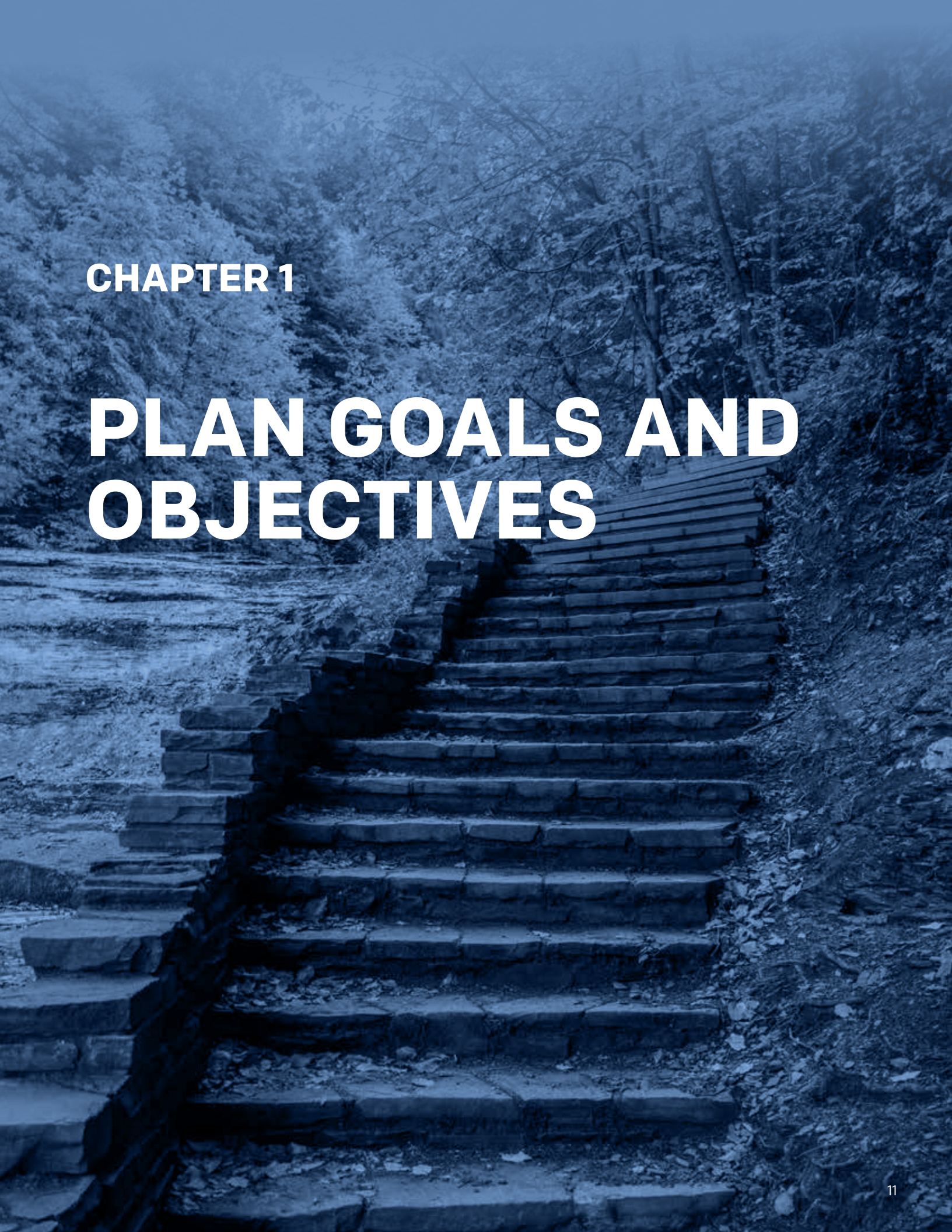


CHAPTER 1

PLAN GOALS AND OBJECTIVES

PLAN GOALS AND OBJECTIVES

SUSTAINABLE ACCESSIBILITY

The 2040 vision for the future of the Tompkins County transportation system continues to embrace the concept of Sustainable Accessibility initially presented in the 2030 plan. This concept expands our vision of transportation, transforming transportation systems into mobility networks that meet the needs of pedestrians, bicyclists, transit users, rail, freight, and motorists while addressing vehicular congestion, equity, energy and environmental concerns. Sustainable Accessibility can be defined as the ability to get to a destination or complete a task in an efficient, convenient, and reliable way, while using technologies and services that minimize environmental impacts, promote economic vitality and ensure equity in the provision of transportation to the community.

The challenge of implementing the vision of Sustainable Accessibility is to identify opportunities and begin to integrate transportation modes (i.e. transit, bikes, walking, cars, car sharing, van pool, trucks, rail, etc.) so they address personal transportation and commercial needs in ways that will enhance our quality of life and promote sustainable growth in Tompkins County. The vision of Sustainable Accessibility will require insight into the social structure as well as the infrastructure of the community so that the enhancements to the transportation system can serve all communities equitably.

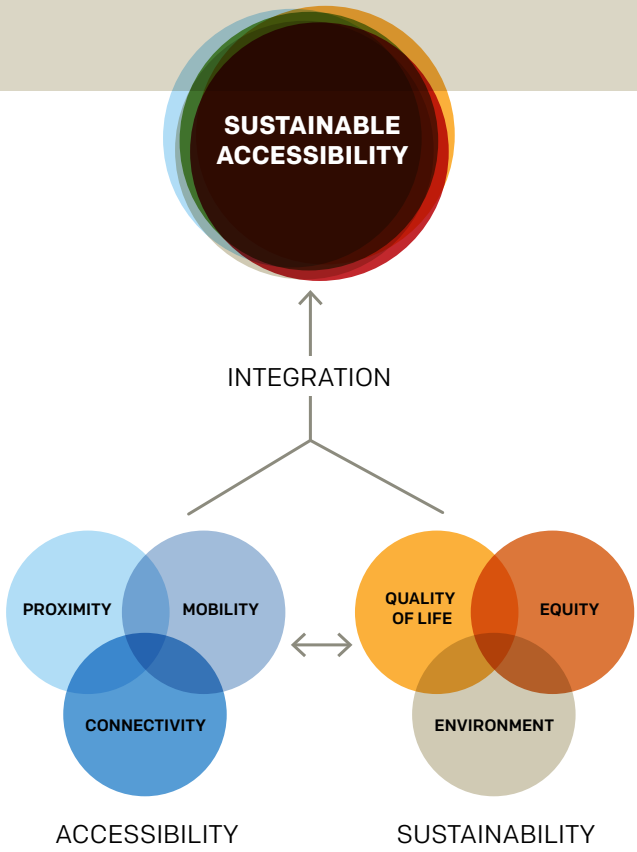
Sustainable Accessibility integrates transportation with land use planning to promote development patterns that reduce dependency on the automobile as the sole source of transportation. With Sustainable Accessibility at its core, the transportation network will integrate multiple modes of transportation so that traveling by transit, walking, bicycling, car share, car pool, etc. becomes as attractive, convenient and cost effective as using a private car. By bringing all modes to bear, the transportation system becomes more efficient and more resilient. A vision of Sustainable Accessibility will also embrace new transportation options, technologies and programs as they emerge.

The components of Sustainable Accessibility affecting accessibility include: Mobility, Proximity and, Connectivity. Environment, Equity and Quality of Life are components of sustainability. The integration of these components contributes to the ultimate goal of achieving a transportation system that is sustainable and resilient.

2040 Long Range Transportation Goals

Overarching goals that pervade all other goals:

- **To improve the safety of the transportation system**
- **To enhance coordination among transportation providers to the benefit and convenience of users**
- **To minimize negative environmental impacts of transportation including: dependency on fossil fuel energy use, emissions, noise pollution and non-point source pollution**
- **To reduce vehicle miles of travel and the number of drive-alone trips**
- **To ensure the equitable availability of mobility options in the community**



Sustainable Accessibility

Goal: To develop a transportation system for Tompkins County that is sustainable, equitable and efficient, resulting in Sustainable Accessibility for all travelers.

The LRTP lays out a process to achieve Sustainable Accessibility that focuses on utilizing transportation resources in a manner that optimizes the choice of modes, minimizes environmental impact and enhances the quality of life of all users. An outcome of this approach is to reduce dependency on the private automobile as the principal mode of transport by expanding the transportation mode choices available to travelers and promoting more transport-efficient land use patterns. This will result in a more resilient transportation system that promotes enhanced mobility and reduces congestion, vulnerability to fuel supply fluctuations, tail pipe emissions, and motor vehicle deaths and injuries.

Accessibility Components

Mobility

Goal: To promote the implementation of transportation services, programs and projects that enhance mobility.

Mobility refers to the movement of people or goods (freight). Mobility increases as travelers and freight have more transportation mode options and increased convenience to access their destinations. Enhanced coordination between transportation modes also leads to increased mobility. Modern communication and wireless technologies can serve as substitutes for travel and help individuals access their destinations and complete tasks without the need to be physically present. These technologies can be considered to increase mobility by enhancing accessibility.

Connectivity

Goal: To maintain and improve transportation networks to enhance safety, multimodal and intermodal connectivity and facilitate the movement of people and goods.

Connectivity refers to the different transportation networks serving an area and the density of connections between different origins and destinations. A well-connected area has transportation networks with many links, numerous modal options, and minimal service dead-ends. As connectivity increases, travel times decrease and route options and transportation mode options increase, allowing for more direct travel between destinations, and creating a more accessible and resilient system. Connectivity is achieved through networks of infrastructure (i.e. roads & bridges, sidewalks, trails, bicycle routes, transit, etc.) and communications (wireless services, internet, etc.).

Proximity

Goal: To achieve land development patterns that enable the efficient and equitable provision of multimodal transportation services.

Proximity refers to the location of different trip origins and destinations. Proximity is considered greater in areas with mixed land uses (i.e. residential close to shops and employment) and higher development densities. As proximity increases, travel times decrease and transportation options other than personal car use become more feasible. Increased proximity allows for more efficient use of transit (including fixed-route service, car share and vanpools), bicycling and walking, resulting in a lower-cost, more accessible and resilient transportation system. The relationship between mobility, connectivity, and proximity supports land use settlement patterns that promote compact, mixed use development which can impact physical movement by both shortening travel distances and prompting travelers to use modes other than the automobile, i.e. walking, bicycling, transit, etc.

Coordination of Accessibility Components

Goal: To develop a coordinated transportation system for Tompkins County that is multimodal and seamless, that achieves greater operational efficiencies, and increases the safety and convenience of users.

Increasing coordination between modes achieves greater operational efficiencies and increases the convenience to users. Coordination between modes extends to all aspects of any operation including the provision of single payment forms, seamless intermodal connections, and quality information for customers. Transportation works best when it is customer based and centered on providing ease of access, comfort, safety, reliability and convenience. This goal brings together components of connectivity (networks) and mobility (travel modes and freight) in a dynamic format that seeks to improve efficiency and convenience for users.

Technology and Accessibility

Accessibility includes consideration of technologies such as the internet, wireless networks, etc., that allow users to have access to their destinations and complete their desired tasks remotely. This not only relates to telecommuting, but also the numerous tasks that can be completed via the internet and wireless services such as bank transactions, retail purchases, and other forms of e-commerce.

Also critical are the communication technologies that provide traveler information, trip planning assistance, freight tracking, shared transportation and many travel demand management programs.

Sustainability Components

Equity

Goal : To achieve equity in transportation policy and projects that spur fundamental improvements in communities across Tompkins County.

Equity (also called justice or fairness) refers to the balance in the distribution of impacts (benefits and costs) of transportation projects and policies. Transportation planning decisions often have significant equity impacts, and equity concerns often influence planning debates. Accessible, affordable transportation is disproportionately important to low income and minority communities, whether rural or urban. Equity considerations must be part of all transportation policy and project decisions.

Quality of Life

Goal: Develop a transportation system that sustains and enhances the quality of life for Tompkins County residents and visitors.

Quality of life is the degree of well-being felt by an individual or group of people. Unlike standard of living, it is not a tangible concept, and so cannot be measured directly. It is virtually impossible to predict the quality of life of a specific individual, since the combination of attributes that leads one individual to be content is rarely the same for another individual. However, one can assume with some confidence that the higher average level of diet, shelter, safety, as well as freedoms

and rights a general population has, the better overall quality of life it experiences.

Transportation affects quality of life in many ways. Our transportation systems generate various negative impacts - congestion, noise, water quality, air quality, health/safety (accidents) - which can negatively affect quality of life at the street, neighborhood, city or regional level. A transportation system that contributes positively to the quality of life in an area will seek to minimize negative impacts by enhancing the components for Sustainable Accessibility.

Environment

Goal : To work progressively towards a transportation system that will have zero-net negative impact on the environment.

The transportation sector has direct impacts on the environment, including among others tail pipe emissions from fossil fuel based engines, and impacts on water quality from runoff from roads and other impervious asphalt and concrete surfaces. The indirect environmental impacts of transportation are many due to the complexity of systems involved, including networks (roads, rail, etc.) and vehicles (cars, trucks, trains, bicycles). A life cycle assessment (LCA, also known as life cycle analysis and cradle-to-grave analysis) of the environmental impacts from manufacturing, construction, use, and on to eventual disposal, would show massive environmental impacts from the transportation sector. Implementation of Sustainable Accessibility minimizes these direct and indirect negative environmental impacts through the reduction in the number of vehicles and vehicle miles traveled inherent in a more efficient and integrated transportation system.

ACTION PLAN FOR SUSTAINABLE ACCESSIBILITY

Transportation touches nearly all of people's daily activities. Efforts should be made to expand the number of options available to people for safe, efficient, and healthy transportation. Plan goals seek to provide more people with a variety of effective options to meet their travel needs, including biking on dedicated bicycling facilities, walking on sidewalks, hopping on a bus, connecting for a shared ride, driving electric or hybrid cars, as well as driving on safe roads. To make sure that "driving alone" is not always the best transportation solution to get somewhere, it is important to make it easy, safe and even fun, for people to choose other more sustainable means to move from place to place.

Besides expanding choice, broadening transportation alternatives can result in a healthier population, less traffic congestion and emissions, fewer accidents, and fewer environmental impacts. A sustainable transportation system seeks to minimize negative impacts while providing a good level of service to all in the community. This will require insight into the social structure of the community, as well as the infrastructure components, to ensure that enhancements to the transportation system service all communities equitably. Much is being done in the transportation sector to bring innovative technologies into use. Numerous communication technology applications are at different levels of development and implementation. Vehicle and infrastructure innovations are constantly being developed. The ITCTC and its partners will monitor and take advantage of new technologies and program concepts that can serve the Tompkins County area.

Tompkins County has a long history of multijurisdictional collaboration in transportation. For example, TCAT, Gadabout, car sharing and ride sharing are four important ongoing programs that were developed through collaboration by different parties.

Ongoing initiatives with higher education institutions, human service agencies, health and transportation advocates continue to energize transportation planning and program implementation in support of many of the goals of the LRTP.

The LRTP has been developed in coordination with the Tompkins County Comprehensive Plan.

(www.tompkinscountyny.gov/planning/comprehensive-plan).

These documents share data and have policies, objectives and suggested actions based on similar fundamental goals.

The key implementation areas listed below, when taken together, will best and most realistically implement the Sustainable Accessibility goals of the Long Range Transportation Plan.

- **Maintain Existing Critical Transportation Infrastructure and Systems**
  - Roads
  - Bridges
  - Transit
  - Active transportation – trails, bicycle lanes, etc.
  - Operating systems – traffic lights, signs, etc.
- **Expand and Promote Multimodal Mobility Options and Integration**
  - Active transportation
  - Transit
  - Shared transportation
  - New technologies and programs
- **Collaboration**
  - Transportation Demand Management (TDM)
  - Mobility as a Service
  - Coordination of Transportation Services
  - Education/Outreach
  - Marketing

The different aspects of the Action Plan are explored throughout the LRTP.

FEDERAL REQUIREMENTS

The federal Fixing America's Surface Transportation Act (FAST-Act), signed in December 2015, lists seven national Federal highway program performance goals:

Safety: To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.

Capital Assets 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 practices.

In addition, federal legislation stipulates that "the metropolitan transportation planning process shall... provide for consideration and implementation of projects, strategies, and services that will:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase accessibility and mobility of people and freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation;
8. Emphasize the preservation of the existing transportation system;
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
10. Enhance travel and tourism.

The Sustainable Accessibility vision of this plan presents a structure for Tompkins County that is supportive of the seven national goals and ten planning factors included in the FAST-Act.

Federal regulations require the use of a performance-based approach in the long-range transportation plan that will support the seven national goals. Performance-based planning and programming (PBPP) refers to the application of performance management within the planning and programming processes of transportation agencies to achieve desired performance outcomes for the multimodal transportation system. Under this directive, plan objectives are specific, measurable statements that support achievement of goals. Performance Measures are used to support objectives and serve as a basis for comparing alternative improvement strategies (investment and policy approaches) and for tracking results over time.

System Performance Report

Regulations also require that the LRTP include a System Performance Report evaluating the condition and performance of the transportation system with respect to the required performance targets. Plans adopted or amended after the following dates must include performance targets for the measures associated with the following performance management rulemakings:

- May 27, 2018 – Highway Safety Improvement Program (HSIP) and Highway Safety
- October 1, 2018 – Transit Asset Management
- May 20, 2019 – Pavement and Bridge Condition
- May 20, 2019 – System Performance/Freight/Congestion Mitigation & Air Quality Improvement Program (Note: the ITCTC area is in air quality attainment and therefore exempt from the Congestion Mitigation & Air Quality program)

For HSIP, Pavement and Bridge Condition and System Performance/ Freight the ITCTC, along with other MPOs across the state, has agreed to support NYSDOT statewide targets. For Transit Asset Management the ITCTC agreed to support targets established by Tompkins Consolidated Area Transit (TCAT), the public transportation provider for Tompkins County.

This section of the plan describes the baseline condition/ performance and progress toward the achievement of the targets for the associated measures.

HSIP and Highway Safety

Baseline Conditions

ITCTC analysis shows that Fatality and Serious Injury rates are higher in Tompkins County than the statewide figures. Figures also show that Fatality and Serious Injury rates are higher in rural areas of the county than in the urbanized area. Indications are that this is due mainly to higher travel speeds on rural roads. The ITCTC prepares crash data summary reports as data becomes available and communicates analysis results to partner agencies and the community as whole. *The ITCTC Objectives and Performance Measures* table at the end of this chapter shows a variety of safety measures that have been tracked since 2014. After increases over three years of measurements, the latest trend shows slight decreases in fatalities and severe injuries.

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 ITCTC agreed to support the NYSDOT statewide targets for Safety PM measures as shown in the table below, based on five year rolling averages per Title 23 Part 490.207 of the Code of Federal Regulations. Resolutions agreeing to support statewide targets were approved as follows:

- October 24, 2017, Resolution 2017-05: Supporting NYSDOT's 2018 Targets for Safety Performance Measures
- September 11, 2018, Resolution 2018-04: Supporting NYSDOT's 2018 Targets for Safety Performance Measures
- October 15, 2019, Resolution 2019-06: Supporting NYSDOT's 2020 Targets for Safety Performance Measures

NY STATE SAFETY PERFORMANCE MEASURES TARGETS

	2018	2019	2020
Number of Fatalities	1,087	1,068	1,020
Rate of Fatalities per 100M Vehicle Miles Traveled (VMT)	.87	.86	.82
Number of Serious Injuries	10,635	10,442	10,392
Rate of Serious Injuries per 100M VMT	8.53	8.39	8.42
Number of Non-motorized Fatalities and Serious Injuries	2,833	2,716	2,557

Description of Progress

Safety is a critical component of the ITCTC's mission, and a primary consideration in the selection of projects to be included in the TIP. The Objectives and Measures table below shows the latest local data for the Safety Performance Measures.

Pavement and Bridge Condition Measures (PM2)

FHWA published the Pavement and Bridge Condition Performance Measures Final Rule in January 2017. This rule, which is also referred to as the PM2 rule, establishes six performance measures for pavement and bridge condition on Interstate and non-Interstate National Highway System (NHS) roads. The PM2 measures are:

- 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;
- Percent of NHS bridges (by deck area) classified as in good condition; and
- Percent of NHS bridges (by deck area) classified as in poor condition.

NYSDOT TARGETS FOR BRIDGE PERFORMANCE MEASURES ON THE NHS

NHS Bridge Condition Targets by Deck Area

MEASURE	BASELINE	YEAR 2	YEAR 4
GOOD	20.2%	23%	24%
POOR	11.7%	11.6%	11.7%

NYSDOT TARGETS FOR PAVEMENT PERFORMANCE MEASURES ON THE NHS

NHS Pavement Condition Targets by Interstate and Non-Interstate Facility

MEASURE	BASELINE	YEAR 2	YEAR 4
INTERSTATE % GOOD	52.2%	46.4%	47%
INTERSTATE % POOR	2.7%	3.1%	4.0%
NON-INTERSTATE % GOOD	20.4%	14.6%	14.7%
NON-INTERSTATE % POOR	8.3%	12%	14.3%

Pavement Condition Measures

The four pavement condition measures represent the percentage of lane-miles on the Interstate and non-Interstate NHS that are in good condition or poor condition. The PM2 rule defines NHS pavement types as either asphalt, jointed concrete, or continuously reinforced concrete pavement (CRCP), and defines five pavement condition metrics that states are to use to assess pavement condition:

- International Roughness Index (IRI) – an indicator of roughness; applicable to all three pavement types.
- Cracking percent – percentage of the pavement surface exhibiting cracking; applicable to all three pavement types.
- Rutting – extent of surface depressions; applicable to asphalt pavements only.
- Faulting – vertical misalignment of pavement joints; applicable to jointed concrete pavements only.
- Present Serviceability Rating (PSR) – a quality rating that is applicable only to NHS roads with posted speed limits of less than 40 miles per hour, for example toll plazas and border crossings. A state may choose to collect and report PSR for applicable segments as an alternative to the other four metrics.

For each pavement metric, a threshold is used to establish good, fair, or poor condition. Table 4 lists the thresholds. Using these metrics and thresholds, pavement condition is assessed for each 0.1 mile section of the through travel lanes of mainline highways on the Interstate or the non-Interstate NHS, as follows:

- Asphalt segments are assessed using the IRI, cracking, and rutting metrics, while jointed concrete segments are assessed using IRI, cracking, and faulting. For these two pavement types, each segment is rated good if the rating for all three metrics are good, and poor if the ratings for two or more metrics are poor.
- Continuous concrete segments are assessed using the IRI and cracking metrics. A segment is rated good if both metrics are rated good, and poor if both metrics are rated poor.
- If a state collects and reports PSR for any applicable pavement segments, those segments are rated according to the PSR scale in the table to the right.

For all three pavement types, sections that are not good or poor are rated fair.

The good/poor pavement condition measures are expressed as a percentage and are determined by summing the total lane-miles of good or poor highway segments and dividing by the total lane-miles of all highway segments on the applicable system. Pavement in good condition suggests that no major investment is needed. Pavement in poor condition suggests major reconstruction investment is needed in the near term.

PAVEMENT CONDITION METRIC PERFORMANCE THRESHOLDS

METRIC RATING	GOOD	FAIR	POOR
IRI (inches/mile) (Applies to all pavements)	< 95	95–170	> 170
Cracking Percent (%) (Applies to all pavements)	< 5	CRCP: 5–10 Jointed: 5–15 Asphalt: 5–20	CRCP: > 10 Jointed: > 15 Asphalt: > 20
Rutting (inches) (for asphalt only)	< 0.20	0.20–0.40	> 0.40
Faulting (inches) (for jointed concrete only)	< 0.10	0.10–0.15	> 0.15

Bridge Condition Measures

The two bridge condition performance measures refer to the percentage of bridges by deck area on the NHS that are in good or poor condition. Bridge owners are required to inspect bridges on a regular basis and report condition data to FHWA. The measures assess the condition of four bridge components: deck, superstructure, substructure, and culverts.

Each bridge component has a metric rating threshold to establish good, fair, or poor condition, as shown in Table 5. Each bridge on the NHS is evaluated using these ratings. If the lowest rating of the four metrics is greater than or equal to seven, the structure is classified as good. If the lowest rating is less than or equal to four, the structure is classified as poor. If the lowest rating is five or six, it is classified as fair.

The bridge condition measures are expressed as the percent of NHS bridges in good or poor condition. The percent is determined by summing the total deck area of good or poor NHS bridges and dividing by the total deck area of the bridges carrying the NHS. Deck area is computed using structure length and either deck width or approach roadway width.

Bridges in good condition suggests that no major investment is needed. Bridges in poor condition are safe to drive on; however, they are nearing a point where substantial reconstruction or replacement is needed.

BRIDGE CONDITION PERFORMANCE RATING THRESHOLDS

METRIC RATING	GOOD	FAIR	POOR
Deck	≥ 7	5 or 6	≤ 4
Superstructure	≥ 7	5 or 6	≤ 4
Substructure	≥ 7	5 or 6	≤ 4
Culvert	≥ 7	5 or 6	≤ 4

Pavement and Bridge Condition Performance Target Requirements

Performance for the PM2 measures is assessed over a series of four-year performance periods. The first performance period began on January 1, 2018 and runs through December 31, 2021. NYSDOT must report baseline performance and targets at the beginning of each period and update performance at the midpoint and end of each performance period.

The PM2 rule requires state DOTs and MPOs to establish performance targets for all six measures and monitor progress towards achieving the targets. States must establish:

- Four-year statewide targets for the percent of Interstate pavements in good and poor condition;
- Two-year and four-year statewide targets for the percent of non-Interstate NHS pavements in good and poor condition; and
- Two-year and four-year targets for the percent of NHS bridges (by deck area) in good and poor condition.

MPOs must establish four-year targets for all six measures by either agreeing to program projects that will support the statewide targets or setting quantifiable targets for the MPO's planning area. It is important to note that Tompkins County has no Interstate highways and only two Non-Interstate NHS roads, State Route 13 and the eastern section of SR-79, comprising a total of approximately 40 centerline miles or 3% of the approximately 1,293 miles in the Federal Aid System (roads that are eligible for federal transportation funds) in Tompkins County.

The two-year and four-year targets represent expected pavement and bridge condition at the end of calendar years 2019 and 2021, respectively.

NYSDOT Pavement and Bridge Condition Baseline Performance and Established Targets

This system performance report discusses performance for each applicable target as well as the progress achieved by the MPO in meeting targets in comparison with system performance recorded in previous reports. The federal performance measures are new and therefore, performance of the system for each measure and associated targets have only recently been assessed and developed. Accordingly, this first LRTP system performance report highlights performance for the baseline period of 2017. NYSDOT will continue to monitor pavement and bridge condition performance and report to FHWA on a biennial basis. Future system performance reports will discuss progress towards meeting the targets since this initial baseline report.

NYSDOT established statewide PM2 targets on May 20, 2018. The Ithaca-Tompkins County Transportation Council (ITCTC) was then required to establish PM2 targets no later than November 16, 2018. The ITCTC agreed to support NYSDOT's PM2 performance targets on September 11, 2018 via Resolution 2018-05. By adopting NYSDOT's targets, the ITCTC agrees to plan and program projects that help NYSDOT achieve these targets.

The accompanying tables present baseline performance targets for each PM2 measure for New York area as well as the two-year and four-year statewide targets established by NYSDOT.

The ITCTC 2040 LRTP addresses preservation of the existing transportation system and identifies infrastructure needs within the Ithaca-Tompkins County region. The LRTP also identifies funding for pavement and bridge condition improvements. The LRTP Action Plan identifies as a key element the preservation of existing infrastructure and systems. This priority is reiterated throughout the plan and is reflected in funding allocations in the ITCTC's 5-year Transportation Improvement Program of federally funded projects.

On or before October 1, 2020, NYSDOT will provide FHWA and the ITCTC a detailed report of pavement and bridge condition performance covering the period of January 1, 2018 to December 31, 2019. NYSDOT and the ITCTC will also have the opportunity at that time to revisit the four-year PM2 targets.

System Performance, Freight, and Congestion, Mitigation & Air Quality Improvement Program Measures (PM3)

On January 18, 2017, FHWA published the system performance, freight, and Congestion, Mitigation and Air Quality Improvement Program (CMAQ) Performance Measures Final Rule in the Federal Register. This third FHWA performance measure rule (PM3), which has an effective date of May 20, 2017, established six performance measures to assess the performance of the NHS, freight movement on the Interstate System, and traffic congestion and on-road mobile source emissions for the CMAQ Program. The performance measures are:

For the National Highway Performance Program (NHPP)

1. Percent of person-miles on the Interstate system that are reliable, also referred to as Level of Travel Time Reliability (LOTTR);

2. Percent of person-miles on the non-Interstate NHS that are reliable (LOTTR);

For the National Highway Freight Program (NHFP)

3. Truck Travel Time Reliability Index (TTTR);

For the CMAQ Program

4. Annual hours of peak hour excessive delay per capita (PHED);

5. Percent of non-single occupant vehicle travel (Non-SOV); and

6. Cumulative two-year and four-year reduction of on-road mobile source emissions for CMAQ funded projects (CMAQ Emission Reduction).

The three CMAQ performance measures listed above are applicable only to designated nonattainment areas or maintenance areas for National Ambient Air Quality Standards by the Environmental Protection Agency. The ITCTC meets all current air quality standards and is not subject to establishing targets for these performance measures. The remaining performance measures are described below.

LOTTR Measures

Travel time reliability refers to the consistency or dependability of travel times on a roadway from day to day or across different times of the day. For example, if driving a certain route always takes about the same amount of time, that segment is reliable. It may be congested most of the time, not congested most of the time, or somewhere in between, but the conditions do not differ very much from time period to time period. On the other hand, if driving that route takes 20 minutes on some occasions but 45 minutes on other occasions, the route is not reliable.

The LOTTR is defined as the ratio of the longer travel times (80th percentile) to a normal travel time (50th percentile) over applicable roads during four time periods that cover the hours of 6 a.m. to 8 p.m. each day (AM peak, Mid-day, PM peak, and weekends). The LOTTR ratio is calculated for each roadway segment. The segment is reliable if its LOTTR is less than 1.5 during all four time periods. If one or more time periods has a LOTTR of 1.5 or above, that segment is unreliable.

The two LOTTR measures are expressed as the percent of person-miles traveled on the Interstate or non-Interstate NHS system that are reliable. By using person-miles, the measures take into account the total number of people traveling in buses, cars, and trucks over these roadway segments. To obtain total person-miles traveled, the length of each segment is multiplied by an average vehicle occupancy for each type of vehicle on the roadway.

NYSDOT TARGETS FOR SYSTEM PERFORMANCE MEASURES ON THE NHS

NHS System Performance Targets by Level of Travel Time Reliability (LOTTR)

YEAR	LOTTR INTERSTATE	LOTTR NON-INTERSTATE
2018 (Baseline)	81.3%	77%
2020	73.1%	N/A
2022	73%	63.4%

NYSDOT TARGETS FOR FREIGHT PERFORMANCE MEASURES ON THE INTERSTATE SYSTEM

Interstate Freight Performance Targets by Truck Travel Time Reliability (TTTR)

YEAR	TTTR INTERSTATE
2018 (Baseline)	1.38
2020	2.00
2022	2.11

The sum of person-miles on reliable segments is divided by the sum of person-miles on all segments to determine the percent of person-miles traveled that are reliable.

TTTR Measure

The TTTR measure assesses travel time reliability for trucks traveling on the Interstate. A TTTR ratio is generated by dividing the 95th percentile truck travel time by a normal travel time (50th percentile) for each segment of the Interstate system over five time periods throughout weekdays and weekends (AM peak, Mid-day, PM peak, weekend, and overnight). The time periods cover all hours of the day.

For each Interstate segment, the highest TTTR value among the five time periods is multiplied by the length of the segment. The sum of these length-weighted segments is then divided by the total length of Interstate to generate the TTTR Index.

Travel Time Data

The travel time data used to calculate the LOTTR and TTTR measures is provided by FHWA via the National Performance Management Research Data Set (NPMRDS). This dataset contains historical travel times, segment lengths, and Annual Average Daily Traffic (AADT) for Interstate and non-Interstate NHS roads.

PM3 Performance Target Requirements

Performance for the PM3 measures is assessed over a series of four-year performance periods. States must report baseline performance and targets during the first part of the performance period and update performance at the midpoint and end of each performance period.

For the LOTTR and TTTR measures, the first performance period began on January 1, 2018 and runs through December 31, 2021.

The PM3 rule requires state DOTs and MPOs to establish performance targets for each measure and monitor progress towards achieving the targets. NYSDOT must establish two-year and four-year state targets for the Interstate LOTTR, TTTR, Non-SOV Travel, and CMAQ Emission Reduction measures. For the non-Interstate NHS LOTTR and PHED measures, NYSDOT must establish four-year targets.

Within 180 days of NYSDOT establishing targets, MPOs must establish four-year performance targets for both LOTTR measures, the TTTR measure, and, if applicable, the CMAQ Emission Reduction measure. MPOs establish targets by either agreeing to program projects that will support the State's targets or setting quantifiable targets for the MPO's planning area.

The two-year and four-year targets represent expected performance at the end of calendar years 2019 and 2021, respectively.

NYSDOT PM3 Baseline Performance and Established Targets

This system performance report discusses performance for each applicable target as well as the progress achieved by the MPO in meeting targets in comparison with system performance recorded in previous reports. The federal performance measures are new and therefore, performance of the system for each measure and associated targets have only recently been assessed and developed. Accordingly, this first LRTP system performance report highlights performance for the baseline period prior to 2018. NYSDOT will continue to monitor performance and report to FHWA on a biennial basis. Future system performance reports will discuss progress towards meeting the targets since this initial baseline report.

NYSDOT established PM3 targets on May 20, 2018. In consultation with the New York MPOs, NYSDOT subsequently recalculated and amended the State's LOTTR targets after discovering an error in the formula used to determine the 2018 baseline. The ITCTC was required to establish PM3 targets no later than November 16, 2018. The ITCTC agreed to support NYSDOT's PM3 performance targets on September 11, 2018 via Resolution 2018-05. By adopting NYSDOT's targets, the ITCTC agrees to plan and program projects that help NYSDOT achieve the State's targets. The accompanying tables present baseline performance for the LOTTR and TTTR measures for New York as well as the two-year and four-year targets established by NYSDOT.

It is important to note that Tompkins County does not have any interstate highways so the LOTTR-Interstate and the TTTR-Freight targets, although supported by the ITCTC, cannot be addressed through project programming by the ITCTC. However, it is recognized that the System Performance target for Level Of Travel Time Reliability (LOTTR) on Non-Interstate Roads is an important measure for Tompkins County.

Tompkins County has two Non-Interstate NHS roads, State Route 13 and the eastern section of SR-79, comprising a total of approximately 40 centerline miles or 3% of the approximately 1,293 miles in the Federal Aid System (roads that are eligible for federal transportation funds) in Tompkins County. These roads, and particularly SR-13, are the main connections to the interstate system in adjacent counties and carry a substantial amount of freight serving the Ithaca urban area. The ITCTC TIP includes paving and bridge projects that will help support system performance in the NHS roadways.

The ITCTC 2040 LRTP addresses system performance and freight reliability, identifies infrastructure needs within the Ithaca-Tompkins County region, and provides funding for targeted improvements.
The LRTP Action Plan identifies as a key element the preservation of existing infrastructure and systems and expanding multimodal mobility options and integration. Together, these policy focus areas aim to provide high operational efficiency for the transportation infrastructure while reducing automobile dependency and systematic congestion. This will help improve system operations result in enhanced travel time reliability for all modes. This priority is reiterated throughout the plan and is reflected in funding allocations in the ITCTC's 5-year Transportation Improvement Program of federally funded projects.

On or before October 1, 2020, NYSDOT will provide FHWA and the ITCTC a detailed report of performance for the PM3 measures covering the period of January 1, 2018 to December 31, 2019. NYSDOT and the ITCTC will also have the opportunity at that time to revisit the four-year PM3 targets.

Transit Asset Management

The Federal Transit Administration (FTA) published a final Transit Asset Management (TAM) rule on July 26, 2016. The rule applies to all recipients and subrecipients of Federal transit funding that own, operate, or manage public transportation capital assets. The rule defines the term "state of good repair," requires that public transportation providers develop and implement TAM plans, and establishes State of Good Repair (SGR) standards and performance measures for four transit asset categories as follows:

- Rolling stock - Percentage of revenue vehicles within a particular asset class that have either met or exceeded their useful life benchmark
- Transit equipment - Percentage of non-revenue, support-service and maintenance vehicles that have met or exceeded their useful life benchmark

- Transit infrastructure - Rail Fixed Guideway Tracks – Not Applicable in Tompkins County
- Percentage of track segments with performance restrictions
- Facilities - Percentage of facilities within an asset class rated below condition 3.0 on the Transit Economic Requirements Model (TERM) scale

Baseline Conditions

The accompanying table presents the baseline performance/conditions for transit assets in the ITCTC planning area. Additional information on TAM condition, targets and strategies to address performance is included as part of TCAT's Tier II Transit Asset Management Plan, dated January 30, 2019. As a Tier II public transportation provider, TCAT developed and implemented a TAM Plan containing the following elements:

1. Performance Targets and Measures: performance targets required by 49 CFR § 625.

2. Asset Inventory Portfolio: An inventory of the number and type of capital assets to include: Rolling Stock, Facilities, and Equipment.

3. Asset Condition Assessment: A condition assessment of those inventoried assets for which TCAT has direct ownership and capital responsibility.

4. Decision Support Tools & Management Approach: A description of the analytical processes and decision-support tools that TCAT uses to estimate capital investment needs over time, and develop its investment prioritization.

5. Investment Prioritization: TCAT's project-based prioritization of investments, developed in accordance with §625.33.

Performance Targets

Public transportation providers set transit asset targets annually and must provide the targets to each MPO in which the transit provider's projects and services are programmed in the MPO's Transportation Improvement Program (TIP). MPOs must then set targets after transit agencies set initial targets, and again when updating subsequent LRTPs. MPOs can either agree to program projects that will support the transit provider's targets or set their own separate regional targets for the MPO's planning area.

TCAT set the transit asset targets as listed below on June 7, 2018. The ITCTC agreed to support the transit provider asset targets on June 19, 2018 via Resolution 2018-03.

1. No more than 25% of TCAT's bus fleet (rolling stock) exceeds useful life benchmark (ULB).

2. No more than 25% of TCAT's equipment (#1801 snow plow, #1201 service truck, #99 cube van) and service vehicles (9 total cars used to transport bus operators to and from relief points) exceeds useful life benchmark (ULB).

3. No more than 10% of support facilities - maintenance, administrative - and passenger facilities (including Green Street Station and all bus shelters) are rated below adequate on the FTA's Transit Economic Requirements Model (TERM) scale.

Description of Progress

The LRTP directly reflects the goals, objectives, performance measures, and targets as they are described in other public transportation plans and processes, including TCAT's Tier II Transit Asset Management Plan (1/30/2019) and the TCAT Strategic Plan 2018-2030. The ITCTC works closely with TCAT to implement their transit asset management priorities. Through the TIP and future plans, the ITCTC and TCAT will track progress in achieving established targets.

To support progress towards TAM performance targets, transit investment and maintenance funding projections in the 2040 LRTP total approximately $869 million over 20 years. Addressing the SGR of capital assets is an overarching goal of this process.

BASELINE TRANSIT ASSET PERFORMANCE/CONDITION

ASSET CATEGORY - PERFORMANCE MEASURE	ASSET CLASS	USEFUL LIFE BENCHMARK	BASELINE CONDITION
Rolling Stock Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	Bus	12	25%
Equipment Age - % of non-revenue vehicles within a particular asset class that have met or exceeded their ULB	Non-Revenue/ Service Automobile	8	25%
	Trucks and other Rubber Tire Vehicles	14	25%
	Maintenance Equipment	10-20	20%
Infrastructure % of track segments with performance restrictions (as applicable)	Rail fixed guideway track	n/a	n/a
Facilities Condition - % of facilities with a condition rating below 3.0 on the FTA TERM Scale	Administration	n/a	10%
	Maintenance	n/a	10%
	Parking Structures	n/a	n/a
	Passenger Facilities	n/a	10%

ITCTC OBJECTIVES AND PERFORMANCE MEASURES

The ITCTC has been tracking a series of performance measures since 2014. They were designed to provide a 'local' measure of progress towards achieving the seven Federal highway program performance goals and are complementary to the information presented in the Systems Performance Report above. The 'local' measures are included in the ITCTC Objectives and Measures Table below and on the next page. The source of the data is referenced under the 'Data Source' column and in the notes following the table.

Trending in a negative direction compared to baseline

Trending in a positive direction compared to baseline

* latest TREND - compared to baseline

ITCTC OBJECTIVES AND PERFORMANCE MEASURES

FACTOR/OBJECTIVE	MEASURE	DATA SOURCE	BASELINE	TREND 1	TREND 2	TREND 3	TREND 4	TREND*
SAFETY & SECURITY								
1. Progressively reduce the number of motor vehicle crash fatalities and serious injuries in Tompkins County.								
CRASH FATALITIES	Number of average annual crash fatalities in the last five years	FARS	2009-2013 = 47 5 year avg = **9.4**	2010-2014 = **9.8** fatalities	2011-2015 = **10.0** fatalities	2012-2016 = **12.0** fatalities	2013-2017 = **10.8** fatalities	
CRASH FATALITY RATE	Number of average annual crash fatalities per 100MVMT in the last five years	FARS	2009-2013 = **1.24** fatalities	2010-2014 = **1.32** fatalities	2011-2015 = **1.36** fatalities	2012-2016 = **1.65** fatalities	2013-2017 **1.50** fatalities	
CRASH SEVERE INJURIES	Number of average annual serious injuries in the last five years	ALIS	Serious Injuries: 2009-2013 = 564; 5 year avg = **112.8**	2010-2014 = **118.8** ser inj	2010-2015 = **115.8** ser inj	2012-2016 = **126.4** ser inj	2013-2017 = **126** ser inj	
CRASH SEVERE INJURY RATE	Number of average annual serious injuries per 100MVMT in the last five years	ALIS	Serious Injuries: 2009-2013 = **14.83**	2010-2014 = **15.97** ser inj	2010-2014 = **15.74** ser inj	2012-2016 = **17.41** ser inj	2013-2017 = **17.46** ser inj	
2. Progressively reduce the number of annual bicycle and pedestrian crashes and the number of crashes with serious injuries in Tompkins County.								
BICYCLE / PEDESTRIAN	Number of average annual bicycle/ pedestrian crashes in the last five years	ALIS	2009-2013 = 290 5 year avg = **57.8** bike/ped	2010-2014 = **57.8** bike/ped	2011-2015 = **58.6** bike/ped	2012-2016 = **59.0** bike/ped	2013-2017 = **55.6** bike/ped	
BICYCLE / PEDESTRIAN	Number of average annual bicycle/ pedestrian crashes with serious injuries in the last five years	ALIS	Bike-Ped serious Injuries: 2009-13=46; 5 year avg = **11.4**	2010-2014 = **11.0** bike/ped	2010-2014 = **10.6** bike/ped	2011-2015 = **9.8** bike/ped	2012-2016 = **10.2** bike/ped	
3. Progressively reduce the number of annual bicycle and/or pedestrian fatailities to zero in 2025.								
BICYCLE / PEDESTRIAN	Number of average annual bicycle/ pedestrian fatalities	ALIS	Bike-Ped fatalities: 2009-2013 = 2; 5 year avg = **0.4**	2010-2014 = **.06** bike/ped	2011-2015 = **1.2** bike/ped	2012-2016 = **2.0** bike/ped	*2013-2017 = **2.0** bike/ped	
INFRASTRUCTURE CONDITION (SYSTEM CONDITION)								
4. Progressively reduce the number of structurally deficient bridges in Tompkins County.								
BRIDGE CONDITION	Number of structurally deficient bridges	NYSDOT	2014 = **80** bridges	2015 = **78** bridges	2016 = **83** bridges	2017 = **84** bridges	2018 = **55** bridges	
5. Progressively reduce the miles of state roads in 'poor' condition in Tompkins County.								
STATE ROAD PAVEMENT CONDITION	Number of miles of State roads in Tompkins County in 'poor' condition	NYSDOT	2012 = **87.7** lane miles	2013 = **76.9** lane miles	2014 = **62.3** lane miles	2015 = **82.1** lane miles	2016 = **93.7** lane miles	

* Bridge rating methodology change

Continued on next page.

FACTOR/OBJECTIVE	MEASURE	DATA SOURCE	BASELINE	TREND 1	TREND 2	TREND 3	TREND 4	TREND
CONGESTION REDUCTION (SYSTEM PERFORMANCE)								
6. Manage congestion to maintain adequate system performance on the National Highway System (NHS) roads (SR-13 and SR-79).								
CONGESTION	Number of miles of congested NHS roads – miles >60% volume-to-capacity (VOC)	Travel Demand Model + Census CTPP	2012 = **13.69** miles				2018 = **15.61** miles	
SYSTEM RELIABILITY (ACCESSIBILITY/PLACE MAKING)								
7. Progressively increase the provision and access to multiple transportation options.								
TRANSIT SERVICE	TCAT: total revenue service hours	TCAT	2013 = **120,663** hours	2014 = **120,657** hours	2015 = **121,193** hours	2016 = **122,624** hours	2017 = **121,630** hours	
	TCAT: rides per revenue hour	TCAT	2013 = **36.4** rides/rev hr	2014 = **35.6** rides/rev hr	2015 = **34.5** rides/ rev hr	2016 = **32.8** rides/ rev hr	2017 = **32.8** rides/ rev hr	
	TCAT: annual number of bicycles on buses	TCAT	2013 = **33,543** bikes	2014 = **34,024** bikes	2015 = **34,990** bikes	2016 = **33,891** bikes	2017 = **30,947** bikes	
BICYCLE/PEDESTRIAN FACILITIES	Miles of multi-use trails	ITCTC + Municipalities	2014 = **14.03** miles	2015 = **17.14** miles	2016 = **27.47** miles		2019 = **29.63** miles	
BICYCLE/PEDESTRIAN FACILITIES	Miles of on-road bicycle travel dedicated facilities	ITCTC + City + Cornell	2014 = **5.287** miles	2015 = **6.398** miles	2016 = **6.648** miles	2017 = **6.648** miles	2019 = **6.773** miles	
TRANSIT PROXIMITY	% of population living within 1/2 mile of transit with at least hourly bus service	ITCTC + Census CTPP	2012 = **52.11%**					
COMPLETE STREETS	Miles of "complete streets" (bus, bike and pedestrian facilities)	ITCTC + Municipalities	2014 = **9.255** miles	2015 = **10.558** miles	2016 = **10.937** miles		2019 = **11.650** miles	
ENVIRONMENTAL SUSTAINABILITY (CLIMATE CHANGE / ENERGY USE)								
8. Progressively reduce the environmental impact associated with the transportation sector.								
VEHICLE MILES TRAVELED	Annual Vehicle Miles Traveled (VMT) per capita	TDM + Census CTPP	2010 = **7,179.0** miles traveled per capita (16yrs +)	2012 = **7,062.3** miles traveled per capita (16yrs +)	2014 = **6,939.4** miles traveled per capita (16yrs +)	2016 = **7,270.4** miles traveled per capita (16yrs +)	2018 = **7,161.6** miles traveled per capita (16yrs +)	
CARBON DIOXIDE	Metric Tons of system-wide carbon dioxide emitted	TDM + VERPAT	2015 = **643,960,888.3** CO2 GM/DAY					
LAND USE/REDEVELOPMENT	% of population located in the urbanized areas and villages	Census ACS	2000 = **58.4%**	2010 5 = **56.8%**		2016 5 = **56.6%**		
VEHICLES PER HOUSEHOLD	Number of personal vehicles per household / number of households	Census ACS	2010 = **1.577** vehicles household	2014 5 = **1.514** vehicles/HH	2015 5 = **1.505** vehicles/HH	2016 5 = **1.517** vehicles/HH	2017 5 = **1.472** vehicles/HH	
REDUCED PROJECT DELIVERY DELAYS								
9. Working with Federal, State and local partners, reduce the amount of time it takes for projects to advance to implementation.								
YEARS FROM TIP INCLUSION TO PROJECT FINAL PHASE OBLIGATION	Average number of years between first inclusion in the TIP and funds obligated for the final phase of the project - usually construction and construction inspection - for previous 5 year period	ITCTC, NYSDOT & Local Project Sponsors	2010-2014 = **53** months (4.4 years)	2011-2015 = **32** months (2.6 years)	2012-2016 = **30** months (2.5 years)	2013-2017= **44** months (3.66 years)	2015-2019= **45** months (3.7 years)	

ACRONYMS

FARS: Fatal Accident Reporting System –Federal
ALIS: Accident Location Information System – NYS
NYDOT: New York State Dept of Transportation
Census CTPP: Census Transportation Planning Package-Census transportation data
TCAT: Tompkins Consolidated Area Transport
ITCTC: Ithaca-Tompkins County Transportation Council
Census ACS: Census American Community Survey
VERPAT: VisionEval Rapid Policy Assessment Tool - land use and transportation computer simulation model