

Chapter 2

THE TRANSPORTATION IMPROVEMENT PROGRAM

What is the TIP?

As a condition for receipt of transportation funding, the federal government requires that the metropolitan transportation planning process include the cooperative development of a TIP. The TIP identifies the timing and funding of all capital and non-capital highway, bridge, transit, bicycle, pedestrian, and other surface transportation projects scheduled for implementation in a given region using federal transportation funds.

The TIP must cover at least a four-year period. It must be consistent with the goals and objectives identified in the current Long Range Transportation Plan for the region, and adopted by the local MPO; in this region, GTC.

The TIP must also be *fiscally constrained*. That is, the total amount of funds programmed in the TIP must not exceed the projected total amount of funds reasonably expected to be available to the region for that period. GTC staff worked with the New York State Department of Transportation (NYSDOT) and Rochester Genesee Regional Transportation Authority (RGRTA) to develop the projections of reasonably expected federal revenues to the region for the time period covered in the TIP.

While this region has been successful in securing discretionary funds, this revenue is not predictable and was not included in the revenue projections. Accordingly, only funds apportioned to NYSDOT and RGRTA via formula are considered reasonably expected to be available for the time period covered by the TIP and discretionary funds included in the TIP are those that have already been authorized or appropriated.

In some cases the TIP may also include, for *illustrative purposes*, major transportation projects for which federal funds are desired but not yet included in the fiscally-constrained revenue projections. The *2017-2020 TIP* does not include any projects for illustrative purposes.

In accordance with federal guidance for demonstrating fiscal constraint, a table presenting reasonably expected revenues and the amounts programmed in the TIP by federal funding source is provided (see Exhibit 3 on page 10). Project costs are provided in Year of Expenditure (YOE) dollars utilizing agreed upon inflation factors representative of likely escalation in materials and labor costs.

This region's TIP spans a four-year period and is updated as often as every two years. This TIP covers the time period of October 1, 2016 through September 30, 2020 (Federal Fiscal Years 2017 through 2020). It is developed in a fashion that directly responds to the goals and objectives of the current GTC Long Range Transportation Plan for the region (see Exhibit 4 on page 13).

How is the TIP funded?

(i.e., TIP Financial Plan)

The requirements for a TIP Financial Plan are specified in 23 CFR 450.326(j). For purposes of transportation operations and maintenance, the financial plan shall contain system-level estimates of costs and revenue sources that are reasonably expected to be available to adequately operate and maintain Federal-aid highways (as defined by 23 U.S.C. 101(a)(6)) and public transportation (as defined by title 49 U.S.C. Chapter 53).

On September 10, 2015, the New York State Department of Transportation (NYSDOT), issued the *TIP/STIP Policy Guidance and Instructions for the Update Period Beginning October 2016* (TIP/STIP Guidance). The Guidance included the amounts of Federal Highway Administration (FHWA) funds by program that are being made available to the GTC/NYSDOT-Region 4 TIP area (Planning Targets) for Federal Fiscal Years (FFYs) 2017 through 2020. The Planning Targets for this TIP update were provided by GTC staff to Council Members and the Planning Committee on September 24, 2015.

The reasonably expected revenues (i.e., Planning Targets) used to initially develop the TIP are presented by source and year in Table 1. Table 2, provides an overview of each funding source.

Table 1. Planning Targets

Source	FFY 2017	FFY 2018	FFY 2019	FFY 2020	Total
HSIP	\$3,594,701	\$3,594,701	\$3,594,701	\$3,594,701	\$14,378,804
NHPP	\$33,068,817	\$33,068,817	\$33,068,817	\$33,068,817	\$132,275,268
STP-Flex	\$16,400,335	\$16,400,335	\$16,400,335	\$16,400,335	\$65,601,340
STP-OSB	\$3,627,259	\$3,627,259	\$3,627,259	\$3,627,259	\$14,509,036
STP-Urban	\$8,313,516	\$8,313,516	\$8,313,516	\$8,313,516	\$33,254,064
FTA 5307	\$9,171,494	<i>Carryover from prior years</i>			\$9,171,494
FTA 5307	\$11,474,953	\$11,474,953	\$11,474,953	\$11,474,953	\$45,899,812
FTA 5339	\$1,084,799	<i>Carryover from prior years</i>			\$1,084,799
FTA 5339	\$963,112	\$963,112	\$963,112	\$963,112	\$3,852,448

Table 2. Federal Funding Programs

HSIP	The Highway Safety Improvement Program (HSIP) provides funding to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. A highway safety improvement project is any strategy, activity or project on a public road that is consistent with the data-driven New York State Strategic Highway Safety Plan (NYSSHSP) and corrects or improves a hazardous road location or feature or addresses a highway safety problem.
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NHPP	The National Highway Performance Program (NHPP) provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's asset management plan for the NHS.
STP	The Surface Transportation Program (STP) provides flexible funding that may be used by States and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals. STP-Flex funds can be used anywhere. STP-OSB can only be used for bridges carrying roads that are off the federal-aid system. STP-Urban funds can only be used in the Adjusted Urbanized Area.
FTA 5307	The Section 5307 Urban Area Formula Fund program provides capital funding to support public transportation services and facilities in the large urbanized area of Rochester with a population greater than 200,000.
FTA 5339	The Section 5339 Bus and Bus Facilities program provides capital funding to replace, rehabilitate, and purchase buses and related equipment and construct bus-related facilities.

New York State retains a portion of the federal-aid funding apportioned to the state to support projects selected as part of a statewide solicitation. Various solicitations have specific project eligibility criteria. Projects that are selected for funding via statewide solicitations are considered for inclusion in the TIP. Since funds are provided from statewide resources and are specific to a project, they are considered reasonably expected. These additional revenues are offset by the costs of the projects and are incorporated via a TIP Amendment. When such amendments occur, the Financial Summary table demonstrating fiscal constraint is revised as appropriate. These funds are referred to as "Statewide".

The TIP does not include any new funding sources; accordingly, there is no strategy to ensure their availability. During development of the TIP, GTC reached out to NYSDOT, RGRTA, and each County in the region to identify any regionally significant projects that are not federally funded. There are no regionally significant projects that are not federally funded.

In addition to public funds, a TIP must include private funds that support a federal-aid project or a regionally significant project. The East Henrietta Rd. Improvements (Rochester CL to Stan Yale Drive) project (TIP #: H14-57-MN1, PIN 476087) includes funds from a private developer. The City of Rochester has executed an agreement whereby the estimated cost of construction will be split 50 percent federal and 50 percent private. The developer has also committed to covering any construction cost above this estimate.

Programmed Projects versus System Needs

The TIP project list balances cost-effective preventive and corrective maintenance with necessary replacements and rehabilitations of pavements, bridges, and transit assets. There are no roadway expansion projects in the FFYs 2017 through 2020. The projects included in the TIP can be broken down into the following categories:

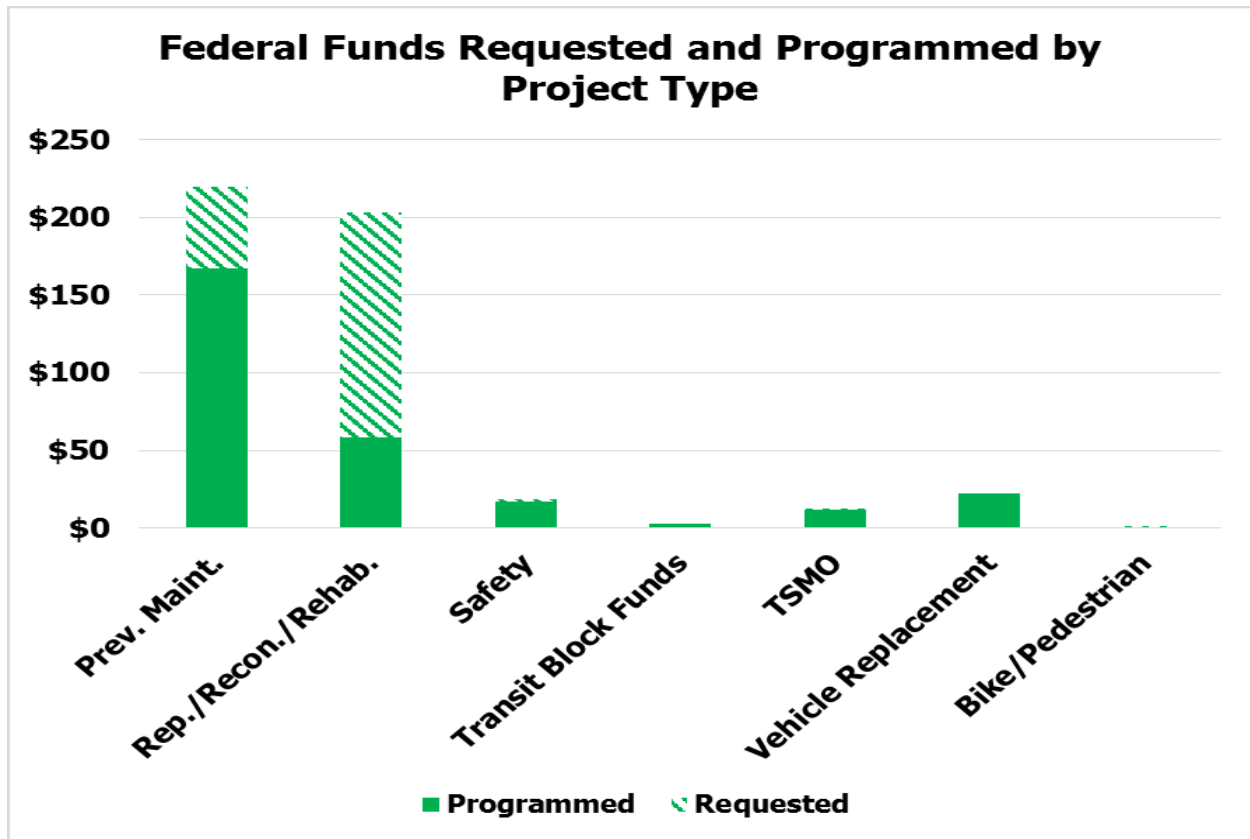
- Preventive Maintenance – \$132.8 m (48 %)
- Replacement/Rehabilitation – \$80.7 m (29 %)
- Corrective Maintenance – \$18.4 m (7 %)
- Structure Inspections – \$16.3 m (6 %)
- Pavement Marking – \$11.3 m (4 %)
- TSMO – \$11.5 m (4 %)
- Safety – \$5.7 m (2 %)

At the time of adoption, there were over \$200 million of requests that were unfunded across the region due to insufficient available balances given the Planning Targets.

- \$76.7 million in highway preventive maintenance projects
- \$108.3 million in highway reconstruction/rehabilitation projects
- \$1.8 million in bridge preventive maintenance projects
- \$31.7 million in bridge replacement/rehabilitation projects
- \$2.5 million in lighting & guiderail projects
- \$1.4 million in bicycle and pedestrian projects

Table 3 shows the level of funds programmed by project type versus the level of funding requested. The largest discrepancy by far is for more intensive treatments that are beyond preventive maintenance. The gap in the amount of funding needing to address lower cost preventive maintenance projects represents many locations that will degrade to the point of needing more expensive work if they are not addressed in a timely manner.

Table 3.



TIP Financial Summary
(Fiscal Constraint Table)

as amended 12-13-18

	2017	2018	2019	2020	4-Year Total
FHWA					
NHPP					
Planning Target	\$31,830,113	\$33,643,817	\$33,383,921	\$32,100,817	\$130,958,668
Statewide	\$10,295,891	\$1,872,300	\$54,308,000	\$5,916,000	\$72,392,191
Programmed	(\$41,868,014)	(\$35,223,484)	(\$86,658,781)	(\$37,737,769)	(\$201,488,048)
<i>Balance</i>	\$257,990	\$292,633	\$1,033,140	\$279,048	\$1,862,811
STP-Urban					
Planning Target	\$7,649,516	\$8,977,516	\$8,313,516	\$8,313,516	\$33,254,064
Statewide	\$0	\$0	\$0	\$0	\$0
Programmed	(\$7,649,335)	(\$8,977,786)	(\$8,313,516)	(\$8,063,220)	(\$33,003,857)
<i>Balance</i>	\$181	(\$270)	\$0	\$250,296	\$250,207
STP-Flex					
Planning Target	\$17,435,535	\$16,356,828	\$16,443,842	\$15,365,135	\$65,601,340
Statewide	\$4,996,800	\$15,261,600	\$1,911,000	\$565,600	\$22,735,000
Programmed	(\$22,377,267)	(\$31,555,135)	(\$17,872,056)	(\$15,833,247)	(\$87,637,705)
<i>Balance</i>	\$55,068	\$63,293	\$482,786	\$97,488	\$698,635
STP OSB					
Planning Target	\$4,713,659	\$4,257,703	\$1,910,415	\$3,627,259	\$14,509,036
Statewide	\$1,183,527	\$8,598,722	\$0	\$0	\$9,782,249
Programmed	(\$5,896,986)	(\$12,834,224)	(\$1,841,047)	(\$3,322,470)	(\$23,894,727)
<i>Balance</i>	\$200	\$22,201	\$69,368	\$304,789	\$396,558
HSIP					
Planning Target	\$3,594,701	\$2,866,151	\$4,323,251	\$3,594,701	\$14,378,804
Statewide	\$16,913,846	\$217,790	\$10,810,509	\$0	\$27,942,145
Programmed	(\$20,511,135)	(\$2,981,387)	(\$15,131,372)	(\$3,601,620)	(\$42,225,514)
<i>Balance</i>	(\$2,588)	\$102,554	\$2,388	(\$6,919)	\$95,435
Other					
Planning Target	\$0	\$0	\$0	\$0	\$0
Statewide	\$56,592,314	\$3,114,292	\$9,497,678	\$4,503,000	\$73,707,284
Programmed	(\$56,592,314)	(\$3,114,292)	(\$9,497,678)	(\$4,503,000)	(\$73,707,284)
<i>Balance</i>	\$0	\$0	\$0	\$0	\$0
FHWA Total					
Planning Target	\$65,223,524	\$66,102,015	\$64,374,945	\$63,001,428	\$258,701,912
Statewide	\$89,982,378	\$29,064,704	\$76,527,187	\$10,984,600	\$206,558,869
Programmed	(\$154,895,051)	(\$94,686,308)	(\$139,314,450)	(\$73,061,326)	(\$461,957,135)
<i>Balance</i>	\$310,851	\$480,411	\$1,587,682	\$924,702	\$3,303,646

TIP Financial Summary
(Fiscal Constraint Table)

as amended 12-13-18

	2017	2018	2019	2020	4-Year Total
FTA					
FTA 5307					
Allocation	\$11,785,994	\$11,785,994	\$11,785,994	\$11,785,994	
Prior FFY Balance	\$7,337,195	\$5,904,210	\$6,669,504	\$13,755,985	\$62,809,171
Fed./State Award	\$0	\$8,328,000	\$0	\$0	
Programmed	(\$13,218,979)	(\$19,348,700)	(\$4,699,513)	(\$24,667,984)	(\$61,935,176)
<i>Balance</i>	\$5,904,210	\$6,669,504	\$13,755,985	\$873,995	\$873,995
FTA 5339					
Allocation	\$892,824	\$892,824	\$892,824	\$892,824	
Prior FFY Balance	\$867,839	\$892,824	\$1,785,648	\$2,678,472	\$7,439,135
Fed./State Award	\$0	\$1,000,000	\$2,000,000	\$0	
Programmed	(\$867,839)	(\$1,000,000)	(\$2,000,000)	(\$3,568,961)	(\$7,436,800)
<i>Balance</i>	\$892,824	\$1,785,648	\$2,678,472	\$2,335	\$2,335
FTA Total					
Allocation	\$12,678,818	\$12,678,818	\$12,678,818	\$12,678,818	
Prior FFY Balance	\$8,205,034	\$6,797,034	\$8,455,152	\$16,434,457	\$70,248,306
Fed./State Award	\$0	\$9,328,000	\$2,000,000	\$0	
Programmed	(\$14,086,818)	(\$20,348,700)	(\$6,699,513)	(\$28,236,945)	(\$69,371,976)
<i>Balance</i>	\$6,797,034	\$8,455,152	\$16,434,457	\$876,330	\$876,330

Notes:	Planning Target - Region 4 totals per TIP/STIP Policy Guidance and Instructions and NYS MOU. Planning Targets may be adjusted at the end of a FFY to reflect phase authorization changes for which NYSDOT Main Office manages fiscal constraint on a statewide basis.
	Statewide - Federal funds administered by NYSDOT Main Office
	Other - Includes FASTLANE, TAP, TEP, earmarks, and other discretionary programs
	Prior FFY Balance - Includes balances of FTA apportionments from previous two FFYs

What Types of Projects are Included in the TIP?

Federal regulations require that any surface transportation project within a MPA that is to be funded with Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) funds must be included in the TIP. The following types of projects are eligible for federal funding:

- Projects on the federal aid highway system (e.g., road and bridge construction, reconstruction, rehabilitation, preventive maintenance, etc.);
- Public transportation projects (e.g., vehicle purchases and preventive maintenance, capital improvement projects, mass transit system construction, etc.);
- Projects that are not on the federal aid system, but may be eligible for federal funding for other reasons (e.g., bridge projects, bicycle and pedestrian facilities, etc.); and
- Projects that improve air quality and/or mitigate congestion (e.g., alternative fuel infrastructure, vehicle retrofit/replacement, etc.).

What Geographic Area Does the TIP Cover?

Consistent with federal regulations, the primary focus of the GTC TIP is the Rochester MPA. The MPA includes all of Monroe County, plus the adjacent developed areas of Livingston, Ontario, and Wayne Counties (see Exhibit 1 on page 2).

Projects outside of the MPA (in the counties of Genesee, Livingston, Ontario, Orleans, Wayne, and Wyoming) are under the purview of NYSDOT-Region 4. GTC and NYSDOT-Region 4 work together to coordinate programming of these projects and the projects within the MPA so as to maximize regional benefit.

What Agencies are Involved in TIP Development?

The Fixing America's Surface Transportation Act (FAST Act) requires that the MPO of a region work with the State Department of Transportation, public transportation providers, and local transportation agencies to develop the TIP. In accordance with the FAST Act, GTC, NYSDOT, RGRTA, and other GTC member agencies work as a cooperative team with other interested parties to develop and manage this region's TIP.

To guide the TIP development process, GTC convened the TIP Development Committee (TDC) comprised of representatives from the MPA counties (Livingston, Monroe, Ontario, and Wayne), the City of Rochester, RGRTA, and NYSDOT. This Committee also meets regularly to assist GTC and NYSDOT in managing the TIP between the adoptions of new TIPs, including review of substantive changes in projects that may require amending the adopted TIP. The Genesee/Finger Lakes Regional Planning Council serves as an advisory member to the TDC.

How are Projects Selected for the TIP?

Key steps in the TIP development process are:

1. Solicitation of project proposals (August 21, 2015 – October 16, 2015)

GTC and NYSDOT-Region 4 issued a Call for Projects letter to GTC member agencies and the appropriate officials of eligible counties, municipalities, and authorities notifying them of the opportunity to prepare and submit project proposals in accordance with the TIP project evaluation and selection process. A TIP Applicant Workshop was held on September 15, 2015 for prospective applicants to review the proposal requirements, discuss potential proposals (including eligibility for federal funding), and receive answers to any questions on the TIP and the process used to develop it.

2. Proposal evaluation and ranking (October 19, 2015 – January 29, 2016)

The GTC and NYSDOT-Region 4 staffs scored all project proposals pursuant to the criteria included in the Project Evaluation Form, which is provided in Appendix B. As part of this evaluation, project sponsors were given the opportunity to present their projects to the evaluation team prior to the project applications being scored. The resulting scores provided a preliminary basis for ranking project proposals within each mode and across all modes (mode categories include Highway & Bridge, Public Transportation, Bicycle & Pedestrian, Goods Movement, Intelligent Transportation Systems, and Other).

3. Preliminary program development (February 1, 2016 – March 30, 2016)

These preliminary rankings were reviewed and discussed with the TDC, and adjustments to rankings were made as necessary to reflect overall funding considerations, geographic balance, and other factors not specifically captured by the Project Evaluation Criteria. A list of projects recommended for funding as well as those projects proposed but not able to be funded given reasonably expected revenues was prepared and made available for public review.

4. Public review (April 11, 2016 – May 10, 2016)

The preliminary fiscally constrained program (Draft TIP) was issued for a 30-day public review, including four public meetings in various locations within the MPA. One written and one verbal comment, related to the same projects, were received during this outreach. These comments were presented to the GTC Planning Committee. The Planning Committee recommended no changes to the list of projects recommended for funding based on their consideration of the comments.

5. Finalize program (May 12, 2016)

After full consideration of the comments received during the 30-day public review period, the Draft TIP was finalized by the GTC Planning Committee and forwarded to the GTC Board with a recommendation to adopt the Draft TIP document.

6. GTC Board action (June 9, 2016)

The GTC Board adopted the *2017-2020 TIP* at its June 9, 2016 meeting.

The *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2040* identifies the following seven goals and associated objectives that wholly incorporate the eight planning factors identified in MAP-21:

1. **Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency**
 - A. The transportation system should support balanced community and economic development of the metropolitan area
 - B. The transportation system should be a distinguishing competitive feature of the metropolitan area relative to other areas, serving the needs of existing businesses and enhancing the region's attractiveness to new business
2. **Increase the safety of the transportation system for motorized and non-motorized users**
 - A. Transportation designs, services, and education programs should enhance and protect life, health, and property
3. **Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and non-motorized users**
 - A. The transportation system, and its associated programs and services, should support both national and personal security initiatives
4. **Increase the accessibility and mobility options available to people and freight**
 - A. The transportation system should provide the capacity, coverage, and coordination necessary to provide mobility to the region's population and commercial activities in a fashion consistent with the overall intent of Goal 1
 - B. Reasonable travel alternatives should be available to all persons in the area regardless of age, physical or mental ability, and/or income
5. **Protect and enhance the natural environment, cultural heritage and community appearance, and promote energy conservation**
 - A. Transportation planning and decision making should support and reinforce local land use and development objectives
 - B. Transportation planning and decision making should recognize local priorities balanced with broader community goals
 - C. Transportation planning and decision making should strive to address issues on a corridor level, recognizing both the multi-jurisdictional component of travel and the interrelationship between transportation and non-transportation policies and investments
 - D. The transportation system should encourage the efficient use of non-renewable

energy resources and the exploration of renewable alternatives

- E. Transportation planning and decision making should strive to embrace designs and processes which respect the natural environment and enhance the overall contribution of the transportation system to community livability

6. Promote efficient system management and operations

- A. The transportation system should be designed and managed in a fashion which minimizes lifetime maintenance and user costs
- B. Transportation investments should advance the Long Range Transportation Plan's goals and objectives in a fashion which maximizes benefits relative to costs
- C. Transportation and land use planning should be integrated in a fashion that optimizes the use of existing transportation and other municipal infrastructure
- D. Transportation investments should be guided by cooperative planning, design, and maintenance standards to promote system continuity and uniformity across jurisdictional boundaries

7. Facilitate partnerships in planning, financing, and the execution of transportation initiatives

- A. The transportation planning and decision making process should be multi-jurisdictional, fostering coordination and cooperation among local, county, state, and federal governments, concerned agencies, and the private sector
- B. The transportation planning process should be conducted in as open and visible a manner as possible, encouraging community participation and interaction between and among citizens, professional staff, and elected officials
- C. Financial and non-financial support for transportation initiatives should be provided by all levels of government and the private sector in a fashion which reflects their relative responsibilities for, and/or benefits from, the initiatives and related economic and social impacts
- D. Innovative financing/partnerships for transportation initiatives that reflect the full scope of interests impacted or served should be explored
- E. Transportation and transportation-related information resources should be developed and shared in a fashion that promotes informed public and private sector decision making
- F. Awareness should be promoted regarding the impact of individual, public, and private sector decisions on the quality of mobility and the potential impact of these decisions on others

Analysis of Emissions and Energy Consumption

As the designated MPO for the nine-county Genesee-Finger Lakes region, the GTC is responsible for ensuring that this region's federally-funded transportation planning, policy, and investment decision making are conducted in a fashion which promotes transportation's contribution to attainment of federal clean air standards and regulations. In addition, reducing energy usage can address both national security and environmental concerns (including mitigating climate change).

GTC continues to pursue established priorities to address air quality and energy concerns in the context of its regional transportation planning efforts and is advancing initiatives based on these priorities. These include:

- Maintaining the safety and efficiency of the region's existing transportation system through means other than capacity expansion is the leading investment priority;
- Promoting further development and increased use of alternative modes of transportation;
- Advancing planning initiatives that address the development of a region-wide multi-use trail system;
- Developing a comprehensive congestion management process that improves the overall efficiency of the regional transportation system through coordinated corridor-level and regional solutions, thereby minimizing the contribution of transportation-related emissions to ozone levels; and
- Advancing a comprehensive air quality planning program, focusing on the development of enhanced information and analysis capabilities to conduct transportation and air quality modeling of various planning, policy, and investment alternatives. In addition, GTC has and continues to work with other entities (public and private) to improve air quality in the region.

GTC staff conducted an analysis of the impacts of the *2017-2020 TIP* on emissions of pollutants and greenhouse gases (GHG), as well as energy usage, in the Rochester MPA. The U.S. Environmental Protection Agency's (EPA) MOtor Vehicle Emission Simulator (MOVES) 2014 was utilized to conduct the analysis. MOVES 2014 was released in October 2014. According to EPA:

"The MOtor Vehicle Emission Simulator (MOVES) is the U.S. Environmental Protection Agency's (EPA's) state-of-the-art tool for estimating emissions from highway vehicles. The model is based on analyses of millions of emission test results and considerable advances in the Agency's understanding of vehicle emissions. Compared to previous tools, MOVES incorporates the latest emissions data, more sophisticated calculation algorithms, increased user flexibility, new software design, and significant new capabilities."

The following pollutants and energy consideration were included in the analysis:

1. Carbon Monoxide (CO)
2. Nitrogen Oxides (NO_x)

3. Volatile Organic Compounds (VOC)
4. Total Hydrocarbons
5. Non-Methane Hydrocarbons
6. Carbon Dioxide (CO₂, a GHG)
7. Direct Energy Usage (i.e., energy consumed by vehicles using the transportation system)

In an effort to be conservative, projects that were not able to be modeled were not included in the analysis. The *2017-2020 TIP* includes several projects that will likely have benefits in terms of reducing emissions and energy usage. These include transportation system management and operations (TSMO) projects and projects that promote active transportation. In addition, GTC maintains a regional commuter choice program (ROCEASYRIDE) that makes it convenient for residents to identify potential carpooling partners, public transportation options, and preferred bicycling routes.

The results of the quantitative analysis (for July, the warmest month on average) are presented in the table below and demonstrate that emissions of the aforementioned pollutants and the amount of direct energy consumed in the Rochester MPA will decrease – in some cases, significantly – between 2016 (the base year for the analysis) and 2020 (the horizon year of the TIP).

Item Analyzed (Unit of Measure)	Year		Change	Percent Change
	2016	2020		
Carbon Monoxide (Kg/Day)	86,538	72,609	(13,929)	-16.1%
Nitrogen Oxides (Kg/Day)	11,713	6,963	(4,750)	-40.6%
Volatile Organic Compounds (Kg/Day)	6,730	5,060	(1,670)	-24.8%
Total Hydrocarbons (Kg/Day)	6,753	5,098	(1,655)	-24.5%
Non-Methane Hydrocarbons (Kg/Day)	6,374	4,773	(1,601)	-25.1%
Carbon Dioxide (Kg/Day)	10,645,323	9,839,928	(805,395)	-7.6%
Direct Energy Usage (MMBtu/Day)	139,822	129,229	(10,593)	-7.6%

Nondiscrimination and Title VI Considerations

Background

To identify and proactively address any potential concerns about the equity of investments in the transportation system, GTC staff developed a process to assess the impacts of the transportation projects included in this TIP on minority, low-income, and limited English proficiency (LEP) populations. This section presents the results of this assessment.

Title VI prohibits discriminatory practices in programs and activities receiving federal funds. Title VI is an abbreviated way of referring to the requirements of the federal Civil Rights Act of 1964 and other legislation that direct the fair treatment and meaningful involvement of all people, including environmental justice considerations. Executive Orders 12898 and 13166 require federal agencies to make achieving environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority, low-income, and LEP populations.

There are three fundamental principles at the core of environmental justice:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority, low-income, and LEP populations;
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority, low-income, or LEP populations.

As recipients of federal-aid dollars, MPOs such as GTC are required to identify and address the Title VI implications of their planning processes and investment decisions. GTC incorporates Title VI in all of its transportation planning activities, recognizing that such consideration improves both the planning and decision making processes and the results of these activities.

Title VI does not prescribe specific methods or processes for ensuring environmental justice in transportation planning. The analyses presented below represent GTC's best efforts to determine whether the benefits and burdens of the transportation projects in this TIP are distributed equitably among minority, low-income, and LEP populations and non-minority, non-low-income, and non-LEP populations

Analysis Methodology

It is recognized that transportation projects may have an impact beyond their immediate project limits. For this reason, geographic proximity analyses were used to determine how the location of the transportation projects in this TIP correlate to the location of minority, low-income, and LEP populations.

The data on minority, low-income, and LEP populations is derived from the 2010 Census and the 2006-2010 American Community Survey. The data was analyzed at the census tract level, which is the smallest geographic area at which race, income, and language data are available. The percentages of these populations were calculated for each census tract within the TIP Region. Percentages were then compared to averages for the region as a whole, using the regional averages as thresholds for determining whether or not an individual census tract should be considered as having above average concentrations of minority, low-income, or LEP populations.

Using this methodology, the following thresholds were developed:

- Above average concentration of minority population in households: 20.0% or more of the 2010 population in a census tract was from a minority group (i.e., non-white and/or Hispanic).
- Above average concentration of low-income population: 12.8% or more of the 2010 population in a census tract was at or below the poverty level.
- Above average concentration of LEP population: 3.5% or more of the 2010 population in a census tract identified their ability to speak English as "Not well" or "Not at all" (i.e., Limited English Proficiency).

The census tracts that exceeded the thresholds were identified in a Geographic Information System (GIS). The GIS was used to determine how many of the transportation projects in the TIP lie within or on the boundaries of the census tracts.

Projects located in Seneca and Yates counties are not included in this analysis; projects in these counties are programmed by NYSDOT-Region 3 and NYSDOT-Region 6, respectively.

Only those transportation projects with a *specific location* (i.e., "mapped" projects) were included in these analyses. For example, an intersection improvement project is specific to one location (mapped), while the purchase of new buses serves multiple transit routes over a large area (not mapped). The impacts of projects that are not mapped, including most of the public transportation and TSMO projects and programs, are generally spread over a county, several counties, or the region. There are 89 mapped project locations within EJ areas of concern with a total cost (federal share only) of approximately \$96 million. There are 321 mapped project locations with a total cost (federal share only) of approximately \$203 million are located in census tracts with concentrations of minority, low-income, or LEP persons above the regional average.

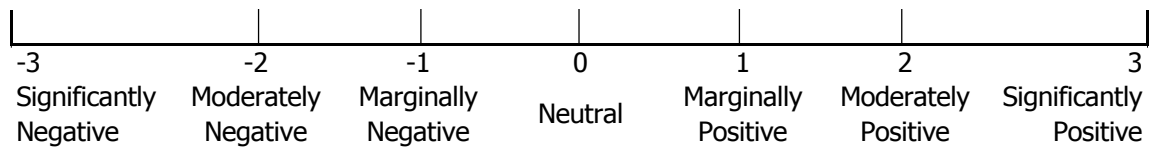
Analysis Results

The census tracts flagged as having above average concentrations of minority population encompassed 67 percent of the region's minority population in 2010. Of the 321 mapped project locations in this TIP, 46 (14 percent) are located in or on the boundary of these census tracts. These 46 project locations have a combined cost (federal share) of approximately \$63 million, or 31 percent of the total.

The census tracts flagged as having above average concentrations of low-income population encompassed 63 percent of the region’s low-income population in 2010. Of the 321 mapped project locations in this TIP, 72 (22 percent) are located in or on the boundary of these census tracts. These 72 project locations have a combined cost (federal share) of approximately \$75 million, or 37 percent of the total.

The census tracts flagged as having above average concentrations of LEP population encompassed 70 percent of the region’s LEP population in 2010. Of the 321 mapped project locations in this TIP, 29 (9 percent) are located in or adjacent to these census tracts. These 29 projects have a combined cost (federal share) of approximately \$33 million, or 16 percent of the total.

Each mapped project located within or on the boundary of an environmental justice area of concern was evaluated as to its likely benefits and impacts on the minority, low-income, and LEP populations in the region. Projects were evaluated based on their effects on accessibility, mobility, congestion, safety, and recreational opportunities using the scale presented below.



The table below presents the results of the evaluation of benefits and impacts of the 89 mapped project locations in environmental justice areas included in the *2017-2020 TIP*.

Impact	Number of Project Locations:	Total Federal Share:
Significantly Negative:	0	\$0
Moderately Negative:	0	\$0
Marginally Negative:	0	\$0
Neutral:	76	\$66,659,428
Marginally Positive:	13	\$29,160,953
Moderately Positive:	0	\$0
Significantly Positive:	0	\$0
Totals:	89	\$95,820,381

The federal share figures shown in the table above are presented in current year (2015) dollars. They do not include adjustments for inflation based on the years in which the projects are scheduled (FFYs 2017-2020), which will increase the dollar amounts for all projects.

The results suggest that minority, low-income, and LEP populations in the region should receive equitable shares of the benefits arising from the transportation projects in the *2017-2020 TIP* while not being subjected to inequitable shares of any of the burdens.

Major Projects from the Previous TIP

Listed below are major projects (i.e., typically, have a construction cost of \$2.5 million or more) from the *2014-2017 TIP* that advanced to construction between its adoption on June 20, 2013 and the adoption of this TIP on June 9, 2016. Detailed financial information on all projects programmed in the TIP are compiled and published by GTC in its Annual Listings of Federally Obligated Projects, which are available on the GTC website at <http://www.gtcmpo.org/Docs/Obligations.htm>.

TIP #	PIN	Project Name
H01-05-MN1	4940T7	Inner Loop East Reconstruction
H05-07-MN1	475381	Ridgeway Avenue Improvements
H05-20-MN1	475428	Long Pond Road Reconstruction
H07-03-MN1	403302	Rt. 33 (Buffalo Rd) Improvements from I-490 to Marway Circle
H07-08-MN1	475438	Lake Avenue Improvements
H11-40-MN1	403193	Rt. 31 (Monroe Ave.) Safety Upgrade: Westfall Rd. to Clover St.
H14-11-MN1	476050	City of Rochester Highway Preventive Maintenance Group # 3
H14-20-MN1	476056	Monroe County Highway Preventive Maintenance #1
H14-21-MN1	476057	Monroe County Highway Preventive Maintenance #2
H14-26-MN1	440416	Village of Webster Pavement Preventive Maint. (Rts. 404 & 250)
H14-28-MN1	439059	I-390 Interchange Improvements @ Exit 16
H14-55-MN1	459019	I-590 (I-390 to Highland Ave.) Preventive Maintenance
H14-61-MN1	444112	Route 441 and I-490 Concrete Repairs
H14-63-MN1	494730	Lake Ontario State Parkway Prev. Maint. (Rt. 390 to O'Rourke Bridge)
B99-22-MN1	475286	Broad Street Bridge & Tunnel Preventive Maintenance
B03-02-MN1	4940T5	Inner Loop Bridge over Brown's Raceway
B11-09-MN1	449033	I-490 Bridge over Marsh Road
B14-02-MN1	480634	Route 104 Irondequoit and Webster Bridge Painting (FFY 2016)
B14-03-MN1	480636	NYS DOT Bridge Preventive Maintenance @ 7 locations (FFY 2016)
H14-56-LV2	406350	Route 63 (Wyoming Co. Line to Rt. 408) Preventive Maintenance
H11-01-ON2	400555	Routes 5&20 in Geneva
H14-60-ON1	433207	Route 332 and Route 5&20 Preventive Maintenance
B11-73-ON2	400559	Route 5 Bridge over NFSRR & FLRR
H11-38-WA2	403190	Rt. 31 from Rt. 414 to the west Village line
B07-11-WA1	494099	Canandaigua Road Bridge over the Erie Canal

Addressing Performance Targets

Background

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

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 Genesee Transportation Council *2017-2020 Transportation Improvement Program* (TIP) was developed and is managed in cooperation with NYSDOT and the Rochester-Genesee Regional Transportation Authority. It reflects the investment priorities established in the *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2040* (LRTP 2040), which incorporates comments and input from affected agencies and organizations and the public.

TIPs “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

- October 1, 2018 – Public Transportation Safety Program
- May 20, 2019 – Pavement and Bridge Condition
- May 20, 2019 – System Performance/Freight/Congestion Mitigation & Air Quality Improvement Program

MPOs 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 *2017-2020 Transportation Improvement Program* meets these requirements of 23USC §134(j)(2)(D).

HSIP and Highway Safety

Performance Targets

On March 15, 2016, 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 SHSP 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 NYSDOT Highway Safety Improvement Program (HSIP) annual report documents the statewide performance targets.

The Genesee Transportation Council agreed to support the NYSDOT statewide 2018 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* December 14, 2017 via GTC Resolution 17-94:

- Number of Fatalities: 1,086
- Rate of Fatalities per 100M Vehicle Miles Traveled (VMT): 0.87
- Number of Serious Injuries 10,584
- Rate of Serious Injuries per 100M VMT: 8.54
- Number of Nonmotorized Fatalities and Serious Injuries: 2,843

Anticipated Effects

The measures align with the GTC LRTP 2040 Goal #2, “Increase the safety of the transportation system for motorized and non-motorized users”. 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. As noted above, GTC works with NYSDOT to cooperatively develop and manage the TIP. Prior to each TIP/STIP cycle, GTC is provided Planning Targets for each Federal formula fund source. All projects submitted for consideration of funding from the Planning Targets are evaluated against

multiple criteria. The extent to which the project improves the safety of the existing transportation system is the highest weighted criterion.

Additionally, projects that are primarily intended to address a safety deficiency are expected to determine the benefit/cost ratio using the detailed analysis described in the NYSDOT Safety Investigations Procedures Manual (TE164a and TE204a) or a comparable quantitative methodology to be considered for HSIP funds. The TIP also includes projects that are not primarily intended to address safety deficiencies but do address such deficiencies as part of the larger project.

The TIP includes 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 Genesee 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 March 16, 2016, FTA published the final rule for Transit Asset Management in the *Federal Register*.

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.

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. The Rochester Genesee Regional Transportation Authority (RGRTA), the Tier I transit provider for this region, established their initial performance targets.

RGRTA submitted its initial TAM Plan to FTA on September 30, 2018. In accordance with the TAM Plan, RGRTA 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 Genesee Transportation Council agreed to support the RGRTA targets for the following Transit Asset Management Performance Measures on June 8, 2017 via Resolution 17-30.

Performance Measure	Quantity	Quantity > ULB	% > ULB	Target (ULB)
Rolling Stock: Percent of revenue vehicles within asset classes that have met or exceeded useful life				
40' Bus	186	0	0%	15%
60' Articulated Bus	30	0	0%	15%
Paratransit IA	53	14	26%	15%
Regional Type III	96	4	4%	15%
Regional Type VI	38	6	16%	15%
Equipment: Percent of vehicles that have met or exceeded useful life				
Non-revenue Cars	22	8	36%	15%
Maintenance Vehicles	13	3	23%	35%
Facilities: Percent of facilities with a condition rating below 3.0 on 1-5 scale				
Condition	12	N/A*	0%	20%

Source: RGRTA for submission to the 2018 National Transit Database

*Not all facilities have been reviewed. Facilities are required to be assessed once per four years.

Anticipated Effects

The measures align with GTC LRTP 2040 Recommendation # 6, "Maintain and improve the condition and functionality of public transportation facilities throughout the region." The projects on the TIP are consistent with the need to address the management of transit assets.

The maintenance of existing assets is a primary consideration of transit projects in the TIP. RGRTA is a member of the TIP Development Committee overseeing the development and management of the TIP. Prior to each TIP/STIP cycle, GTC is provided Planning Targets for each Federal formula fund source. All projects submitted for consideration of funding from the Planning Targets are evaluated against multiple criteria. The extent to which the project contributes to the cost-effective maintenance of the existing transit assets is a significantly weighted criterion.

The projects on the TIP align with the ten-year Capital Improvement Plan of RGRTA and are amended annually to reflect changes per the annual Program of Projects.

The TIP includes projects programmed with FTA 5307 and 5339 funds and other fund sources that are expected to materially benefit transit users throughout both the urbanized and rural areas, such as:

- Preventive Maintenance
- Bus replacement; and
- Repair, rehabilitation, and replacement of transit facilities.

The Genesee 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 state of good repair targets established by RGRTA.

Public Transportation Safety Program

Reserved for future use.

Pavement and Bridge Condition

Reserved for future use.

System Performance/Freight/Congestion Mitigation & Air Quality Improvement Program

Reserved for future use.