Total delay in person hours (bubbles are proportionally sized based on total delay)

The New York UA area is shown in yellow, and the average of all 15 areas is shown in green. By percentage of travel or system, New York experiences slightly-above average congestion. However, because of the amount of travel, New York travelers experience the most second highest aggregate delay (over 750 million hours per year), with only travelers in Los Angeles experiencing a higher level of delay. The three areas with the highest percent of congested travel are Los Angeles, San Francisco, and Miami.

Figure 7 Measures of Systemwide Annual Hours of Delay



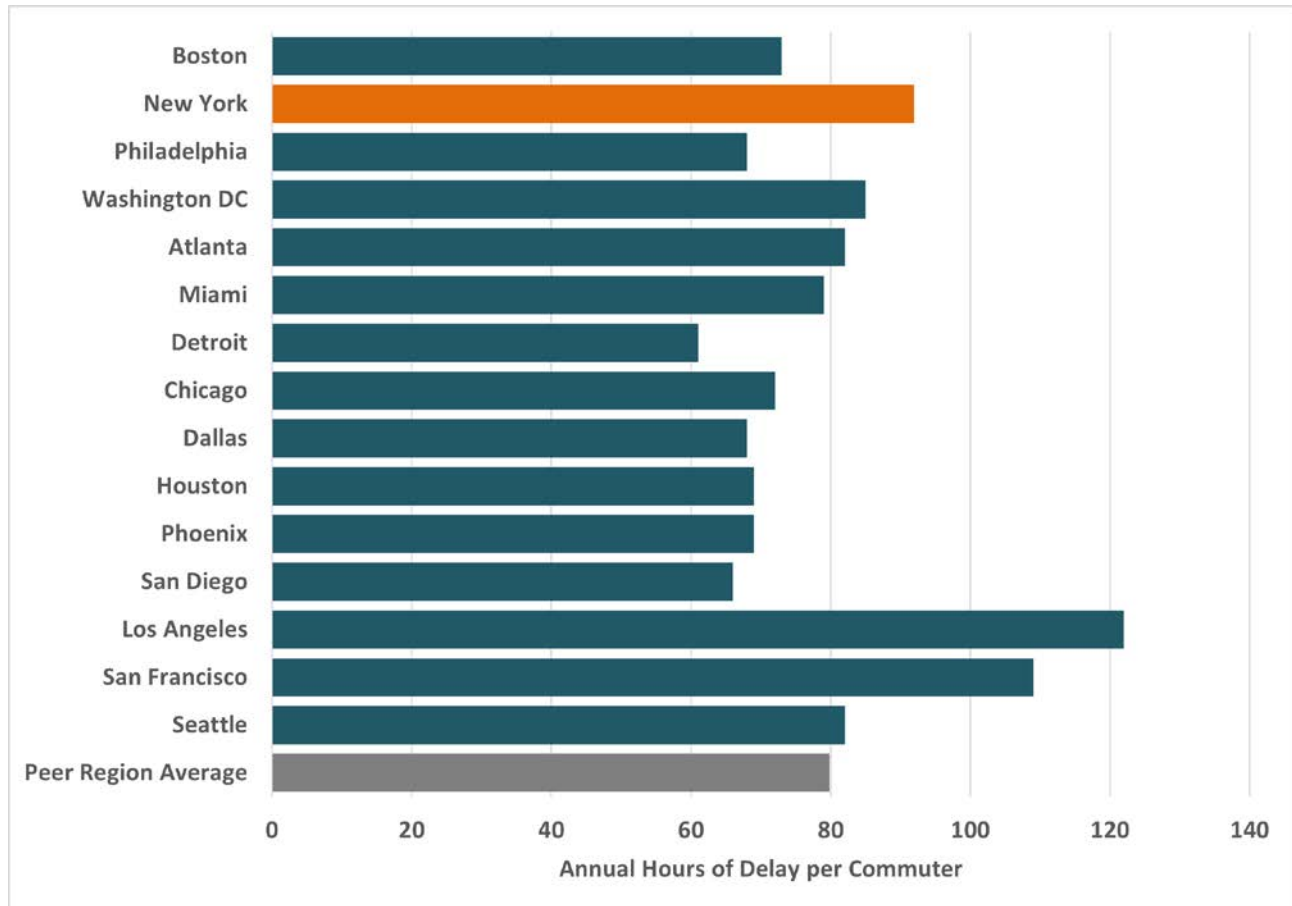
Source: Texas A&M Transportation Institute, 2023 Urban Mobility Scorecard.

Note: On a per commuter basis, the New York-Jersey City-Newark UA experiences the third highest level of annual travel time delay per year (92 hours) with only the Los Angeles and San Francisco UAs exceeding these levels (Figure 8).

TTI and Planning Time Index (PTI) comparisons are shown in Figure 9. TTI is the ratio of travel time in the peak period to travel time at free-flow conditions. A TTI of 1.30 indicates a 20-minute free-flow trip takes 26 minutes in the peak period. PTI is the ratio of travel time on the worst day of the month to travel time at free-flow conditions. A PTI of 1.80 indicates a traveler should plan for 36 minutes for a trip that takes 20 minutes in free-flow conditions. PTI is computed for freeways only; it does not include arterial roadways.

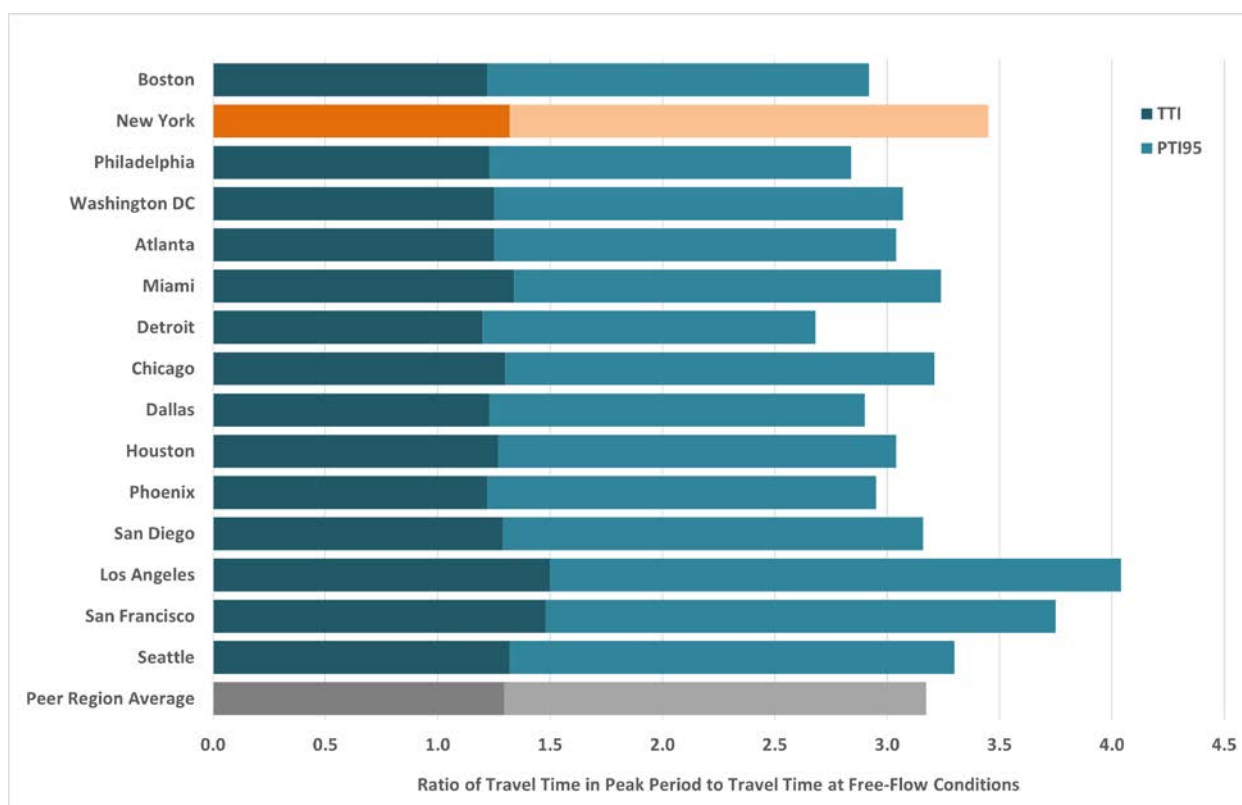
When a PTI is followed by a number, the number indicates a percentage of on-time arrival. In Figure 9, PTI95 refers to conditions in which travelers reach their destination 95 percent of the time within the given time. PTI will always be higher than TTI but depending on regional travel patterns and congestion, the relation between the two indicators can vary in different ways. PTI and TTI for the New York UA are roughly similar to the average for peer UAs with PTI being slightly higher.⁴

Figure 8 Annual Hours of Delay Per Commuter



Source: Texas A&M Transportation Institute, 2023 Urban Mobility Scorecard.

⁴ Texas A&M University, Texas Transportation Institute, 2023 Urban Mobility Report.

Figure 9 Comparison of Travel Time and Planning Time Indices

Source: Texas A&M Transportation Institute, 2023 Urban Mobility Scorecard.

6.2 Congestion and Travel Time Reliability

Increasingly, transportation agencies are looking to travel time reliability as a measure to capture system performance. Travel time reliability typically refers to the variability of travel times travelers experience from one day, season, or year to the next. The focus on reliability comes from the recognition that traffic congestion is a function of several root causes, including crashes and other incidents, special events, weather, and normal fluctuations in travel demand relative to roadway capacity.

Embedded in the largest metropolitan area in the United States, the NYMTC planning area experiences significant unreliability on its road network. Travel time reliability was measured using Level of Travel Time Reliability (LOTTR), Truck Travel Time Reliability (TTTR), TTI, and PTI.

Table 6.3 shows these metrics for each county/ borough in the NYMTC planning area across daily, AM peak, and PM peak timeframes. Across the TTI and PTI indicators, PM traffic exhibits less reliability than AM travel, except for LOTTR in Brooklyn, Staten Island, Rockland and Westchester, where the AM peak is less reliable. Comparatively, reliability has slightly improved in New York City and the suburban counties compared to the 2021 CMP Report results, though New York City remains less reliable than travel on Long Island and in the Lower Hudson Valley.

Table 4 Base Year Travel Time Indicators by County

County/Borough	LOTR			TTTR			TTI			PTI		
	Daily	AM	PM	Daily	AM	PM	Daily	AM	PM	Daily	AM	PM
New York City Boroughs												
Bronx	1.64	1.45	1.47	2.9	2.33	2.34	1.95	1.83	2.06	4.11	3.7	4.16
Brooklyn	1.55	1.42	1.41	2.68	2.19	2.15	1.88	1.78	1.97	3.75	3.51	3.81
Manhattan	1.6	1.43	1.45	2.68	2.16	2.18	1.72	1.62	1.8	3.76	3.36	3.85
Queens	1.59	1.42	1.43	2.8	2.25	2.24	1.88	1.73	2.00	3.82	3.52	3.87
Staten Island	1.56	1.42	1.39	2.77	2.3	2.18	1.46	1.46	1.47	3.53	3.42	3.42
Suburban Counties												
Nassau	1.46	1.35	1.36	2.53	2.13	2.09	1.88	1.78	1.97	3.38	3.16	3.44
Suffolk	1.43	1.34	1.35	2.52	2.18	2.11	1.74	1.71	1.76	3.17	3.02	3.21
Putnam	1.37	1.3	1.3	2.23	1.96	1.92	1.57	1.52	1.61	2.64	2.63	2.59
Rockland	1.42	1.34	1.33	2.41	2.16	2.06	1.61	1.55	1.66	3.03	2.96	3.06
Westchester	1.4	1.34	1.32	2.4	2.12	2	1.6	1.57	1.63	3.06	3.02	3.03

Source: AVAIL NPMRDS tool (2023)

6.2.1 Truck Mobility Focus Areas

The following section aligns with data and methodologies used to understand truck mobility as outlined in the Regional Freight Plan Element, an Appendix to *Moving Forward 2055*. For more information on the Regional Freight Plan visualizations, visit NYMTC's [Moving Forward 2055 Interactive Map](#).

Approach

Roadway segments where the combination of high truck volumes and significant link-level delay and unreliability produce two effects: significant travel time delays for truck drivers and significant costs for freight customers due to delay and unreliability. These two effects—delay and cost—can be normalized on a per-mile basis to identify the best and worst performing segments of National Highway System roadways in the NYMTC planning area. New York City is ranked first for both truck-related total delay of person-hours (34,668,000) and annual congestion cost for trucks (\$2,231,000). The average annual cost for trucks among peer regions is \$832,000, nearly three times less than the New York City region.⁵

Section 7 analyzes TTTR at the County and Borough Level.

Highway Performance Monitoring System Truck Volume Estimates

In some cases, roadway segments with significant delays may be lightly used by trucks due to location or operating restrictions. Therefore, it is important to distinguish between performance issues that affect trucks and those that do not by understanding how truck travel is distributed over the network. The NYSDOT truck count data, while highly detailed, were available only for a limited number of count stations. Therefore, HPMS estimates for year 2022 were used.

NYSDOT generates these estimates annually and reports them to FHWA, and the HPMS data are also contained in NPMRDS. The HPMS data cover the full National Highway System and are matched (in NPMRDS) with corresponding information on travel times by roadway segment.

HPMS data were tabulated for all trucks, as well as for two separate types of trucks. Trucks associated with FHWA Class 5, Class 6, and Class 7 represent single-unit trucks (where the truck cab and body are permanently attached), while FHWA Classes 8 and above represent combination trucks (where the cab and chassis can be separated).

Combination trucks are used primarily for long-distance freight transportation and “primary moves” to transload terminals, intermodal terminals, warehouse/distribution centers, and major customers; single-unit trucks are used primarily for “secondary moves” (last-mile deliveries from warehouse/distribution centers), moves to smaller customers, and moves over dimensionally restricted segments of the region’s truck network. Data in this chapter are shown in some cases for all trucks combined (Classes 5-13), or separately for single unit (Classes 5-7) and combination (Classes 8-13) trucks. Pickup trucks and two-axle delivery vans (Class 3) are not included in the data.

- Figure 10 shows the average annual daily volume of single unit trucks on highways in the NYMTC planning area and surrounding areas of New York State in 2022. The George Washington Bridge carried the greatest volume of single unit trucks in the NYMTC planning area, averaging more than 18,000 per day in 2022. The Verrazano-Narrows Bridge carried nearly 12,000 single unit trucks per day, the Long Island

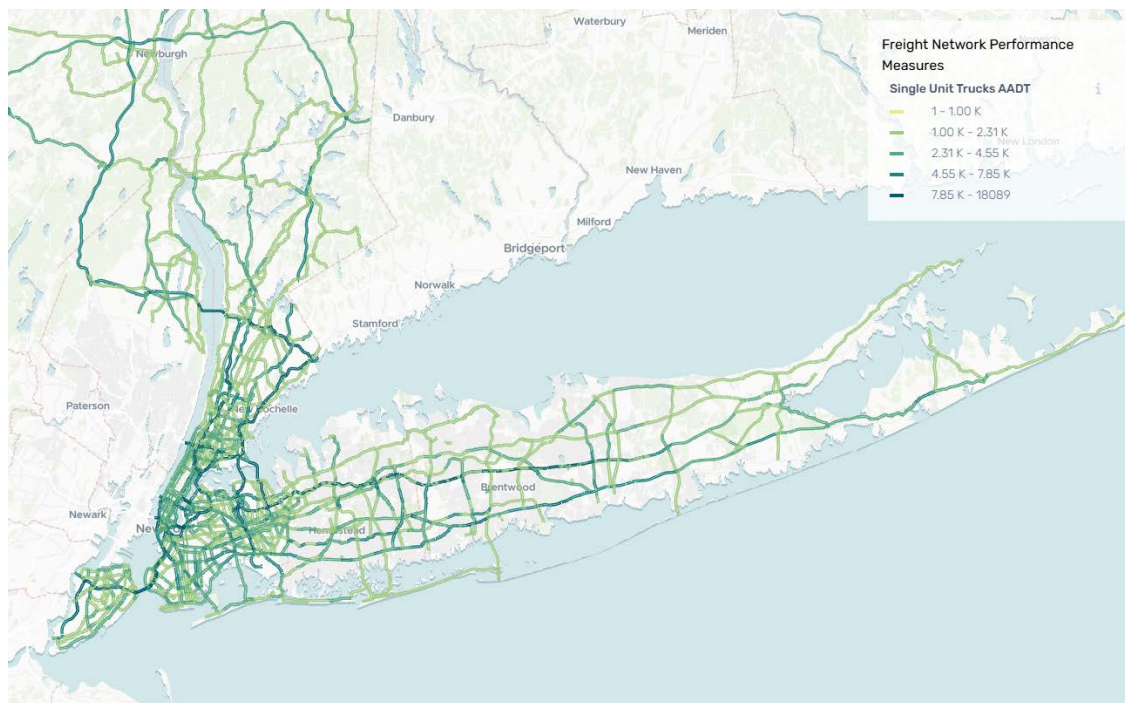
⁵ Texas A&M Transportation Institute, 2023 Urban Mobility Scorecard.

Expressway carried 11,000, and the Gowanus Expressway in Brooklyn carried about 10,000. While the Mario Cuomo Bridge was the busiest link for combination trucks in the planning area, it only carried about 6,400 single unit trucks per day, on average, in 2022. The RFK Bridge and Queensboro/59th Street Bridge, both connecting Manhattan to other boroughs, carried greater volumes, 8,500 and 7,500, respectively.

Figure 11 shows the average annual daily volume of combination trucks on highways in the NYMTC planning area and surrounding areas of New York State in 2022. The Mario Cuomo Bridge carries the highest volume of combination trucks in the NYMTC planning area, averaging about 15,400 per day in 2022. Other high-volume segments for combination trucks include the Cross Bronx Expressway (over 13,000), George Washington Bridge (over 11,500), I-87 in Rockland County (approximately 10,000), and the Long Island Expressway in western Nassau County (approximately 10,000). Notably, there are instances of low AADT counts on roadways that restrict combination trucks, including the Palisades Interstate Parkway in Rockland County, the Hutchinson River Parkway in the Bronx, and the Northern and Southern State Parkways in Nassau and Suffolk counties.

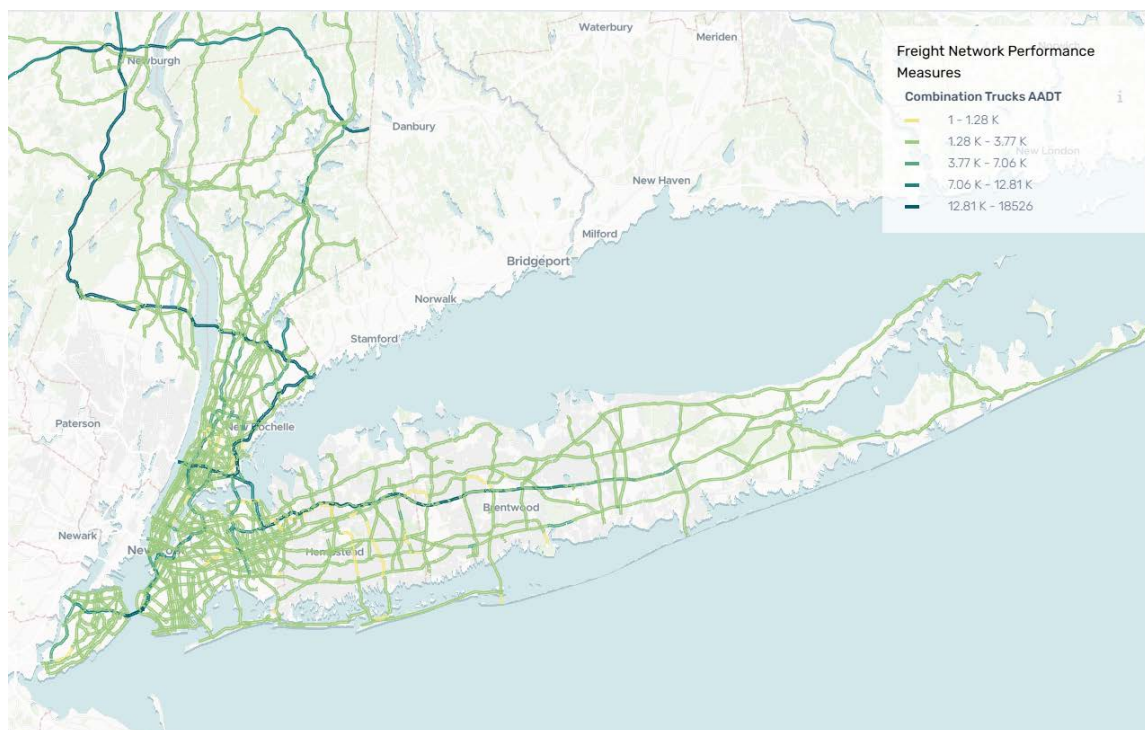
These observations suggest that combination trucks are traveling in greater numbers on interstate highways, particularly those that connect the NYMTC planning area with neighboring jurisdictions. Single unit trucks, meanwhile, are found in the greatest numbers on highway segments that provide access to or between New York City's five boroughs.

Figure 10 Average Annual Daily Single Unit Truck Volumes in and Surrounding the NYMTC Planning Area, 2022



Source: NYSDOT Freight Web Atlas.

Figure 11 Average Annual Daily Combination Truck Volumes in and Surrounding the NYMTC Planning Area, 2022



Source: NYSDOT Freight Web Atlas.

6.2.2 Truck Mobility Focus Areas in the NYMTC Planning Area

Among the highway segments experiencing truck travel time reliability issues, coupled with high volumes of single unit and/or combination trucks (>5,000 per day), Table 6.4 lists 27 truck mobility focus areas in the NYMTC planning area where these conditions are observed. The table includes average annual daily truck volumes sourced from the New York State Freight Atlas and indicators where morning (AM), evening (PM), weekend, and/or off-peak truck travel time reliability indices exceed 4.0 (very unreliable).

Needs related to truck congestion and unreliability could be addressed by:

- Exploring potential management and/or capital improvements to address causes of non-recurring congestion at bottleneck locations;
- Reducing dependence upon trucking, by promoting the development of maritime and rail as modal alternatives, where possible;
- Continue to promote demand-management strategies, such as New York City's Off-Hours Delivery Program.

Table 5 Truck Mobility Focus Areas in the NYMTC Planning Area

County or Borough	Segment	Single Unit Truck AADT	Combination Truck AADT	Total Truck AADT	AM Peak Period	PM Peak Period	Weekend Peak Period	Off-Peak Period
Bronx	New England Thruway (I-95) between I-295 and Westchester Avenue	10,095	10,316	20,411	✓	✓	✓	✓
Bronx	Cross Bronx Expressway (I-95) between I-278 and I-895)	7,425	11,960	19,385		✓	✓	✓
Bronx	Throgs Neck Expressway (I-295) between I-695 and Throgs Neck Bridge)	5,783	7,812	13,595	✓	✓	✓	✓
Bronx	Major Deegan (I-87) between I-95 and Fordham Rd	8,205	3,552	11,757		✓	✓	✓
Bronx	Bruckner (I-278) between I-95 and I-895)	9,507	2,089	11,596	✓	✓	✓	✓
Bronx	I-678 between I-295 and Whitestone Bridge	6,521	3,366	9,887	✓	✓	✓	✓
Bronx	Major Deegan (I-87) between I-278 and Willis Ave	7,122	2,542	9,664	✓	✓	✓	✓
Bronx	I-278, RFK Bridge	5,401	3,447	8,848		✓		✓
Brooklyn	I-278 between Flushing Ave and Wythe Ave	12,918	5,145	18,063	✓	✓	✓	✓
Brooklyn	I-278 between Belt Parkway and I-478	10,073	4,822	14,895	✓	✓	✓	✓
Brooklyn	I-278 between Verrazano-Narrows Bridge and 3rd Ave	8,438	5,269	13,707	✓	✓	✓	✓
Manhattan	I-278 (RFK Bridge) on Randalls Island	8,499	2,238	10,737		✓		✓
Manhattan	59th Street/Queensboro Bridge	6,868	861	7,729	✓			✓
Nassau County	I-495 between Oyster Bay Rd and Suffolk County border	11,670	8,134	19,804	✓		✓	
Nassau County	I-495 between Queens border and Middle Neck Rd	9,428	6,911	16,339	✓			✓
Queens	I-495 between Cross Island Parkway and Nassau County border	11,424	10,298	21,722				✓
Queens	I-295 between Cross Island Parkway and I-495	7,462	6,472	13,934				✓
Queens	I-495 between 108th St. and Kissena Boulevard	8,847	4,010	12,857	✓	✓		✓
Queens	I-678 between Queens Boulevard and Northern Boulevard	9,129	3,371	12,500		✓	✓	✓
Queens	I-678 between Cross Island Pkwy and College Point Boulevard	5,867	2,461	8,328	✓	✓	✓	✓
Rockland	I-87/287 between Garden State Parkway and Palisades Interstate Parkway	4,448	9,731	14,179	✓		✓	

County or Borough	Segment	Single Unit Truck AADT	Combination Truck AADT	Total Truck AADT	AM Peak Period	PM Peak Period	Weekend Peak Period	Off-Peak Period
Staten Island	I-278 between Goethals Bridge and Richmond Avenue	8,827	5,015	13,842	✓	✓	✓	✓
Staten Island	I-278 between Jewett Avenue and Verrazano-Narrows Bridge	11,633	7,425	19,058	✓	✓	✓	✓
Suffolk	I-495 between Sagtikos Parkway and NY-111	8,289	6,076	14,365		✓		
Suffolk	I-495 between NY-454 and Nicolls Road	7,470	5,476	12,946	✓	✓	✓	✓
Westchester	I-287 between U.S.-9 and NY-9A	4,647	9,635	14,282	✓	✓		
Westchester	I-87 between Bronx border and Yonkers Avenue	5,709	3,153	8,862	✓	✓		✓

Source: Analysis of the NYSDOT Freight Atlas and AVAIL Tool performed by Cambridge Systematics.

6.3 Roadways with High Unreliability and Delay

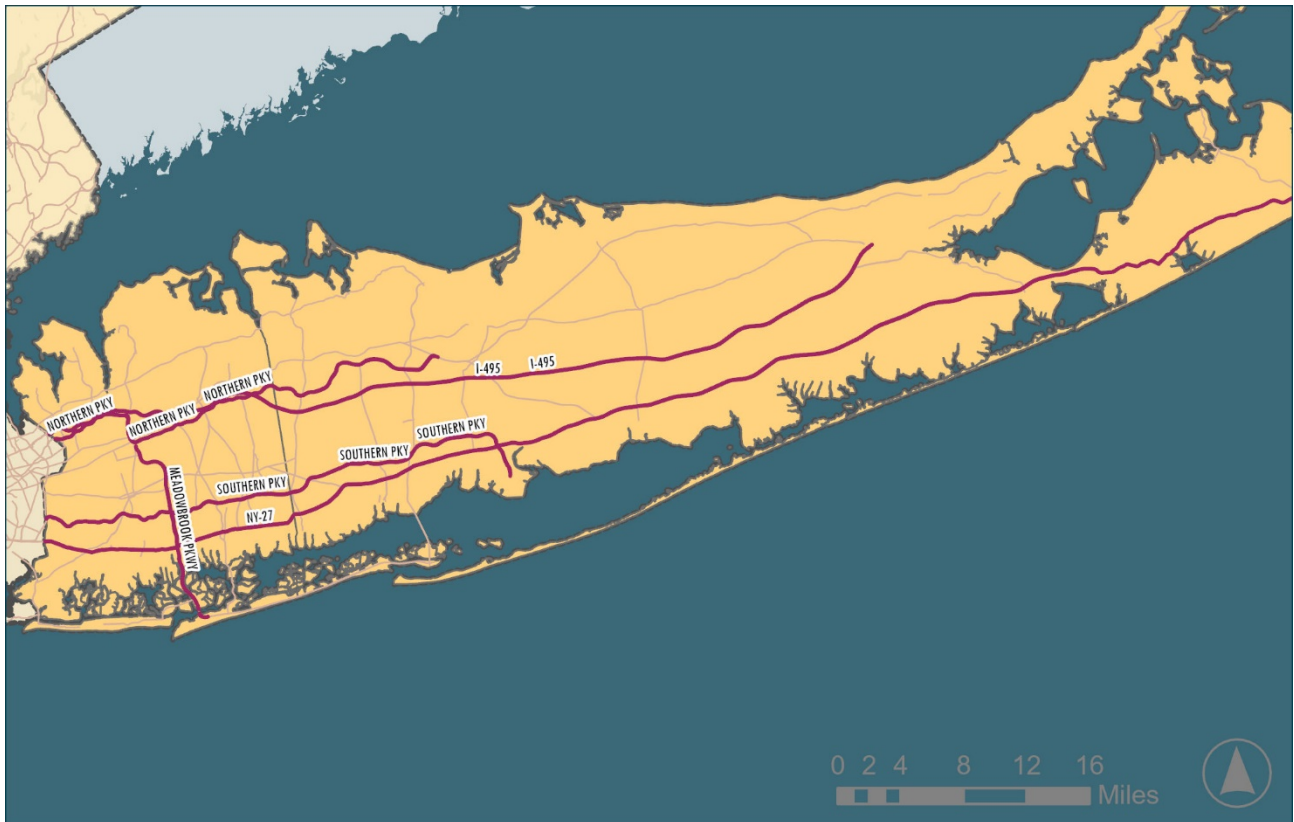
Figure 12, Figure 13, and Figure 14 present the segments with the highest unreliability and delay in the three subregions of NYMTC's planning area (i.e., New York City TCC, Nassau/Suffolk TCC and the Mid-Hudson South TCC). The methodology adopted to identify these corridors was qualitative, segments that appeared to be consistently highly unreliable and highly congested across the three measures of LOTTR, TTTR and Peak Hours of Excessive Delay (PHED) for four time frames of AM peak, PM peak, Off peak and Weekend travel for the first two and AM peak and PM peak for the latter were identified to be the worst performing segments.

Figure 12 High Levels of Unreliability and Delay, New York City

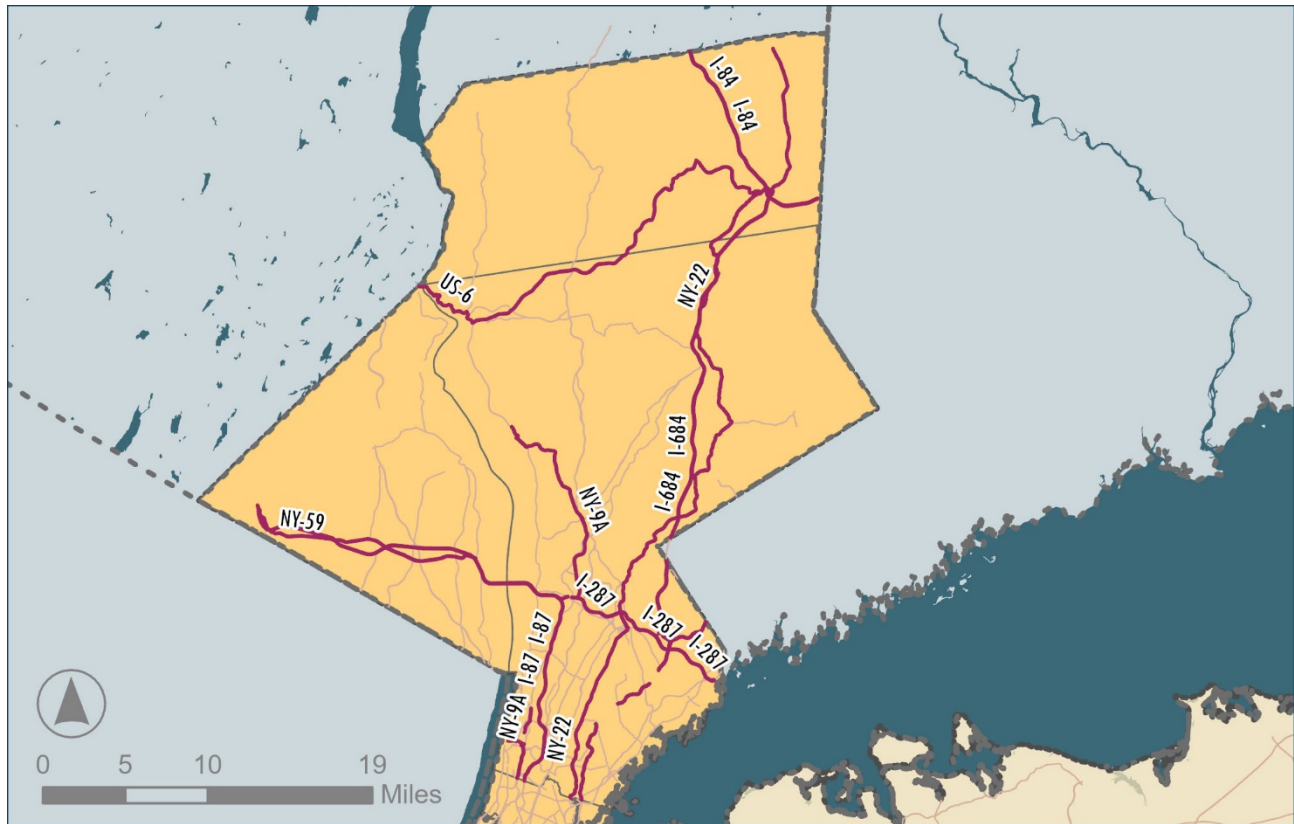


Source: AVAIL, 2023.

Figure 13 High Levels of Unreliability and Delay, Suburban Long Island



Source: AVAIL, 2023

Figure 14 High Levels of Unreliability and Delay, Lower Hudson Valley

Source: AVAIL, 2023.

6.3.1 Future Unreliability and Delay

Section 7.0 includes County/Borough level estimates for future growth trends for VHD, VMT, and total population. Overall, Population forecasts between 2020 and 2055 are estimated to increase by 8 percent in New York City TCC, 12 percent in the Long Island TCC, and 9 percent in the Mid-Hudson South TCC. The greatest percent change in growth is projected to occur in Rockland County at 29 percent. VMT percent change between 2019 and 2055 follows similar patterns as the population growth. VMT is estimated to grow between 14 to 19 percent between the three TCC areas, with the New York City TCC having the greatest projected growth. Staten Island in the New York City TCC has the greatest projected growth for any individual county/borough at 32 percent, followed by Rockland County in the Lower Hudson Valley TCC (24 percent). The greatest percent change in VHD between 2019 and 2055 is projected to occur in the Lower Hudson Valley (42 percent), while Staten Island (71 percent) and Manhattan (51 percent) in the New York City TCC, as well as Nassau (52 percent) in the Long Island TCC have the greatest projected growth for any individual county/boroughs.

Based on these future year estimates, future unreliability and delay will likely occur around the worst performing segments identified in Figure 12, Figure 13, and Figure 14. Delay will likely increase around areas with high projected VHD growth, such as the Long Island Expressway and Meadowbrook Parkway in Long Island, and in areas with high growth in VMT and population such as NY-59 and I-287/I-87 through Rockland County and the Cross Bronx Expressway in the Bronx.

7.0 County/Borough Congestion Analysis

This section provides a county-level summary of congestion measurements for 2023 for each county and borough in the New York Metropolitan Transportation Council (NYMTC) planning area. The team used the most recent available data at the time. See Section 5.0 Analysis and Forecasting Methodology for more information on the datasets methodologies used for this analysis.

An overview is provided for each of the five boroughs of New York City and five suburban counties and includes background information and travel characteristics for 2023. The travel characteristics include congestion and reliability patterns and the identification of segments with the highest levels of unreliability and delay.

The primary performance measures used for screening under existing conditions, derived from the AVAIL NPMRDS tool are Level of Travel Time Reliability (LOTTR), Truck Travel Time Reliability (TTTR) and Peak Hours of Excessive Delay (PHED), further explained below, followed by a detailed analysis of existing performance for each county in the NYMTC region.¹ The acronym NPMRDS refers to the National Performance Management Research Data Set accessible by all Metropolitan Planning Organizations through the Federal Highway Administration (FHWA). Roadways that are featured in the maps are included in the NPMRDS dataset but represent congestion and reliability below the respective thresholds for the performance measures. County-level forecast results for vehicle miles traveled and vehicle hours traveled, derived from the New York Best Practice Model (NYBPM) for the base and horizon year are also presented.

7.1 Level of Travel Time Reliability (LOTTR)

LOTTR represents the ratio between the 85th percentile and the average annual speeds for the analysis period. Mildly unreliable segments represent travel times that are between 1.5 to 2 times greater than the average travel time. Highly unreliable segments represent travel times that are greater than 2 times the average travel time.

7.2 Truck Travel Time Reliability (TTTR)

TTTR represents the ratio between the 95th percentile and the average annual speeds for the analysis period. Mildly unreliable segments represent travel times that are between 2 to 4 times greater than the average travel time. Highly unreliable segments represent travel times that are greater than 4 times the average travel time. The TTTR measure includes both cars and trucks for this analysis.

7.3 Peak Hours of Excessive Delay (PHED)

PHED represent the total person hours of a segment that are traveling at lower speeds. PHED quantifies the total magnitude of congestion through the Annual Average Daily Traffic (AADT) of a roadway. Because PHED is only a measure of the peak periods, metrics are not available for the weekend or off-peak periods.

7.4 Bronx

7.4.1 Current Conditions

For the base year, the network screening identified areas of unreliability and congestion using the LOTTR, TTTR, and PHED metrics. Figure 15 through Figure 17 shows the results of the congestion and reliability screening for the Bronx.

Level of Travel Time Reliability (LOTTR)

Overall, the major thoroughfares for north-south travel, including I-87, the Bronx River Parkway, the Hutchison Parkway, and I95/I695, as well as the east-west travel, including the Cross Bronx Expressway, I-278/Bruckner Boulevard, and U.S. 1, are considered mildly or highly unreliable at some point during the weekday and weekend.

The AM peak has a more distributed unreliable network, though there are more unreliable segments around interchanges and connections to other counties and boroughs. Nearly all the bridge connections to adjacent boroughs and Counties are considered mildly unreliable. The most highly unreliable segments include roadway segments at major interchanges. This likely represents some local travel, but largely commuter travel passing through on major thoroughfares as part of the AM commute. Key unreliable segments include portions of I-87 between the Westchester County border and the Mosholu Parkway, as well as U.S. 1 heading south to the I-278 interchange. North-south unreliable networks include NY-9A and Webster Avenue near the Westchester border, the Bronx River Parkway between U.S. 1 and I95, and I95/I695 near Shore Road and the I295 split. East-west unreliable segments include U.S. 1 around the Bronx River Parkway, the Cross Bronx Expressway (I95/I295), I-278 surrounding the I95 interchange, and Shore Road and Bartow Avenue on the east side of the Bronx.

Highly unreliable segments are more prevalent in the PM peak than the AM peak period, and extend for longer lengths, especially along major north-south and east-west corridors, including I-87, the Bronx River Parkway, Hutchinson Parkway, I-278 and I95.

Similar to the PM peak, the off-peak period has similar mildly and highly unreliable segments that are longer in length, especially around the major bridges connecting to Queens. The Cross Bronx Expressway is considered highly unreliable near the Throgs Neck Bridge, after the I-278 interchange, and near the East River. The Hutchison Parkway also is considered highly unreliable from the Whitestone Bridge to the Cross Bronx interchange and mildly unreliable from I95 to the Westchester border. Portions of I-87 and the Bronx River Parkway are considered mildly and highly unreliable along the Bronx River Parkway, I-87, and I-278/Bruckner Boulevard

For the weekend period, nearly the entire length of the Cross Bronx Expressway is considered either mildly or highly unreliable from the East River to the I-278 interchange. The Bronx River Parkway also is considered highly unreliable, especially north of the Cross Bronx Expressway. Other unreliable segments include portions of I-87, I95/I695, I-278/Bruckner Boulevard, and the Hutchison Parkway around the Westchester border and the Whitestone Bridge to the south.

Figure 15 Level of Travel Time Reliability, Bronx

**Level of Travel Time Reliability
(Weekend Peak Period), Bronx**
Source: AVAIL, 2023



**Level of Travel Time Reliability
(Weekday Off Peak Period), Bronx**
Source: AVAIL, 2023



Truck Travel Time Reliability (TTTR)

Overall, the highest performance measures for TTTR occurred during the PM peak and off-peak period, observed on segments of Bruckner Boulevard, Southern Boulevard, and Hutchinson River Parkway.

The AM peak has similar unreliable segments on the major roadway network as LOTTR, but TTTR has a higher occurrence of mildly unreliable segments, especially along principal and minor arterials. This is more noticeable in the northern portion of the Bronx along the east-west connectors between I-87, the Bronx River Parkway, and the Hutchinson Parkway.

The east-west connectors are less unreliable in the PM peak compared to the AM peak period. Like LOTTR, the PM peak has more highly unreliable segments compared to the AM peak period. Highly unreliable segments are largely concentrated around the interchanges between the Cross Bronx Expressway, I678, Bruckner Boulevard/I-278, and I695.

Off-peak has a higher occurrence of highly unreliable segments compared to the AM and PM peak periods, though it is more concentrated on the major thoroughfares like the Cross Bronx Expressway, Bronx River Parkway, I-87, I-278/Bruckner Boulevard, and the Hutchinson Parkway.

Like the AM peak, the weekend period has more mildly unreliable segments along the north-south principal arterials. There are spots of highly unreliable segments sporadically along I-87 south of U.S. 1, on the Bronx River Parkway and at the interchange with the Cross Bronx Expressway. Other notable unreliable segments include I-278/Bruckner Boulevard, the Hutchinson Parkway near the I295 interchange, and I96/I695 near north of the Hutchinson Parkway and around the Bruckner Boulevard interchange.

Figure 16 Truck Travel Time Reliability, Bronx

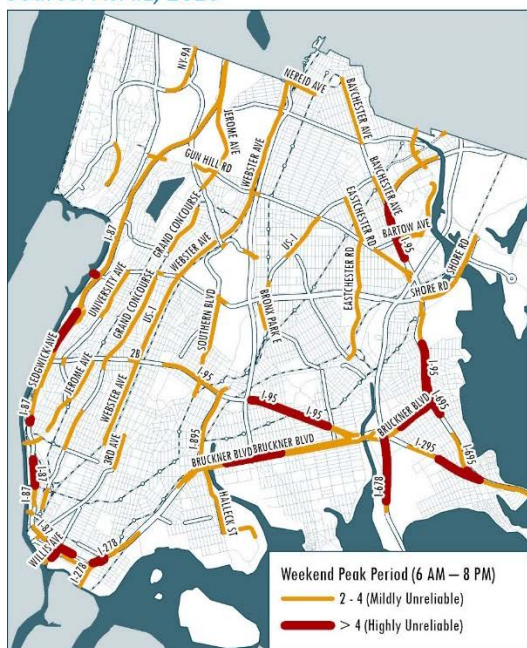
**Truck Travel Time Reliability
(Weekday AM Peak Period), Bronx**
Source: AVAIL, 2023



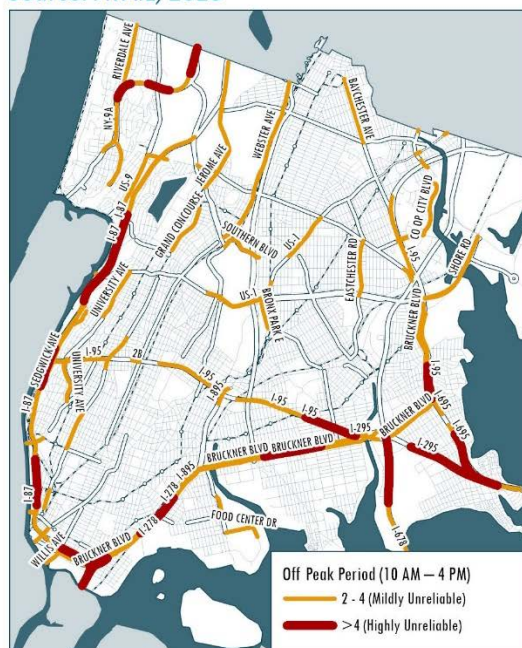
**Truck Travel Time Reliability
(Weekday PM Peak Period), Bronx**
Source: AVAIL, 2023



**Truck Travel Time Reliability
(Weekend Peak Period), Bronx**
Source: AVAIL, 2023



**Truck Travel Time Reliability
(Weekday Off Peak Period), Bronx**
Source: AVAIL, 2023



Peak Hours of Excessive Delay (PHED)

PHED represents the total person hours of a segment that are traveling at lower speeds. PHED quantifies the total magnitude of congestion through the AADT of a roadway. Because PHED is only a measure of the peak periods, metrics are not available for the weekend or off-peak periods. Overall, slower speeds are more prevalent during the PM peak compared to the AM peak. This differs from previous congestion patterns around the NYMTC region, where the AM peak congestion tends to be more concentrated and intense.

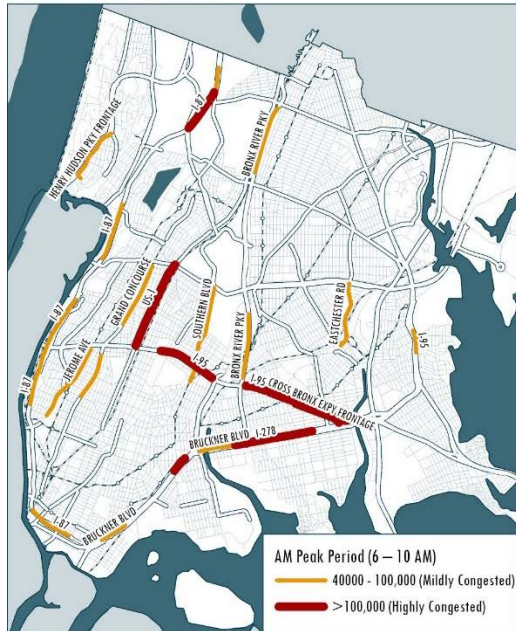
Congestion in the AM peak is concentrated on and around the Cross Bronx Expressway, including I-87, the Bronx River Parkway, U.S. 1 and I-278/Bruckner Boulevard. There is one portion of I-87 that is highly congested near the Westchester border. Other mildly congested areas include smaller portions of north-south connectors on I-95, Bronx River Parkway, I-87 and Jerome Avenue, as well as on I-87 near the RFK bridge.

Congestion in the PM peak is of greater length and magnitude, and PHED mirrors similar patterns to the LOTTR PM peak unreliable segments around I-87, Bronx River Parkway, the Cross Bronx Expressway, and I-278/Bruckner Boulevard. Like the PHED AM period, the Cross Bronx Expressway and the surrounding north-south connectors have the highest prevalence of mild and high congestion.

Figure 17 Peak Hours of Excessive Delay, Bronx

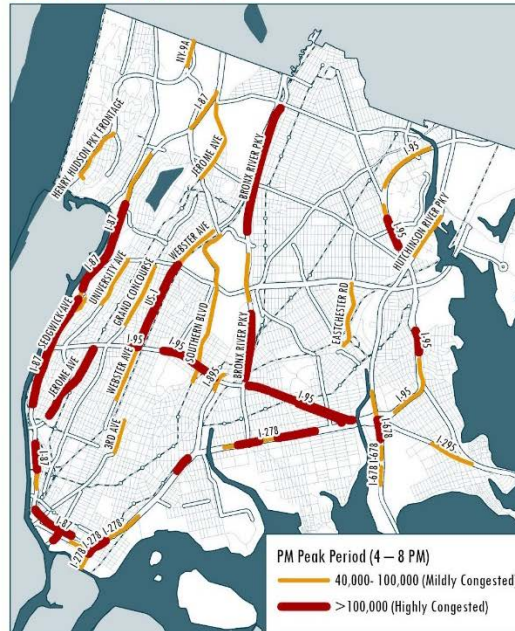
Peak Hours of Excessive Delay
(Weekday AM Peak Period), Bronx

Source: AVAIL, 2023



Peak Hours of Excessive Delay
(Weekday PM Peak Period), Bronx

Source: AVAIL, 2023



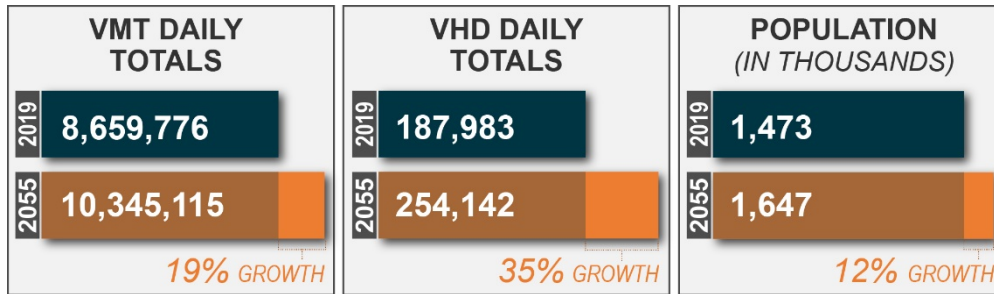
Segments with the Highest Levels of Unreliability and Delay

The most unreliable segments in the Bronx include key north-south routes like I-87, the Bronx River Parkway, the Hutchinson Parkway, and I-95/I-695, as well as east-west corridors such as the Cross Bronx Expressway, I-278/Bruckner Boulevard, and U.S. 1. These segments experience significant travel time variability during both weekdays and weekends, particularly around major interchanges and bridges connecting to other boroughs and counties. Highly unreliable segments are more prevalent during the PM peak and off-peak periods, especially along I-87, the Bronx River Parkway, and the Cross Bronx Expressway, with some areas like the Throgs Neck Bridge and the Whitestone Bridge showing severe reliability issues, particularly on weekends.

7.4.2 Future Forecasts

From 2019 to 2055, VMT, VHD and population are all expected to increase in the Bronx (Figure 18). VMT is expected to increase by 19 percent, while VHD by 35 percent, and population by 12 percent.

Figure 18 Bronx Population and Travel Characteristics



Source: NYBPM

7.5 Brooklyn

7.5.1 Current Conditions

For the base year, the network screening identified areas of unreliability and congestion using the LOTTR, TTTR, and PHED metrics. Figure 19 through Figure 21 shows the results of the congestion and reliability screening for Brooklyn.

Level of Travel Time Reliability (LOTTR)

Travel time reliability in Brooklyn varies significantly by time period and corridor. During the AM peak, major north-south corridors, such as I-278 and Belt Parkway, and east-west routes, including Eastern Parkway exhibit moderate to high levels of unreliability, particularly near interchanges and high-volume access points. Key crosstown routes also face mild to moderate travel time variability due to commuter travel into and across Brooklyn.

In the PM peak, travel time variability intensifies along I-278, Belt Parkway, and NY-27, with unreliability concentrated near major interchanges and high-demand areas. Additional unreliability is observed on east-west corridors such as Atlantic Avenue. The off-peak period sees continued travel time inconsistency, particularly along I-278, Belt Parkway, and Eastern Parkway. Mild to moderate unreliability persists on key crosstown streets and arterial roadways.

For the weekend, travel time unreliability is prominent along I-278, Belt Parkway, and east-west routes, including Atlantic Avenue and Flatlands Avenue.

Figure 19 Level of Travel Time Reliability, Brooklyn

**Level of Travel Time Reliability
(Weekday AM Peak Period), Brooklyn**

Source: AVAIL, 2023



**Level of Travel Time Reliability
(Weekday PM Peak Period), Brooklyn**

Source: AVAIL, 2023



**Level of Travel Time Reliability
(Weekend Peak Period), Brooklyn**

Source: AVAIL, 2023



**Level of Travel Time Reliability
(Weekday Off Peak Period), Brooklyn**

Source: AVAIL, 2023



Truck Travel Time Reliability (TTTR)

Freight movement along Brooklyn's key corridors faces significant challenges across all time periods. During the AM peak, I-278 and Belt Parkway exhibit moderate to high freight travel unreliability. East-west routes, including Eastern Parkway, also experience mild to moderate variability. In the PM peak, freight unreliability intensifies along I-278, Belt Parkway, and Flatlands Avenue, with moderate unreliability observed on crosstown routes. The off-peak period sees moderate freight unreliability persisting along I-278, Belt Parkway, and key east-west routes, including Liberty Avenue.

For the weekend, freight travel faces unreliability along I-278 and Belt Parkway, with moderate variability along Atlantic Avenue and Eastern Parkway.

Figure 20 Truck Travel Time Reliability, Brooklyn

**Truck Travel Time Reliability
(Weekend Peak Period), Brooklyn**
Source: AVAIL, 2023



**Truck Travel Time Reliability
(Weekday Off Peak Period), Brooklyn**
Source: AVAIL, 2023



Peak Hours of Excessive Delay (PHED)

Peak Excessive delays in Brooklyn are concentrated along major north-south and east-west corridors during peak periods. In the AM peak, delays are most pronounced along I-278, Belt Parkway, and crosstown routes, including Eastern Parkway and Atlantic Avenue. During the PM peak, excessive delays extend across I-278, Belt Parkway, and Atlantic Avenue, with significant congestion near high-volume access points and densely populated areas across the network. Increased overlap of commuter and freight traffic during evening hours further exacerbates delays.

Figure 21 Peak Hours of Excessive Delay, Brooklyn

**Peak Hours of Excessive Delay
(Weekday AM Peak Period), Brooklyn**

Source: AVAIL, 2023



**Peak Hours of Excessive Delay
(Weekday PM Peak Period), Brooklyn**

Source: AVAIL, 2023

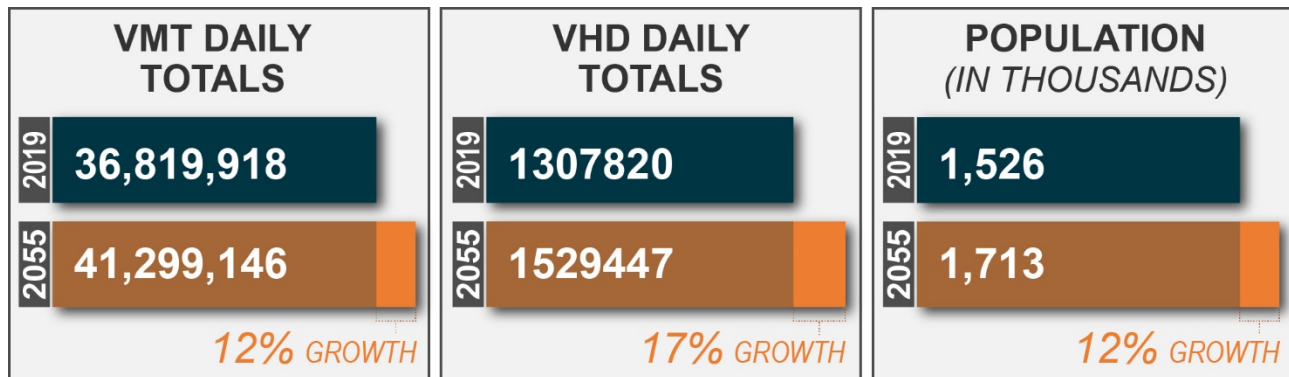


Segments with the Highest Levels of Unreliability and Delay

The most unreliable segments consistently in Brooklyn include I-278, Belt Parkway, and NY-27, with significant travel time variability during peak and off-peak periods. East-west corridors, including Atlantic Avenue and Eastern Parkway, also exhibit inconsistent travel times, particularly near interchanges and high-demand areas.

7.5.2 Future Forecasts

From 2019 to 2055, VMT, VHD, and population are expected to increase (Figure 22) in Brooklyn. VMT is expected to increase by 12 percent, while VHD by 17 percent, and population by 12 percent.

Figure 22 Brooklyn Population and Travel Characteristics

Source: NYBPM.

7.6 Manhattan

7.6.1 Current Conditions

For the base year, the network screening identified areas of unreliability and congestion using the LOTTR, TTTR, and PHED metrics. Figure 23 through Figure 25 show the results of the congestion and reliability screening for the Manhattan.

Level of Travel Time Reliability (LOTTR)

The major thoroughfares for north-south travel in Manhattan, including NY-9A, Harlem River Drive, and FDR Drive are mildly or highly unreliable during the weekday and weekend periods. The AM peak shows a distributed unreliable network, with unreliable segments concentrated along key north-south routes and crosstown corridors. Key unreliable segments include portions of Harlem River Drive and FDR Drive, which experience moderate to high variability.

During the PM peak, unreliable segments are more prevalent and longer in length, particularly along NY-9A, Harlem River Drive, and FDR Drive. The off-peak period retains a similar pattern of unreliable segments, especially along Harlem River Drive and FDR Drive, where variability persists due to local and through traffic. East-west routes such as 23rd Street and 42nd Street exhibit moderate unreliability, highlighting midday travel demand fluctuations.

For the weekend period, major north-south routes, including NY-9A, Harlem River Drive, and FDR Drive, remain unreliable, with unreliability reflecting steady traffic volumes throughout the day. Crosstown corridors such as 23rd Street and 14th Street also exhibit moderate variability, particularly near areas of high activity.

Figure 23 Level of Travel Time Reliability, Manhattan

**Level of Travel Time Reliability
(Weekend Peak Period), Manhattan**
Source: AVAIL, 2023



**Level of Travel Time Reliability
(Weekday Off Peak Period), Manhattan**
Source: AVAIL, 2023



Truck Travel Time Reliability (TTTR)

Freight travel faces significant unreliability along major north-south routes and key crosstown corridors, with the most unreliable segments concentrated on principal freight routes. During the AM peak, unreliability for freight vehicles is significant along Harlem River Drive and FDR Drive, with moderate unreliability observed along NY-9A and crosstown routes. These patterns are likely driven by the convergence of freight and commuter traffic during peak hours.

The PM peak period shows an increase in freight unreliability, particularly along Harlem River Drive, FDR Drive, and NY-9A. Freight variability is further reflected along key crosstown corridors, where congestion at interchanges exacerbates unreliability. The off-peak period shows moderate freight unreliability along NY-9A, Harlem River Drive, and FDR Drive, with variability influenced by local deliveries and through traffic. Crosstown corridors exhibit moderate unreliability, reflecting the continued presence of freight movements during midday hours.

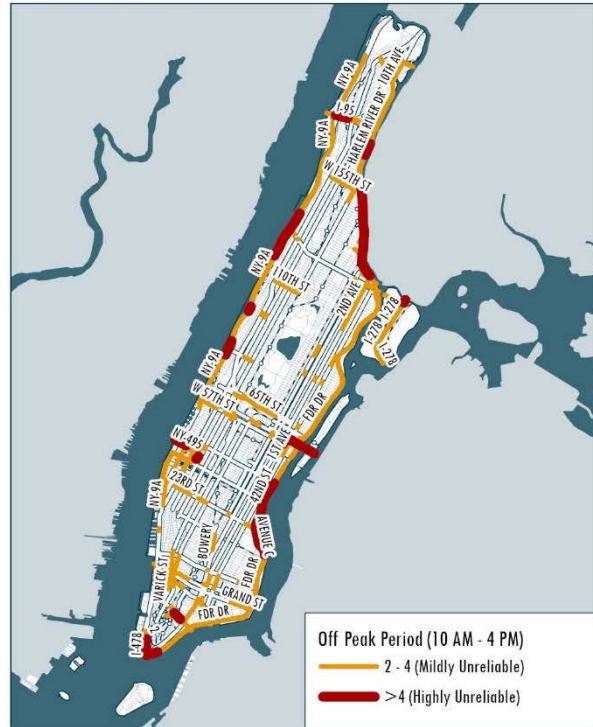
For the weekend, freight unreliability persists along Harlem River Drive and FDR Drive, with moderate unreliability occurring on NY-9A and other key east-west routes like East 34th Street and West Street. These patterns reflect sustained freight activity despite reduced commuter traffic.

Figure 24 Truck Travel Time Reliability, Manhattan

**Truck Travel Time Reliability
(Weekend Peak Period), Manhattan**
Source: AVAIL, 2023



**Truck Travel Time Reliability
(Weekday Off Peak Period), Manhattan**
Source: AVAIL, 2023



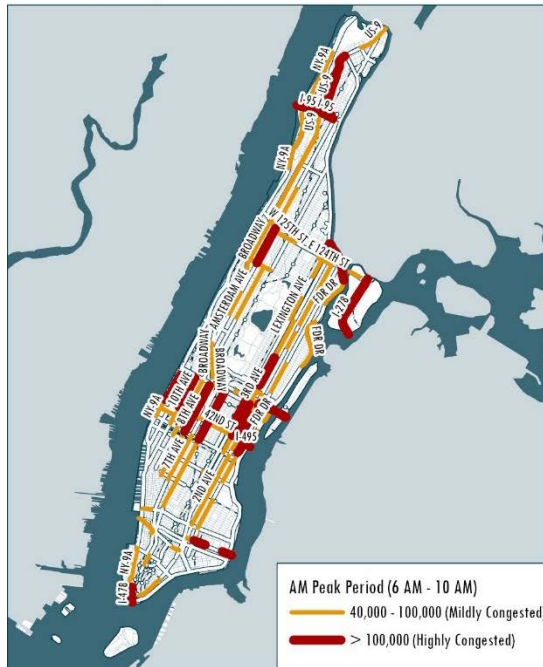
Peak Hours of Excessive Delay (PHED)

There are concentrated areas of congestion during peak periods, leading to slower speeds and significant person hours lost along major routes. In the AM peak, excessive delays are concentrated along Harlem River Drive, FDR Drive, and key crosstown routes such as 42nd Street. Additionally, large swaths of Midtown also show significant delays. The PM peak period experiences greater delays compared to the morning, with the highest levels occurring along Harlem River Drive, FDR Drive, and NY-9A. Crosstown corridors such as 23rd Street and key Midtown corridors also exhibit severe delays.

Figure 25 Peak Hours of Excessive Delay, Manhattan

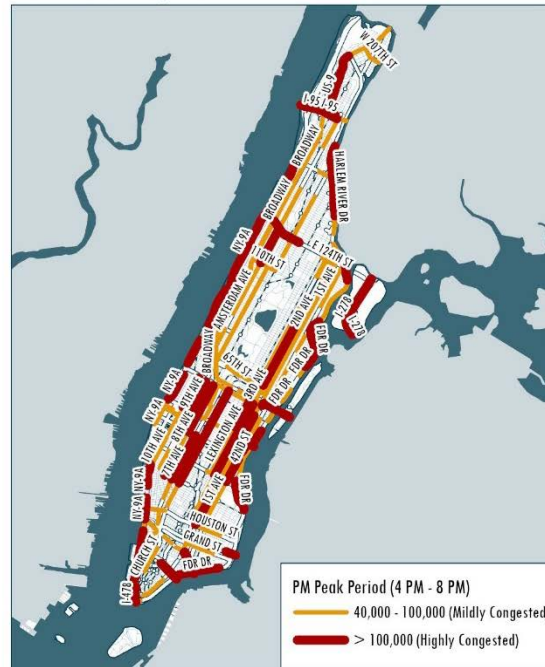
**Peak Hours of Excessive Delay
(Weekday AM Peak Period), Manhattan**

Source: AVAIL, 2023



**Peak Hours of Excessive Delay
(Weekday PM Peak Period), Manhattan**

Source: AVAIL, 2023



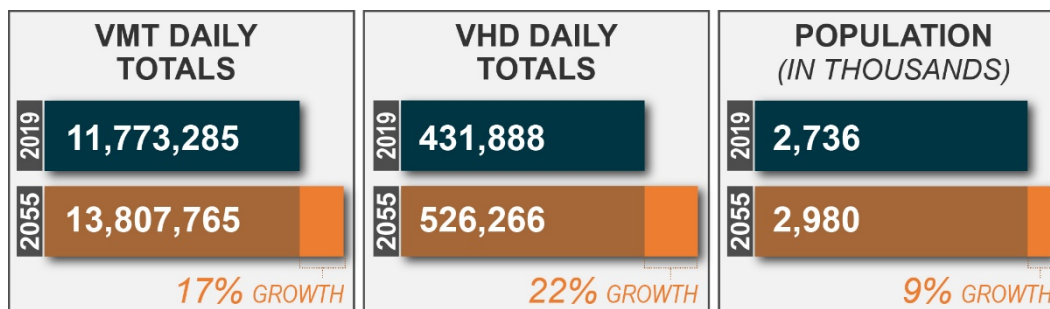
Segments with the Highest Levels of Unreliability and Delay

The Harlem River Drive, FDR Drive, and NY-9A consistently exhibit the highest levels of unreliability across all periods, impacting both passenger and freight traffic. Crosstown streets, including 42nd Street, 23rd Street, and 14th Street, experience delays during peak and off-peak periods.

7.6.2 Future Forecasts

From 2019 to 2055, VMT, VHD, and population are expected to increase significantly (Figure 26) in Manhattan. VMT is expected to increase by 17 percent, while VHD by 22 percent, and population by 9 percent.

Figure 26 Manhattan Population and Travel Characteristics



Source: NYBPM

7.7 Queens

7.7.1 Current Conditions

For the base year, the network screening identified areas of unreliability and congestion using the LOTTR, TTR, and PHED metrics. Figure 27 through Figure 29 show the results of the congestion and reliability screening for Queens.

Level of Travel Time Reliability (LOTTR)

In Queens, the major thoroughfares for both north-south and east-west travel, including I-495, Grand Central Parkway, Belt Parkway, and Cross Island Parkway, exhibit varying levels of reliability throughout the day and over the weekend.

During the AM peak period, the unreliable network is distributed across several key corridors, with many segments showing mild to high unreliability near major interchanges and points of entry to neighboring boroughs. Highly unreliable segments appear along the Grand Central Parkway, I-495, and Cross Island Parkway, likely due to significant commuter traffic converging toward key interchanges. North-south unreliable segments include parts of the Cross Island Parkway and portions of I-678 near interchanges, while east-west unreliable segments are concentrated along I-495 and Grand Central Parkway.

The off-peak period shows a shift in unreliable segments, with highly unreliable sections extending across longer stretches, particularly on major arteries like I-495, Belt Parkway, and Grand Central Parkway. Many of these unreliable sections align with entrances to Queens or major interchanges. High unreliability on the Grand Central Parkway and Cross Island Parkway, especially near connection points, highlights ongoing congestion even during nonpeak hours.

During the PM peak period, unreliability is along east-west corridors like I-495 and Grand Central Parkway, and north-south routes like Cross Island Parkway and I-678. This period features highly unreliable segments, particularly along Belt Parkway, I-678 and Grand Central Parkway, suggesting heavy evening commuter volumes and local travel concentrated around major exits and interchanges.

The weekend period maintains a similar pattern, with extended lengths of unreliability on I-495, Grand Central Parkway, and Belt Parkway. High unreliability on the Grand Central Parkway and Cross Island Parkway reflects continuous demand for travel within and across borough boundaries. Weekend congestion is evident on I-495 and Belt Parkway.

Truck Travel Time Reliability (TTTR)

For the TTTR measurement during the AM peak period Queens experiences a mix of mildly and highly unreliable travel segments, particularly on key corridors critical for both freight and commuter traffic. As seen on Fig 7-53, the I-495 near the western portions of Queens displays highly unreliable segments, with TTTR values above 4. This severe unreliability indicates that during the worst 5 percent of travel times, freight vehicles and other traffic may face prolonged unreliability. The NY-25A and I678 exhibit highly unreliable segments, particularly near their intersections with major roadways.

Beyond these highly unreliable areas, several other corridors in Queens are classified as mildly unreliable, with TTTR values between 2 and 4 as seen in Figure 28.

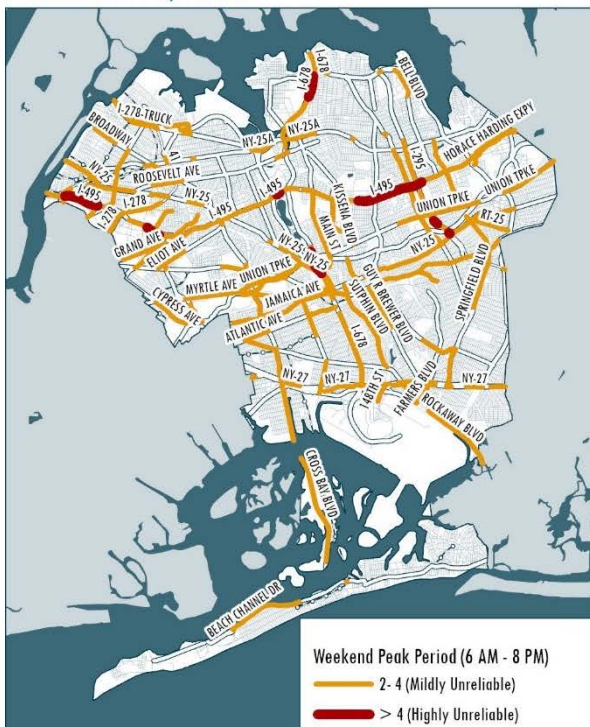
During the off-peak period, Queens displays several segments with varying reliability levels. Highly unreliable segments with TTTR values above 4 are evident on key corridors such as I-495, particularly in the western sections. This suggests potential unreliability outside peak hours. Major roads like the I678 and portions of the NY-25A near important intersections also exhibit high unreliability. Apart from these, several other corridors across Queens are classified as mildly unreliable, with TTTR values between 2 and 4, suggesting moderately inconsistent travel times.

In the PM peak period, travel reliability in Queens declines on certain key segments. The I-495, particularly in the western parts of the borough, as well as both the northbound and southbound segments of the I678, shows high unreliability with elevated TTTR values. In addition, mildly unreliable corridors with TTTR values between 2 and 4 are spread throughout Queens.

On weekends, travel reliability in Queens shows distinct patterns with high unreliability on segments of the I-495, especially near busy interchanges, as well as on parts of I678. These areas, marked with TTTR values above 4, indicate severe unreliability that could impact recreational and essential travel alike. Other segments, such as parts of the Union Turnpike and Cross Bay Boulevard, fall into the mildly unreliable category, with TTTR values between 2 and 4 as seen in Figure 28. This suggests that weekend travel across these corridors can be moderately inconsistent.

Figure 28 Truck Travel Time Reliability, Queens

**Truck Travel Time Reliability
(Weekend Peak Period), Queens**
Source: AVAIL, 2023



**Truck Travel Time Reliability
(Weekday Off Peak Period), Queens**
Source: AVAIL, 2023



Peak Hours of Excessive Delay (PHED)

For the PHED analysis, congestion is more pronounced during the PM peak compared to the AM peak. During the AM peak period, congestion is heavily concentrated along primary corridors. The highest metrics occur on segments of I-495 especially near interchanges and major intersections. This indicates substantial delays. Congested areas extend along the Belt Parkway, Cross Island Parkway, and I-278.

The PM peak period sees a much greater level and extent of congestion. PHED values are higher in the evening, along I-495 and Cross Island Parkway. In addition, Rockaway Boulevard, Grand Central Parkway, and segments of the Belt Parkway show high congestion levels, aligning with LOTTR's PM peak patterns of unreliability.

Figure 29 Peak Hours of Excessive Delay, Queens

**Peak Hours of Excessive Delay
(Weekday AM Peak Period), Queens**

Source: AVAIL, 2023



**Peak Hours of Excessive Delay
(Weekday PM Peak Period), Queens**

Source: AVAIL, 2023



Segments with the Highest Levels of Unreliability and Delay

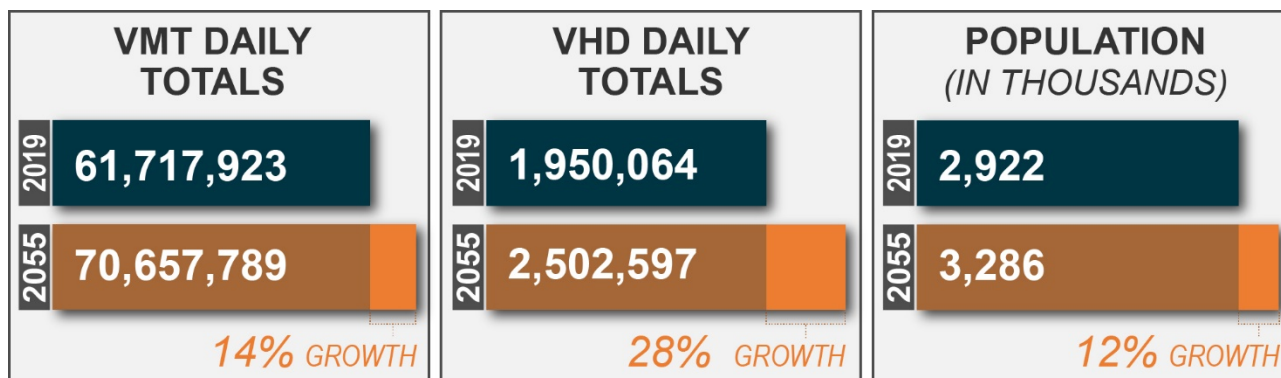
The worst-performing segments in Queens consistently show high unreliability and congestion across major corridors, impacting both local and regional travel. I-495 stands out as one of the most unreliable thoroughfares, with significant delays observed in both directions throughout the day and across all periods, especially near key interchanges. The Grand Central Parkway also experiences extended periods of high unreliability, particularly during peak hours and weekends. The Cross Island Parkway, while primarily a north-south route, demonstrates high unreliability near major interchanges, particularly during the PM peak and weekend peak periods. The Belt Parkway, which connects multiple areas across Queens, consistently shows highly unreliable segments during the PM peak and weekend peak periods, reflecting continuous

demand for travel. Additional east-west routes, such as NY-25A and Rockaway Boulevard, also exhibit severe delays, particularly in peak periods.

7.7.2 Future Forecasts

From 2019 to 2055, VMT, VHD, and population are expected to increase (Figure 30) in Queens. VMT is expected to increase by 14 percent, while VHD by 28 percent, and population by 12 percent.

Figure 30 Queens Population and Travel Characteristics



Source: NYBPM

7.8 Staten Island

7.8.1 Current Conditions

For the base year, the network screening identified areas of unreliability and congestion using the LOTTR, TTTR, and PHED metrics. Figure 31 through Figure 33 show the results of the congestion and reliability screening for Staten Island.

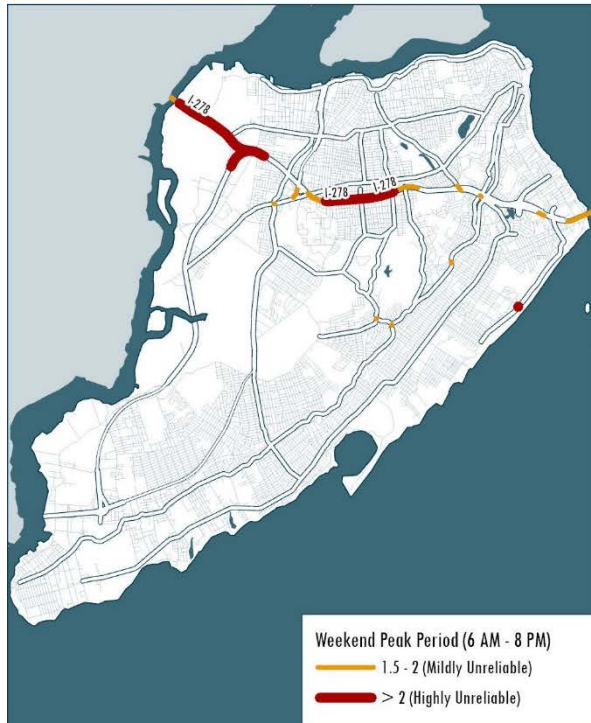
Level of Travel Time Reliability (LOTTR)

Travel time reliability in Staten Island varies across key corridors. During the AM peak period, I-278 near the western part of the island and Victory Boulevard experiences high unreliability. I-278 extends its unreliable segments through central Staten Island. During the off-peak period, reliability concerns persist along I-278, particularly on central segments, but other roads like Victory Boulevard demonstrate mild unreliability.

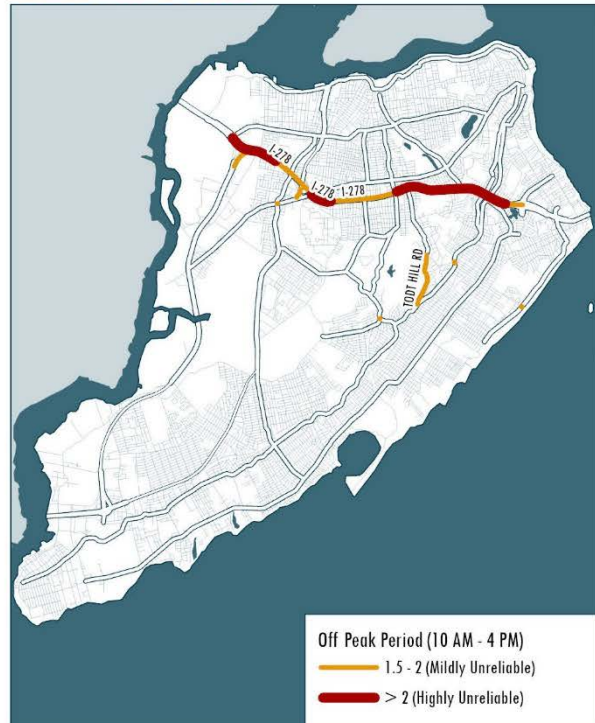
In the PM peak, I-278 shows significant unreliability, especially along major intersections. Segments along Victory Boulevard and Richmond Avenue face mild to high unreliability. The weekend peak period highlights continued issues on I-278, with mild to severe unreliability stretching along its length. Other corridors, such as Amboy Road and Hylan Boulevard, exhibit stable reliability with occasional mild issues.

Figure 31 Level of Travel Time Reliability, Staten Island

**Level of Travel Time Reliability
(Weekend Peak Period), Staten Island**
Source: AVAIL, 2023



**Level of Travel Time Reliability
(Weekday Off Peak Period), Staten Island**
Source: AVAIL, 2023



Truck Travel Time Reliability (TTTR)

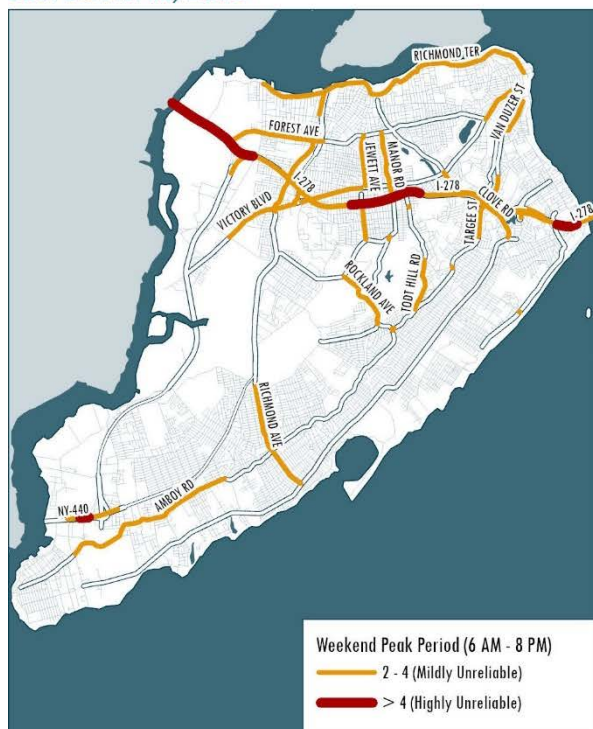
Freight reliability is most impacted during the AM peak period along I-278 in western and central Staten Island. Freight movements experience moderate unreliability, overlapping with commuter congestion. Victory Boulevard also sees mild variability in freight movement. During the off-peak period, freight unreliability on I-278 are slightly reduced but still noticeable in central Staten Island.

In the PM peak, freight travel is highly unreliable on I-278 and NY-440, with variability concentrated near major interchanges. Freight movements on Victory Boulevard and Amboy Road are mildly unreliable. The weekend period sees sustained freight unreliability on I-278 with secondary corridors like Richmond Avenue and Hylan Boulevard showing minimal impact.

Figure 32 Truck Travel Time Reliability, Staten Island

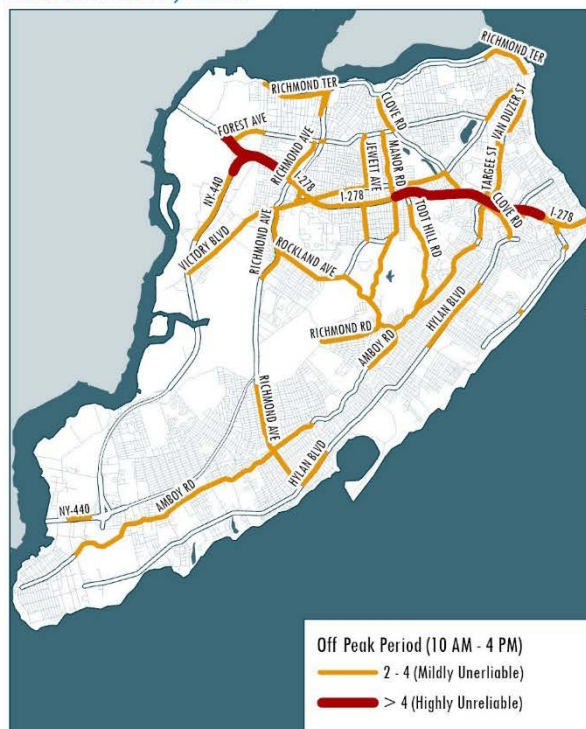
Truck Travel Time Reliability (Weekend Peak Period), Staten Island

Source: AVAIL, 2023



Truck Travel Time Reliability (Weekday Off Peak Period), Staten Island

Source: AVAIL, 2023

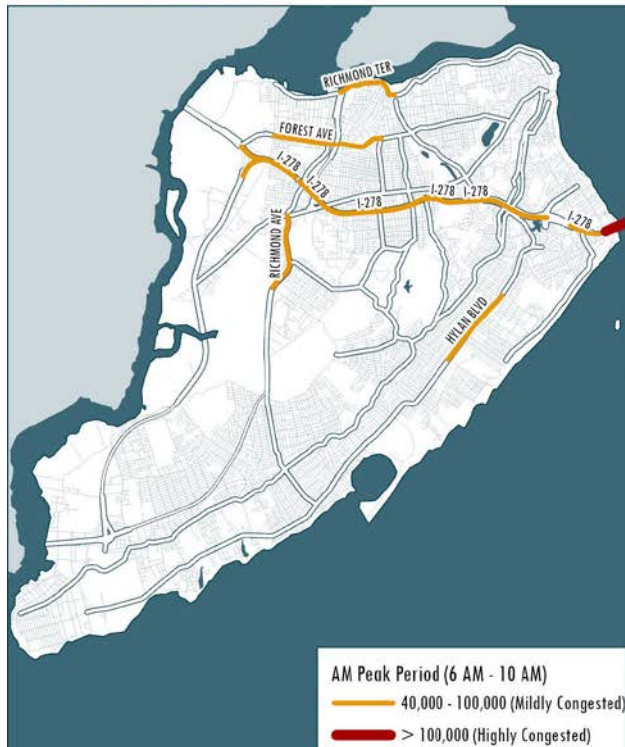


Peak Hours of Excessive Delay (PHED)

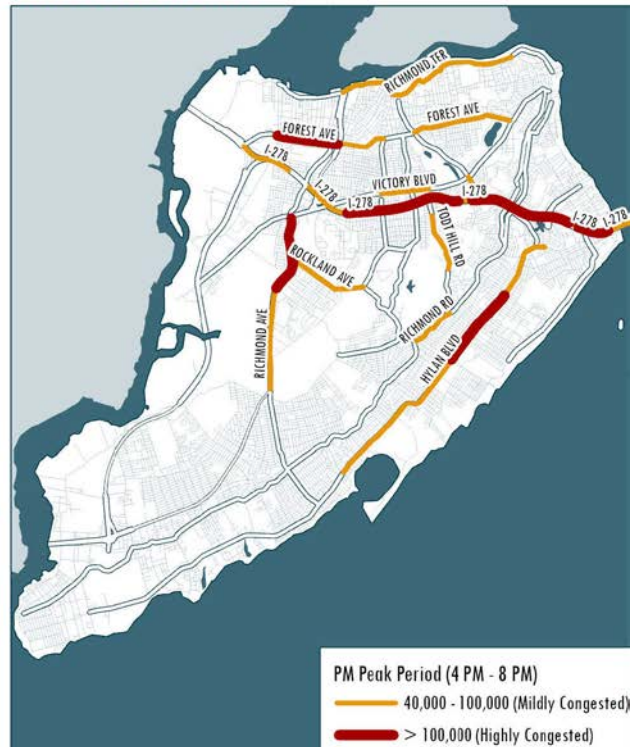
During the AM peak, PHED values are concentrated along I-278 and NY-440 near interchanges, with delays extending to Richmond Avenue, Forest Avenue, and Hylan Boulevard. The highest PHED values are observed near bridge approaches. The PM peak records higher PHED values compared to the AM peak. I-278 experiences significant delays near major interchanges, while east-west corridors such as Hylan Boulevard and Richmond Terrace also show elevated PHED.

Figure 33 Peak Hours of Excessive Delay, Staten Island**Peak Hours of Excessive Delay
(Weekday AM Peak Period), Staten Island**

Source: AVAIL, 2023

**Peak Hours of Excessive Delay
(Weekday PM Peak Period), Staten Island**

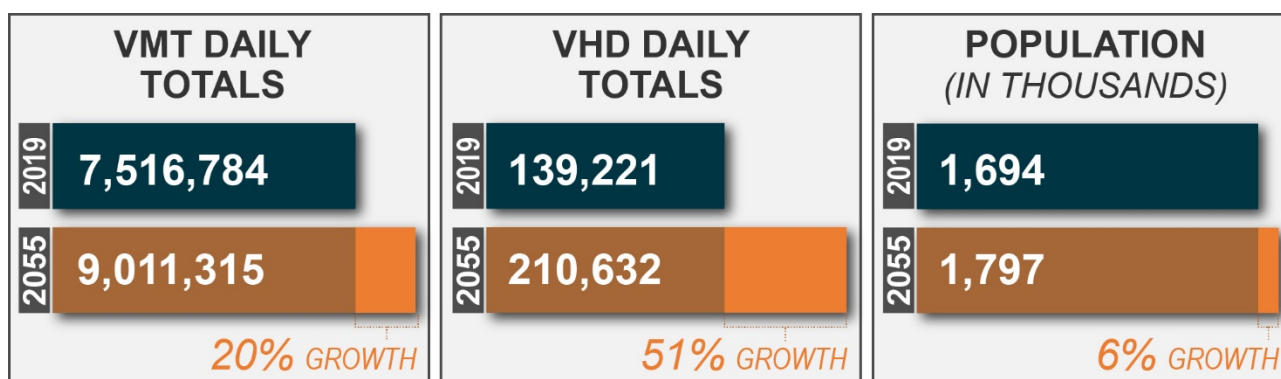
Source: AVAIL, 2023

**Segments with the Highest Levels of Unreliability and Delay**

The most unreliable segments in Staten Island exhibit consistent issues across key corridors, severely impacting both local and regional travel. I-278 emerges as the most unreliable corridor, with significant delays and variability observed throughout the day, particularly near key interchanges and during peak travel periods. Richmond Avenue and Hylan Boulevard, while serving as vital north-south routes, experience high unreliability, especially during the PM peak period and weekend travel times. Forest Avenue and Victory Boulevard also show extended periods of unreliability, with delays exacerbated during the PM peak and weekend periods.

7.8.2 Future Forecasts

From 2019 to 2055, VMT, VHD, and population are expected to increase (Figure 34) in Rockland. VMT is expected to increase by 20 percent, while VHD will by 51 percent, and population by 6 percent.

Figure 34 Staten Island Population and Travel Characteristics

Source: NYBPM.

7.9 Nassau

7.9.1 Current Conditions

For the base year, the network screening identified areas of unreliability and congestion using the LOTTR, TTTR, and PHED metrics. Figure 35 through Figure 37 show the results of the congestion and reliability screening for Nassau County.

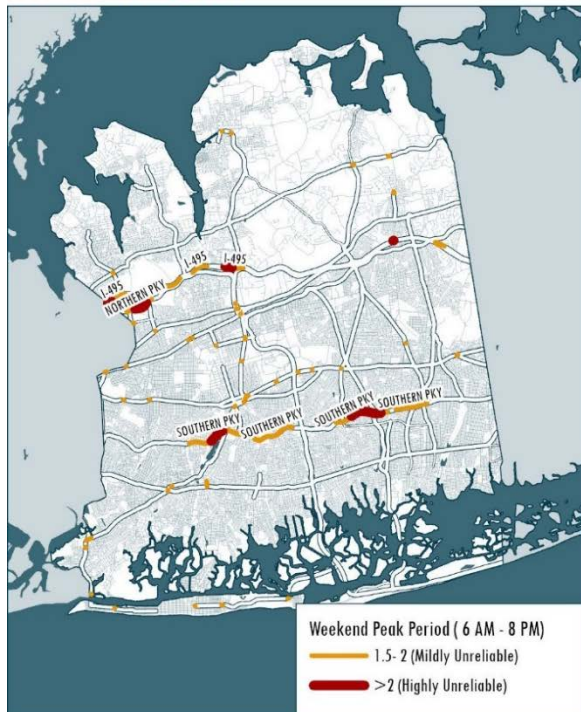
Level of Travel Time Reliability (LOTTR)

Travel time reliability in Nassau County varies significantly by time period and corridor. During the AM peak, I-495 and the Southern State Parkway exhibit moderate to high levels of unreliability, particularly near interchanges and high-volume areas such as the Meadowbrook Parkway. Off-peak periods see continued variability, with the Southern State Parkway and select segments of I-495 showing mild to moderate unreliability due to persistent demand from local and through traffic.

In the PM peak, I-495 remains a critical corridor for unreliable travel times, with additional unreliability observed on the Northern State Parkway and NY-27. Key interchanges along the Southern State Parkway also face moderate to high levels of travel time inconsistency. For the weekend, travel times remain unreliable on the Southern State Parkway and I-495, particularly at high-demand access points and recreational corridors, underscoring a mix of commuter and leisure traffic impacts.

Figure 35 Level of Travel Time Reliability, Nassau County

**Level of Travel Time Reliability
(Weekend Peak Period), Nassau County**
Source: AVAIL, 2023



**Level of Travel Time Reliability
(Weekday Off Peak Period), Nassau County**
Source: AVAIL, 2023



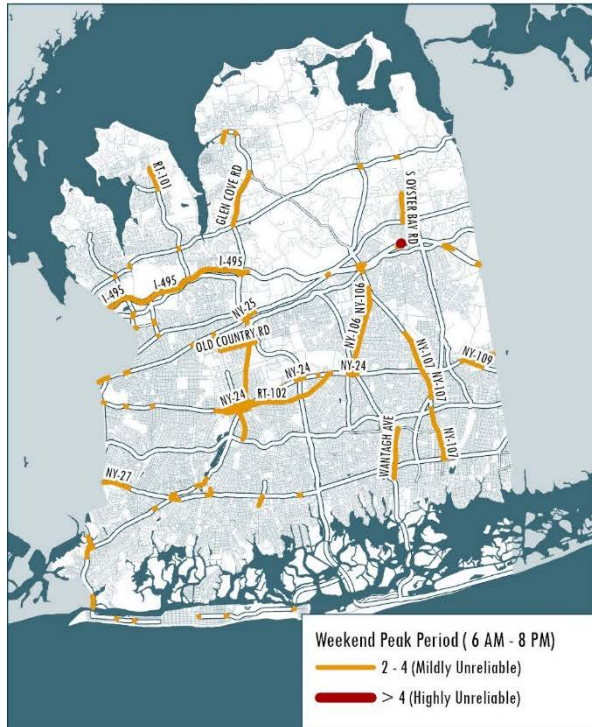
Truck Travel Time Reliability (TTTR)

Freight movement along key corridors in Nassau County faces notable challenges during the AM peak, with I-495 experiencing moderate to high levels of unreliability near major interchanges and access points. Off-peak periods present similar issues, with I-495 and NY-25A exhibiting moderate unreliability due to overlapping local and freight traffic demands.

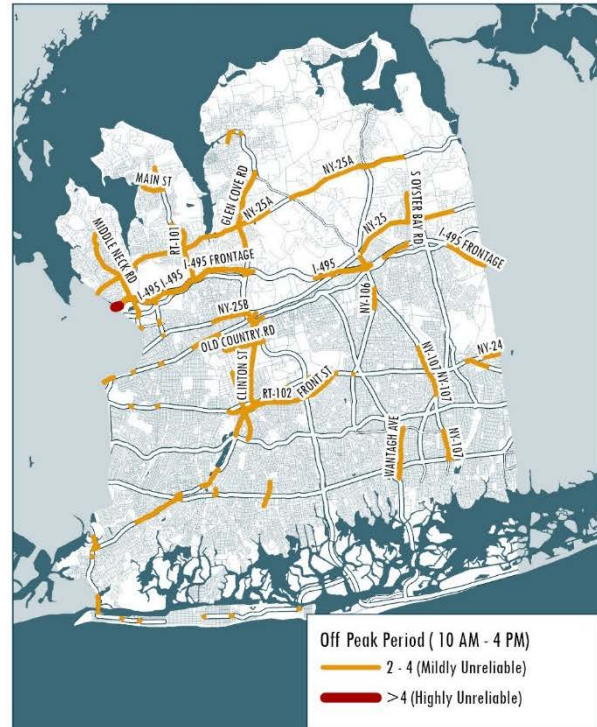
PM peak unreliability for freight vehicles continue along I-495 and the NY-25A, reflecting shared roadway usage with commuter vehicles. Weekend freight reliability is inconsistent along I-495.

Figure 36 Truck Travel Time Reliability, Nassau County

**Truck Travel Time Reliability
(Weekend Peak Period), Nassau County**
Source: AVAIL, 2023



**Truck Travel Time Reliability
(Weekday Off Peak Period), Nassau County**
Source: AVAIL, 2023



Peak Hours of Excessive Delay (PHED)

Excessive delays in Nassau County are concentrated along I-495, a few moderate delays along Southern State Parkway, and major interchanges during the AM peak period. In the PM peak, excessive delays extend across the Southern State Parkway, Northern Parkway and NY-27, and continue to be congested on I-495 with significant congestion near urban centers and high-volume access points.

Figure 37 Peak Hours of Excessive Delay, Nassau County

**Peak Hours of Excessive Delay
(Weekday AM Peak Period), Nassau County**

Source: AVAIL, 2023



**Peak Hours of Excessive Delay
(Weekday PM Peak Period), Nassau County**

Source: AVAIL, 2023



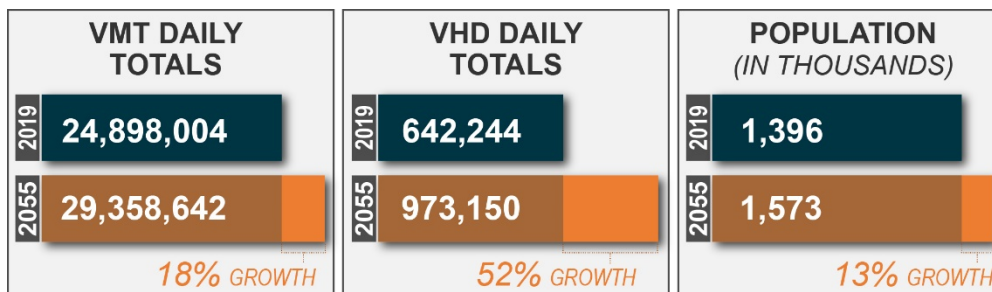
Segments with the Highest Levels of Unreliability and Delay

The most unreliable segments in Nassau County include I-495, the Southern State Parkway, and the Northern State Parkway. Travel times are highly inconsistent near Meadowbrook Parkway and Sunrise Highway, particularly during peak travel periods. Key access points, including interchanges along I-495 and the Southern State Parkway, also show significant delays.

7.9.2 Future Forecasts

From 2019 to 2055, VMT, VHD, and population are expected to increase significantly (Figure 38) in Nassau. VMT is expected to increase by 18 percent, while VHD by 52 percent, and population by 13 percent.

Figure 38 Nassau Population and Travel Characteristics



Source: NYBPM

7.10 Suffolk

7.10.1 Current Conditions

For the base year, the network screening identified areas of unreliability and congestion using the LOTTR, TTTR, and PHED metrics. Figure 39 through Figure 41 show the results of the congestion and reliability screening for Suffolk County.

Level of Travel Time Reliability (LOTTR)

Travel time reliability in Suffolk County exhibits variability across key corridors. During the AM peak period, segments of I-495 and NY-27 experience moderate to high unreliability. During the off-peak period, NY-27 remains mildly unreliable in select areas due to steady demand from through traffic and local travel.

In the PM peak, travel times on I-495 and NY-27 become highly unreliable, especially near interchanges and urbanized corridors. The overlap of commuter and freight traffic exacerbates these patterns, with additional unreliability on NY-112 and NY-454. On weekends, I-495 and NY-27 remain critical corridors for travel time variability.

Figure 39 Level of Travel Time Reliability, Suffolk County

Level of Travel Time Reliability (Weekday AM Peak Period), Suffolk County

Source: AVAIL, 2023



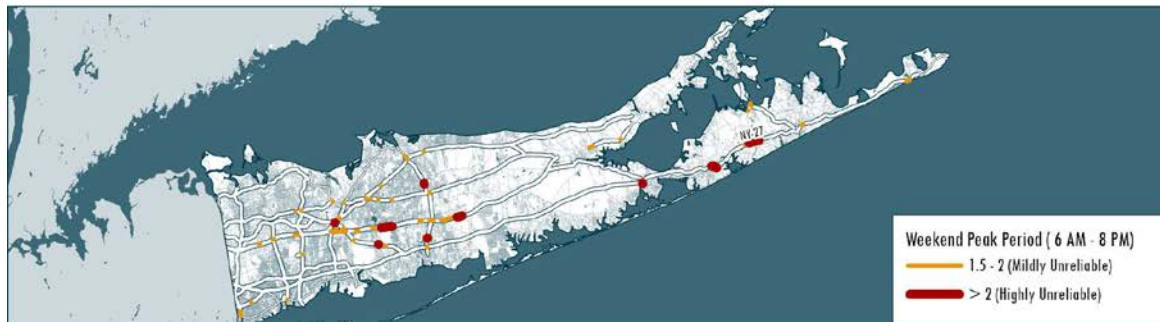
Level of Travel Time Reliability (Weekday PM Peak Period), Suffolk County

Source: AVAIL, 2023



Level of Travel Time Reliability (Weekend Peak Period), Suffolk County

Source: AVAIL, 2023



Level of Travel Time Reliability (Weekday Off Peak Period), Suffolk County

Source: AVAIL, 2023



Truck Travel Time Reliability (TTTR)

Freight reliability in Suffolk County faces significant challenges along I-495 and NY-27 during the AM peak period, particularly near interchanges and densely developed areas. During the off-peak period, moderate unreliability is observed along NY-27 and I-495, likely reflecting a mix of local deliveries and through freight movement.

The PM peak amplifies freight reliability issues, with I-495 and NY-27 exhibiting high variability due to shared commuter and freight usage. Weekend freight unreliability persists on NY-27.

Figure 40 Truck Travel Time Reliability, Suffolk County

Truck Travel Time Reliability (Weekday PM Peak Period), Suffolk County

Source: AVAIL, 2023



Truck Travel Time Reliability (Weekend Peak Period), Suffolk County

Source: AVAIL, 2023



Truck Travel Time Reliability (Weekend Peak Period), Suffolk County

Source: AVAIL, 2023



Truck Travel Time Reliability (Weekday Off Peak Period), Suffolk County

Source: AVAIL, 2023



Peak Hours of Excessive Delay (PHED)

Excessive delays during peak periods in Suffolk County are concentrated along I-495 and NY-27. In the AM peak, congestion is most severe near key interchanges and urbanized corridors, particularly in high-traffic segments of NY-27. The PM peak sees additional excessive delays on NY-347, NY-27, and I-495.

Figure 41 Peak Hours of Excessive Delay, Suffolk County

Peak Hours of Excessive Delay (Weekday AM Peak Period), Suffolk County

Source: AVAIL, 2023



Peak Hours of Excessive Delay (Weekday PM Peak Period), Suffolk County

Source: AVAIL, 2023



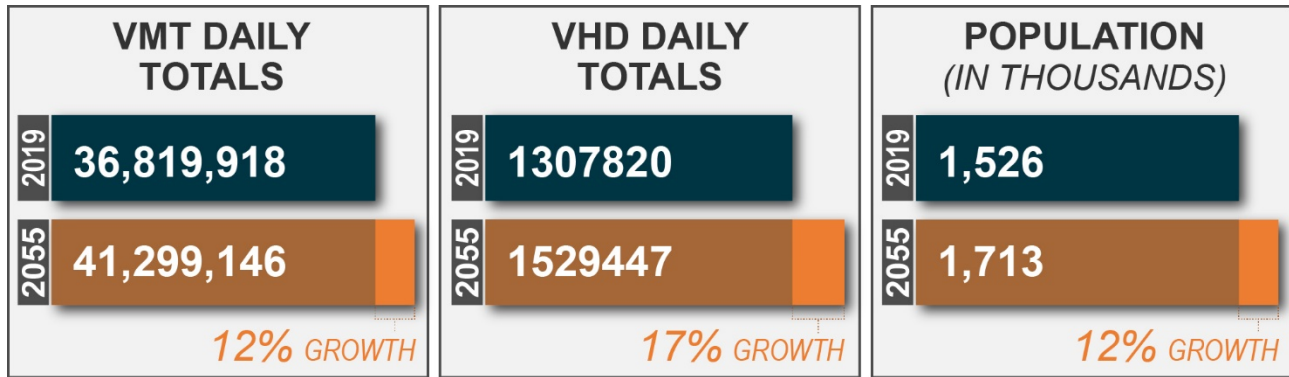
Segments with the Highest Levels of Unreliability and Delay

The worst-performing segments in Suffolk County include I-495 and NY-27, which consistently show high unreliability and congestion across multiple periods. These thoroughfares are particularly problematic. I-495 exhibits significant delays during both the AM and PM peak periods, while NY-27 experiences similar issues, especially in the central portions of the County. There is high variability and delays on the I-495 frontage road and surrounding segments, exacerbated during weekend and off-peak travel times. These segments are key for both local and regional traffic, with substantial impacts on the reliability of travel across the County.

7.10.2 Future Forecasts

From 2019 to 2055, VMT, VHD, and population are expected to increase (Figure 42) in Suffolk. VMT is expected to increase by 12 percent, while VHD by 17 percent, and population by 12 percent.

Figure 42 Suffolk Population and Travel Characteristics



Source: NYBPM

7.11 Putnam

7.11.1 Current Conditions

For the base year, the network screening identified areas of unreliability and congestion using the LOTTR, TTTR, and PHED metrics, as detailed in Figures 43 through Figure 45 show the results of the congestion and reliability screening for Putnam County.

Level of Travel Time Reliability (LOTTR)

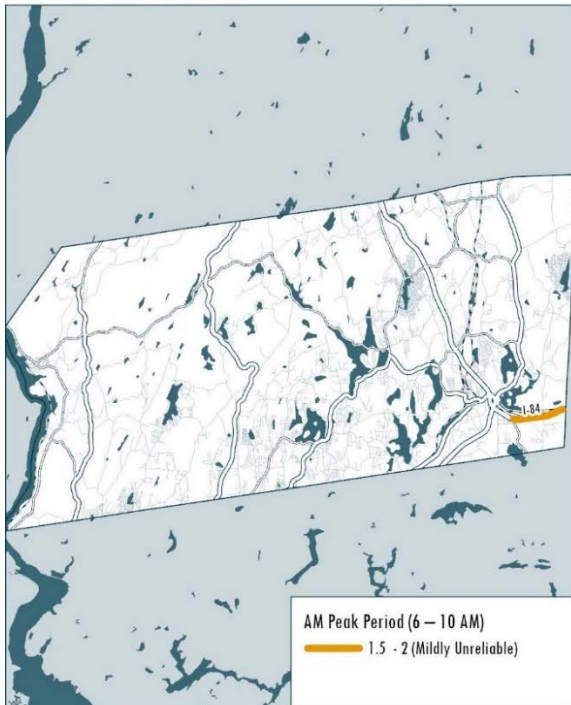
Travel times are moderately unreliable on I-84 in Putnam County during the AM peak period. During the PM peak period, unreliability intensifies along I-684, with notable inconsistencies near major connections such as NY-22. Weekend travel times remain inconsistent, especially along I-84.

During the off-peak period no roadway in Putnam is seen to be either mildly unreliable or highly unreliable.

Figure 43 Level of Travel Time Reliability, Putnam County

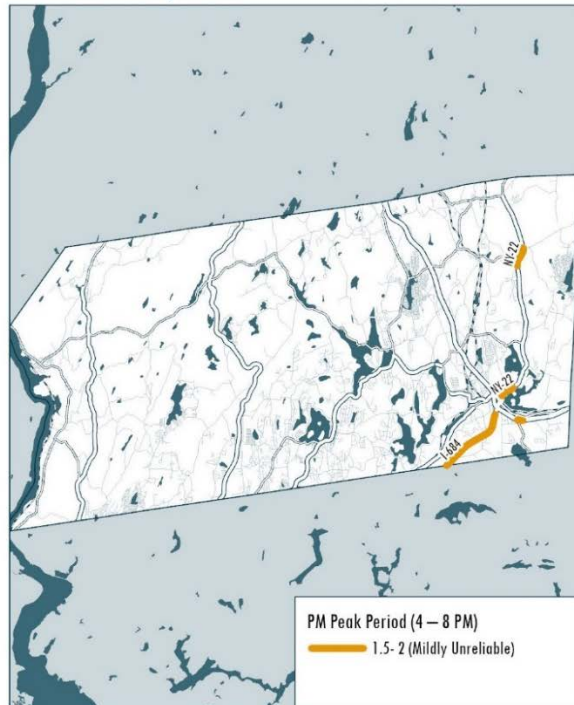
**Level of Travel Time Reliability
(Weekday AM Peak Period), Putnam County**

Source: AVAIL, 2023



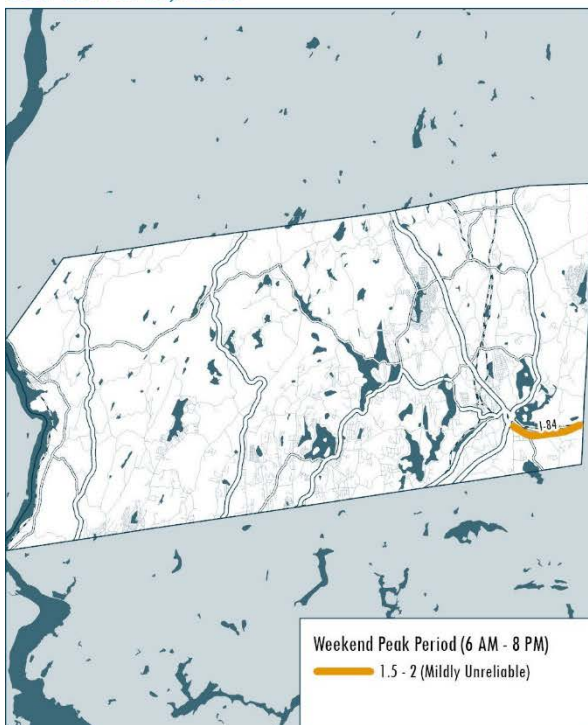
**Level of Travel Time Reliability
(Weekday PM Peak Period), Putnam County**

Source: AVAIL, 2023



**Level of Travel Time Reliability
(Weekend Peak Period), Putnam County**

Source: AVAIL, 2023



Truck Travel Time Reliability (TTTR)

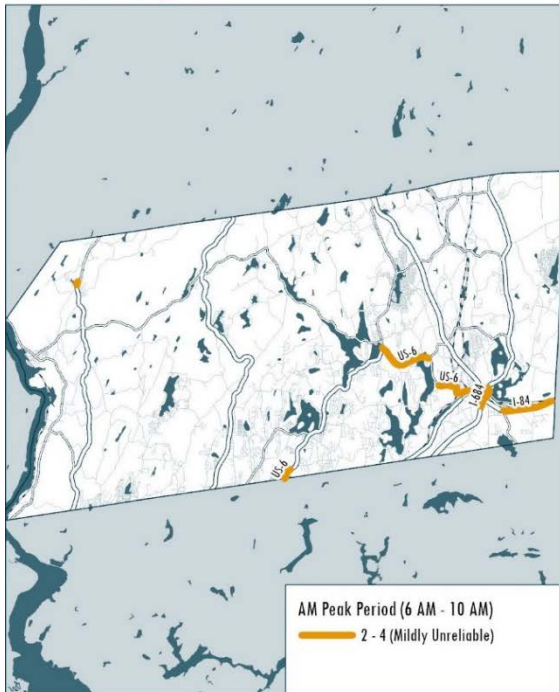
Freight movement in Putnam County is moderately affected by unreliability, particularly along I-84 and I-684 during the AM peak period. The highest freight unreliability occurs near interchanges and major access points. In the PM peak period, unreliability intensifies along I-684, NY-22 and U.S. 6.

During the off-peak period, moderate freight unreliability persists along U.S. 6 and I-84. On weekends, freight reliability remains inconsistent along key corridors such as I-684 and I-84.

Figure 44 Truck Travel Time Reliability, Putnam County

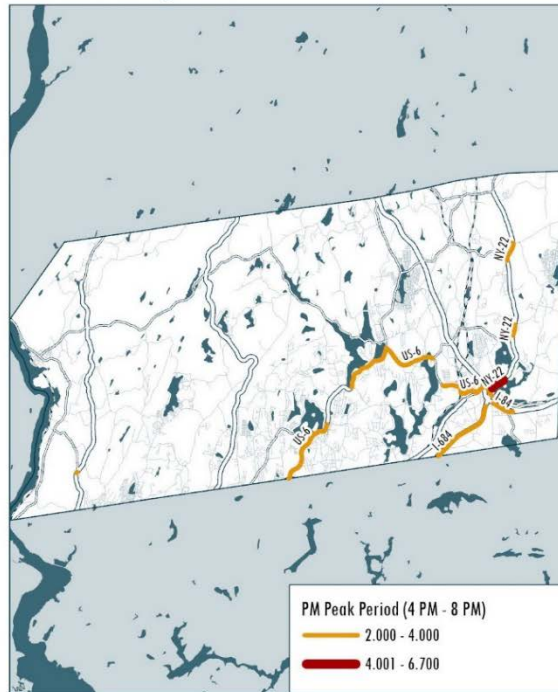
**Truck Travel Time Reliability
(Weekday AM Peak Period), Putnam County**

Source: AVAIL, 2023



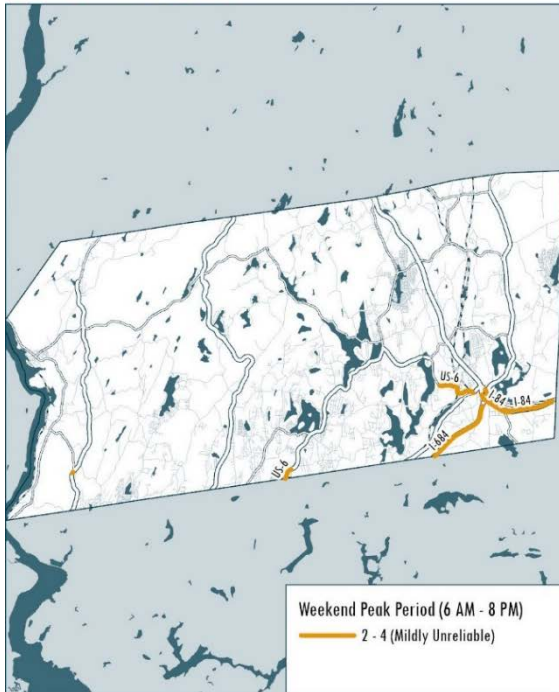
**Truck Travel Time Reliability
(Weekday PM Peak Period), Putnam County**

Source: AVAIL, 2023



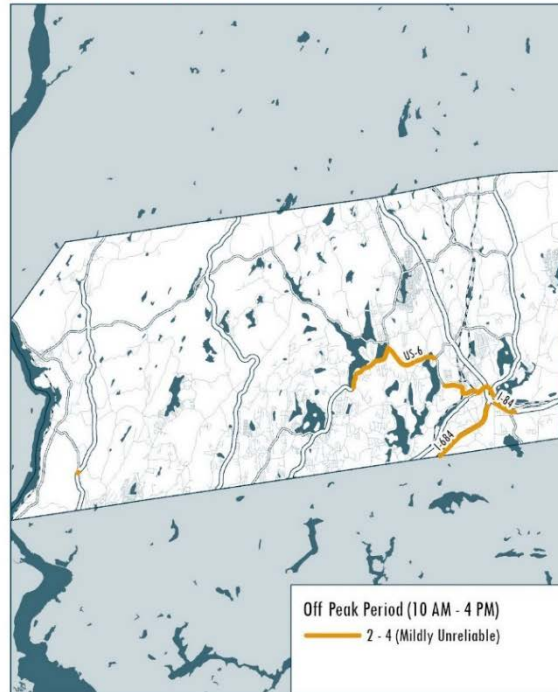
**Truck Travel Time Reliability
(Weekend Peak Period), Putnam County**

Source: AVAIL, 2023



**Truck Travel Time Reliability
(Weekday Off Peak Period), Putnam County**

Source: AVAIL, 2023



Peak Hours of Excessive Delay (PHED)

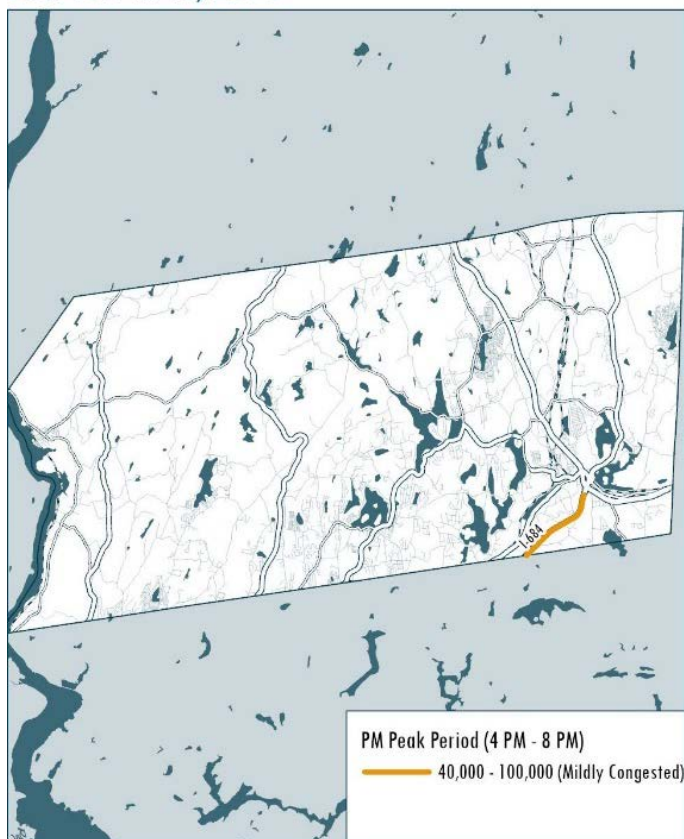
Excessive delays during the PM peak period are concentrated on I-684, U.S. 6, and NY-22, reflecting increased congestion during the evening commute.

During the AM peak period no roadway in Putnam is seen to be either mildly congested or highly congested.

Figure 45 Peak Hours of Excessive Delay, Putnam County

Peak Hours of Excessive Delay (Weekday PM Peak Period), Putnam County

Source: AVAIL, 2023



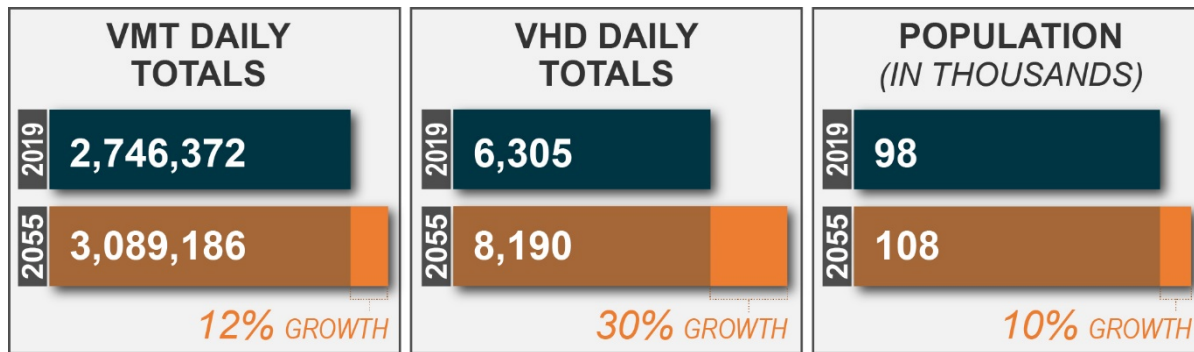
Segments with the Highest Levels of Unreliability and Delay

The most unreliable segments in Putnam County include I-84, I-684, NY-22, and U.S. 6, particularly near interchanges and high-demand zones. These segments experience notable delays, especially during peak travel periods.

7.11.2 Future Forecasts

From 2019 to 2055, VMT, VHD, and population are expected to increase (Figure 46) in Putnam. VMT is expected to increase by 12 percent, while VHD by 30 percent, and population by 10 percent.

Figure 46 Putnam Population and Travel Characteristics



Source: NYBPM

7.12 Rockland

7.12.1 Current Conditions

For the base year, the network screening identified areas of unreliability and congestion using the LOTTR, TTTR, and PHED metrics. Figure 47 through Figure 49 show the results of the congestion and reliability screening for Rockland County.

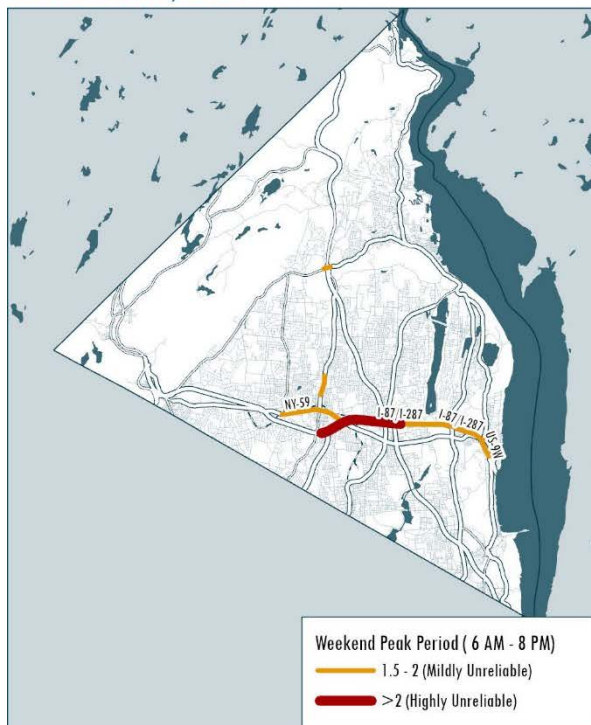
Level of Travel Time Reliability (LOTTR)

Travel time reliability in Rockland County is highly variable along major corridors such as I-87/I-287, particularly during the AM peak period. Other corridors, including U.S.-9W and NY-59, also experience moderate to high variability in travel times during this period. Off-peak travel times show mild unreliability across NY-59 and the I-87/I-287 corridor.

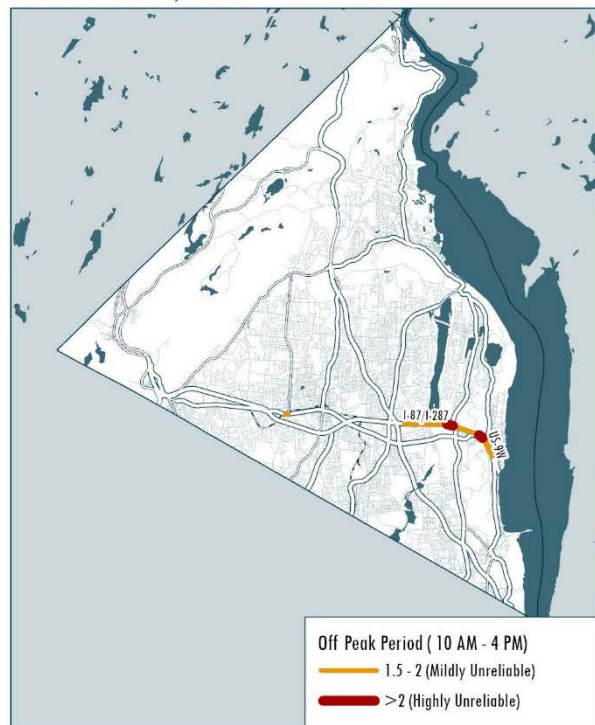
In the PM peak, I-87/I-287 remains a critical corridor for unreliable travel times, with additional unreliability observed along NY-59, U.S. 9W, and the Palisades Interstate Parkway. Weekend reliability issues persist on I-87/I-287.

Figure 47 Level of Travel Time Reliability, Rockland County

**Level of Travel Time Reliability
(Weekend Peak Period), Rockland County**
Source: AVAIL, 2023



**Level of Travel Time Reliability
(Weekday Off Peak Period), Rockland County**
Source: AVAIL, 2023



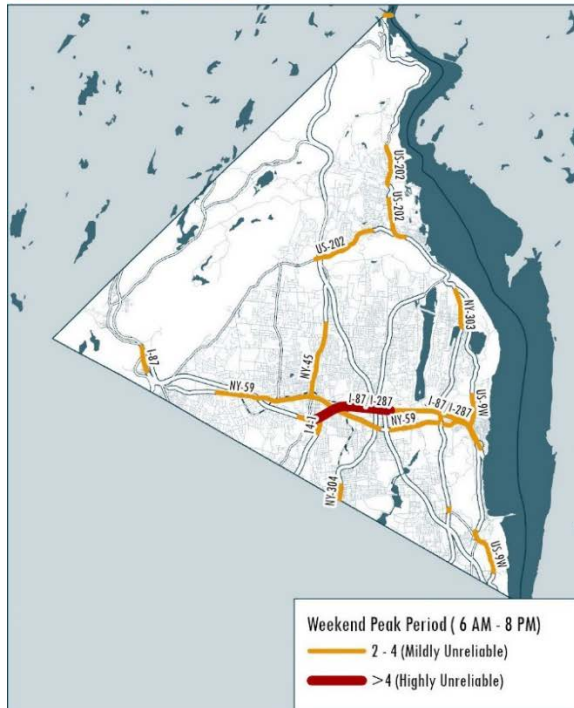
Truck Travel Time Reliability (TTTR)

Freight reliability in Rockland County is most impacted along I-87/I-287 during the AM peak period, where significant unreliability occurs near high-demand interchanges. Off-peak periods see mild to moderate unreliability for freight vehicles, particularly along the Palisades Interstate Parkway and NY-59.

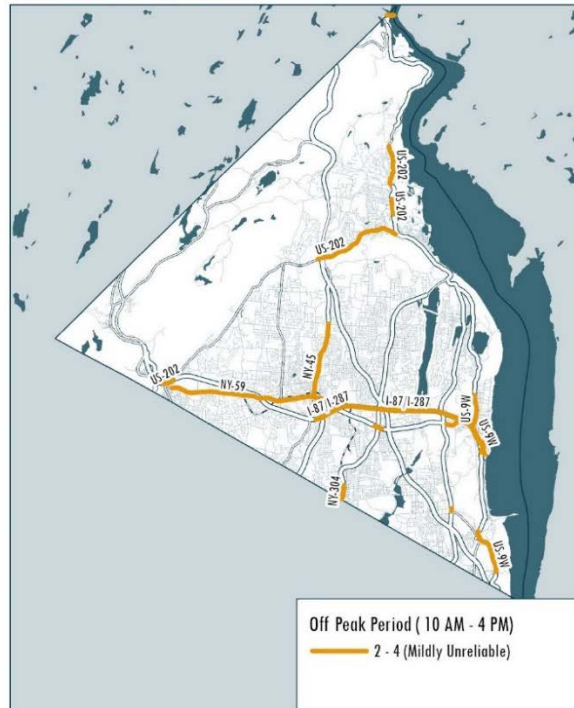
During the PM peak are also mild to moderate unreliability on the I-87/I-287, U.S.-202, and NY-59, with high variability near interchanges. Weekend freight reliability remains inconsistent along I-87/I-287 and NY-59.

Figure 48 Truck Travel Time Reliability, Rockland County

**Truck Travel Time Reliability
(Weekend Peak Period), Rockland County**
Source: AVAIL, 2023



**Truck Travel Time Reliability
(Weekday Off Peak Period), Rockland County**
Source: AVAIL, 2023

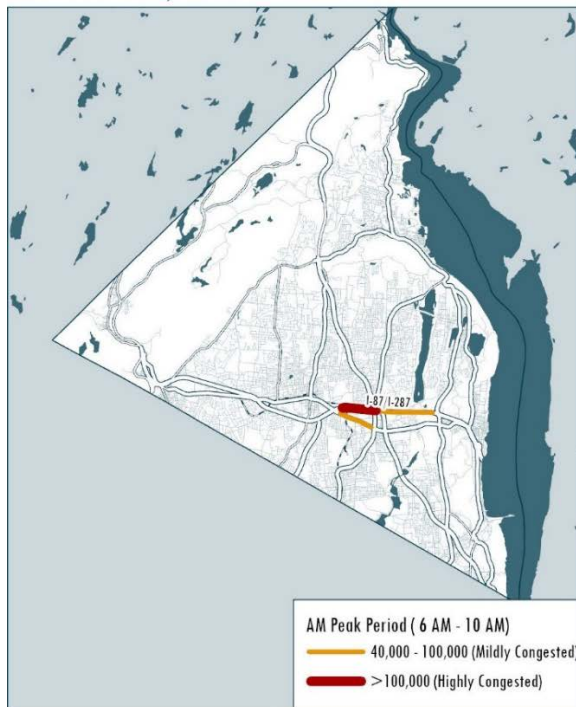


Peak Hours of Excessive Delay (PHED)

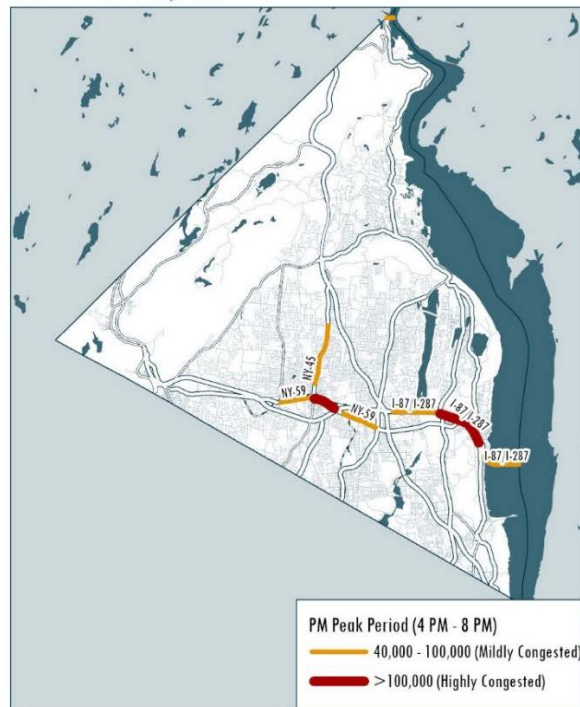
PHED are concentrated along I-87/I-287 during both the AM and PM peak periods. NY-59 also experiences significant delays, especially during the PM peak.

Figure 49 Peak Hours of Excessive Delay, Rockland County

**Peak Hours of Excessive Delay
(Weekday AM Peak Period), Rockland County**
Source: AVAIL, 2023



**Peak Hours of Excessive Delay
(Weekday PM Peak Period), Rockland County**
Source: AVAIL, 2023



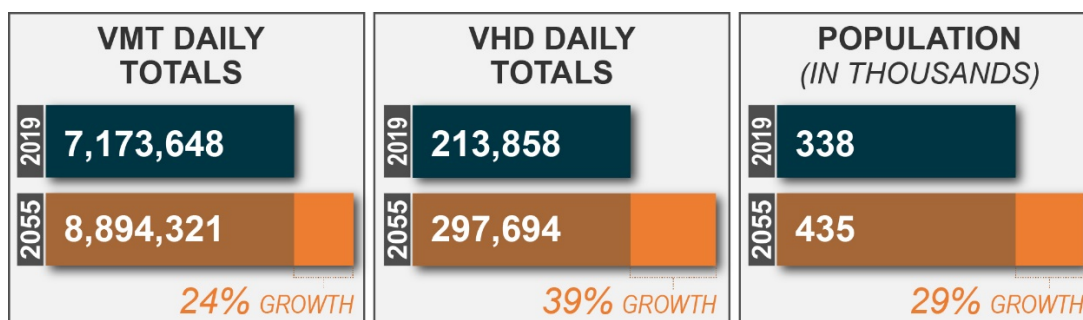
Segments with the Highest Levels of Unreliability and Delay

The most unreliable segments in Rockland County include I-87/I-287 near key access points along NY-59. High levels of congestion and delays during peak travel periods are exacerbated by overlapping commuter, freight, and recreational travel demands, particularly along these major corridors.

7.12.2 Future Forecasts

From 2019 to 2055, VMT, VHD, and population are expected to increase significantly (Figure 50) in Rockland. VMT is expected to increase by 24 percent, while VHD by 39 percent, and population by 29 percent.

Figure 50 Rockland Population and Travel Characteristics



Source: NYBPM.

7.13 Westchester

7.13.1 Current Conditions

For the base year, the network screening identified areas of unreliability and congestion using the LOTTR, TTR, and PHED metrics. Figure 51 through Figure 53 show the results of the congestion and reliability screening for Westchester County.

Level of Travel Time Reliability (LOTTR)

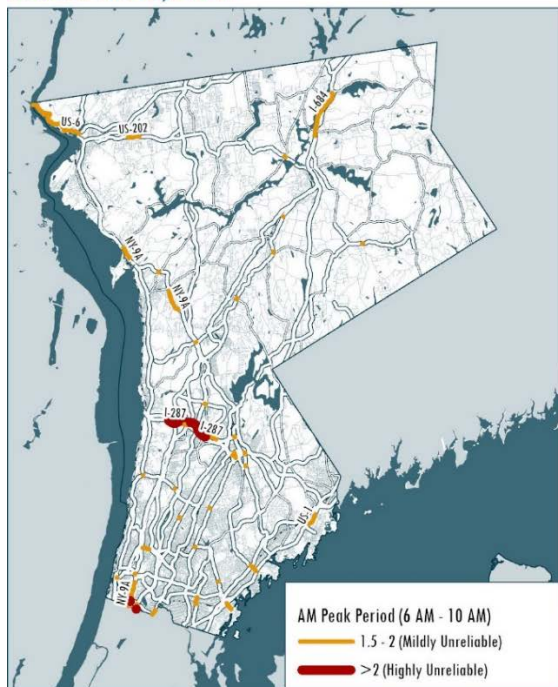
Travel time reliability in Westchester County exhibits significant variability across its key corridors. During the AM peak period, I-287 emerge as highly unreliable, particularly near major interchanges and dense urban areas. Segments of I-684 experience mild reliability challenges. Other corridors, such as U.S. 1 and NY-119, also show localized unreliability, albeit to a lesser extent. During the off-peak period, reliability improves across most corridors, although mild unreliability persists along central segments of I-287. These corridors continue to show variability due to steady traffic volumes and occasional bottlenecks near interchanges.

In the PM peak period, reliability concerns intensify, particularly along I-287 and its intersections with I-87. Severe unreliability is observed on the NY-9A, especially near entry points into central Westchester. Segments along U.S.-9A and I-684 also demonstrate mild unreliability due to commuter and freight traffic merging at key nodes.

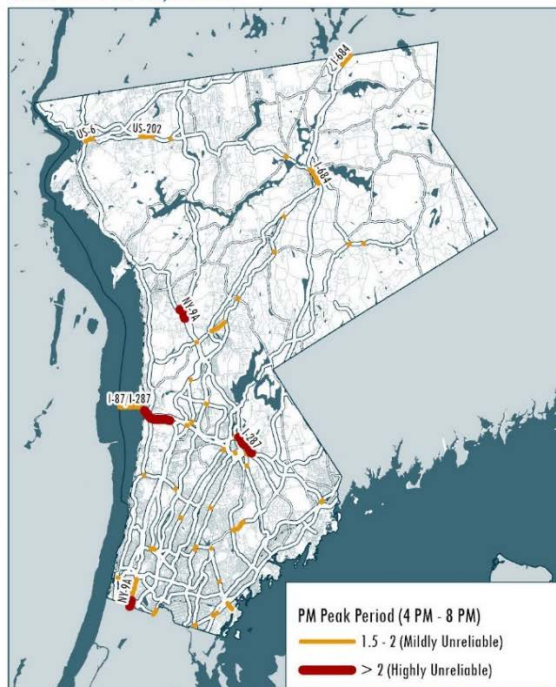
The weekend peak period shows improved reliability compared to weekday peaks. However, mild issues persist on I-287 and parts of NY-9A near urban centers.

Figure 51 Level of Travel Time Reliability, Westchester County

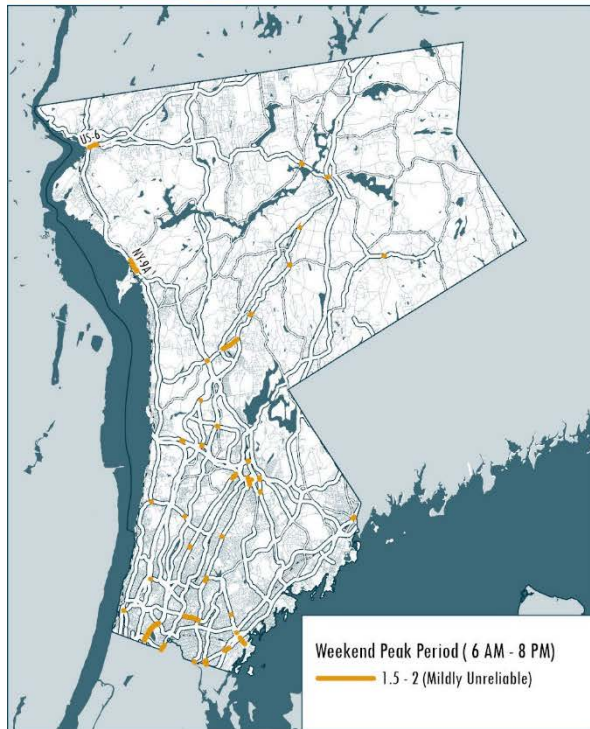
**Level of Travel Time Reliability
(Weekday AM Peak Period), Westchester County**
Source: AVAIL, 2023



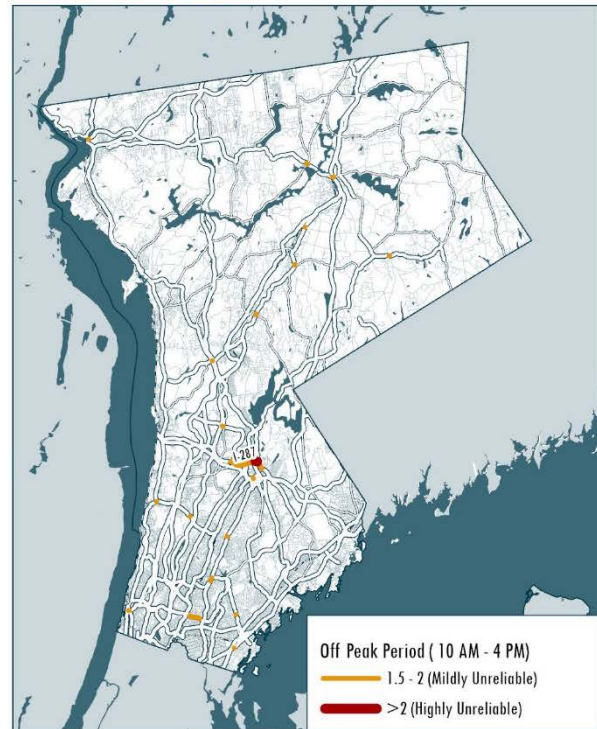
**Level of Travel Time Reliability
(Weekday PM Peak Period), Westchester County**
Source: AVAIL, 2023



**Level of Travel Time Reliability
(Weekend Peak Period), Westchester County**
Source: AVAIL, 2023



**Level of Travel Time Reliability
(Weekday Off Peak Period), Westchester County**
Source: AVAIL, 2023



Truck Travel Time Reliability (TTTR)

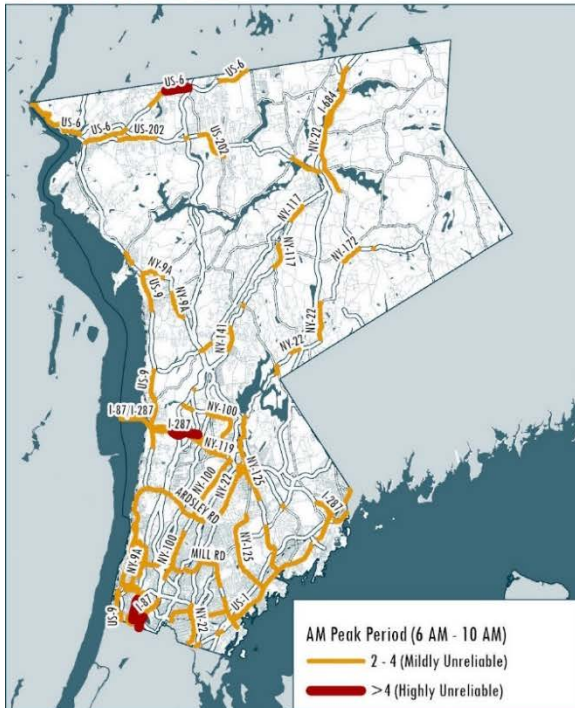
Freight reliability in Westchester County is most impacted during the AM and PM peak periods. Along I-287, freight movements face moderate unreliability due to congestion near interchanges. I-684 also experiences mild freight variability near its intersections with U.S.-202 and local arterial roads.

During the off-peak period, freight unreliability slightly eases but is notable on the NY-9A. Key freight corridors like NY-119 and NY-22 also show minor variability during this period.

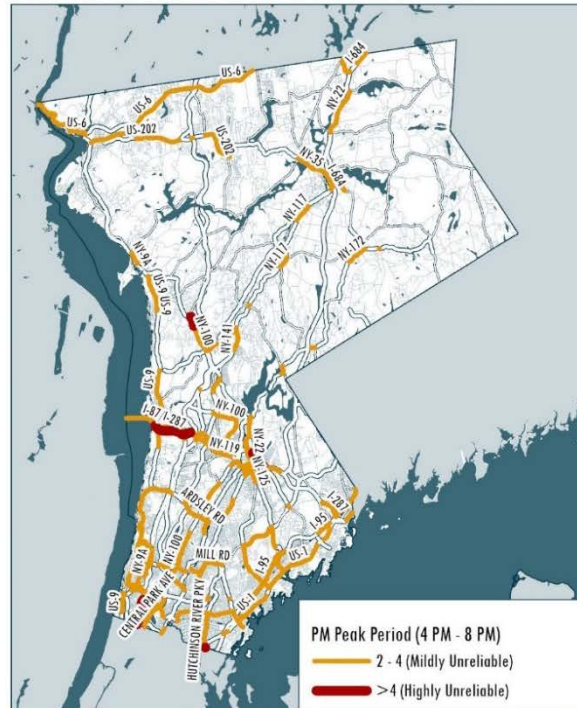
The PM peak period highlights significant freight travel issues on I-287 and Central Parkway Avenue. The weekend period shows fewer disruptions to freight, although some variability is observed along the I-95.

Figure 52 Truck Travel Time Reliability, Westchester County

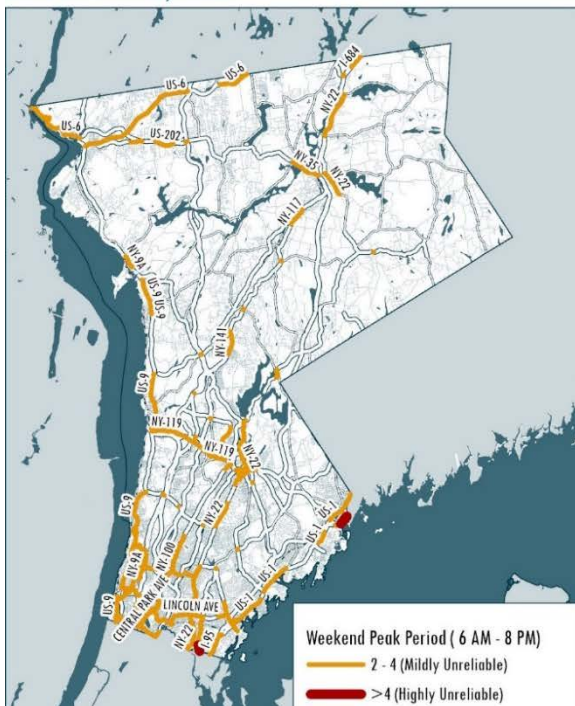
**Truck Travel Time Reliability
(Weekday AM Peak Period), Westchester County**
Source: AVAIL, 2023



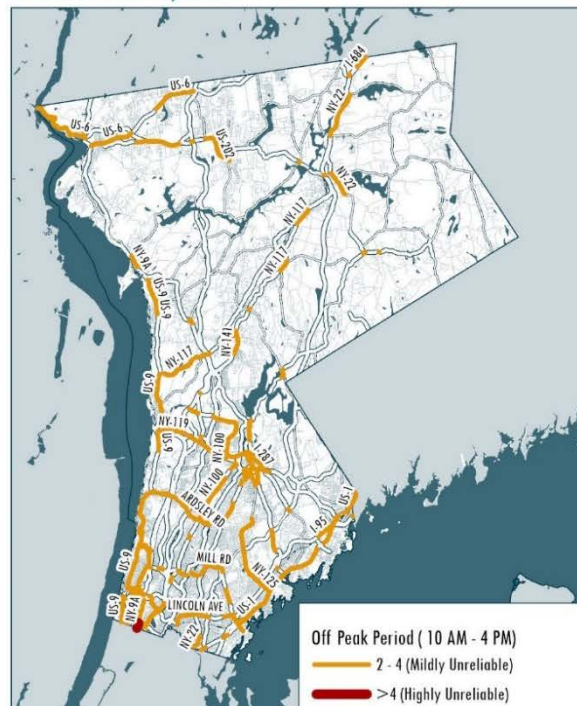
**Truck Travel Time Reliability
(Weekday PM Peak Period), Westchester County**
Source: AVAIL, 2023



**Figure 7-95 Truck Travel Time Reliability
(Weekend Peak Period), Westchester County**
Source: AVAIL, 2023



**Figure 7-96 Truck Travel Time Reliability
(Weekday Off Peak Period), Westchester County**
Source: AVAIL, 2023



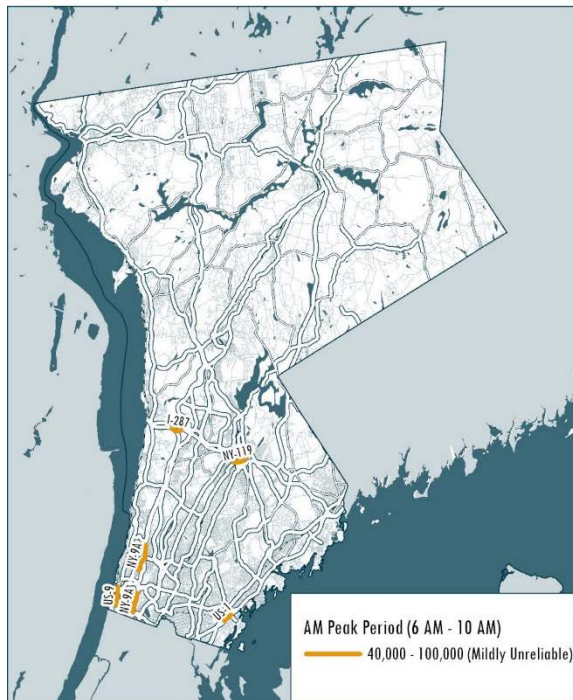
Peak Hours of Excessive Delay (PHED)

Westchester County experiences mild PHED values during peak periods, particularly on I-287 and NY-9A. In the AM peak, delays are concentrated on the NY-9A, I-287, NY-119, and the U.S. 1 experiencing mild delays.

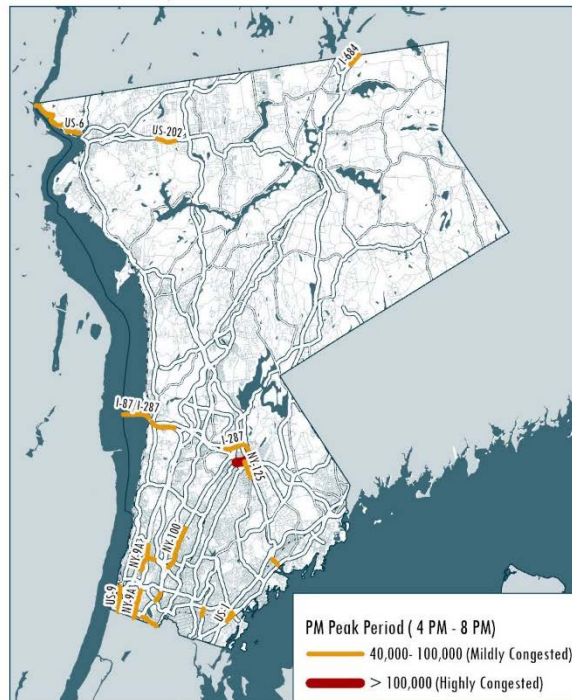
During the PM peak, PHED values rise significantly, particularly on I-287, as delays spread along key east-west and north-south corridors. Elevated PHED values are observed near bridge approaches and urban interchanges.

Figure 53 Peak Hours of Excessive Delay, Westchester County

**Peak Hours of Excessive Delay
(Weekday AM Peak Period), Westchester County**
Source: AVAIL, 2023



**Peak Hours of Excessive Delay
(Weekday PM Peak Period), Westchester County**
Source: AVAIL, 2023



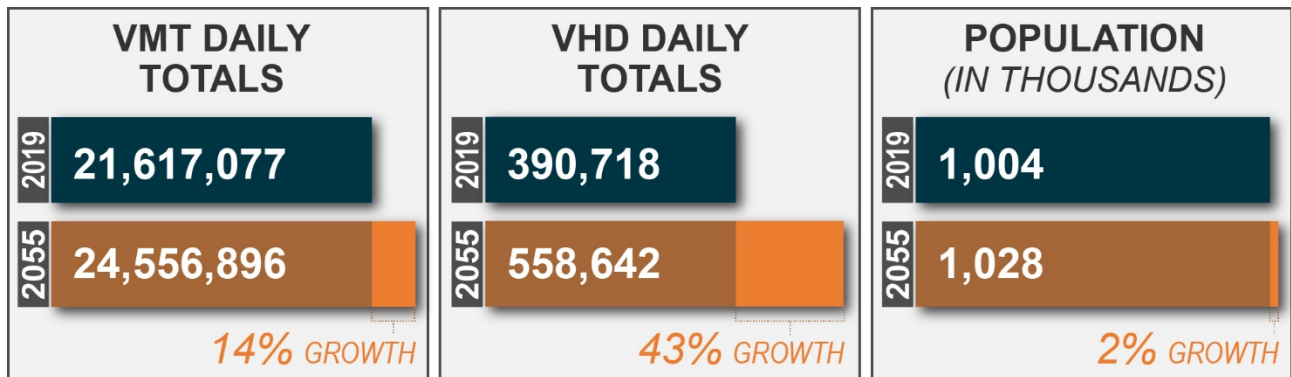
Segments with the Highest Levels of Unreliability and Delay

The most unreliable segments in Westchester County include I-287, the Hutchinson River Parkway, and NY-9A, which show persistent delays and variability across all analysis periods stands out as the most unreliable corridor, with delays exacerbated during the PM peak period. Other key corridors, such as NY-119 and U.S. 1, experience occasional unreliability due to localized bottlenecks and regional traffic flows.

7.13.2 Future Forecasts

From 2019 to 2055, VMT, VHD, and population are expected to increase (Figure 54) in Westchester. VMT is expected to increase by 14 percent, while VHD by 43 percent, and population by 2 percent.

Figure 54 Westchester Population and Travel Characteristics



Source: NYBPM

8.0 Congestion Management Strategies

8.1 CMP Toolbox

This section provides an overview of potential strategies for facilitating the movement of people and goods by alleviating congestion in the NYMTC planning area, consistent with NYMTC's Shared Vision for Regional Mobility as presented in Moving Forward. As part of the CMP, Federal regulations require MPOs in TMAs to identify potential strategies to reduce congestion and evaluate the expected effectiveness of those strategies in improving the efficiency and safety of existing and future transportation systems.

Moreover, because NYMTC's planning area is part of air quality non-attainment areas designated by the Clean Air Act Amendments of 1990, the use of Federal funds for the expansion of the transportation system's capacity to move single-occupancy vehicles (SOV) is precluded unless it is documented that travel demand reduction and operational management strategies cannot fully satisfy the need for the additional capacity.

Recognizing a wide range of strategies are available to address mobility challenges, NYMTC's CMP includes a toolbox of strategies or consideration in planning congestion reduction measures. The CMP Toolbox is divided into 10 categories of congestion management strategies:

1. **Transportation Demand Management.** The objective of demand management strategies is to influence travel behavior for both commute and non-commute trips. Subcategories of transportation demand management strategies include:
 - Alternative Commute Programs. Programs to promote alternatives to single-occupancy commuter travel through employer-based programs or other regional initiatives.
 - Pricing/Managed Facilities. Practices that impose restrictions or fees for the use of specific lanes/roadways with the common goal of reducing the number of SOVs.
2. **Transportation System Management and Operations (TSM&O).** TSM&O strategies, including Integrated Corridor Management, contribute to a more effective and efficient use of existing systems. Many of these operations-based strategies are supported by enhanced technologies or Intelligent Transportation Systems (ITS). TSM&O strategies are divided into seven categories, which are individually detailed as part of the CMP Toolbox. The strategies include ITS, Traveler Information, Incident Management, Work Zone Management, Access Management, Congestion Pricing, and Active Transit and Traffic management. The toolbox further subcategorizes TSM&O strategies as follows:
 - Highway/Freeway Operations. Strategies to increase throughput and alleviate the causes of recurring and nonrecurring congestion.
 - Arterial and Local Roads Operations. Strategies to improve traffic flow through the existing network of local roads and intersections.
 - Other Operations Strategies. General operations strategies that can be applied on a regional scale.
3. **Transit.** Transit strategies are aimed at making transit more attractive or accessible to help reduce the number of vehicles on the road. Transit strategies commonly supplement the demand management and

TSM&O strategies described above. The CMP Toolbox includes the following subcategories of transit strategies:

- Fare Strategies. Strategies that encourage additional transit use through fare policies, employer-based incentive programs, or universal fare cards/payment systems.
 - Operations Strategies. Include service adjustments to better align transit service with ridership markets. Like traffic operations, ITS features often enhance transit operations as well. Also includes Bus Rapid Transit and Select Bus Service with signal preemptions and/or bus-only lanes to provide superior service.
 - Capacity Strategies. Strategies to expand transit coverage and/or frequencies to make transit more accessible and attractive to use.
1. **Accessibility.** Strategies to improve access to transit facilities by both auto and non-auto travel modes.
 2. **Bicycle and Pedestrian.** Strategies that promote non-motorized travel through the provision of safer bicycle and pedestrian-oriented facilities and amenities.
 3. **Access Management.** Includes policies, facilities, and design criteria that minimize the number of driveways and intersecting roads accessing a main thoroughfare.
 4. **Land Use.** Policies to support/encourage mixed-use development, transit-oriented design, and incentives for high-density development.
 5. **Parking.** Strategies to manage the availability and cost of parking and promote access to transit.
 6. **Regulatory.** Closely tied to the strategies described above, regulatory strategies restrict vehicle movements or enforce congestion management policies.
 7. **Road Capacity.** Strategies that address improvements to specific bottlenecks (such as interchanges and intersections), as well as the need for more base capacity to the existing road network when the other congestion strategies described above cannot fully satisfy demand.

8.2 Relevant Vision Goals, Objectives, Strategies, and Actions

8.2.1 Moving Forward 2055 Vision Goals

Vision Goal: Congestion

We seek to establish and maintain a transportation system for which congestion is mitigated through investments and technology in support of healthier communities, more seamless travel, improved quality of life, and regional economic competitiveness.

Given the forecasted growth in population, employment, and the amount of goods moving into, within and through the NYMTC planning area, this goal seeks to enhance the efficiency of the transportation system by identifying and funding, to the extent possible, feasible and cost-effective investments in programs, projects and services that will mitigate transportation congestion. Additionally, greater efficiency can be achieved through the implementation of requisite TSMO strategies. The application of NYMTC's CMP will also be important in seeking a transportation system that efficiently serves the projected growth of people and goods

Relevant Objectives:

- Sustainably manage current or future demands, with an emphasis on expanding active transportation and transit.
- Support mobility for all users by encouraging active transportation, micromobility, complete streets, and other strategies.
- Modernize local freight networks to efficiently plan for growth in the volume of and change in product deliveries.
- Expand the reach of the system to emerging markets, addressing access to and incentivizing employment, social and recreational opportunities.
- Incorporate emerging and innovative technologies, transportation services and tools into efficient network design, operations, and monitoring.
- Coordinate with governing bodies for clearer accountability, funding, and planning arrangements.

Strategies and Actions Related to the CMP

Planning and Research Initiatives:

- Assess the impact of micromobility conveyances on existing bicycle lanes and greenways from an efficiency perspective.
- Identify new mobility technologies and concepts within micromobility, Mobility-as-a-Service (MaaS), complete streets.
- Assess the enhancement of 511NY to a complete MaaS platform.
- Prioritize grade crossing needs in the suburban subareas of the NYMTC planning area.
- Explore connected vehicle technologies and determine feasibility of deployment in congested corridors and areas.
- Evaluate employer-based alternative transportation incentive programs.
- Monitor critical freight corridors throughout the planning area.
- Assess integration of fare/toll payment for all modes of transportation.

Planning Recommendations:

- Develop guidance on Complete Streets implementation and curb management.
- Continue use of the CMP Status Report to inform planning through the TSMO Working Group.
- Review Intelligent Transportation Systems (ITS) architectures through the TSMO Working Group.
- Advance programs and initiatives for the multi-state region through the Metropolitan Mobility Network.

Program Recommendations:

- Initiate micromobility pilots in suburban communities and/or activity centers.
- Expand off-hours delivery program within and outside of New York City to minimize conflict with high volume hours for passenger vehicle traffic and ped/bike traffic.
- Implement the recommendations of the Transit Service Coordination Needs Assessment.
- Seek funding to support Transit Oriented Development, Complete Streets and micromobility services.
- Program projects to remediate bottlenecks identified during data collection and performance assessments.

Vision Goal: Land Use

We seek to establish and maintain a transportation system for which land use decisions are encouraged in support of strategic transportation enhancements and improving modal choices.

Land use and transportation are inextricably linked. Optimizing this relationship requires collaboration and alignment at all levels of government. Strategic and sustainable development can be encouraged by undertaking land use planning, zoning and transportation planning in tandem, thus encouraging land use planning and decision-making that reinforces and supports transportation investments and services in order to increase the efficiency of moving people and goods throughout the NYMTC planning area. Doing so will decrease community impacts, improve accessibility to services, support healthy living conditions, and reinforce economic vitality.

This goal supports land use decisions that enhance and improve transportation behaviors, as well as mitigate congestion through smart growth policies such as mixed-use development, transit-oriented design, and incentives for high-density development. Other policies that fall within land use decisions can include parking, access management, curb management, micro-mobility options, and other alternative transportation opportunities. Expanding transportation options outside of single-occupancy vehicles (SOVs) and providing connectivity and high density around alternative transportation can help reduce overall VMT and congestion.

Relevant Objectives:

- Encourage transit-oriented development as well as parking, curb, and property management, micro-mobility pathways, and other long-term sustainable land use strategies that support passenger and goods movement while reducing pollution.
- Encourage strategic distribution of growth throughout the region by prioritizing density over less dense development near transit, and by prioritizing transit investments where development is occurring.

Strategies and Actions Related to the CMP

Planning and Research Initiatives:

- Identify resources and funding programs available for advancing transit-oriented development (TOD) and housing development.
- Research linkages between transportation investments/services and land values.

Planning Recommendations:

- Through the Community Planning Workshops (CPW) program, engage local communities and other stakeholders to identify potential TOD sites and projects using the Coordinated Development Emphasis Areas (CDEAs) and Housing Growth Areas (HGAs) identified in Appendix A of *Moving Forward 2055* as a strategic guide.
- Use MTA's First Mile-Last Mile Toolkit for TOD projects undertaken through the CPW program.
- Expand the Program, Finance, and Administration Committee (PFAC) Land Use Subcommittee to include local municipality representatives and mobility service providers.
- Collaborate with the local governments to ensure that transportation systems align with land use decisions.
- Explore visioning initiatives and Planning & Environmental Linkages studies to explore alternatives for targeted TOD projects.

Program Recommendations:

- Develop illustrative zoning incentives for higher-density development near transit nodes.

Vision Goal: Fairness & Access

We seek to establish and maintain a transportation system for which fairness in transportation is advanced and access to opportunities is improved for all communities

This goal seeks to improve the transportation system through improving mobility for all communities. It also seeks to ensure the integration of the various components of the transportation system in the NYMTC planning area to enable the reliable, accessible, and seamless movement of people and goods. The regional transportation system represents an enormous public investment that is essential to the environment, economy, and quality of life in the NYMTC planning area. Establishing and maintaining the transportation system in a fair manner improves access for all communities. Doing so ensures that infrastructure, facilities, and equipment function well for their entire design life and minimize costs over their life cycle while providing reliable and accessible travel.

Relevant Objectives:

- Improve first- and last-mile access to transit.
- Improve accessibility to the transportation system for users of all abilities.
- Provide more frequent and reliable transit service.
- Strategically expand transportation services and information to enhance mobility in communities with the greatest mobility needs.
- Improve access to social and economic opportunities for all populations, regardless of age, ability, race, ethnicity, or income.

Strategies and Actions Related to the CMP

Planning and Research Initiatives:

- Inventory all potential funding sources for first mile/last mile services and for accessibility.
- Inventory current and developing technology that can be used to improve first- and last mile services, information, and accessibility.
- Assess the level of accessibility for all transit services in the planning area. Planning Recommendations:
- Plan and implement the service accessibility assessment through the DRs' Working Group.
- Consider the findings of the Transit Service Coordination Needs Assessment at the transportation coordinating committees.

Program Recommendations:

- Implement recommendations of the Transit Service Coordination Needs Assessment.

Vision Goal: Environment

We seek to establish and maintain a transportation system for which environmental impacts—including harmful air pollutants—are significantly reduced through technology applications, increased use of greener travel options, and improved system efficiency.

The transportation system can have significant effects on the environment, including the production of various pollutants. Enhancing and preserving the transportation system can also affect local and regional air quality, natural habitats, and water resources.

The goal seeks to minimize the transportation system's environmental impacts through land use measures, environmental stewardship, managing vehicular travel, promoting lower impact vehicle technologies, and mitigating community impacts. NYMTC's member agencies have individual policies for addressing the impacts of transportation on the environment and have established this goal to continue and amplify those efforts when they come together as NYMTC.

Relevant Objectives:

- Support land use sustainability through improved and efficient transportation services and facilities, which enable more efficient land uses.
- Promote and improve public transportation and active transportation modes, such as walking and cycling, to reduce pollution, improve air quality, and support public health.
- Support lower- and zero-emission alternatives to current trucking through vehicle technology and greater modal balance.
- Efficiently manage limited roadway capacity to mitigate congestion and vehicular pollutants.

Strategies and Actions Related to the CMP

Planning and Research Initiatives:

- Identify core markets, emerging markets, activity centers, and underserved communities using the CDEAs, SED forecasts, and Title VI assessment to develop multimodal plans for the identified areas.
- Identify the most efficient ways to serve emerging markets and underserved communities, particularly those in areas of low-density development where fixed-route bus service may not be effective.
- Assess transit service coordination needs across jurisdictional lines and evaluate intermodal connections.
- Explore technologies related to environmental stewardship.
- Develop pilot e-bike incentive programs to lower the cost barrier to e-bike use and ownership.
- Investigate opportunities for better integrating shared mobility and micromobility in the transportation system.
- Explore incentives for alternative fuel vehicles/electric vehicle ownership.
- Continue to address congested links and bottlenecks identified by the CMP through multimodal planning studies.
- Identify opportunities for new technology to improve congestion management solutions.
- Assess the distribution of bicycle lanes, bicycle facilities, and bike sharing opportunities throughout the NYMTC planning area in terms of fairness.
- Explore feasibility and infrastructure needs related to implementing new technologies in communities most impacted by transportation pollution.

Planning Recommendations:

- Include alternatives to SOV trips in the program of community planning activities.
- Convene interagency work groups through the Transportation Coordinating Committees to identify and address priority multimodal corridors, including exploring technological options.
- Encourage suburban municipalities to adopt Complete Streets policies to accommodate transit, walking, and biking to reduce vehicle congestion and associated pollution.
- Continue convening relevant agencies and private sector interests through the Multi-State Freight Working Group to improve the efficiency of freight delivery

Program Recommendations:

- Explore reduction of commute times and improve transit speeds in low- and moderate-income communities underserved by transit.
- Encourage development in centers and downtowns to reinforce walkable, aesthetically pleasing, and transit-accessible environments.
- Encourage the continued development of pedestrian and cycling facilities throughout the NYMTC region, including the expansion of charging infrastructure for e-bikes and e-scooters.
- Promote the development of microhubs and freight consolidation centers. Expand cargo-hub programs, and other programs that move truck freight onto other modes of transport, including smaller electrified vehicles and water-based options like barges.
- Develop fare payment integration mechanisms between shared mobility systems and public transit services.
- Undertake initiatives that encourage use of public transit; encourage seniors to sign up for reduced fare transit services.
- Continue and enhance model programs for use at developments such as office parks, medical facilities, and college campuses that include emerging and innovative transportation services such as shared mobility and micromobility.
- Enhance the public visibility of the 511NY service and its various components and its use for MaaS.

8.3 System Enhancements Investments

System enhancement investments include proposed projects and strategies to be funded to expand the transportation system's capacity through the addition of new components or by significantly expanding the capacity of existing components. These include both major system enhancement projects—generally defined as transportation projects or programs that meet this definition with an estimated cost of \$100 million or greater and/or those of regional scope or impact—and minor system enhancements with lower estimated costs and/or lesser scope or impact. Generally, major system enhancement projects included in the fiscally constrained element of Moving Forward and/or the FFYs 2026-2030 TIP. The system enhancement projects and strategies proposed for funding as part of the fiscally constrained element of Moving Forward and FFYs 2026-2030 TIP are itemized below and total \$62.5 billion in year-of-expenditure dollars through the 2055 planning horizon year (Table 8.1).

Table 6 Major System Enhancement Projects and Program

No.	Plan ID#/PIN #	Category/Item	Funding category	Pre-2026	TIP	PLAN					Total \$
					2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	programmed (in billions)
Minor Projects (from TIP & Plan)											
FFYs 2026-30 TIP			Formula federal	\$ 0.185	\$ 0.456						\$ 0.456
			Project-specific: federal	\$ -	\$ 0.029					\$ 0.029	
			Project-specific: state/local	\$ 0.903	\$ 2.342					\$ 2.342	
FFYs 2026-2055 Plan			Formula federal			\$ 0.037	\$ 0.039			\$ 0.076	
			Project-specific: federal			\$ -	\$ -			\$ -	
			Project-specific: state/local			\$ 0.009	\$ 0.010			\$ 0.019	
Major Projects (Itemized)											
1	PLAN ID: NSSC650C	NY Route 347 Safety, Mobility and Environmental Improvements	Formula federal				\$ 0.262				\$ 0.262
			Project-specific: federal							\$ -	
			Project-specific: state/local				\$ 0.066			\$ 0.066	
2	PLAN ID: NYCM2663C	MTA NYCT Second Avenue Subway Phase 2	Formula federal								\$ -
			Project-specific: federal		\$ 3.405					\$ 3.405	
			Project-specific: state/local		\$ 4.294					\$ 4.294	
3	PLAN ID: NYCM2664C	MTA NYCT Second Avenue Subway Phase 3-4	Formula federal								\$ -
			Project-specific: federal				\$2.895	\$7.380	\$4.689	\$ 14.964	
			Project-specific: state/local				\$2.895	\$7.380	\$4.689	\$ 14.964	
4	PLAN IDs: MHSDM708C, NYCDM2304C, NSDM2305C	Transportation Systems Management & Operations Programs	Formula federal		\$ 0.562	\$ 0.655	\$ 0.743	\$ 0.844	\$ 0.959	\$ 1.089	\$ 4.852
			Project-specific: federal		\$ 0.141	\$ 0.164	\$ 0.186	\$ 0.211	\$ 0.240	\$ 0.272	\$ 1.213
			Project-specific: state/local								\$ -
5	PLAN ID: NYCQ386C	Woodhaven Boulevard Select Bus Service - Capital Improvements	Formula federal								\$ -
			Project-specific: federal								\$ -
			Project-specific: state/local			\$ 0.236					\$ 0.236
6	PLAN ID: NYCMB12190C	Interborough Express	Formula federal			\$ 0.073					\$ 0.073
			Project-specific: federal			\$ 4.340					\$ 4.340
			Project-specific: state/local			\$ 1.087					\$ 1.087
7	PLAN ID: NYCBX2206C	Rehabilitation/Replacement of 5 Cross Bronx Expressway Bridges from Boston Road to Rosedale Avenue	Formula federal		\$ 0.712						\$ 0.712
			Project-specific: federal								\$ -
			Project-specific: state/local		\$ 0.178						\$ 0.178
8	PLAN ID: NYCMB5127C	ADA Accessibility at Subway Stations	Formula federal			\$ 7.146					\$ 7.146
			Project-specific: federal								\$ -
			Project-specific: state/local			\$ 1.787					\$ 1.787
9	PIN: X77338 PLAN ID: NYCQ2361C	Great Streets Vision Zero – Queens Boulevard	Formula federal	\$ 0.024							
			Project-specific: federal								
			Project-specific: state/local	\$ 0.189							
10	PLAN ID: MHSMC767C	Penn Station Access: New Haven Line via Amtrak's Hell Gate Line	Formula federal	\$ 0.065							
			Project-specific: federal								
			Project-specific: state/local	\$ 1.761							
11	PLAN ID: NYCBX2162C	Hunts Point Interstate Access Improvement	Formula federal	\$ 0.329							
			Project-specific: federal								
			Project-specific: state/local	\$ 1.432							
Subtotals			Formula federal	\$ 0.603	\$ 1.730	\$ 7.911	\$ 1.045	\$ 0.844	\$ 0.959	\$ 1.089	\$ 13.578
			Project-specific: federal	\$ -	\$ 0.170	\$ 7.908	\$ 0.186	\$ 3.106	\$ 7.620	\$ 4.961	\$ 23.951
			Project-specific: state/local	\$ 4.285	\$ 2.520	\$ 7.413	\$ 0.075	\$ 2.895	\$ 7.380	\$ 4.689	\$ 24.973
			TOTALS	\$ 4.888	\$ 4.420	\$ 23.232	\$ 1.306	\$ 6.845	\$ 15.958	\$ 10.739	\$ 62.501
			PROJECTED REVENUES	\$ 4.888	\$ 4.420	\$ 23.232	\$ 1.306	\$ 6.845	\$ 15.958	\$ 10.739	\$ 62.501

Appendix A. Public Comment & Responses

Public Comments and Responses on the Congestion Management Process (CMP) Status Report

Public Comment Period: June 30, 2025 through July 30, 2025

Comment #1

July 15, 2025

Ruby Foxall

Via Chat at Public Meeting

Subject: Congestion Pricing

How have congestion forecasts changed post congestion pricing?

NYMTC Response: Congestion pricing assumptions were built into the forecast data. However, six months, which is how long the congestion pricing program has been in operation at the time of writing, is not enough time to assess the impacts of the program on a long-term basis. Travelers are still adjusting to the reality, and commute patterns have not fallen into a stable “new normal” yet. The program is continually monitored so that it can be adjusted as needed: as an example, London’s program has been adjusted multiple times since implementation in 2003.

Comment #2

July 15, 2025

Michael Cohen

Received verbally at Public Meeting

Subject: Congestion Pricing

The data being used in the CMP status report is for 2023 and does not include anything post congestion pricing. Can the data be changed before the final release to post-congestion pricing data?

NYMTC Response: The CMP Status Report provides a snapshot of existing and future conditions using the data available at the time the report is compiled. At the start of the data analysis process in 2024, the 2023 data was the most complete up-to-date dataset available. While this existing conditions dataset in the 2025 CMP Status Report does not reflect the implementation of the congestion pricing program, NYMTC will continue to monitor its strategy effectiveness through it's ongoing Congestion Management Process.