



CMAQ Performance Plan

DISCLAIMER

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The New York Metropolitan Transportation Council (NYMTC) is committed to compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice and all related nondiscrimination statutes, rules, regulations, and executive orders.

NYMTC assures that no person or group(s) of persons shall, on the grounds of race, color, age, disability, national origin, gender, or income status, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination through the federally mandated metropolitan transportation planning process undertaken by NYMTC, whether the activities are federally funded or not.

It is also the policy of NYMTC to ensure that all its plans, programs, procedures, policies, and activities do not have disproportionate adverse effects on minority and low-income populations. Minority and low-income communities, as identified through the United States Census, will be engaged to facilitate their full and fair participation in the metropolitan transportation planning process. In addition, NYMTC will provide meaningful access to services for persons with limited English proficiency.

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NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

PROGRAM, FINANCE, AND ADMINISTRATION COMMITTEE (PFAC)

RESOLUTION #547

2022 CONGESTION MITIGATION/AIR QUALITY (CMAQ) PERFORMANCE PLAN

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

WHEREAS, 23 CFR 490.107 (c)(3) requires that MPOs serving Transportation Management Areas as defined in the regulations and meeting criteria specified in CFR 490.105(f)(6)(iii), need to develop a Congestion Mitigation/Air Quality (CMAQ) Performance Plan as required by 23 U.S.C. 149(1); and

WHEREAS, as an MPO serving a Transportation Management Area, NYMTC developed a CMAQ Performance Plan in September 2018 for the start of the first four-year performance period and updated the Plan in October 2020 at the midpoint of the performance period as required; and

WHEREAS, the CMAQ Performance Plan includes targets for Traffic Congestion performance measures on National Highway System (NHS) roadways within Urbanized Area (UZA) 63217, designated as the New York-Newark, NY-NJ-CT UZA; and

WHEREAS, these UZA 63217 targets for Traffic Congestion performance measures were established through a coordinated process involving the MPOs whose planning areas are included in whole or in part within UZA 63217 and include NHS roadways within the UZA, as well as the relevant state departments of transportation; and

WHEREAS, NYMTC has developed this draft 2022 CMAQ Performance Plan at the start of the second four-year performance period, as required, in conjunction with New York State's required Performance Report.

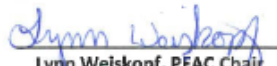
NOW, THEREFORE, BE IT RESOLVED THAT, PFAC adopts the 2022 CMAQ Performance Plan, presented as Attachment 1 to this resolution, which includes UZA 63217 targets for the Traffic Congestion performance measures; and

BE IT FURTHER RESOLVED THAT, PFAC instructs NYMTC staff to submit the adopted 2022 CMAQ Performance Plan to New York State Department of Transportation as required.

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

ADOPTED: September 22, 2022

"I hereby certify that the above is a true copy of Resolution #547, 2022 Congestion Mitigation/Air Quality (CMAQ) Performance Plan, and was motioned by Patrick Gerdin, representing the Mid-Hudson South Transportation Coordinating Committee, and seconded by Christopher Chatterton, representing the Nassau/Suffolk Transportation Coordinating Committee. This Resolution was adopted and passed unanimously."


Lynn Weiskopf, PFAC Chair

THE METROPOLITAN PLANNING ORGANIZATION

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1. OVERVIEW

The CMAQ Performance Plan responds to the federal requirements for Transportation Performance Management (TPM) (23 CFR 490.107(c)(3) and 23 USC 149(l)) associated with the Congestion Mitigation/Air Quality (CMAQ) funding program. These required performance measures include Annual Hours of Peak Hour Excessive Delay per Capita (PHED) and Percent of Non-Single Occupied Vehicle Travel (Non-SOV Travel) for the relevant urbanized area(s), and Total Emissions Reduction for mobile sources in the relevant air quality nonattainment and maintenance areas.

The first CMAQ Performance Plan was adopted by the New York Metropolitan Transportation Council (NYMTC) and submitted to the New York State Department of Transportation (NYSDOT) as required in September 2018, with a subsequent update as required in 2020. This new Performance Plan responds to the federal regulations which stipulate that it be updated biennially. The Performance Plan will be part of NYSDOT's first performance period full progress report and second performance period baseline report to USDOT.

Federal metropolitan transportation planning regulations require the implementation of TPM requirements under which states and metropolitan planning organizations (MPOs) will “transition to a performance-driven, outcome-based program that provides for a greater level of transparency and accountability, improved project decision-making, and more efficient investment of federal transportation funds.”

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have issued rules for the implementation of TPM. Each rulemaking lays out the goals of performance for an area of transportation, establishes the measures for evaluating performance, specifies the data to be used to calculate the measures, and then sets requirements for setting targets.

Under TPM, states, MPOs, and providers of public transportation must link investment priorities to the achievement of performance targets in the following areas:

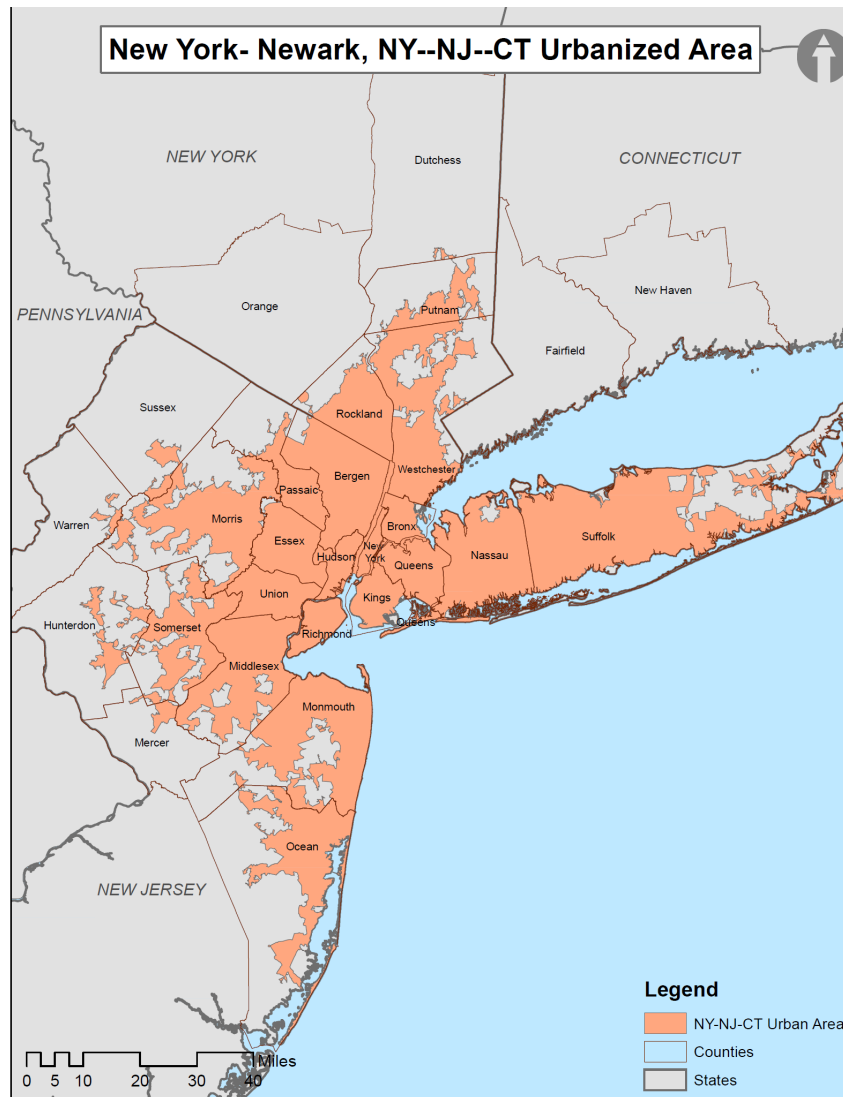
- *Highway & Transit Safety;*
- *Asset Management; and*
- *System Performance.*

In this fashion, the FHWA and FTA have provided direction and guidance on requirements for implementation of TPM, including specified measures and data sources, forecasting performance, target-setting, documentation in the statewide and metropolitan long-range

transportation plans and Transportation Improvement Programs (TIPs), and reporting requirements.

2. NYMTC AND ITS PLANNING CONTEXT

Figure 1- Urbanized Area



Federal legislation requires that any urbanized area (UZA) with a population greater than 50,000 must have an MPO to plan for and make decisions on the use of federal transportation funding. MPOs ensure that existing and future expenditures for transportation projects and programs are based on a continuing, cooperative, and comprehensive planning process. Among other functions/requirements, MPOs cooperate with state agencies and public transportation operators to program federal funds for eligible transportation projects.

As the MPO for New York City, Long Island, and the Lower Hudson Valley, NYMTC

serves as a collaborative planning forum for the five boroughs of New York City; Nassau and Suffolk counties on Long Island; and Putnam, Rockland, and Westchester counties in the Lower Hudson Valley to undertake the federally mandated planning process and access federal funding for transportation projects.

NYMTC's planning area shares the New York--Newark, NY--NJ--CT UZA (UZA 63217) with the North Jersey Transportation Planning Authority (see Figure 1). The NYMTC planning area also is part of several air quality non-attainment or maintenance areas designated under the Clean Air

Act Amendments of 1990 for several pollutants, including ground-level ozone, carbon monoxide, and fine particulate matter. These designations are all relevant to the required performance measures associated with the CMAQ program.

3. THE CMAQ PROGRAM

The U. S. Congress first authorized the CMAQ funding program as part of the Intermodal Surface Transportation Efficiency Act of 1991. The CMAQ program has been reauthorized in each of the five subsequent federal transportation acts, including the current Infrastructure Investment and Jobs Act. The program is intended to support surface transportation projects and other related efforts that contribute air quality improvements and provide congestion relief. According to FHWA's program description:

CMAQ provides a flexible funding source for State and local governments to fund transportation projects and programs to help meet the requirements of the Clean Air Act (CAA) and its amendments. The legislation is codified at 23 USC Sec 149. CMAQ money supports transportation projects that reduce mobile source emissions in areas designated by the U.S. Environmental Protection Agency (EPA) to be in nonattainment or maintenance of the national ambient air quality standards. Since its beginning in 1992, the CMAQ program has provided more than \$30 billion for over 29,000 transportation-related emission reduction projects for State transportation departments (DOTs), metropolitan planning organizations (MPOs), and other sponsors across the country.

4. MEASURING PERFORMANCE

FHWA issued the *System Performance: Highway and Freight, Congestion Mitigation and Air Quality (CMAQ) Final Rule* on January 18, 2017, with an effective date of May 20, 2017. The rule covered three performance measures for Highways and Freight: 1) Interstate Travel Time Reliability, 2) Non-Interstate National Highway System Travel Time Reliability, and 3) Freight Reliability. In addition, the rule established the three performance measures described earlier that are associated with the CMAQ program: 1) Annual Hours of PHED per Capita 2) Percent of Non-SOV Travel, and 3) Total Emissions Reduction.

A. TARGET SETTING

The Final Rule gave State DOTs one year from the rule's effective date to set performance targets for the first four-year performance period. MPOs then had an additional 180 days from the date of establishment to either set their own targets or support the State DOT's targets. At the conclusion of the first performance period, the process repeats for the second four-year performance period.

The PHED and Non-SOV Travel measures apply to non-attainment and maintenance areas containing National Highway System mileage, and with populations of one million or more. However, for the PHED and Non-SOV Travel measures, State DOTs and MPOs are required to mutually establish a single target for each UZA within their boundaries, in whole or in part. UZAs which stretched into other MPO planning areas and/or other states still require a single target to be set and progress against this target measured. In these cases, State DOTs and MPOs are required to work together to address the target setting and other TPM requirements for the entire UZA.

For the Total Emissions Reduction measure, State DOTs, in coordination with MPOs, must establish statewide targets for total emissions reduction of on-road mobile source emissions for all nonattainment and maintenance areas within the state and for each applicable criteria pollutants and precursors. For the second performance period, State DOTs are required by the Final Rule to report targets to FHWA by October 1, 2022. MPOs are required to either set their own targets or support the State DOT's targets within 180 days after State DOTs have set their targets. In both cases, the targets reflect the anticipated cumulative emissions reductions reported through the CMAQ Public Access System. MPOs do not have to directly report their targets to FHWA.

B. PERFORMANCE PERIODS

Performance periods are specific, on-going four-year time periods established by the Final Rule during which condition or performance is measured and evaluated to assess changes to baseline conditions or performance; and to track progress toward the achievement of the targets that represent the intended condition or performance level at the midpoint and at the end of that period. The term "performance period" applies to all performance measures required by the infrastructure condition (PM2) and system performance (PM3) measures final rules. Highway Safety performance measures must be reported annually. Each performance period covers a four-year duration beginning on a specified date.

C. DATA REQUIREMENTS

The Final Rule specifies the sources of data for the CMAQ-related performance measures, which are described below:

- Urbanized area data - State DOTs are required to submit urbanized area data for establishing and reporting on targets for the two CMAQ Traffic Congestion measures (PHED and Non-SOV Travel). The boundaries of urbanized areas are required to be identified based on the most recent U.S. Decennial Census, unless FHWA approves

adjustments to an urbanized area. FHWA adjusted UZA boundaries were used for the target setting and reporting activities covered by this performance plan.

- Percentage of non-single occupancy vehicle travel - All affected parties agreed to the use of the American Community Survey (ACS) commuting (journey-to-work) data from the U.S. Census Bureau for the Non-SOV Travel measure. The Final Rule allows State DOTs and MPOs to use localized surveys or measurements in place of the ACS, at their discretion.
- Nonattainment and maintenance areas data - State DOTs are required to use the nonattainment and maintenance areas boundaries based on the effective date of U.S. Environmental Protection Agency (EPA) designations.
- Travel time data set - The Final Rule requires travel time data needed to calculate the measures to come from the National Performance Management Research Data Set (NPMRDS) provided by FHWA monthly to the States and MPOs, unless the State DOT requests, and FHWA approves, the use of an equivalent data source(s) that meets the requirements in the Final Rule. The State DOT is required to establish, in coordination with applicable MPOs, a single travel time data set (i.e., NPMRDS or equivalent data set) that will be used to calculate the metrics that inform the required performance measures. The same data source is required for each calendar year and State DOTs and MPOs must use the same travel time data set for each reporting segment for the purposes of calculating the metrics and measures. The NPMRDS was used as the source for travel reliability data for the PHED that is reported on in this plan. Other data sources were used to inform the Non-SOV Travel and Total Emissions Reduction measures.
- CMAQ Public Access System - This is a data base that collects FHWA-approved CMAQ project data submitted through the annual CMAQ reporting process. The CMAQ Public Access System makes available searchable, read only, project information from 1992 to present in various reporting formats. This source was used to inform the Total Emissions Reduction measure.

5. URBANIZED AREA TARGET SETTING

As indicated earlier, NYMTC shares UZA 63217 with the North Jersey Transportation Planning Authority (NJTPA), its sister MPO in northern New Jersey. Since the population of this UZA exceeds 1 million, UZA targets are required to be set for the two CMAQ-related performance measures in the first performance period. These targets are to apply to the entire UZA. Setting these targets for UZA 63217 required coordination between NYMTC, NJTPA and the New York State and New Jersey departments of transportation. A coordination group containing representatives from these entities was established for that purpose.

Since small portions of UZA 63217 cross into the planning areas of the Delaware Valley Regional Planning Commission (DVRPC) in central New Jersey and the Western Connecticut Council of Governments (WestCOG) adjacent to Westchester County, those two organizations were also included in the coordination group discussions. Given the participation of these MPOs, the discussions also included the Pennsylvania and Connecticut departments of transportation. However, it was determined that the tiny portion of WestCOG's planning area did not require a separate action on the part of that organization, since there are no National Highway System (NHS) roadways in that small area. DVRPC supports the targets that are subject to this plan.

A. PERCENT OF NON-SOV TRAVEL PERFORMANCE MEASURE

As defined by FHWA, Non-SOV Travel is travel occurring using modes other than driving alone in a motorized vehicle. The performance measure for Non-SOV Travel is a percentage of all surface passenger travel occurring in UZA.

I. TARGET SETTING CONSIDERATIONS FOR THE NON-SOV TRAVEL MEASURE

Like the first CMAQ Performance Plan there were many considerations recognized during the target setting process for this Plan. To establish the targets, the UZA coordination group considered several different aspects of the measure.

- Policy Goals -- this performance measure assesses the level of non-SOV travel in the UZA as a means of mitigating traffic congestion and mobile source emissions. The policy goals of all the partner agencies seek to increase travel by non-SOV modes, including public transit, ridesharing, walking, and biking.
- Recent Trends – the proportion of non-SOV travel in the UZA has modestly increased in recent years, concurrent with pre-pandemic growth in transit ridership, population growth and employment changes. Although true for the UZA as a whole, localized variance in this trend is likely within specific areas of the UZA, such as New York City.

Continued increases in ride-hailing using transportation network companies (TNCs), walking and biking have contributed to this trend. Additionally, the emergence of mass-telecommuting during the COVID-19 Pandemic more than offset declines in transit ridership seen since the pandemic's onset.

- Data Sources -- the proportion of non-SOV travel for the UZA has been measured using the ACS Table DP03 journey-to-work travel of the UZA residents. The baseline measurement uses the 2020 ACS Five-Year Estimate, which is the latest data available. Non-SOV travel is measured as the percentage of the UZA population that predominantly do not travel to work by driving alone in a car, van, or truck, including travel avoided by telecommuting.

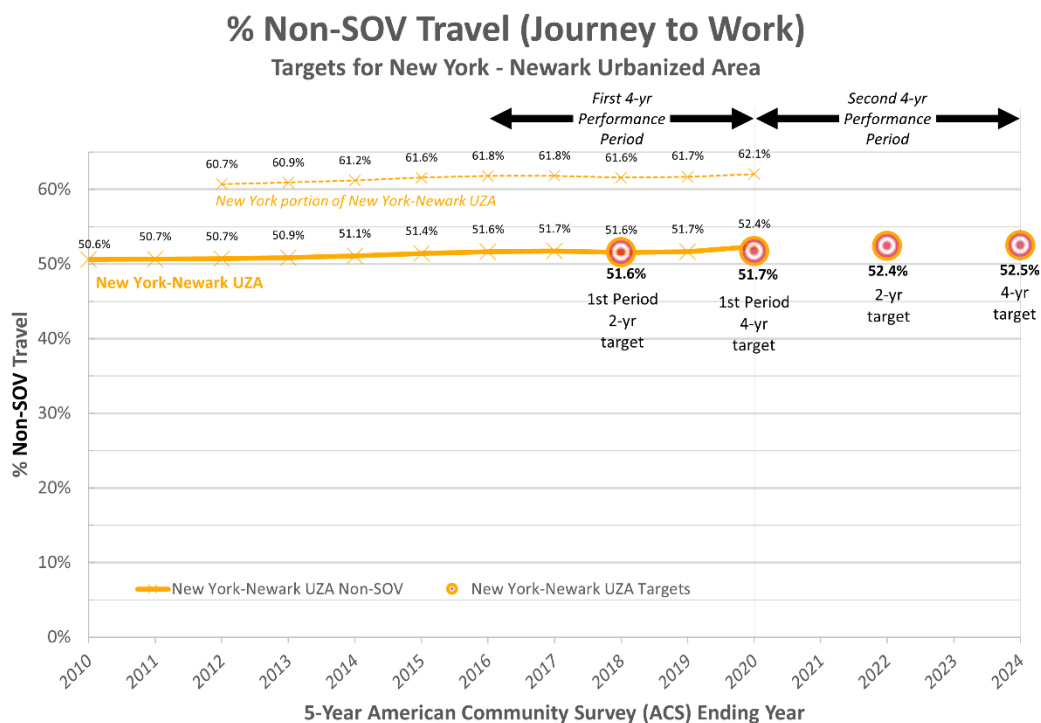
II. SETTING THE NON-SOV TRAVEL TARGETS FOR UZA 63217

- Existing Condition Measurement -- the baseline condition for the Non-SOV Travel measure was estimated as 52.4% of the UZA residents who do not predominantly travel to work by driving alone in a car, van or truck. Figure 1 below presents the trend analysis which was used to measure the baseline condition.
- Target Setting – the baseline measurement helped to set the two-year and four-year performance targets for the Non-SOV Travel measure. The relevant agencies and organizations that coordinated to measure performance for UZA 63217 set the following targets for Non-SOV Travel:
 - The two-year target for the Non-SOV Travel measure has been set as **52.4%**.
 - The four-year target for the Non-SOV Travel measure has been set as **52.5%**.

The UZA coordination group agreed that the two-year target for Non-SOV Travel will be the same as the baseline condition, 52.4%. As shown in Figure 2 below, the projects identified as impacting Non-SOV Travel allowed the achievement of the two-year and the four-year targets during the first performance period.

Section 7 below provides assessments of the CMAQ-funded projects obligated by NYMTC since the adoption of the previous CMAQ Performance Plan in 2020, as well as those programmed in NYMTC's Federal Fiscal Years (FFYs) 2023-2027 Transportation Improvement Program (TIP). It is anticipated that the projects listed in the Appendices 1 and 2 will continue to reduce the percentage of SOV travel. However, due to the uncertainty surrounding the COVID-19

Figure 2 - Non-SOV Travel (Journey-to-Work)



pandemic, the MPOs and State DOTs in the UZA have jointly agreed to adjust non-SOV travel targets during the mid-performance period if necessary.

B. ANNUAL HOURS OF PEAK HOUR EXCESSIVE DELAY PER CAPITA

Peak Hour Excessive Delay (PHED) is calculated for all segments of the National Highway System (NHS) within the urbanized area. PHED is defined as the extra amount of time spent in congested conditions defined by speed thresholds that are lower than a normal delay threshold during peak hours. The delay is measured in hours per person over a one-year period.

For this measure, the Final Rule defines the speed threshold as either 20 mph or 60 percent of the posted speed limit, whichever is greater. FHWA requires that weekday data must be employed for this performance measure, from a morning peak period of 6:00AM – 10:00AM, and one of two evening peak periods: 3:00PM – 7:00PM or 4:00PM – 8:00PM. The earlier evening peak was used for all calculations.

As with Non-SOV Travel, both two-year and four-year targets are required for PHED. With the first mid performance period progress report, due October 1, 2024, four-year targets may be adjusted for both metrics.

I. TARGET SETTING CONSIDERATIONS FOR THE PHED MEASURE

To establish targets for the PHED measure, the UZA coordination group considered several different aspects of the measure.

- Policy Goals - this performance measure assesses excessive traffic congestion and the role that it plays in pollutant emissions. The policy goals of all partner agencies address the need to appropriately manage and mitigate traffic congestion. However, there was a recognition that it is not possible or even desirable to eliminate all congestion delay; some congestion accompanies economic activity and thriving places.
- Recent Trends – measurements from the first performance period were available for this measure. Related metrics for congestion and overall delay were evaluated and demonstrated increases in years leading into the prior performance period. However, trends during the first performance period showed pre-pandemic declines in PHED. While PHED for 2020 showed a substantial decline, in 2021, PHED increased back to be in-line with pre-pandemic trends.
- Data Sources - PHED is a measure of congestion on the National Highway System (NHS), which is comprised mostly of limited access and major and minor arterial roadways in the UZA. Some collector roadways may also be components of the NHS. Travel times used for this measure were taken from the NPRMDS, while traffic volumes were obtained from the national Highway Performance Monitoring System (HPMS). Vehicle occupancies and time-of-day travel distributions were derived from the ACS.

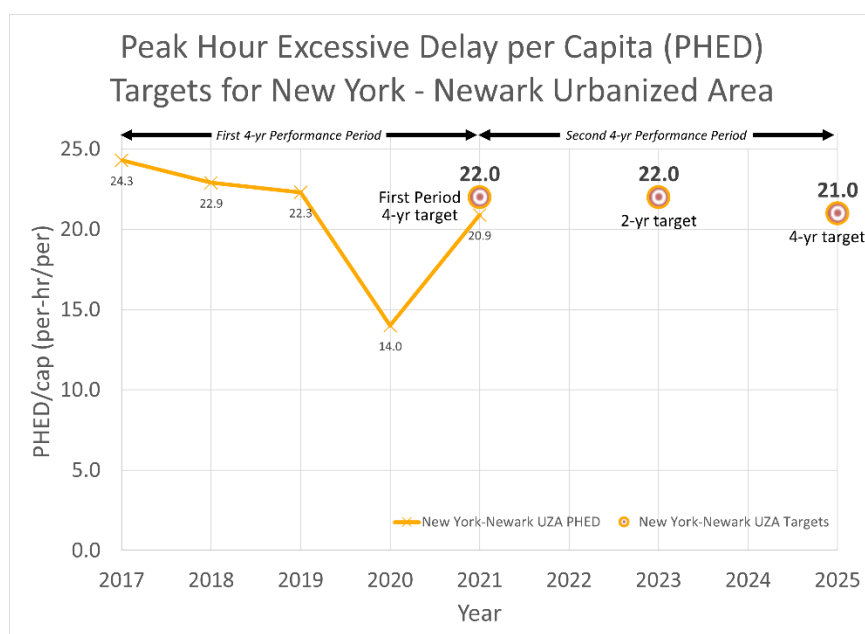
II. SETTING THE PHED TARGETS FOR UZA 63217

- Existing Condition Measurement -- The current existing condition for PHED per capita measure of UZA 63217 is estimated at 22 hours per capita.
- Target Setting – the baseline measurement helps to set the two-year and four-year performance targets for the PHED measure. Therefore, the relevant agencies and organizations that coordinated to measure performance for UZA 63217 have set the following target for PHED:
 - The two-year target for Annual Hours of PHED in UZA 63217 is **22 hours per capita**.
 - The four-year target for Annual Hours of PHED in UZA 63217 is **21 hours per capita**.

As indicated above and in Figure 3 below the four-year target for Annual Hours of PHED in the UZA was set at 21 hours per capita. The current condition for PHED per capita measure of UZA 63217 is estimated at approximately 22 hours per capita, based on the SUNY AVAIL tool used in the Baseline Report. Section 7 below provides assessments of the CMAQ-funded projects obligated since the adoption of the previous CMAQ Performance Plan in 2020, as well as those programmed in the FFYs 2023-2027 TIP.

It is anticipated that the projects listed in the Appendices 1 and 2 will continue to have positive impacts on the reduction of PHED, thereby allowing the UZA to achieve its two- and four-year targets. However, due to uncertainty surrounding the COVID-19 Pandemic, the MPOs and State DOTs in the UZA have jointly agreed to reserve the right to adjust the PHED target during the mid-performance period if needed.

Figure 3- PHED Trend and Target



6. TOTAL EMISSIONS REDUCTION TARGET SETTING

The Total Emissions Reduction measure is applicable to all States and MPOs with areas designated as nonattainment or maintenance for the National Ambient Air Quality Standard (NAAQS) related to the following criteria pollutants defined in the Clean Air Amendments of 1990: ground-level ozone from the precursor pollutants volatile organic compounds (VOC) and nitrogen oxides (NO_x), carbon monoxide (CO), and fine (PM_{2.5}) particulate matter.

I. TARGET SETTING CONSIDERATIONS FOR THE TOTAL EMISSIONS REDUCTION MEASURE

- Data Sources - the CMAQ Public Access System is the data source for this measure required by FHWA. It contains data to estimate the amounts of criteria pollutants that are reduced statewide for states with nonattainment areas that have funded projects with CMAQ funds. Total Emissions Reduction is calculated by summing emissions reductions of applicable criteria pollutant and precursor, in kilograms per day, for all projects using CMAQ funds.

II. SUPPORTING NEW YORK STATE'S TOTAL EMISSIONS REDUCTION TARGETS

Per the Final Rule (see section 4(a) above), NYMTC is opting to support New York State's Total Emissions Reduction targets, which are set by the New York State Department of Transportation (NYSDOT).

- Baseline Measurement - the baseline measurement is no longer calculated using data from the CMAQ Public Access System. Instead, the baseline measurement is set as the average of the reported benefits in 2020 and 2021. The baseline measurement for the Total Emission Reduction from CMAQ projects in New York State follows:
 - VOCs – 6.572 kilograms per day
 - NO_x – 21.042 kilograms per day
 - CO – 132.307 kilograms per day
 - PM_{2.5} – 1.085 kilograms per day
 - PM₁₀ – 1.599 kilograms per day
- Target Setting -- the two-year and four-year targets for the cumulative statewide Total Emission Reduction measure set by NYSDOT appear below. These targets were set by applying linear regression to the cumulative annual emission reductions for each criteria pollutant. Outlier projects were removed from the linear regression to ensure a more representative trend line. Additionally, the established trend line was adjusted to account for fleet efficiency improvements resulting from federal tailpipe emissions and fuel economy standards during the performance period.

The cumulative targets were then set by multiplying the forecasted daily measure for each year from the linear regression by 365 days (366 days in the case of 2024) to arrive at annual total emissions reduction estimates and then summing by the number of years for a cumulative target, as shown below, of total kilograms reduced over the performance period.

Table 1-- Estimated Daily Average Reduction

Federal Fiscal Year	Estimated Daily Average Reduction (kg/day)				
	VOC	CO	NOX	PM10	PM2.5
2022*	6.572	132.307	21.042	1.599	1.085
2023	6.033	125.956	19.253	1.498	0.93
2024	5.388	114.242	16.5	1.199	0.853
2025	5.172	112.414	15.807	1.099	0.775
*Baseline is the average of the reported 2020-2021 data.					

Table 2-- Statewide Emissions Targets

Target	Initial Targets (Cumulative Reduction in kg/day)				
	VOC	CO	NOX	PM10	PM2.5
2-year	12.605	258.263	40.295	3.097	2.015
4-year	23.165	484.92	72.603	5.395	3.643

Section 7 below provides assessments of the CMAQ-funded projects obligated since the adoption of the previous CMAQ Performance Plan in 2020, as well as those programmed in the FFYs 2023-2027 TIP. It is anticipated that the projects listed in Appendices 1 and 2 Appendix 2 will continue to have positive impacts on the reduction of emissions, thereby contributing to the achievement of the statewide targets.

7. OBLIGATED AND PROGRAMMED CMAQ PROJECTS

This CMAQ Performance Plan provides assessments of the CMAQ-funded projects obligated since the adoption of the previous CMAQ Performance Plan in 2020, as well as those programmed in the FFYs 2023-2027 TIP. There were 30 CMAQ-funded projects obligated in whole or in part since the 2020 Plan, totaling \$463 million in obligated funds. There are 50 CMAQ-funded projects programmed in the FFYs 2023-2027 TIP, totaling over \$623 million. All these projects are assessed below in terms of their contribution to the achievement of the Non-SOV Travel and PHED targets set for UZA 63217.

A. NON-SOV TRAVEL TARGETS FOR UZA 63217

The obligated CMAQ projects include eighteen projects which enhance or expand transit service levels and/or access to transit services; facilities for non-motorized transportation modes; and programs that encourage mode shifts and/or non-SOV modes of travel. In total, just over \$341 million have been obligated for these projects.

Several of these projects contribute to auto diversions, such as the Bicycle Network Development in New York City and commute options programs in the Lower Hudson Valley; and new enhanced transit services such as the Better Buses Action Plan in New York City, and purchases of transit vehicles to add capacity and clean fuels throughout the NYMTC's portion of the UZA. These strategic improvements and enhancements are consistent with various vision goals and related objectives in NYMTC's FFYs 2022-2050 Regional Transportation Plan, titled *Moving Forward*. These obligated projects together will contribute toward increasing non-SOV travel in the UZA.

The CMAQ projects programmed in the FFYs 2023-2027 TIP include nineteen projects that will provide facilities for non-motorized transportation modes; encourage use of transit service and/or improve access to transit services; and/or fund demand management programs. Taken together, these projects facilitate increases in market share for non-SOV modes of travel. In total, just over \$271 million have been programmed for these projects.

Bicycle/pedestrian projects that increase auto diversions are programmed throughout NYMTC's portion of the UZA that will contribute to achieving the Non-SOV Travel target. Examples of these projects include the Maybrook Bikeway Phase II in the Lower Hudson Valley, the Harlem River Greenway bicycle pedestrian trail in New York City, and the multi-use path adjacent to County Route 97 on Long Island.

CMAQ-funded demand management programs encourage shared mobility and transit use, as well as strategies such as telework that have been greatly amplified by the COVID-19 pandemic. Examples of CMAQ-funded demand management programs include employee commute

options programs in Westchester and Rockland counties in the Lower Hudson Valley, in addition to Integrated Corridor Management and Active Transportation Demand Management projects in critically congested corridors in New York City and on Long Island.

Access-to-transit projects improve the accessibility of transit services, encourage transit use through marketing and increased park-and-ride capacity and improve and promote intermodal transit connections. Additionally, Bus Rapid Transit projects on Long Island will improve the speed and reliability of transit services in key employment and activity corridors.

In total, these CMAQ-funded projects will facilitate modal shifts to higher capacity or non-motorized travel alternatives and therefore contribute to meeting Non-SOV Travel targets in the UZA.

B. PHED TARGETS FOR UZA 63217

Regarding the PHED targets, ten of the obligated CMAQ projects specifically contribute to congestion reduction and therefore a reduction in PHED. These projects obligated \$118 million to strategically address congestion in corridors, at intersections, and in subareas in a manner consistent with *Moving Forward* and NYMTC's Congestion Management Process.

The congestion related CMAQ projects improve level of service and thereby improve speed and contribute to achieving the target. These obligated projects include signalization and traffic operations enhancements such as Pelham Road, Main Street and Huguenot Street in the Lower Hudson Valley; Complete Streets projects such as Grand Avenue in Nassau County; congestion relief projects such as the Bruckner Expressway and Hutchinson River Parkway mobility improvements in New York City; and the expanded Off-Hour Deliveries Incentives Program in New York City. These improvements contribute toward reducing PHED in the UZA.

Additionally, 36 CMAQ projects programmed in the FFYs 2023-2027 TIP will specifically contribute to congestion reduction and therefore a reduction in PHED. These projects program just over \$319 million of funding to strategically address congestion in corridors, at intersections, and in subareas.

The congestion related CMAQ projects include traffic signalization enhancements that increase level of service and reduce congestion. Examples include the Merrick Avenue signal expansion on Long Island and the Main Street and Huguenot Street traffic operations projects in the city of New Rochelle in Westchester County. Roadway and intersection improvements also improve traffic flow through strategies such as raised medians and crosswalks, enhanced traffic control devices, road diets and adding pedestrian islands. Examples of CMAQ-funded projects include Fair Street in Putnam County, Pascack Road at Lawrence Street intersection reconstruction in Rockland County, and a further phase of the Route 347 reconstruction on Long Island.

Active Traffic Demand Management Systems and Integrated Corridor Management projects reduce congestion in corridors through dynamic lane use control, adaptive ramp metering, dynamic advisory signage, and dynamic shoulder use during periods of peak congestion. Examples of these projects are the Long Island Expressway Corridor and the Cross Bronx Expressway projects in New York City, as well as the citywide Congested Corridors Program. The Route 110 Bus Rapid Transit project on Long Island seeks to improve transit service and reduce congestion in that critical employment corridor. Additionally, CMAQ-funded incident management projects reduce non-recurring delay through the removal of disabled vehicles and use of electronic signs that warn of congestion or accidents in the travel stream.

Collectively, these projects will reduce traffic congestion and improve level of service while reducing PHED in the UZA.

C. CUMULATIVE STATEWIDE TOTAL EMISSIONS REDUCTION TARGETS

Taken together, the obligated CMAQ projects noted above will also reduce emissions by either shifting travel onto more efficient modes such as transit and ridesharing, or non-motorized modes such as pedestrian and bicycles, thus reducing overall vehicle miles of travel and consequently, vehicular emissions; or by reducing traffic congestion and smoothing traffic flow. Traffic congestion also adds to vehicular emissions levels. Additionally, the Municipal Plug-In and Advanced Vehicle Program in New York City will reduce motor vehicle emissions at the tailpipe.

All the CMAQ-funded projects programmed in the FFYs 2023-2027 TIP that contribute to achieving the Non-SOV Travel targets and the PHED targets will also contribute to achieving the cumulative statewide Total Emission Reduction targets. They will reduce motor vehicle emissions of criteria pollutants through improved facilities for non-motorized and micro-mobility conveyances as well as modal shifts to shared mobility options and public transit. The projects will also contribute to a reduction in traffic congestion through demand management and roadway geometric and operational improvements. Additionally, CMAQ-funded projects that address vehicle emissions at the tailpipe are the replacement of diesel transit vehicles and trucks with electric or alternatively fueled vehicles, which total just over \$56 million in programmed funds.

APPENDICES

Appendix 1: Obligated CMAQ Projects Since the 2020 CMAQ Performance Plan

PIN	Subarea	Sponsor	Project Name	Programmed Funding	Performance Measure(s) Impacted		
					Non-SOV Travel	PHED	Total Emissions Reduction
839096	Lower Hudson Valley	LOCAL	ROUTE 6 @ WESTBROOK DRIVE	\$ 0.482		X	X
875684	Lower Hudson Valley	PUTNAM COUNTY	MAYBROOK BIKEWAY II PHASE A	\$ 1.711	X		X
875748	Lower Hudson Valley	PUTNAM COUNTY	CONSTRUCT (CR 21) PEEKSKILL HOLLOW RD RENOVATION PROJECT	\$ 11.205		X	X
875899	Lower Hudson Valley	LOCAL	PELHAM RD TRAFFIC SIGNALS (PELHAM MANOR TO MAIN ST)	\$ 2.502		X	X
875900	Lower Hudson Valley	LOCAL	MAIN STREET & HUGUENOT STREET TRAFFIC OPERATIONS	\$ 7.070		X	X
875906	Lower Hudson Valley	PUTNAM COUNTY	MAHOPAC FALLS TRAILWAY	\$ 0.903	X		X
876105	Lower Hudson Valley	PUTNAM COUNTY	MAYBROOK BIKEWAY II PHASE B	\$ 1.120	X		X
878054	Lower Hudson Valley	LOCAL	NORTH MIDDLETOWN ROAD PEDESTRIAN LINK TO PEARL RIVER	\$ 0.230	X		X
881518	Lower Hudson Valley	NEW YORK STATE DOT	SIGNAL OPTIMIZATION: WIRELESS VEHICLE DETECTION SYSTEM	\$ 0.635		X	X
881520/ 881521	Lower Hudson Valley	NEW YORK STATE DOT	SIGNAL OPTIMIZATION: WIRELESS VEHICLE DETECTION SYSTEM	\$ 0.544		X	X
882370	Lower Hudson Valley	ROCKLAND COUNTY	ROCKLAND COUNTY COMMUTE ALTERNATIVES	\$ 0.640	X		X
882376	Lower Hudson Valley	WESTCHESTER COUNTY	WESTCHESTER COUNTY EMPLOYEE COMMUTE OPTIONS PROGRAM	\$ 1.120	X		X
8TM061	Lower Hudson Valley	WESTCHESTER COUNTY	PURCHASE OF (108) 40 FOOT REPLACEMENT BUSES	\$ 100.354	X		X
882369	Lower Hudson Valley	MTA METRO-NORTH RR	MTA METRO-NORTH RAILROAD MARKETING AND CONNECTING SERVICES	\$ 0.452	X		X
005423	Long Island	NEW YORK STATE DOT	RECONSTRUCT NY 347 FROM GIBBS POND ROAD TO HALLOCK ROAD	\$ 61.146		X	X
076136	Long Island	NASSAU COUNTY	BALDWIN, GRAND AVENUE COMPLETE STREETS & TRAFFIC SAFETY IMPV	\$ 2.460		X	X
082904	Long Island	NASSAU COUNTY	PURCHASE CNG 40' BUSES	\$ 9.894	X		X
082915	Long Island	NEW YORK STATE DOT	PURCHASE OF 6 40' ELECTRIC BUSES AND CHARGING INFRASTRUCTURE	\$ 6.032	X		X
TRANTECH	Long Island	MTA LONG ISLAND RR	LIRR TRANSIT TECHNICAL ASSISTANCE	\$ 0.400	X		X
ST04-6131	New York City	MTA NEW YORK CITY TRANSIT	ADA: WOODHAVEN BOULEVARD STATION / JAMAICA LINE	\$ 73.567	X		X
T6041318	New York City	MTA NEW YORK CITY TRANSIT	ADA: 8 AVENUE SOUTHBOUND ELEVATOR / SEA BEACH	\$ 29.280	X		X
T8041345	New York City	MTA NEW YORK CITY TRANSIT	ADA: 181 STREET STATION, 8 AVE LINE	\$ 101.720	X		X
X02708	New York City	NEW YORK CITY DPR	BRONX RIVER GREENWAY BICYCLE/PEDESTRIAN BRIDGE	\$ 1.869	X		X
X73127	New York City	NEW YORK STATE DOT	BRUCKNER EXPWY-HUTCHINSON PKWY MOBILITY IMPROVEMENT PROJECT, BRONX CO., NYC	\$ 26.482		X	X
X77261	New York City	NEW YORK CITY DOT	MUNICIPAL PLUG-IN AND ADVANCED VEHICLE PROGRAM	\$ 1.040			X
X77365	New York City	NEW YORK CITY DOT	BICYCLE NETWORK DEVELOPMENT V - LANE MARKING CONSTRUCTION	\$ 2.978	X		X
X77375	New York City	NEW YORK CITY DOT	BICYCLE NETWORK DEVELOPMENT LANE MARKING CONSTRUCTION	\$ 6.408	X		X
X77392	New York City	NEW YORK CITY DOT	EMISSION CONTROL TECHNOLOGIES (OPERATIONS)	\$ 1.820			X
X77413	New York City	NEW YORK CITY DOT	BETTER BUSES ACTION PLAN FOR COVID RESPONSE	\$ 3.000	X		X
X77414	New York City	NEW YORK CITY DOT	EXPAND THE OFF-HOUR DELIVERIES INCENTIVES PROGRAM THROUGHOUT NYC, REGIONWIDE	\$ 6.000		X	X
			TOTALS	\$ 463.06	\$ 341.68	\$ 118.53	\$ 463.06

Appendix 2: CMAQ Projects Programmed in the Federal Fiscal Years 2023-2027 TIP

					Performance Measure(s) Impacted		
PIN	Subarea	Sponsor	Project Name	Programmed Funding	Non-SOV Travel	PHED	Total Emissions Reduction
875263	Lower Hudson Valley	WESTCHESTER COUNTY	MICROTRANSIT ZONES IN WESTCHESTER COUNTY	\$ 7,000	X		X
875609	Lower Hudson Valley	PUTNAM COUNTY	FAIR ST: RT 52-JOHN SIMPSON RD IMPROVEMENTS	\$ 2,500		X	X
875898	Lower Hudson Valley	ROCKLAND COUNTY	SUFFERN LANE @ HAMMOND ROAD	\$ 5,408		X	X
875900	Lower Hudson Valley	LOCAL	MAIN STREET & HUSSENOT STREET TRAFFIC OPERATIONS	\$ 4,596		X	X
875902	Lower Hudson Valley	LOCAL	WEBSTER AVENUE TRAFFIC SIGNALS: MAIN STREET	\$ 0,452		X	X
875907	Lower Hudson Valley	ROCKLAND COUNTY	PASCACK RD @ LAWRENCE ST: INTERSECTION RECONSTRUCTION	\$ 2,640		X	X
875966	Lower Hudson Valley	ROCKLAND COUNTY	GERMONDS ROAD: PALISADES INTERSTATE PARK RAMP RECONSTRUCTION	\$ 2,384		X	X
875973	Lower Hudson Valley	LOCAL	WILMOT RD SIGNALS: GRAND BLVD TO GOLDEN HORSE SHOPPING CENTER	\$ 0,116		X	X
876197	Lower Hudson Valley	PUTNAM COUNTY	STONELEIGH AVE @ DREWVILLE RD INTERSECTION IMPROVEMENTS	\$ 4,261		X	X
876261	Lower Hudson Valley	WESTCHESTER COUNTY	ELECTRIC INFRASTRUCTURE AND UPGRADES AT STORAGE AND MAINTENANCE FACILITIES	\$ 10,000			X
876296	Lower Hudson Valley	PUTNAM COUNTY	LUDINGTONVILLE ROAD @ NY5 ROUTE 52	\$ 8,040		X	X
882402/ 882403/ 882438	Lower Hudson Valley	ROCKLAND COUNTY	ROCKLAND COMMUTE ALTERNATIVES	\$ 3,200	X		X
882404	Lower Hudson Valley	WESTCHESTER COUNTY	WESTCHESTER EMPLOYEE COMMUTE OPTIONS PROGRAM	\$ 2,800	X		X
882405/ 882406	Lower Hudson Valley	MTA METRO-NORTH RR	MTA METRO-NORTH RAILROAD MARKETING AND CONNECTING SERVICES	\$ 1,460	X		X
882409/ 882410/ 882441	Lower Hudson Valley	NEW YORK STATE DOT	COACH BUS MARKETING AND PARKING CONTRACT	\$ 2,000	X		X
87M062	Lower Hudson Valley	WESTCHESTER COUNTY	PURCHASE OF 95 40 FOOT REPLACEMENT BUSES BEE-LINE SYSTEM	\$ 10,119	X		X
87RM86	Lower Hudson Valley	LOCAL	ORANGETOWN GAS POWERED VEHICLES REPLACEMENT	\$ 0,268			X
005409	Long Island	NEW YORK STATE DOT	NY347 RECONSTRUCTION: HALLOCK RD TO CR 97	\$ 2,000		X	X
076046	Long Island	NASSAU COUNTY	TRAFFIC SIGNAL EXPANSION PHASE 9	\$ 4,792		X	X
076114	Long Island	SUFFOLK COUNTY	ROUTE 110 BUS RAPID TRANSIT CORRIDOR	\$ 42,780	X	X	X
076125	Long Island	NASSAU COUNTY	TRAFFIC SIGNAL EXPANSION PHASE 10	\$ 6,424		X	X
076143	Long Island	NASSAU COUNTY	INCIDENT MANAGEMENT SYSTEM PHASE 5	\$ 2,913		X	X
076144	Long Island	NASSAU COUNTY	MERRICK AVENUE SIGNAL EXPANSION	\$ 4,000		X	X
076161	Long Island	NASSAU COUNTY	TRAFFIC SIGNAL EXPANSION PHASE 11	\$ 4,000		X	X
076176	Long Island	SUFFOLK COUNTY	PEDESTRIAN & BICYCLE MULTI-USE PATH ADJACENT TO CR 97	\$ 0,640	X	X	X
076207	Long Island	SUFFOLK COUNTY	TRAFFIC SIGNAL RETIMING - DESIGN AND IMPLEMENTATION	\$ 2,400		X	X
076208	Long Island	SUFFOLK COUNTY	TRAFFIC SIGNAL COORDINATION AND COMMUNICATIONS IMPROVEMENTS	\$ 8,940		X	X
076214	Long Island	NASSAU COUNTY	TRAVEL TIME WPI READERS	\$ 1,400		X	X
076217	Long Island	NASSAU COUNTY	TRAFFIC SIGNAL EXPANSION PHASE 12	\$ 4,800		X	X
076218	Long Island	NASSAU COUNTY	INCIDENT MANAGEMENT SYSTEM PHASE 6	\$ 2,800		X	X
081002	Long Island	NEW YORK STATE DOT	SAFETY ENHANCEMENTS	\$ 1,100		X	
082912/ 082920	Long Island	NASSAU COUNTY	PURCHASE 142 COMPRESSED NATURAL GAS BUSES	\$ 8,871	X	X	X
082915/ 082922	Long Island	NASSAU COUNTY	PURCHASE 29 40 FOOT ELECTRIC BUSES AND CHARGING INFRASTRUCTURE	\$ 27,000	X	X	X
TRANTECH	Long Island	MTA LONG ISLAND RR	TRANSIT TECHNICAL ASSISTANCE PROGRAM	\$ 0,800	X		X
T804-12AA	New York City	MTA NEW YORK CITY TRANSIT	PASSENGER STATIONS INVESTMENTS	\$ 110,000	X		X

Appendix 2: CMAQ Projects Programmed in the Federal Fiscal Years 2023-2027 TIP

					Performance Measure(s) Impacted		
PIN	Subarea	Sponsor	Project Name	Programmed Funding	Non-SOV Travel	PHED	Total Emissions Reduction
X22877	New York City	NEW YORK STATE DOT	I-495 INTEGRATED CORRIDOR MANAGEMENT INITIATIVE	\$ 18.070	X	X	X
X00198	New York City	NEW YORK CITY DPR	HARLEM RIVER GREENWAY BICYCLE/PEDESTRIAN TRAIL	\$ 1.440	X	X	X
X72707	New York City	NEW YORK STATE DOT	REHABILITATION OF 6 BRIDGES ON THE CROSS BRONX EXPRESSWAY	\$ 26.208		X	X
X72711	New York City	NEW YORK STATE DOT	CROSS BRONX EXPRESSWAY ACTIVE TRAFFIC MANAGEMENT	\$ 4.077		X	X
X73178/ X73179	New York City	NEW YORK STATE DOT	BRUCKNER EXPRESSWAY MOBILITY IMPROVEMENTS	\$ 52.262		X	X
X77005	New York City	NEW YORK CITY DOT	HUNTS POINT/PORT MORRIS DIESELEMISSIONS REDUCTION	\$ 6.015			X
X77013	New York City	NEW YORK CITY EDC/NEW YORK CITY DOT/GREATER JAMAICA DC	IMPROVEMENTS OF STATION PLAZA IN JAMAICA, QUEENS COUNTY	\$ 5.000		X	X
X77265	New York City	NEW YORK CITY EDC	HUNTS POINT TERMINAL MARKET FREIGHT RAIL MODERNIZATION	\$ 13.766		X	X
X77363	New York City	NEW YORK CITY DOT	RECONSTRUCTION OF SHORE ROAD BRIDGE OVER THE HUTCHINSON RIVER	\$ 10.000		X	X
X77379/ X77380	New York City	NEW YORK CITY DOT	BICYCLE NETWORK DEVELOPMENT	\$ 10.740	X	X	X
X77381	New York City	NEW YORK CITY DOT	NYC CONGESTED CORRIDOR REDUCTION PROGRAM	\$ 3.510	X	X	X
X77393/ X77394	New York City	NEW YORK CITY DOT	PEDESTRIAN NETWORK DEVELOPMENT V	\$ 1.324	X		X
X77395	New York City	NEW YORK CITY DOT	NORTHERN BLVD WALKABLE CORRIDOR (31 ST/40 AVE TO 114 ST)	\$ 0.800	X		X
X77422	New York City	NEW YORK CITY DOT	CLEAN TRUCK PROGRAM - CITYWIDE	\$ 10.000			X
X77423 to X77427	New York City	NEW YORK CITY DOT	INSTALLATION OF ELECTRIC VEHICLE CHARGERS	\$ 137.500			X
X80659	New York City	NEW YORK STATE DOT	LONG ISLAND EXPRESSWAY CORRIDOR ACTIVE TRANSPORTATION & DEMAND MANAGEMENT	\$ 19.341	X	X	X
			TOTALS	\$ 622.957	\$ 271.895	\$ 319.671	\$ 621.857