Chapter VII - PERFORMANCE MEASURES

Performance Measures

Using quantitative metrics to measure the performance of the transportation system over time is important to being accountable to taxpayers, given the large amount of public funds used for its construction, maintenance, and operation. There is no current federal or state requirement that system performance be monitored and reported but there are increasing discussions at the national level on this issue. Performance measures are included in the *LRTP 2035* in order to monitor changes in key areas that matter to users of the transportation system.

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. The current value for each performance measure is provided as a benchmark 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.

Though less important than meaningfulness and understandability, another consideration in the selection of the performance measures was the availability of quality data for the region (or Rochester TMA) and the likelihood that it will continue to be collected. As a result, all of the data is collected either by a GTC member agency, GTC staff, or a New York State government agency that is not a GTC member agency. Exhibit 26 presents the *LRTP 2035* Performance Measures with each discussed below.

The number of fatalities in the region represents the three-year rolling average of the number crashes that resulted in loss of life 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.

Pavement condition measures the physical integrity of the surface of a roadway. Poor pavement conditions result in accelerated wear and tear on vehicles, generating increased maintenance and operating costs for users. The percent of federal-aid highways with pavement conditions of fair or better was calculated based on data collected by NYSDOT and GTC and includes the vast majority of roadways in the region to which FHWA funds can programmed for their repair or maintenance.

As discussed previously, all bridges in the region are inspected by NYSDOT not less than every two years to assess the condition of the various components of the bridge (e.g., substructure, superstructure, bearings, deck, etc.) and calculate an overall rating of one through seven, with seven being the highest. Bridges with a condition rating of five or above are considered non-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.

Transit operators are required by FTA to maintain their buses and keep them in service for varying lengths of time based on the type of bus. RGRTA provided the average age of RTS buses, which have a 12-year lifecycle. Ideally, the average age of these buses would be six years, representing an equal number of buses being replaced each year. However, competing capital

PERFORMANCE MEASURES

Exhibit 26

LRTP 2035 Performance Measures

Performance Measure	What it Evaluates	Benchmark	Desired Change	Likely Change
Number of Fatalities	Safety	100	Decrease	Slight Decrease
Federal-Aid Highways with Pavement Fair or Better	System Preservation	90.3 percent	Increase	Slight Decrease
Non-Deficient Bridges	System Preservation	64.8 percent	Increase	Slight Decrease
Average Age of Transit Buses	System Preservation	7.65 years	Decrease	Slight Decrease
Travel Time Index on Major Roadways	Mobility	1.10	Decrease	Slight Increase
Transit On-Time Performance	Mobility	84 percent	Increase	Slight Increase
Passenger Rail On-Time Performance	Mobility	70 percent	Increase	Slight Decrease
Median Incident Clearance Time on Major Roadways	Mobility	52 minutes	Decrease	Slight Decrease
Median Transit Load Factor	Accessibility	0.93	Slight Increase	Slight Increase
Gaps in Core Multi-Use Trails Network	Accessibility	36 miles	Decrease	Slight Decrease
Federal-Aid Highways in TMA with Complete Sidewalks	Accessibility	19.6 percent	Increase	Slight Increase
Emissions of Nitrogen Oxides	Environment	18,914.8 Kg/day	Decrease	Decrease
Emissions of Volatile Organic Compounds	Environment	13,537.8 Kg/day	Decrease	Decrease
Emissions of Carbon Dioxide	Environment	3,105 tons/day	Decrease	Slight Decrease
Direct Energy Usage	Environment	146.2 billion BTUs/day	Decrease	Slight Decrease

needs and other expenses make this difficult for any public transportation operator to achieve. In addition, proper preventive maintenance of vehicles can make it possible for buses to remain in service longer while providing levels of reliability similar to newer models.

As discussed previously, the Travel Time Index is a ratio of the time it takes to make a trip during the peak period compared to making the same trip at free-flow speeds (mid-day period). Data is currently collected by GTC using GPS-equipped vehicles. A Travel Time index of 1.3 on a single segment indicates that the trip takes one-third longer in the peak period than in the mid-day period (i.e., a 20-minute free-flow trip requires 26 minutes in the peak period).

The historical transit on-time performance was provided by RGRTA for RTS with on-time defined as between three minutes early and 6 minutes late. Passenger rail on-time performance was obtained from Amtrak for their Empire Corridor New York City to Niagara Falls routes in December 2010 (the last monthly performance report available) with on-time defined as reaching their end-point within 25 minutes of the scheduled arrival time.

Median incident clearance time on major roadways was calculated by GTC for calendar year 2010 based on when notifications of incidents and their corresponding clearances were provided by e-mail through NY-Alert and the NYSTA TRANSalert.

Transit load factor is the ratio of the number of passengers on a bus to the number of seats. A ratio of 1.0 indicates that all of the seats on a route are occupied. It is important to note that a transit load factor of above 1.0 does not mean that there is no room on a bus and additional passengers are not allowed to board. The industry standard for determining crowding on a bus using the transit load factor is 1.25 or higher (i.e., all of the seats are full and an additional 25 percent of the customers are standing). In cases where many of the passengers are making short trips (e.g., up and down a corridor with closely-spaced stops), a transit load factor of above 1.25 is not necessarily considered unreasonable. The transit load factor benchmark is based on January 2011 data provided by RGRTA for RTS routes.

As noted previously, the Core Multi-Use Trails Network includes the Canalway Trail, Riverway Trail, Genesee Valley Greenway, Auburn Trail, Lehigh Valley Trail, and several other locally important trails such as the El Camino Trail and the 390 Trail. These trails represent nearly two-thirds of the existing multi-use trail mileage in the region. The mileage of the Core Multi-Use Trails Network will be approximately 260 miles when fully built out.

The federal-aid highways with complete sidewalks represents those roadways to which FHWA funds can be programmed for their repair or maintenance that have sidewalks on both sides of the street with no gaps. This data was collected through the Pedestrian Facilities Inventory, a field survey of the over 1,000 miles of federal-aid roads in the Rochester TMA that was conducted by GTC.

The emissions of ozone precursors (oxides of nitrogen and volatile organic compounds) were derived from post processing volume and speed data from the GTC Travel Demand Model using methodologies approved by FHWA, FTA, and the U.S. Environmental Protection Agency. Carbon dioxide (the most abundant greenhouse gas) emissions and energy use were also derived from post processing volume and speed data from the GTC Travel Demand Model using methodologies developed in conjunction with NYSDOT.