APPENDIX C
FHWA AND FTA TRANSPORTATION PERFORMANCE MANAGEMENT IN MPO TRANSPORTATION IMPROVEMENT PROGRAMS

Background

Pursuant to MAP-21 (and carried through into the FAST Act), Metropolitan Planning Organizations (MPOs) must employ a transportation performance management approach in carrying out their federally-required planning and programming activities. Chapter 23 part 150(b) of the *United States Code* [23USC §150(b)] includes the following seven national performance goals for the Federal-Aid Highway Program:

- **Safety** – To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- **Infrastructure condition** – To maintain the highway infrastructure asset system in a state of good repair.
- **Congestion reduction** – To achieve a significant reduction in congestion on the National Highway System.
- **System reliability** – To improve the efficiency of the surface transportation system.
- **Freight movement and economic vitality** – To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- **Environmental sustainability** – To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- **Reduced project delivery delays** – To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practice.

On the public transportation side, transportation performance management shall be utilized to advance the general policy and purposes of the public transportation program as included in 49USC §5301(a) and (b).

The Syracuse Metropolitan Transportation Council (SMTC) Transportation Improvement Program (TIP) was developed and is managed in cooperation with the New York State Department of Transportation (NYSDOT) and the Central New York Regional Transportation Authority (CNYRTA). It reflects the investment priorities established in the SMTC's 2050 Long Range Transportation Plan (LRTP), which incorporates comments and input from affected agencies and organizations and the public.

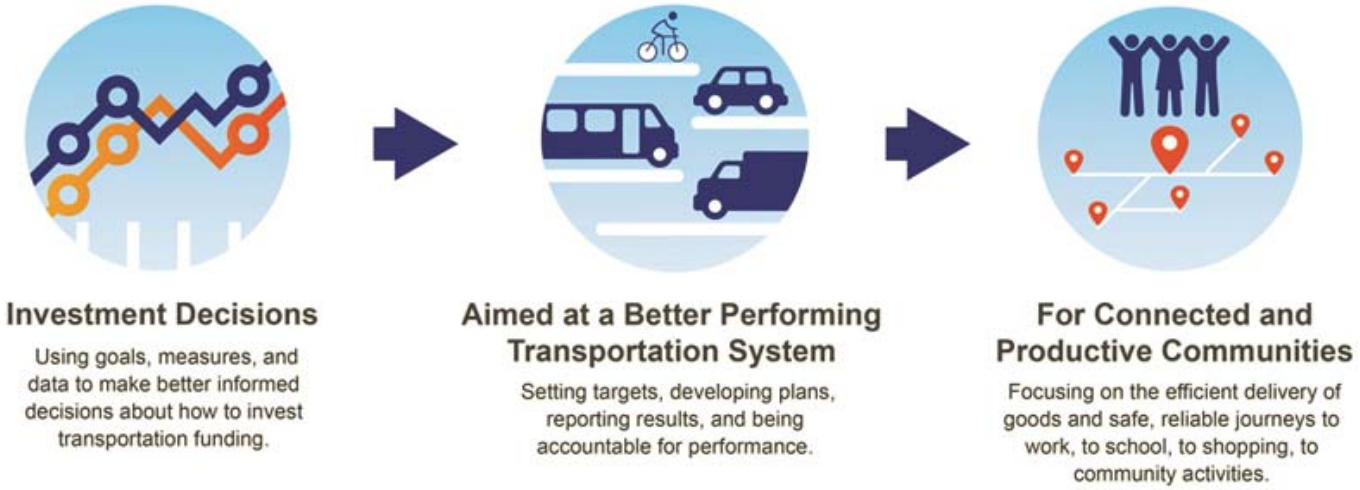
Transportation Improvement Programs "shall include, to the maximum extent practicable, a description of the anticipated effects of the transportation improvement program toward achieving the performance targets established in the metropolitan transportation plan, linking investment priorities to those performance targets" [23USC §134(j)(2)(D)]. Metropolitan

transportation plans (MTPs) adopted or amended after the following dates must include performance targets for the associated measures:

- May 27, 2018 – Highway Safety Improvement Program (HSIP) and Highway Safety
- October 1, 2018 – Transit Asset Management
- May 20, 2019 – Pavement and Bridge Condition
- May 20, 2019 – System Performance/Freight/Congestion Mitigation & Air Quality Improvement Program
- July 20, 2020 – Public Transportation Safety Program.

Metropolitan Planning Organizations that do not adopt or amend their MTP prior to these dates are still required to support statewide performance targets or establish their own for the measures discussed above, and include "a description of the anticipated effects of the transportation improvement program toward achieving" said targets. This portion of the amended 2017-2021 TIP and the soon to be adopted 2020-2024 TIP meets these requirements of 23USC §134(j)(2)(D).

Figure 1: Transportation Performance



Source: FHWA

HSIP and Highway Safety

Performance Targets

On March 15, 2016, the Federal Highway Administration (FHWA) published the final rule for the HSIP and Safety Performance Management (Safety PM) Measures in the *Federal Register* with an effective date of April 14, 2016.

The 2017 New York Strategic Highway Safety Plan (SHSP) is intended to reduce "the number of fatalities and serious injuries resulting from motor vehicle crashes on public roads in New York State." The Strategic Highway Safety Plan guides NYSDOT, the MPOs, and other safety partners in addressing safety and defines a framework for implementation activities to be carried out across New York State. The New York State Department of Transportation (NYSDOT) *Highway Safety Improvement Program* annual report documents the statewide performance targets.

The Syracuse Metropolitan Transportation Council first agreed to support the NYSDOT statewide 2018 safety targets on February 16, 2018 via Resolution 2018-02. On December 11, 2018, via Resolution 2018-15, the SMTC agreed to support the 2019 safety targets for the following Safety PM measures based on five year rolling averages per Title 23 Part 490.207 of the *Code of Federal Regulations.*

Table 1: New York State 2018 Safety Performance Management Targets

Measure	New York Statewide Target 2019
Number of Fatalities	1,072
Fatality Rate	0.86
Number of Serious Injuries	10,987
Serious Injury Rate	8.62
Number of Non-Motorized Fatalities and Serious Injuries	2,726

Anticipated Effects

Safety is a critical component of SMTC's mission, and the projects on the TIP are consistent with the need to address safety. Safety is a primary consideration in the selection of projects to be included in the TIP. The current project selection process utilized at the SMTC is consistent with, and aligns to, the agency's LRTP that contains goals, objectives, performance measures and adopted performance targets such as those for Safety PM. The Long Range Transportation Plan adheres to the performance-based planning and programming requirements established under MAP-21 and continued in the FAST Act. The LRTP guides projects associated with the SMTC's annual work program and the TIP.

As the LRTP is the blueprint that guides transportation investment in the Metropolitan Planning Area, all new projects are evaluated against the community goals, objectives, and performance

measures established in the LRTP and are applicable to the federal surface transportation authorization national goals as identified above and its planning factors. The 2050 LRTP safety goal and objectives are shown in Table 2.

Table 2: SMTC 2050 Long Range Transportation Plan Safety Goal and Objectives

Goal	Objectives
Increase the safety, security, and resiliency of the transportation system.	Reduce serious injuries and fatalities.
	Reduce pedestrian and bicycle crashes.
	Reduce the number of height- and weight-restricted bridges, especially along primary freight and commuter corridors.

Relative to TIP project selection, project proposal forms are available for a variety of project types; Bicycle/Pedestrian, Bridge, Paving, Safety, Transportation System Management & Operations and Public Transit. The Safety application form, which is utilized by potential sponsors for solely safety related capital projects requires applicants to answer explicit safety relevant questions such as:

- Has a preliminary traffic engineering analysis been completed?
- Does the location have a number of serious injuries and/or fatalities?
- Is a Safety Benefit Evaluation Form (TE 164) attached?

As indicated, safety is a principal goal of the LRTP. While the remaining project types (i.e., Bicycle/Pedestrian, Bridge, Paving, Transportation System Management & Operations, and Public Transit) have their own application forms, these project types are also evaluated in relation to the safety goal and objectives. Responses to the above questions, in addition to the relationship with the LRTP, are used in the evaluation process. This approach provides a clear linkage between the TIP program of projects and the policies, goals, objectives, performance measures and performance targets outlined in the LRTP. The Transportation Improvement Program includes a number of site specific and systemic projects programmed with HSIP funds and other fund sources that are expected to materially benefit the safety of the traveling public on roadways throughout the Metropolitan Planning Area.

The Syracuse Metropolitan Transportation Council TIP has been reviewed and the anticipated effect of the overall program is that it will contribute to progress made in addressing the safety performance targets established by the State.

Transit Asset Management

Performance Targets

On July 26, 2016, the Federal Transit Administration (FTA) published the final rule for Transit Asset Management (TAM) in the *Federal Register* with an effective date of October 1, 2016. This rule applies to all recipients and subrecipients of Federal transit funding that own, operate, or manage public transportation capital assets. The final rule defines the term "state of good repair," requires public transportation providers to develop, adopt and implement a TAM Plan 2 years from the effective date, and establishes State of Good Repair standards and performance measures for four transit asset categories: rolling stock, transit infrastructure, equipment, and facilities.

The Syracuse Metropolitan Transportation Council first agreed to support the CNYRTA 2018 TAM targets for on February 16, 2018, via Resolution 2018-03. On December 11, 2018, via Resolution 2018-16, the SMTC agreed to support the following 2019 TAM targets. The Central New York Regional Transportation Authority established targets for those asset classes noted in the table below that apply to their operation. With this action, the SMTC agreed to plan and program projects in the TIP that will, once implemented, make progress toward achieving the transit asset targets.

Table 3: CNYRTA 2019 State of Good Repair Performance Management Targets

Asset category		Default ULB	FY 19 Target
Rolling Stock	Over The Road	14	0%
	Bus	14	0%
	Cut-A-Way	8	0%
Equipment	Auto	8	0%
	Truck	8	0%
Asset category		**TERM Benchmark**	**FY 19 Target**
Facilities	Admin/Maintenance	3	0%
	Passenger Parking	3	0%

ULB – Useful Life Benchmark
TERM – Transit Economic Requirements Model
TERM Rating Condition Description
Excellent 4.8-5.0 No visible defects, near-new condition
Good 4.0-4.7 Some slightly defective or deteriorated components
Adequate 3.0-3.9 Moderately defective or deteriorated components
Marginal 2.0-2.9 Defective or deteriorated components in need of replacement
Poor 1.0-1.9 Seriously damaged components in need of immediate repair

Anticipated Effects

The transit program of projects contained in the TIP addresses amongst other items, transit asset management and State of Good Repair. The Syracuse Metropolitan Transportation Council's goal of addressing transit asset condition is linked to the investment plan of the CNYRTA, and the process used to prioritize the projects within the TIP is consistent with federal requirements. Transit relevant goals and objectives from the adopted 2050 LRTP are identified in Table 4.

Table 4: SMTC 2050 Long Range Transportation Plan Transit Supportive Goals and Objectives

Goal	Objectives
Provide a high degree of multi-modal accessibility and mobility for individuals to include better integration and connectivity between modes of travel.	Provide essential transit service to urban and suburban areas.
	Provide higher-quality transit service to transit oriented development (TOD) nodes.
Protect and enhance the natural environment and support energy conservation and management.	Reduce vehicle miles traveled in the region.
	Reduce on-road mobile source emissions.
	Increase the percentage of commute trips made by transit.
Improve the reliability of the transportation system and promote efficient system management and operations.	Improve transit on-time performance.
	Improve utilization of transit vehicles.
Ensure that transportation system performance improvements are distributed equitably.	Improve transit service between employment centers and priority target areas (as identified in SMTC's Environmental Justice Analysis).

The Transportation Improvement Program includes a number of bus procurements, and transit facility rehabilitation projects programmed primarily with FTA Section 5307 and/or Section 5539 program funds. Given transit's significance in the adopted 2050 LRTP, the 2017-2021 and 2020-2024 TIPs program flexible funds from the FHWA Surface Transportation Block Grant Program (STBG) and also Congestion Mitigation Air Quality Program (CMAQ) funds (2020-2024 TIP) for bus replacements. Additionally, State Dedicated Funds from New York State are utilized. The extensive vehicle fleet owned, operated, and maintained by the CNYRTA comprises the majority of the transit agency's capital program. Vehicles are maintained to the highest standards and oftentimes replaced prior to reaching the FTA defined useful life, which is evident within the adopted rolling stock, equipment, and facilities targets.

The Syracuse Metropolitan Transportation Council anticipates that the transit projects on the TIP, when implemented, will contribute to progress toward achieving the established transit asset management targets, and will also benefit the traveling public throughout the Metropolitan Planning Area where the CNYRTA provides public transit services. This is consistent with the LRTP goals, objectives, performance measures and adopted performance targets. The Syracuse Metropolitan Transportation Council coordinates with CNYRTA on TAM requirements and has agreed to program investments to support the CNYRTA TAM targets.

The Syracuse Metropolitan Transportation Council TIP has been reviewed and the anticipated effect of the overall program is that it will contribute to progress made in addressing the transit performance targets established by the CNYRTA.

Pavement and Bridge Condition

Performance Targets

On January 18, 2017, FHWA published the Pavement and Bridge Condition Performance Measures Final Rule in the *Federal Register*. This second FHWA performance measure rule, which has an effective date of May 20, 2017 (originally February 17, 2017), established six performance measures to assess pavement conditions and bridge conditions for the National Highway Performance Program (NHPP).

The pavement condition measures represent the percentage of lane-miles on the Interstate and non-Interstate National Highway System (NHS) that are in good or poor condition. FHWA established five pavement condition metrics[1]: International Roughness Index (IRI); cracking percent; rutting; faulting; and Present Serviceability Rating (PSR). The Federal Highway Administration set a threshold for each metric to establish good, fair, or poor condition. A pavement section is classified as being in good condition if three or more metric ratings are good, and in poor condition if two or more metric ratings are poor. Pavement sections that are not good or poor are classified as fair.

The bridge condition measures represent the percentage of bridge deck area on the NHS that are in good condition or poor condition. [2] The condition of each bridge is evaluated by assessing four bridge components: deck, superstructure, substructure, and culverts. The Final Rule created a metric rating threshold for each component to establish good, fair, or poor condition. If the lowest rating of the four metrics is greater than or equal to seven (on a scale of 0-9), the structure is classified as good. If the lowest rating is less than or equal to four, the structure is classified as poor. If the lowest rating is five or six, it is classified as fair.

The Syracuse Metropolitan Transportation Council agreed to support the NYSDOT statewide targets for the following NHS pavement and bridge condition performance measures on December 11, 2018, via Resolution 2018-14.

[1] Per FHWA, "To ensure consistent definitions, a distinction between 'performance measure' and 'performance Metric' was made in 23 CFR 490.101. A 'metric' is defined as a quantifiable indicator of performance or condition whereas a 'measure' is defined as an expression based on a metric that is used to establish targets and to assess progress toward meeting the established targets." (*FHWA Computation Procedure for the Pavement Condition Measures – FHWA-HIF-18-022,* FHWA Office of Infrastructure and Office of Policy & Governmental Affairs, April 2018)

[2] The sum of total deck area of good or poor NHS bridges is divided by the total deck area of all bridges carrying the NHS to determine the percent of bridges in good or in poor condition. Deck area is calculated by multiplying the structure length by either the deck width or approach roadway width.

Table 5: NHS Pavement and Bridge Performance Management Targets

Performance Measure	NY Statewide Target 2-Year (2018-2019)	NY Statewide Target 4-Year (2018-2021)
Percentage of Interstate pavements in good condition	46.4%	47.3%
Percentage of Interstate pavements in poor condition	3.1%	4.0%
Percentage of non-Interstate NHS pavements in good condition	14.6%	14.7%
Percentage of non-Interstate NHS pavements in poor condition	12.0%	14.3%
Percentage of NHS bridges by deck area in good condition	23.0%	24.0%
Percentage of NHS bridges by deck area in poor condition	11.6%	11.7%

The two-year and four-year targets represent pavement and bridge condition at the end of calendar years 2019 and 2021.

Anticipated Effects

Maintaining and, where possible, improving the condition of NHS pavements and bridges is a critical component of SMTC's mission, and the projects on the TIP are consistent with the need to address the condition of these infrastructure assets. National Highway System pavement and bridge conditions are primary considerations in the selection of projects to be included in the TIP. The bridge and pavement project proposal forms were revised as part of the 2020-2024 TIP update to account for the importance of work on NHS facilities. For example, the bridge form asks "Does the project contribute toward the accomplishment of improving bridge conditions on the National Highway System?" Additionally, the extensive transportation system in the SMTC metropolitan planning area contains over 299 centerline miles of NHS pavement and 256 NHS bridges. These figures further breakdown as 109 Interstate centerline miles, 190 centerline miles non-Interstate, 190 bridges carrying the Interstate and 66 bridges carrying non-Interstate NHS. The NHS facilities are prioritized over non-NHS bridges and pavement given their importance to the movement of people and goods. Table 6 depicts applicable goals and objectives from the 2050 LRTP.

Table 6: SMTC 2050 Long Range Transportation Plan Bridge and Pavement Supportive Goals and Objectives

Goal	Objectives
Support efficient freight movement within our region.	Maintain adequate infrastructure conditions on primary freight corridors.
Strategically preserve our existing infrastructure and focus future investment in areas that are already served by significant public infrastructure investments.	Preserve and maintain pavement.
	Preserve and maintain bridges.

As a result of the TIP project selection that is directed by the 2050 LRTP goals, objectives and related performance measures, FHWA funds from the NHPP, flexible funds and apportioned large urban funds for the SMTC urbanized area from the STBG are programmed to numerous bridge and pavement projects on the NHS. The vast majority of projects are programmed with NHPP funds (approximately 67% of all programmed dollars on the 2020-2024 TIP are NHPP).

The Syracuse Metropolitan Transportation Council TIP has been reviewed and the anticipated effect of the overall program is that it will contribute to the NHS pavement and bridge condition performance targets established by the State.

System Performance, Freight, and Congestion Mitigation and Air Quality

Performance Targets

On January 18, 2017, FHWA published the system performance, freight, and CMAQ Performance Measures Final Rule in the *Federal Register*. This third and final FHWA performance measure rule, which has an effective date of May 20, 2017 (originally February 17, 2017), established six performance measures to assess the performance of the NHS, freight movement on the Interstate System, and traffic congestion and on-road mobile source emissions for the CMAQ Program.

There are two NHS performance measures that represent the reliability of travel times for all vehicles on the Interstate and non-Interstate NHS. The Federal Highway Administration established the Level of Travel Time Reliability (LOTTR) metric to calculate reliability on both the Interstate and non-Interstate NHS. Level of Travel Time Reliability is defined as the ratio of longer travel times (80th percentile) to a normal travel time (50th percentile) during four time periods from the hours of 6 AM to 8 PM each day (AM peak, midday, and PM peak on Mondays through Fridays and weekends). The Level of Travel Time Reliability ratio is calculated for each segment of applicable roadway. A segment is reliable if its LOTTR is less than 1.5 during all time periods. If one or more time periods has a LOTTR of 1.5 or above, that segment is unreliable. The measures are expressed as the percentage of person-miles traveled on the Interstate and non-Interstate NHS that are reliable.

The single freight movement performance measure represents the reliability of travel times for trucks on the Interstate system. The Federal Highway Administration established the Truck Travel Time Reliability (TTTR) Index, which is defined as the ratio of longer truck travel times (95th percentile) to a normal truck travel time (50th percentile). The Truck Travel Time Reliability Index is calculated for each segment of the Interstate system over five time periods from all hours of each day (AM peak, midday, and PM peak on Mondays through Fridays, overnights for all days, and weekends). The highest TTTR Index value among the five time periods is multiplied by the length of the segment, and the sum of all length-weighted segments is then divided by the total length of Interstate to generate the TTTR Index.

There are three traffic congestion and on-road mobile source emissions performance measures that represent peak hour excessive delay per capita (PHED), non-single occupancy vehicle (SOV) travel, and total on-road mobile source emissions reductions. The Syracuse Metropolitan

Transportation Council meets all current air quality standards and is not subject to establishing targets for these performance measures.

The Syracuse Metropolitan Transportation Council agreed to support the NYSDOT statewide targets for the following system performance and freight performance measures on December 11, 2018, via Resolution 2018-14.

Table 7: NHS LOTTR and Interstate TTTR Performance Management Targets

Performance Measure	NY Statewide Target 2-Year (2018-2019)	NY Statewide Target 4-Year (2018-2021)
Percentage of person-miles on the Interstate system that are reliable (Interstate LOTTR)	73.1%	73%
Percentage of person-miles on the non-Interstate NHS that are reliable (Non-Interstate NHS LOTTR)	N/A	63.4%
Index of reliability of travel times for trucks on the Interstate system (TTTR Index)	2.00	2.11

Anticipated Effects

Providing for the reliable movement of people and goods is a critical component of SMTC's mission, and the projects on the TIP are consistent with the need to address the reliability of travel times for vehicles, including trucks. These are primary considerations in the selection of projects to be included in the TIP. Travel time reliability in the TIP project selection process is considered for projects identified as a "primary commuter corridor" and/or a "primary freight corridor." These designations were created in the SMTC's Congestion Management Process and freight planning efforts. In many instances, the location of these facilities are synonymous with the NHS. The 2050 LRTP established a number of goals and associated objectives that are supportive of the national performance measure as shown in Table 8. The Transportation Improvement Program includes projects programmed with funds from various funding programs that have benefits to reliability in travel times for people and freight. Projects and or project types on the 2017-2021 TIP and 2020-2024 TIP include bridges, pavements, signal upgrades on non-interstate NHS segments, purchase of Highway Emergency Local Patrol (HELP Program) vehicles and operations and maintenance support of the NYSDOT Region 3 Transportation Management Center and the City of Syracuse Traffic Control Center.

Table 8: SMTC 2050 Long Range Transportation Plan Reliability Supportive Goals and Objectives

Goal	Objectives
Support efficient freight movement within our region.	Maintain adequate infrastructure conditions on primary freight corridors.
	Maintain a high degree of reliability on primary freight corridors.
	Reduce congestion on primary freight corridors.
Provide a high degree of multi-modal accessibility and mobility for individuals. This should include better integration and connectivity between modes of travel.	Reduce congestion in primary commuter corridors as appropriate based on the character of the adjacent development.
Improve the reliability of the transportation system and promote efficient system management and operations.	Maintain a high degree of reliability on primary commuter corridors.

The Syracuse Metropolitan Transportation Council TIP has been reviewed and the anticipated effect of the overall program is that it will contribute to the system performance and freight performance targets established by the State.