

**MEMORANDUM**

**TO:** Genesee Transportation Council Members & Alternates  
**FROM:** James Stack, Executive Director /s/  
**DATE:** August 29, 2018  
**SUBJECT:** Proposed Resolution 18-55 (Adopting the *National Performance Measures Report for the Genesee-Finger Lakes Region*)

As previously discussed, the Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) Act of 2012 directed the U.S. Department of Transportation to establish a set of Performance Measures to increase the accountability and transparency of the federal highway and transit programs and improve project decision-making through performance-based planning and programming through the rulemaking process. The Fixing America’s Surface Transportation Act (FAST Act) of 2015 continued the performance management and performance-based planning and programming requirements of MAP-21 with minor changes.

The Final Rules established national Performance Measures across four subject areas (see Table 1) which require that state Departments of Transportation (DOTs) and providers of public transportation must:

- establish performance targets that reflect the measures;
- report on progress towards achieving those targets;
- develop performance based plans for safety and asset management; and
- implement a performance based approach to planning and programming.

23 U.S.C. § 134 (B)(i)(1) requires that each Metropolitan Planning Organization (MPO), such as GTC, establish Performance Targets that address the Performance Measures to use in tracking progress toward attainment of critical outcomes for the region. These measures will supplement, not replace the regional performance measures adopted in 2016 as part of the *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2040* (LRTP 2040).

To meet the planning requirement, GTC has already appended the (LRTP 2040) to incorporate Performance Measures for Transit Asset Management and Safety. Table 1 summarizes key dates associated with each Performance Measure.

**Table 1** – National Performance Measures

Final Rule	Federal Effective Date	GTC Board Action
Transit Asset Management	March 16, 2016	June 8, 2017
Safety	July 26, 2016	December 14, 2017
Pavement and Bridge Condition	May 20, 2017	September 6, 2018 *
System Performance	May 20, 2017	September 6, 2018 *

\* *Anticipated date of GTC Board action*

Under the National Performance Measures requirements, the Rochester Genesee Regional Transportation Authority (RGRTA) and the New York State Department of Transportation (NYSDOT) are responsible for establishing targets for specific performance measures. As the designated MPO for the region, GTC has the option of adopting the targets set by RGRTA and/or NYSDOT and programming projects towards achieving those targets or to establish different targets. GTC has elected to adopt the RGRTA and NYSDOT targets as each performance measure area was finalized.

Since RGRTA and NYSDOT have the opportunity, and sometimes obligation, to adjust their performance targets outside of the MPO process, GTC staff recommends using a stand-alone document for the National Performance Measures rather than fully integrating them into the Long Range Transportation Plan. This is contrary to actions already taken with the Performance Measures for Transit Asset Management and Safety.

This evolution in thinking came about recently when NYSDOT provided MPOs new Safety targets for the next year. A stand-alone document offers greater flexibility for GTC to respond to changes made by the "owner" of a performance target without the need to amend the LRTP. Accordingly, any modifications contained in this stand-alone document will supersede the National Performance Measures and/or Targets already included in LRTP 2040. However, this stand-alone document does not affect the *regional* Performance Measures in LRTP 2040.

The following items are provided for your consideration:

- 1. Proposed Resolution 18-55** (Adopting the *National Performance Measures Report for the Genesee-Finger Lakes Region*)
- 2. Draft *National Performance Measures Report for the Genesee-Finger Lakes Region***

Proposed Resolution 18-55 was reviewed and recommended for your approval by the Planning Committee at its August 9, 2018 meeting.

***Recommended Action:***

*Approve proposed Resolution 18-55, adopting the National Performance Measures Report for the Genesee-Finger Lakes Region.*

## **GENESEE TRANSPORTATION COUNCIL**

### **RESOLUTION**

#### **Resolution 18-55 Adopting the *National Performance Measures Report for the Genesee-Finger Lakes Region***

#### **WHEREAS,**

1. The Governor of New York State designated the Genesee Transportation Council (GTC) as the Metropolitan Planning Organization (MPO) responsible for transportation planning in the Genesee-Finger Lakes Region, which includes Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, Wyoming, and Yates counties;
2. Title 23, Section 134 of the United States Code requires that each MPO undertake a transportation planning process that shall provide for the establishment and use of a performance-based approach to transportation decision making to support the national goals;
3. Title 23, Section 134 of the United States Code requires that each MPO establish performance targets that address the performance measures to use in tracking progress toward attainment of critical outcomes for the region;
4. Under the National Performance Measures requirements, the Rochester Genesee Regional Transportation Authority (RGRTA) and the New York State Department of Transportation (NYSDOT) are responsible for establishing targets for specific performance measures in the Genesee-Finger Lakes Region;
5. As the designated MPO for the region, GTC has the option of adopting the targets set by RGRTA and/or NYSDOT and programming projects towards achieving those targets or to establish different targets;
6. GTC has elected to adopt the RGRTA and NYSDOT targets as each performance measure area was finalized;
7. GTC wishes to be able to respond to changes in targets made by RGRTA and/or NYSDOT in the most efficient manner possible;
8. Establishing a stand-alone document related to the National Performance Measures provides such an opportunity;
9. GTC agrees to plan and program projects that contribute toward the accomplishment of the RGRTA and NYSDOT targets;

10. The *National Performance Measures Report for the Genesee-Finger Lakes Region* formally incorporates the agreed upon performance targets into GTC's planning documents and planning process.

**NOW, THEREFORE, BE IT RESOLVED**

1. That the Genesee Transportation Council hereby adopts the *National Performance Measures Report for the Genesee-Finger Lakes Region*;
2. Said report supersedes any National Performance Measures and Targets incorporated into the *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2040*; and
3. That the Council agrees to plan and program projects that contribute toward the accomplishment of the RGRTA and NYSDOT targets.

**CERTIFICATION**

The undersigned duly qualified Secretary of the Genesee Transportation Council certifies that the foregoing is a true and correct copy of a resolution adopted at a legally convened meeting of the Genesee Transportation Council held on September 6, 2018.

Date \_\_\_\_\_

\_\_\_\_\_  
KEVIN C. BUSH, Secretary  
Genesee Transportation Council



# National Performance Measures Report for the Genesee-Finger Lakes Region

***DRAFT***

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Financial assistance for the preparation of this report was provided by the Federal Highway Administration and the Federal Transit Administration. The Genesee Transportation Council (GTC) is solely responsible for its content and the views and opinions expressed herein do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

GTC assures that no person shall, on the grounds of race, color, national origin, disability, age, gender, or income status, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity. GTC further assures every effort will be made to ensure nondiscrimination in all of its programs activities, whether those programs and activities are federally funded or not.

El Consejo Genesee del Transporte asegura completa implementación del Título VI de la Ley de Derechos Civiles de 1964, que prohíbe la discriminación por motivo de raza, color de piel, origen nacional edad, género, discapacidad, o estado de ingresos, en la provisión de beneficios y servicios que sean resultado de programas y actividades que reciban asistencia financiera federal.

Image credits: Genesee Transportation Council (unless otherwise noted)

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# NATIONAL PERFORMANCE MEASURES REPORT

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## Introduction

As the designated Metropolitan Planning Organization for the Genesee-Finger Lakes Region, the Genesee Transportation Council (GTC) is required to document national performance measures and targets in support of performance-based planning and programming per the Final Rule governing Metropolitan Planning pursuant to the requirements of the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation (FAST) Act published on May 27, 2016. GTC's commitment to performance measures predates this requirement.

In 2011, the *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035* (LRTP 2035) identified regional performance measures that are outcome based, clearly defined, and utilize real-world data. Using quantitative metrics to measure the performance of the transportation system over time helps maintain transparency and accountability to the taxpayers, given the large amount of public funds used for its construction, maintenance, and operation.

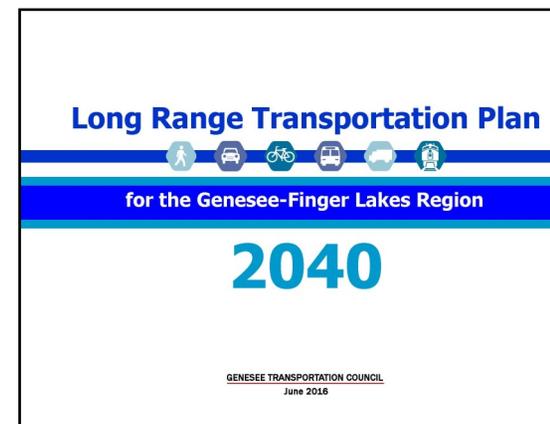
GTC sought to ensure that the selected regional performance measures would be both meaningful (having significance) and understandable (capable of being comprehended) to users and policymakers, providing a common basis to discuss changes in how



the transportation system is meeting or not meeting regional needs. The current plan, LRTP 2040, continued this commitment to a performance-based planning process by including a subset of the regional performance measures presented in LRTP 2035 and introducing new measures.

LRTP 2035 provided a benchmark for each regional performance measure along with the desired direction consistent with the GTC Goals and Objectives and the likely direction based on what can realistically be accomplished within the reasonably expected revenues. Given the changes in available data, data collection methods, the reclassification of the Metropolitan Planning Area (MPA) with an expanded geographical footprint, along with planning and policy work completed to date, not all of the LRTP 2040 performance measures are directly comparable to the benchmark provided in LRTP 2035.

GTC does not have direct influence over all of the performance measures (i.e., GTC cannot directly improve Amtrak's passenger train on-time performance). However, as the organization charged with setting the policy direction and overseeing the regional transportation system, it is GTC's responsibility to measure how well the system is performing. The LRTP 2040 performance measures are meant to inform and guide regional decision making regarding the surface transportation system. For a complete listing of regional performance measures see Chapter 7 – Performance Measures in LRTP 2040.



## National Performance Measures

As previously noted, MAP-21 directed the U.S. Department of Transportation to establish a set of performance measures to increase the accountability and transparency of the federal highway and transit programs and improve project decision-making through performance-based planning and programming through the rulemaking process. In 2015, the FAST Act continued the performance management and performance-based planning and programming requirements of MAP-21 with minor changes.



Pursuant to MAP-21 (and carried through into the FAST Act), 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

The Final Rules established national Performance Measures across four subject areas (see Table 1) which require that state Departments of Transportation (DOTs) and providers of public transportation must:

- establish performance targets that reflect the measures;
- report on progress towards achieving those targets;
- develop performance based plans for safety and asset management; and
- implement a performance based approach to planning and programming.

23 U.S.C. § 134 (B)(i)(1) requires that each Metropolitan Planning Organization (MPO), such as GTC, establish Performance Targets that address the Performance Measures to use in tracking progress toward attainment of critical outcomes for the region. These measures will supplement, not replace the regional performance measures adopted in 2016 as part of LRTP 2040. Table 1, below, summarizes key dates associated with each Performance Measure.

**Table 1 – National Performance Measures Timeline**

Final Rule	Federal Effective Date	GTC Board Action
Transit Asset Management	March 16, 2016	June 8, 2017
Safety	July 26, 2016	December 14, 2017
Pavement and Bridge Condition	May 20, 2017	September 6, 2018*
System Performance	May 20, 2017	September 6, 2018*

\* Anticipated date of GTC Board action

The Rochester Genesee Regional Transportation Authority (RGRTA) is the public transportation provider for the region. Under the National Performance Measures requirements, RGRTA and the New York State Department of Transportation (NYSDOT) are responsible for establishing specific performance targets. As the designated MPO for the region, GTC has the option of adopting the targets set by RGRTA and/or NYSDOT and programming projects towards achieving those targets or to establish different targets. GTC has elected to adopt the RGRTA and NYSDOT targets as each performance measure area was finalized. Furthermore, GTC agrees to program investments in support of the performance measures and targets listed in this report.

On July 13, 2018, a *Performance Management Agreement between the Genesee Transportation Council, New York State Department of Transportation, and the Rochester Genesee Regional Transportation Authority* was executed. This agreement documents the roles and responsibilities of each organization on the implementation of the National Performance Measures in the region. Since RGRTA and NYSDOT have the opportunity, and sometimes obligation, to adjust their performance targets outside of the MPO process, it was determined that GTC would use this stand-alone document for the National Performance Measures rather than fully integrating them into the most recent Long Range Transportation Plan. Background information on each of the individual National Performance Measures along with the agreed to corresponding targets follows below.



Image credit: RTS

## Transit Asset Management

All transit providers that are recipients or subrecipients of Federal financial assistance under 49 U.S.C. Chapter 53 and own, operate, or manage transit capital assets used in the provision of public transportation are required to develop Transit Asset Management (TAM) Plans to achieve and maintain a State of Good Repair. Initial TAM Plans are due to FTA by October 1, 2018. Entities submitting a TAM Plan will submit annual reports to the Federal Transit Administration (FTA) with:

- Projected targets for the next fiscal year;
- Condition assessments and performance results; and
- Narrative report on changes in transit system conditions and the progress toward achieving previous performance targets.

The Final Rule on Transit Asset Management requires MPOs to coordinate with transit providers to set TAM performance targets, and integrate those performance targets into their planning documents. MPO's have the option to either agree to program investments in support of the transit operator's targets or set their own quantifiable targets. The Rochester Genesee Regional Transportation Authority (RGRTA), the Tier I transit provider for this region, established their initial performance targets. On June 8, 2017, GTC formally incorporated the RGRTA performance measures and targets into GTC's planning documents and planning process.

The transit asset management performance measures assess the condition in which a transit capital asset is able to operate at a full level of performance. A capital asset is in a state of good repair when that asset:

- is able to perform its designed function;
- does not pose a known unacceptable safety risk; and
- its lifecycle investments must have been met or recovered.

Benchmarks will be reported within the RGRTA's Transit Asset Management (TAM) Plan in October 2018.



For age-based assets, the target represents the percentage of assets per class that exceed the RGRTA-defined Useful Life Benchmarks (ULB). RGRTA has opted to adjust the industry-standard Expected Useful Life (EUL) to reflect RGRTA’s anticipated useful life based on operational experience. These targets will be used in capital planning to highlight where additional investment is needed.

### Rolling Stock

The performance measure for rolling stock is the percentage of revenue vehicles within a particular asset class that have either met or exceeded their ULB.



**Table 2 – Rolling Stock**

Asset	Description	EUL (years)	ULB (years)
40' Bus	RTS fixed-route service	12	12
60' Articulated Bus	RTS fixed-route service	12	12
Paratransit IA	RTS Access service	4	5
Regional Type III	24' rural service bus	5	5
Regional Type VI	29' rural service bus	7	7

### Facilities

RGRTA owns eight (8) facilities, including:

- RTS Administration Building
- RTS Operations Building
- RTS Service Building
- RTS Transit Center
- RTS Access Administration/Maintenance Facility
- RTS Access Bus Storage Facility
- RTS Livingston Facility
- RTS Wyoming Facility

The facilities are rated to FTA's Transit Economic Requirements Model (TERM) – Lite scale of 1 (poor) to 5 (excellent). The performance target represents the percentage of assets rated below a 3.



Image credit: RTS

### Equipment

The performance measure for non-revenue, support-service and maintenance vehicles equipment is the percentage of those vehicles that have either met or exceeded their ULB.

Note: "Infrastructure" is not included as a major asset class because RGRTA does not own any rail fixed-guideway track, signals or other systems.

**Table 3 – Equipment**

Asset	Description	EUL (years)	ULB (years)
Non-revenue Cars	Includes road supervisor, pool, and courier cars	7	7
Medium Duty Service Vehicles	Includes service trucks and vans	5	5
Heavy Duty Vehicles	Includes tow trucks and plows	10	10
Construction Vehicles	Includes payloaders	12	20

**Table 4 – Transit Asset Management Measures and Targets**

Performance Measure	Target (EUL)
<b>Rolling Stock:</b> Percent of revenue vehicles within asset classes that have met or exceeded useful life	
40' Bus	15%
60' Articulated Bus	15%
Paratransit IA	15%
Regional Type III	15%
Regional Type VI	15%
<b>Equipment:</b> Percent of vehicles that have met or exceeded useful life	
Non-revenue Cars	15%
Medium Duty Service Vehicles	35%
Heavy Duty Vehicles	30%
Construction Vehicles	0%
<b>Facilities:</b> Percent of facilities with a condition rating below 3.0 on TERM Lite (1-5) scale	
Condition	20% less than 3



Image credit: RTS

## Safety

The New York State Department of Transportation (NYSDOT) is responsible for establishing targets for Safety performance measures. The Safety performance measures assesses the absolute number of individuals affected by reportable crashes and the rates at which they occur by transportation system usage. The numbers of fatalities and serious injuries are first calculated using rolling five-year averages. The rates are calculated by normalizing the number of fatalities or serious injuries by the rolling five-year average of vehicle miles traveled (VMT).



The measures for the number and rates of fatalities and serious injuries include all system users. The measure for non-motorized system users include only pedestrians, bicyclists, and other cyclists.



What constitutes a fatality and/or serious injury is defined by the Model Minimum Uniform Crash Criteria, approved by United States Department of Transportation (USDOT). Fatalities include all deaths which occur within thirty days following a motor vehicle or other crash. Serious injuries include skull fractures, internal injuries, broken or distorted limbs, unconsciousness, severe lacerations, severe burns, and individuals unable to leave the scene without assistance.



### Data Sources



Crash totals are provided by the New York State Traffic Safety Statistical Repository (TSSR). The TSSR provides public access to the Accident Information System (AIS) managed by the NYS Department of Motor Vehicles. The data portal was designed and implemented by the University at Albany's Institute for Traffic Safety Management and Research (ITSMR) and funded by the Governor's Traffic Safety Committee (GTSC).

The vehicle miles traveled projections are provided by the Highway Performance Monitoring System (HPMS) submitted by NYSDOT to USDOT. The projections are based upon vehicle counts across the functional classification system statewide.

### Targets

The targets are calculated by first estimating the existing trends for each measure. A forecast for 2019 is made using a five-year moving average linear trend line. A percentage change, rounded and capped at four percent, between 2015-2019 and 2012-2016 is extrapolated to 2019. The cap allows for a target that forecasts a significant reduction, but recognizes that large decreases are unlikely to happen year after year.

NYSDOT and the GTSC report on the progress towards achieving the targets to USDOT on annual basis in the Highway Safety Improvement Program (HSIP) Annual Report and the Highway Safety Plan, respectively. NYSDOT established their initial performance targets. On December 14, 2017, GTC formally incorporated the initial NYSDOT Safety performance measures and targets into GTC's planning documents and planning process. Since then, NYSDOT has updated its targets, which are reflected in table 5.

**Table 5 – Safety Measures and Targets**

Performance Measure	2012-2016 Average	NYSDOT Target (2019)
Number of Fatalities	1,117	1,068
Fatality Rate	.88 per 100M VMT	.86 per 100M VMT
Number of Serious Injuries	11,445	10,442
Serious Injury Rate	8.98 per 100M VMT	8.39 per 100M VMT
Number of Non-Motorized Fatalities and Serious Injuries	2,840	2,716

## Pavement Condition

The New York State Department of Transportation (NYSDOT) is responsible for establishing targets for Pavement Condition performance measures. The performance measures for Pavement Condition assesses the condition of Interstate and non-Interstate National Highway System (NHS) pavements. The measures tracks the percentage of pavements for both facility types that are in good and poor condition. Good condition assumes that no major investment is needed, while poor condition assumes that major investment is needed.

**Table 6 – Pavement Condition**

Performance Measure
Percent of Interstate pavements in Good condition
Percent of Interstate pavements in Poor condition
Percent of non-Interstate NHS pavements in Good condition
Percent of non-Interstate NHS pavements in Poor condition

To determine the pavement condition the following metrics are analyzed:

### Asphalt surfaces

1. rutting
2. International Roughness Index (IRI) or smoothness
3. cracking or percent area with fatigue cracking in the wheelpath

### Concrete surfaces

1. faulting
2. IRI or smoothness
3. cracking or percent of concrete slabs with transverse cracks for jointed concrete pavement

The performance measures are determined as follows:

- Good if all 3 metrics are good
- Poor if 2 or more metrics are poor
- Fair for all other metric combinations

**Table 7 – Federal Pavement Performance Condition Metric Thresholds**

Good	Metric	Fair	Poor
<95	IRI (inches/miles)	95-170	>170
0.2	Rutting (inches)	0.20-0.40	>0.4
<0.10	Faulting (inches)	0.10-0.15	>0.15
<5	Cracking (%)	5-20 (asphalt)	5-20 (asphalt)
		5-15 (JCPC)*	5-15 (JCPC)*
		5-10 (CRCP)**	5-10 (CRCP)**

\*JCPC – Jointed Plain Concrete Pavement

\*\*CRCP - Continuously Reinforced Concrete Pavement



## Data Sources

The New York State Department of Transportation (NYSDOT) used the following data sources:

- NYSDOT’s accepted pavement management modeling program with committed projects and minimum expected future funding for the NHS
- NYSDOT’s Surface Score Rating System on pavement management sections
  - Score  $\geq 8$  equates to federal measure good
  - Score  $\leq 5$  equates to federal measure poor

The New York State Department of Transportation (NYSDOT) adjusted the percentages by applying the difference between the federal baseline percentage and state surface rating percentages to account for differences in rating systems and averaging that occurs over longer pavement management sections. This assumes the difference remains constant.



## Targets

The State DOT is required to set two- and four-year targets for all pavement condition measures. The MPO is only required to take action on the four-year target. The State must establish targets for the entire NHS, even if they do not own the facility. Only the mainline of the highway is evaluated—not ramps, shoulders, and so forth.

The pavement condition measure carries a penalty provision for the State DOT, if the Interstate pavement conditions falls below the minimum level for the most recent year. If this happens the State must then obligate a portion of the National Highway Performance Program (NHPP) and transfer a portion Surface Transportation Funding (STP) to address Interstate pavement conditions.

**Table 8 – Pavement Measures and Targets**

Performance Measure	Baseline (%)	2 Year Interim Target (%)	4 Year Target (%)
Interstate % Good	52.2	46.4	47.3
Interstate % Poor	2.7	3.1	4
Non-Interstate % Good	20.4	14.6	14.7
Non-Interstate % Poor	8.3	12	14.3

## Bridge Condition

The New York State Department of Transportation (NYSDOT) is responsible for establishing targets for Bridge Condition performance measures. The performance measures for Bridge Condition assesses the condition of bridges on the NHS, including on- and off- ramps connecting the NHS and NHS bridges that cross a State border that are ranked good or poor based on the National Bridge Inventory classifications. Only the condition of the deck area, the surface of the bridge, is measured. The State must establish targets for all bridges on the NHS, even if they do not own the facility.

**Table 9 – Bridge Condition**

Performance Measure
Percent of NHS bridges by deck area in Good condition
Percent of NHS bridges by deck area in Poor condition

### Data Sources

The National Bridge Inventory (NBI), maintained by the Federal Highway Administration, classifies the condition all bridges and tunnels in the U.S. with roads that pass above or below. The bridge condition ratings from the NBI for the deck, superstructure, substructure, and culvert are used to calculate the measure. The condition of the bridge is determined by the lowest rating of the four NBI classifications. The NBI rates the four classifications on a 0-9 scale, as follows below:

- Good when the lowest rating is  $\geq 7$
- Fair if the lowest rating is a 5 or 6
- Poor if the lowest rating is  $\leq 4$

The deck area, the surface of the bridge, is calculated using data from the NBI, structural length and deck width or approach roadway width (for select culverts).

*The performance measure only requires reporting on bridges in good or poor condition, fair condition does not have an associated performance measure.*

## Targets

The State DOT is required to set two- and four-year targets for the bridge condition measures. The MPO is only required to take action on the four-year target.

The measure requires that State DOTs maintain bridges so that the percentage of the deck area of bridges classified as Structurally Deficient (SD) does not exceed 10 percent for three or more consecutive years. If the State DOT fails to meet this requirement penalties are imposed. If this happens the State must then obligate a portion of the National Highway Performance Program (NHPP) funds for eligible bridge projects on the NHS. If significant progress is not made for either of the bridge performance measures then the State DOT must document actions it will take to achieve the NHS bridge condition target.

**Table 10 – Bridge Condition Measures and Targets**

Performance Measure	Baseline (%)	2 Year Interim Target (%)	4 Year Target (%)
Good	20.2	23.0	24.0
Poor	11.7	11.6	11.7

**Table 11 – NHS Bridges by Owner**

Owner	Deck Area (ft <sup>2</sup> )	% Good	% Fair	% Poor
NYSDOT	57,579,039	28.7	59.4	11.9
Authorities & Commissions	23,352,906	9.4	79.4	11.2
Municipalities	10,637,953	19.4	67.9	12.7
Other	293,361	72.6	24.4	3
Total	91,863,259	20.2	68	11.7



## System Performance

The New York State Department of Transportation (NYSDOT) is responsible for establishing targets for System Performance Measures. The System Performance Measures assess the reliability of the National Highway System through the following two measures:

1. Interstate Travel Time Reliability Measure
  - Percent of person-miles traveled on the Interstate that are reliable
2. Non-Interstate Travel Time
  - Percent of person-miles traveled on the non-Interstate NHS that are reliable



Reliability is measured by the Level of Travel Time Reliability (LOTTR). According to FHWA the LOTTR is defined as the ratio of the longer travel times (80<sup>th</sup> percentile) to a “normal” travel time (50<sup>th</sup> percentile) for each reporting segment. The LOTTR is calculated for all reporting segments on the Interstate and non-Interstate systems for the following four time periods:

- Monday-Friday
  - 6 AM -10 AM
  - 10 AM – 4 PM
  - 4 PM – 8 PM
- Weekends
  - 6 AM – 8 PM

The reporting segments must all have a LOTTR less than 1.5 across all the time periods to be considered reliable for an entire year. A LOTTR of 1.5 or greater is considered unreliable. The total mileage that is reliable (i.e., that has an LOTTR less than 1.5) is multiplied by the annual traffic volume, and an average vehicle occupancy factor to determine the Person Miles Traveled (PMT) that is reliable. The final measure is determined by dividing the reliable PMT by the total PMT, for the percentage.

## Data Sources

The following data sources were used by NYSDOT to calculate the LOTTR:

- Speed data – National Performance Management Research Data Set (NPMRDS)
  - In 2017 the NPMRDS changed vendors, along with data specifications
- Traffic Volume data – Highway Performance Monitoring System (HPMS)
- Average Vehicle Occupancy Factor – 1.7, as provided by the Federal Highway Administration (FHWA) for all vehicles

**Table 12 – System Performance Measures and Targets**

Performance Measure	Baseline (%) 2018	2 Year Interim Target (%) 2020	4 Year Target (%) 2022
LOTTR Interstate	94.5	85.0	84.9
LOTTR Non-Interstate NHS	85.9	N/A*	71.4

*\*only a four-year target is required for the Non-Interstate NHS*

*Given that 2017 is the first full year of data from the NPMRDS, the targets above are considered speculative pending a reliable data trend. NYSDOT expects that the targets will be revisited in 2020 based on additional data, guidance, and analysis.*

## Freight Performance

The New York State Department of Transportation (NYSDOT) is responsible for establishing targets for Freight performance measures. The Freight Performance measure is the measurement of travel time reliability for truck traffic on the Interstate System. The State DOT is required to set two- and four-year targets.

Reliability for truck traffic is measured by the Truck Travel Time Reliability (TTTR) Index. According to FHWA, the TTTR is defined as the ratio of the longer travel times (95<sup>th</sup> percentile) to a “normal” travel time (50<sup>th</sup> percentile) for each reporting segment. The TTTR Ratio is calculated for all reporting segments on the Interstate system for the following five time periods:

- Monday-Friday
  - 6 AM - 10 AM
  - 10 AM - 4 PM
  - 4 PM - 8 PM
- Weekends
  - 6 AM - 8 PM
- Overnights for all days
  - 8 PM - 6 AM



For each segment and time period the following calculation is used, to derive the TTTR Ratio:

$$\text{Longer Truck Travel Time (95th)} / \text{Normal Truck Travel Time (50th)} = \# \text{ seconds} / \# \text{ seconds} = \text{Truck Travel Time Reliability (TTTR) Ratio}$$

Given the complexity of this measure, the following graphics provide example calculations.



### § 490.611 Freight Reliability Metric (Example)

$$\frac{\text{Longer Truck Travel Time (95th)}}{\text{Normal Truck Travel Time (50th)}} = \frac{\# \text{ seconds}}{\# \text{ seconds}} = \text{Truck Travel Time Reliability (TTTR) Ratio}$$

Truck Travel Time Reliability (TTTR) (Single Segment, Interstate Highway System)		
Monday – Friday	6am – 10am	TTTR = $\frac{72 \text{ sec}}{50 \text{ sec}} = 1.44$
	10am – 4pm	TTTR = 1.39
	4pm – 8pm	TTTR = <b>1.49</b>
Weekends	6am – 8pm	TTTR = 1.31
Overnight	8pm – 6am	TTTR = 1.20
Maximum TTTR		<b>1.49</b>

**HPMS Submittal:** Starting in 2018, State DOTs report TTTR metrics and the corresponding 95<sup>h</sup> and 50<sup>th</sup> percentile times for each time period and each reporting segment by June 15 of each year, for the previous year's measures



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The maximum TTTR Ratio during the year in each of the five time periods is used for each segment. Segments are then weighted by mileage, and are then summed and divided by the sum of Interstate segment lengths, as shown below:



### § 490.613 Calculating Freight Reliability Measure (Example)

$$\text{TTTR Index} = \frac{\sum \text{All segment length weighted TTTR}}{\sum \text{All segment lengths}}$$

Segment length (mi.)	0.500	0.500	1.000	1.000	5.000
MaxTTTR	x	x	x	x	x
	1.49	1.59	1.50	1.41	1.36
	=	=	=	=	=
Length-weighted TTTR	0.75	0.80	1.50	1.41	6.80

$$\text{TTTR Index} = \frac{11.25}{8.000 \text{ mi}} = \mathbf{1.41}$$

**Measure: TTTR Index, full extent of the Interstate system**

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### Data Sources

The following data sources were used by NYSDOT to calculate the TTTR:

- Truck speed data – National Performance Management Research Data Set (NPMRDS).
  - In 2017 the NPMRDS changed vendors, along with data specifications.

### Targets

**Table 13 – Truck Travel Time Reliability (TTTR) Targets**

Year	TTTR Interstate
2018 (Baseline)	1.38
2020	2.00
2022	2.11

Given that 2017 is the first full year of data from the NPMRDS, the targets above are considered speculative pending a reliable data trend. NYSDOT expects that the targets will be revisited in 2020 based on additional data, guidance, and analysis.



## Congestion Mitigation and Air Quality Improvement (CMAQ)

The New York State Department of Transportation (NYSDOT) is responsible for establishing targets for CMAQ performance measures. The performance measure to assess the CMAQ program measures the total emissions reduction of on-road mobile source emissions. All State DOTs are required to set both two- and four-year targets. MPOs that are in nonattainment or maintenance areas for the National Ambient Air Quality Standard (NAAQS) are required to take action on the four-year target. At present, the greater Rochester area meets all NAAQS. Since the 6-county area formerly known as the Rochester, NY Metropolitan Statistical Area was in nonattainment of the 1997 NAAQS for Ground-Level Ozone, CMAQ funds can be used in said area. New York State periodically solicits projects to use CMAQ funds.

Targets are required for ozone precursors nitrogen oxide (NO<sub>x</sub>) and volatile organic compounds (VOC), along with carbon monoxide (CO) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>).

### Data Sources

The measures are calculated with data from the CMAQ Public Access System, which tracks all projects that have CMAQ funding. The amount of pollutants and ozone precursors that are reduced statewide from these projects are measured.

### Targets

**Table 14 – Total Emissions Reductions Targets**

Target Year	VOC	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2020	22,979	437,781	58,591	9,312	3,920
2022*	42,765	839,633	107,713	18,132	7,482

\* GTC is only required to establish a 4-year target

