

Chapter 7 - PERFORMANCE MEASURES

Performance Measures

LRTP 2035 identified 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 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. *LRTP 2040* continues this commitment to a performance-based planning process by including a subset of performance measures presented in *LRTP 2035* and introducing new measures.

LRTP 2035 provided a benchmark for each 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 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*. Changes to the measures and data sources, where applicable, are noted below in the text.

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 policy decision making.

Performance-Based Planning in Action

GTC implemented an updated set of scoring criteria for capital projects included in the TIP. All transportation projects that apply for federal funding through the TIP process are subject to the following evaluation criteria: safety, mobility, community and economic development, system continuity and optimization, environment, and fiscal responsibility. A subset of evaluation criteria is further applied by mode: highway and bridge, public transportation, bicycle and pedestrian, system management and operations, and goods movement.

The influence a potential project has on a performance measure is directly evaluated through this scoring criteria. For example, system management and operations projects are evaluated based on the following four criteria:

1. Reduce travel times on major roadways
2. Reduce incident clearance time
3. Increase the productivity of regional transportation agencies/providers (e.g., cost savings, time savings, etc.)
4. Support or advance existing and/or proposed ITS elements

Scoring criteria 1. and 2. directly influence the travel time index and the median incident clearance time on major roadways.



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MAP-21 established, for the first time, a performance-based planning program to increase accountability and transparency through the implementation of mandated performance measures and planning targets. The FAST Act continues to support this approach to transportation planning. In order to meet the performance-based programming approach, MAP-21 established the following seven national performance goals:

1. Safety
2. Infrastructure Conditions
3. Congestion Reduction
4. System Reliability
5. Freight Movement & Economic Vitality
6. Environmental Sustainability
7. Reduced Project Delivery Delays



These seven goals must be met by the state departments of transportation, MPOs, and public transportation providers. Additionally, GTC will be federally required to include a system performance report in future LRTPs. This report must include the anticipated effect of the Region's capital program (the TIP) on the nationally mandated performance measures. Once the rulemaking is finalized GTC will establish performance targets that address national performance measures in coordination with NYSDOT and public transportation providers. Until the final rulemaking is released, GTC will continue to measure the performance of the transportation system as presented in *LRTP 2040*.

LRTP 2040 performance measures, included in Exhibit 34, along with changes since *LRTP 2035*, are presented below.

Number of Fatalities (3 year rolling average)

The number of fatalities resulting from motor vehicle crashes in the nine-county Region is calculated using a three-year rolling average based on information provided by the National Highway Traffic Safety Administration. A three-year rolling average was selected to ensure that longer-term trends were not lost due to a

significant fluctuation in a single year. The fatality rate has remained steady at 99 fatalities as previously reported in *LRTP 2035* and 100 fatalities as currently reported.

Not Structurally Deficient Bridges

Bridges with a condition rating of five or above are considered not structurally deficient. It is important to reiterate that deficient bridges are not intrinsically unsafe – unsafe bridges are closed before presenting a danger to the public. In 2014, 67.2 percent of the bridges in the Region were considered not structurally deficient. This is a slight gain compared to 64.8 percent presented in *LRTP 2035*.

Percent of Federal-Aid Roadways with Pavement Conditions Rated "Fair" or Better

Every single day residents around the Region drive or ride on the roadways to get to work, school, and other activities. The pavement condition determines their trip quality more so than any other performance measure as it represents the physical integrity of the surface of the roadway. Poor pavement conditions result in accelerated wear and tear on vehicles, generating increased maintenance and operating costs, and frustrations for drivers trying to navigate crumbling roadways. The percent of federal-aid highways with pavement conditions rated fair or better was calculated based on data collected by NYSDOT and GTC that includes the vast majority of roadways in the Region that are eligible for federal funding through GTC.

The *LRTP 2035* pavement condition rating was unknowingly, at the time, calculated with overlaps in the data. This has been rectified for *LRTP 2040*. However, due to the discrepancy in the data calculation methodologies this performance measure is not comparable between *LRTP 2035* and *LRTP 2040*. The *LRTP 2035* pavement condition rating without overlaps would have been 89.66% for 2009 (not 90.3% as reported).

Average Age of Transit Buses

The Federal Transit Administration (FTA) establishes a service-life requirement for transit buses that public transit operators must follow to properly maintain their fleets without fiscal penalties. According to FTA the average 40-foot bus, typically used by RGRTA, has a full service-life of approximately 12 years. Other vehicle classifications have different service-life standards. The current average age of a 40-foot RTS bus is 5.9 years (reported as 7.65 years in *L RTP 2035*) suggesting that RGRTA has found an optimal balance averaging an equal number of buses being replaced and taken out of service.

Travel Time Index on Major Roadways

Newly acquired GPS-based vehicle probe data was used to calculate the Travel Time Index (TTI) on major roadways in the nine-county planning Region for *L RTP 2040*. The average AM peak (7 A.M. – 9 A.M.) and PM peak period (4 P.M. – 6 P.M.) TTI for 2014* is 1.085, well below a TTI of 1.3 which indicates the roadway is congested and that the trip takes a third longer than normal (i.e., a 20 minute trip takes 26 minutes). *L RTP 2035* previously reported data for Principal Arterials therefore, this measure is not directly comparable to *L RTP 2040*.

*Average two week sample of Mondays-Thursdays in October for all roadways in the nine-county Region with an existing Traffic Message Channel (TMC) code in INRIX Analytics software.

Transit On-Time Performance

On-time is defined as transit buses being between 2:59 minutes early and 5:59 minutes late. The transit on-time performance as reported by RGRTA for the RTS Monroe system for the 2014 fiscal year is 89.8 percent [reported as 84 percent for *L RTP 2035*].

Passenger Rail On-Time Performance

According to Amtrak, passenger trains traveling the Empire Corridor (New York City to Niagara Falls) in January 2015 were on-time 74.8 percent of the time [reported as 70 percent for December 2010 in *L RTP 2035*]. Amtrak calculates the on-time performance by calculating the total number of trains that arrive on-time at the end of the route divided by the total number of trains operating along it. A train is on-time if it arrives at its final destination within an allowed number of minutes based on the total miles the train traveled.

Median Incident Clearance Time on Major Roadways

Median incident clearance time on major roadways for the 2015 calendar year was 51 minutes an improvement of 1 minute when compared to *L RTP 2035*. GTC calculated the measure using e-mail traffic alerts provided by the NYSDOT through the New York State Emergency Management Office's NY-Alert system and the New York State Thruway Authority's TRANSalert system.

Average Maximum Load

The average maximum load, provided by RGRTA for RTS Monroe urban routes, indicates how many passengers on average are on a bus route at its busiest point. This measure helps to determine if there are any capacity issues along the route. The average maximum load of 27.2 for the morning peak, 6:00 AM - 10:00 AM, and 28.91 for the evening peak, 2:00 PM - 6:00 PM, both indicate that overall the routes are functioning at an optimal level of capacity. Routes may be underutilized or approaching maximum capacity depending on the average maximum load.



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Gaps in Core Multi-Use Trail Network

Gaps in the Core Multi-Use Trail Network decreased by 7.4 miles, compared to *L RTP 2035*, as the following trail segments were completed:

- EL Camino Trail in the City of Rochester (2 miles)
- Newark to Clyde segment along the Canalway Trail (4 miles)
- Auburn Trail (1 mile)



The Core Multi-Use Trail Network includes the Canalway Trail, Riverway Trail, Genesee Valley Greenway, Auburn Trail, Lehigh Valley Trail, and several other shorter trails representing two-thirds of the entire regional trail network. When fully completed, the Core Multi-Use Trail Network will total approximately 260 miles.



Federal-Aid Highways in the MPA with Complete Sidewalks



The federal-aid highways with complete sidewalks include roadways that have sidewalks on both sides of the street with no gaps. This data was collected by GTC through the Pedestrian Facilities Inventory—a field survey of the over 1,000 miles of federal-aid roads in the Rochester MPA. Since *L RTP 2035* a slight gain of 2.2 percent was noted, bringing the total percent of complete sidewalks on the federal aid system to 21.8.



Environmental – Emissions of Nitrogen Oxides, Emissions of Volatile Organic Compounds, Emissions of Carbon Dioxide, and Direct Energy Use

Environmental performance measures continue to focus on emissions and energy use from the transportation system. The methodology to derive the benchmarks differs between *L RTP 2035* and *L RTP 2040*, therefore reported values are not directly comparable. The measures for *L RTP 2035* were derived from post processing volume and speed data from the GTC Travel Demand Model using methodologies approved by FHWA, FTA, and the EPA and for the MPA. GTC calculated the environmental measures for *L RTP 2040* using the EPA Motor Vehicle Emission Simulator (MOVES) 2014 for the MPA.

Exhibit 34

L RTP 2040 Performance Measures

Performance Measure	What it Evaluates	L RTP 2040 Benchmark	L RTP 2035 Benchmark	Desired Change	Actual Change	Likely Change
Number of Fatalities (3 year rolling average)	Safety	99 (2012)	100 (2008)	Decrease	1	Slight Decrease
Percent of Federal-Aid Roadways with Pavement Conditions Rated "Fair" or Better	System Preservation	92.03% (2012)	90.3% (2009 w/overlap)	Increase	Not comparable due to data collection methods	Slight Decrease
Not Structurally Deficient Bridges	System Preservation	67.2% (2014)	64.8%	Increase	2.4%	Slight Decrease
Average Age of Transit Buses	System Preservation	5.9 years	7.65 years	Decrease	1.75	Slight Decrease
Travel Time Index on Major Roadways (Principal Arterials in the MPA)	Mobility	1.085	Not comparable due to data collection methods	Decrease	Not comparable due to data collection methods	Slight Increase
Transit On-Time Performance	Mobility	89.8%	84%	Increase	5.8%	Slight Increase
Passenger Rail On-Time Performance	Mobility	74.8% (January 2015 NY - Niagara Falls)	70% (December 2010 NY-Niagara Falls)	Increase	Increase of 4.8%	Slight Decrease
Median Incident Clearance Time on Major Roadways	Mobility	51 minutes (2015)	52 minutes (2010)	Decrease	Decrease of 1 minute	Slight Decrease
Average Maximum Load	Accessibility	27.2 - 6:00 AM - 10:00 AM; 28.91 - 2:00 PM - 6:00 PM	New for <i>L RTP 2040</i>			
Gaps in Multi-Use Trails Network	Accessibility	28.6 miles	36 miles	Decrease	Completion of 7.4 miles	Slight Decrease
Federal-Aid Highways in MPA with Complete Sidewalks	Accessibility	21.80%	19.60%	Increase	Not comparable due to geographic expansion of the MPA	Slight Increase
Emissions of Nitrogen Oxides	Environment	24,341 Kg/Day	Not comparable due to geographic expansion of the MPA	Decrease	Not comparable due to geographic expansion of the MPA	Decrease
Emissions of Volatile Organic Compounds	Environment	11,809 Kg/Day		Decrease		Decrease
Emissions of Carbon Dioxide Equivalent	Environment	9,915,077 Kg/Day		Decrease		Slight Decrease
Direct Energy Usage	Environment	130,154 MMBtu/Day		Decrease		Slight Decrease

