

CHAPTER VI - FINANCE AND IMPLEMENTATION





OVERVIEW

Given the important role that transportation plays in determining the quality of life and economic success of the region, it is important that the policies and actions of the LRTP be advanced.

A major component of insuring that the recommendations of the LRTP are advanced is the development of a finance plan to allocate reasonably expected revenues.

Anticipated Revenue Projections

Title 23 of the U.S. Code of Federal Regulations governing MPOs requires the LRTP to “include a financial plan that demonstrates the consistency of proposed transportation investments with already available and projected sources of revenue.” The requirement further states that “the estimated revenue by existing revenue source (local, state, federal, and private) available for transportation projects shall be determined...” and “all cost and revenue projections shall be based on the data reflecting the existing situation and historical trends.”

Given the uncertainty concerning the reauthorization of TEA-21, the “existing situation” referenced in Title 23 with respect to anticipated federal revenues is nonexistent. As such, GTC staff relied solely on “historical trends” - past federal allocations as represented by federal formula funds included in the 2001-2006 TIP and 2003-2008 TIP - to determine the anticipated revenue projections.

These anticipated federal formula funds combined with an additional 20%, representing the minimum non-federal match, comprise the total anticipated revenues available to the region.

These projections represent a conservative amount of federal formula funding that can be reasonably expected over the next 20 years based on past funding levels

How the projections were developed

GTC analyzed the 2001-2006 TIP and the 2003-2008 TIP, as originally adopted, to determine the amount of federal formula funds programmed in the nine-county GTC planning region. Although there are projects in the TIP that utilize federal discretionary funds, GTC staff did not include these funds in the projections because they cannot be reasonably expected to recur at past levels on a consistent basis in the future.

For those projects that include both formula and discretionary federal funds, only the formula funds were included in the analysis. GTC staff did not analyze amendments to either TIP because the overwhelming majority of the amendments use federal discretionary funds or set-asides allocated to NYSDOT and the NYS Thruway Authority (e.g., dedicated Interstate Maintenance, Transportation Enhancements Program funds, etc.).

To project anticipated revenues for the next 20 years, the average annual amounts of federal formula funds by source were calculated over the seven federal fiscal years covered by the 2001-2006 TIP and the 2003-2008 TIP. These annual averages by federal fund source were then extrapolated to produce a 20-year total. This analysis was done for each source of federal formula funds included in the TIP.

Because the receipt of federal funds for transportation investments require a minimum 20% non-federal match, this minimum was used to determine the non-federal amount of funding to ensure that the anticipated revenue projections would be conservative and therefore “reasonable”.

The 2001-2006 TIP and the 2003-2008 TIP do not include any private sources of matching funds. Accordingly, no private funds are projected to be available during the 20 years covered by the LRTP.

GTC staff recognized that the 2003-2008 TIP represents funding commitments that overlap with the LRTP. Consequently, federal formula funds and the associated non-federal matching funds for projects programmed in the last three years of the 2003-2008 TIP (federal fiscal



years 2005-06, 2006-07, and 2007-08) were identified and subtracted from the 20-year total to determine the amount of funding available for the proposed recommendations.

The anticipated revenue projections by federal formula fund source were then aggregated by the modes that they could be used for. The summary of the anticipated revenue projections along with the breakdown by revenues available by mode(s) is presented in Exhibit 11.

EXHIBIT 11 - 20-YEAR PROJECTED AVAILABLE FUNDING BY SOURCE (\$000'S)

Funding	2005-2008	2008-2025	20-year Total
Highways & Bridges, Bike & Ped	\$19,151	\$121,352	\$140,503
Bridges Only	\$62,521	\$347,402	\$409,923
All Modes	\$45,398	\$343,036	\$388,434
National Highway System	\$31,651	\$281,492	\$313,143
Interstate Maintenance	\$10,976	\$141,887	\$152,863
Urban Public Transportation	\$17,870	\$127,573	\$145,443
Rural Public Transportation	\$557	\$17,906	\$18,463
Total Federal	\$188,124	\$1,380,647	\$1,568,771
Non-Federal			
20% State & Local Match	\$47,031	\$345,162	\$392,193
Total Non-Federal	\$47,031	\$345,162	\$392,193
Total Program	\$235,155	\$1,725,809	\$1,960,964

Since this analysis only analyzed federal formula funds, it does not account for several funding programs that are likely but not guaranteed to be available for projects in the region. These programs include FTA Section 5310, FTA Section 5309, and the Transportation Enhancements Program.

In addition, as a newly designated nonattainment area for ground-level ozone, the region is now eligible for Congestion Mitigation and Air Quality (CMAQ) funds. However, the uncertainty associated with the reauthorization of TEA-21 and no prior receipt of CMAQ funds make it impossible to consider these monies as a reasonably expected source of revenue.

Any funds received through either the discretionary programs or CMAQ will have a positive impact on revenue to the region but cannot be considered anticipated revenues for the purposes of the LRTP.

THE SHORTFALL

While TIP-eligible funding costs for transportation needs across all modes (as represented by the policies and actions included in the LRTP) amount to approximately \$2.51 billion, GTC can reasonably anticipate \$1.96 billion in federal formula fund revenues to be available for funding the proposed recommendations.

The shortfall is the difference between the costs of the policies and actions and the anticipated revenue projections and totals approximately \$550 million over the last 17 years covered by the LRTP.

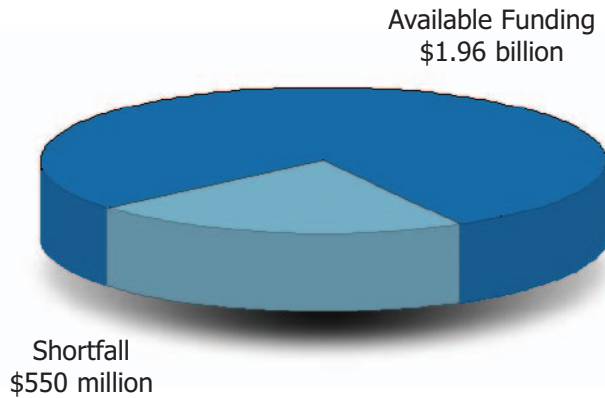
As discussed below, the TIP-eligible costs represent a conservative estimate of the region's transportation needs. Accordingly, the shortfall is likely greater than \$550 million presented below in Exhibit 12.

How the TIP-eligible costs were developed

The TIP-eligible costs were developed through methodologies similar for each category but unique for each mode. The TIP-eligible costs are a



EXHIBIT 12 - FUNDING SHORTFALL



conservative estimate of the total transportation needs of the region. A synopsis of the methodologies used to develop the TIP-eligible costs follows:

- **Preservation** - primarily TIP proposals (funded and unfunded) with adjustments made in Bicycle and Pedestrian for costs associated with preserving and maintaining an increased number of multi-use trails as more are developed over the 20-year period covered by the LRTP
- **Operation** - a combination of TIP proposals (funded and unfunded) and estimated costs provided as part of the recommendations included in the plan, study, or report from which they were taken
- **Expansion** - primarily estimated costs provided as part of the recommendations included in the plan, study, or report from which the recommendation was taken

As stated earlier, the total TIP-eligible costs for all modes and categories of proposed recommendations in the LRTP amount to approximately \$2.51 billion.

A reasonableness check was performed on the TIP-eligible costs developed for the proposed recommendations based on similar estimates produced by GTC in August 2003 for the New York State Metropolitan Planning Organizations Long-Term Funding Needs Study. The two sets of estimates were within two percent of each other, indicating that the TIP-eligible costs developed for the LRTP are a reasonable measure of the alternatives needed to meet the region's minimum transportation needs.

In some instances, a specific proposed recommendation had a cost assigned to it that is not included in the TIP-eligible cost for that category. An example is the Amtrak Station Improvements (Action IR.1.). The costs associated with these types of recommendations are not considered TIP-eligible and are noted as such.

ALLOCATION OF REVENUE PROJECTIONS

The projected funding for the duration of the plan - \$1.96 billion - is allocated to modes and categories at the same levels that it has been in the past two TIPs. Exhibit 13 presents the projected funding allocations to the categories using these past distribution levels.

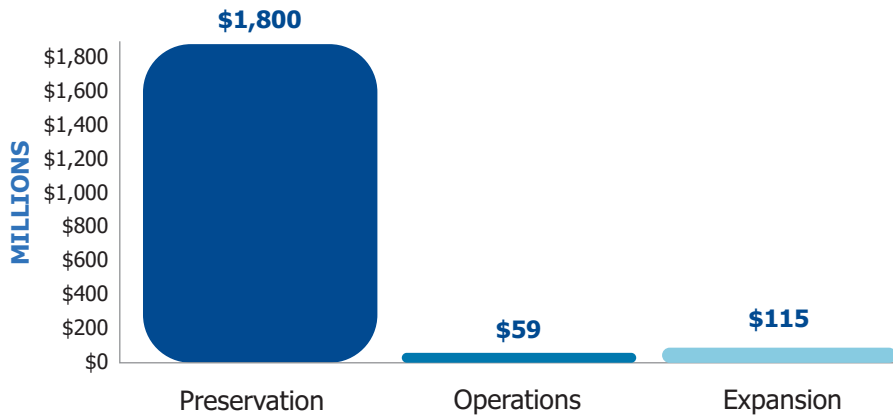
State Energy Plan

Pursuant to the New York State Energy Plan, GTC staff undertook an analysis of the impact of the 2003-2008 TIP on the emission of five pollutants and on energy use. The results of this analysis were used to project emissions and energy use over the period covered by this LRTP. Emissions analysis was done for the following pollutants:

1. Volatile Organic Compounds (VOC)
2. Nitrogen Oxides (NOx)
3. Carbon Monoxide (CO)



EXHIBIT 13 - FUNDING ALLOCATION BY CATEGORY



4. Greenhouse gas - Carbon Dioxide (CO2)
5. Particulate Matter (PM)

Energy usage was calculated for two “types” of energy:

1. Direct Energy - the energy consumed by vehicles using a transportation facility
2. Indirect Energy - the energy consumed to construct a transportation facility

Analysis Methodology

The analysis was based on guidance received from NYSDOT-Environmental Analysis Bureau. The analysis was done for the TMA, the area covered by the GTC Travel Demand Model.

Projections of emissions and energy use for the LRTP were based on the assumption that future TIPs developed during the period covered by this LRTP will have similar mixes of projects to those found in the 2003-2008 TIP because the allocation of funding by category will be the same.

GTC staff updated the future year (2025) GTC Travel Demand Model to include all of the regionally significant projects in the 2001-2006 TIP that were able to be modeled (this became the “No-Build” scenario for the analysis). The projects new to the 2003-2008 TIP that were able to be modeled were added to the No-Build scenario (thereby creating the “Build” scenario for the analysis). A comparison of the output from the two model scenarios provided the impact of the projects new to the 2003-2008 TIP.

VOC, NOx, and CO were analyzed by applying Emission Factors (grams emitted per mile of each pollutant based on vehicle speed and roadway functional classification) to the output from the two model scenarios.

Direct energy was calculated by applying Fuel Consumption Rates (gallons of fuel used, for three vehicle classes, based on speed) to the output from the two model scenarios. Indirect energy was calculated by applying Construction Energy Factors (energy consumed, per lane-mile, for specific types of roadway and bridge improvements) to the output from the Build scenario.

Direct and indirect greenhouse gas (CO2) emissions were calculated based on the results of the direct and indirect energy calculations. Direct greenhouse gas emissions were calculated by multiplying the total direct energy impacts (by vehicle class) for each of the two model scenarios by Carbon Emission Coefficients (carbon emitted during fuel consumption, for gasoline and diesel fuels). Indirect greenhouse gas emissions were calculated by multiplying the total indirect energy impact of the Build scenario by the Carbon Emission Coefficient for diesel fuel.

Particulate matter emissions (PM-2.5 and PM-10; the number specifies the maximum size, in microns, of the particles) were analyzed qualitatively. This analysis consisted of a consideration of the potential impacts of project types (e.g., transit replacement and roadway reconstruction projects) from the TIP on the emission of particulate matter.



Qualitative analysis was also undertaken for those projects new to the 2003-2008 TIP that were not model-able. This included all of the transit projects and the “Other” projects (including funding for the Regional Traffic Operations Center, Highway Emergency Local Patrol vehicles, and Intelligent Transportation Systems activities). This analysis consisted of a consideration of the potential impacts of these projects on emission levels and energy use.

The impact of carpooling on travel in the TMA was determined by estimating the number of work trip-related carpool passengers and calculating how many vehicle miles of travel would be added to the TMA roadways if each of these carpool passengers drove their own car.

Analysis Results

The results of the quantitative analyses demonstrate that the projects new to the 2003-2008 TIP will decrease the emissions of VOC, NOx, CO2, and the amount of direct energy consumed, albeit by small amounts, and hold constant the emissions of CO. It is expected that the projects in the TIPs

to be developed during the period covered by the LRTP will continue to decrease the emissions of VOC, NOx, CO2, and the amount of direct energy consumed by small amounts and hold constant the emissions of CO.

The qualitative analyses suggest that the transit and bicycle and pedestrian projects new to the LRTP will bring about additional decreases in emissions and direct energy usage. A second qualitative analysis suggests that the projects new to the LRTP should result in a decrease in transit-based particulate matter emissions, no increase in these emissions related to highway vehicle miles of travel, and minimal construction-related particulate matter emissions.

Finally, continued funding of the region's Rideshare program, which supports carpooling efforts, should help reduce the number of automobile trips (and the emissions and direct energy consumption associated with these trips).

Exhibit 14 presents the projected changes in emissions and energy usage resulting from the implementation of the LRTP.

EXHIBIT 14 - PROJECTED EMISSIONS AND ENERGY USE CHANGES RESULTING FROM THE LRTP

Scenario	Air Pollution Emissions			Energy		Greenhouse Gas (CO2) Emissions	
	VOC (grams)	NOX (grams)	CO (grams)	Direct (BTUs)	Indirect* (BTUs)	Direct (tons)	Indirect* (tons)
Change	-10,798.60	-10,213.00	5,147.00	-198,514,580.50	2,432,640,000,000.00	-4.30	52,946.50
% Change	-0.070%	-0.100%	0.004%	-0.123%	--	-0.126%	--

*The intent of the indirect energy and greenhouse gas calculations was to measure the impact of the construction of the projects new to the 2003-2008 TIP. The indirect energy used in the 2025 No-Build scenario is zero (as is the greenhouse gas emissions arising from the indirect energy used); therefore it is not possible to compute the percentage difference between the two scenarios.