Ithaca-Tompkins County Transportation Council

2040 Long Range Transportation Plan

ITC
ITHACA-TOMPKINS COUNTY TRANSPORTATION COUNCIL

LETTER TO THE COMMUNITY

Ten years ago, in 2009, the then newly approved 2030 Long Range Transportation Plan included a preamble titled: Climate Change and Energy Position Statement. Although the concern with peak oil, prevalent a decade ago, has been postponed by the fracking revolution, the concerns related to climate change have only intensified. Today it can be argued that the best use for oil and gas fossil fuels is to remain in the ground serving their natural timeless roles as coal sinks. However, the transportation sector in the United States continues to be heavily dependent on liquid fossil fuels, primarily gasoline and diesel.

The 2040 Long-Range Transportation Plan was developed with a conscious recognition of the importance of the transportation sector in any effort to reduce carbon emissions. On November 2007, the United Nations Intergovernmental Panel on Climate Change (IPCC) made it clear that "warming of the climate system is unequivocal" and "most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations." More recently, chapter two of the October 2018 IPCC Special Report on Global Warming of 1.5 °C includes a series of transportation strategies and recommendations that are essential to meet carbon emission goals. It states that "a 1.5˚C pathway for the transport sector is possible using a mix of additional and stringent policy actions preventing (or reducing) the need for transport, encouraging shifts towards efficient modes of transport, and improving vehicle-fuel efficiency." It's gratifying to know that the ITCTC's Long-Range Transportation Plan has been supportive of this approach for the last 20 years.

As an important contributor to planning efforts for the Ithaca Urbanized Area and Tompkins County, the ITCTC's role is one of cooperation, support and serving as a catalyst for transportation programs and projects. In such a role, the ITCTC will help maintain an ethic and awareness of the climate change impacts of transportation policy and of other policies that directly and indirectly affect the way our residents travel. The ITCTC will continue to work with local leadership to generate community involvement in planning for a more sustainable future.

The ITCTC will operate through its required core planning documents, the 20-year Long-Range Transportation Plan (LRTP), the Transportation Improvement Program (TIP) and the annual Unified Planning Work Program (UPWP), to promote goals that help address the challenges of climate change, while seeking to enhance the quality of life of all residents. The LRTP goals embrace the concept of Sustainable Accessibility, which reflects the community's vision of transportation as a truly integrated multimodal system that recognizes the combined role of proximity of land uses, connectivity, mobility and its interaction with our environment and our quality of life.

The challenges of providing effective transportation while minimizing carbon emissions have the potential to fundamentally change the ways in which we all live and work. As such, they will require a new way of thinking about local and regional planning and cooperation. Transportation planning policies, programs and projects must adapt to meet new demands under potentially different climatic and energy conditions. Although such change is often spoken about negatively, it is wrong to assume that the future is bleak—this is also a time of opportunity for Tompkins County. Many of the measures required to meet the challenges we face will serve to actually improve the way we live, the way we travel, and the way we interact within our communities. ITCTC representatives and staff, as members of the community, will work to find those solutions in transportation that result in sustainable improvements to the quality of life of Tompkins County residents.

Sincerely,

Bill Goodman
Chair, Policy Committee
Ithaca-Tompkins County Transportation Council

Fernando de Aragón
Staff Director
Ithaca-Tompkins County Transportation Council

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INTRODUCTION

THE MPO & THE LONG-RANGE TRANSPORTATION PLAN

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The MPO & The LONG-RANGE TRANSPORTATION PLAN

What is a Metropolitan Planning Organization?

In 1974, the U.S. Congress amended the Federal Aid Highway Act, mandating that all Urbanized Areas having a population of 50,000 or more designate a single agency to administer federal transportation funds. The agencies that were established were called Metropolitan Planning Organizations. These organizations were to provide a transportation planning process for local, state and federal officials. Today, there are approximately 400 MPOs across the country, including the Ithaca-Tompkins County Transportation Council (ITCTC), the MPO for the Ithaca-Tompkins County area. The ITCTC was created in 1992 after the Ithaca Urbanized Area reached 50,000 population in the 1990 census.

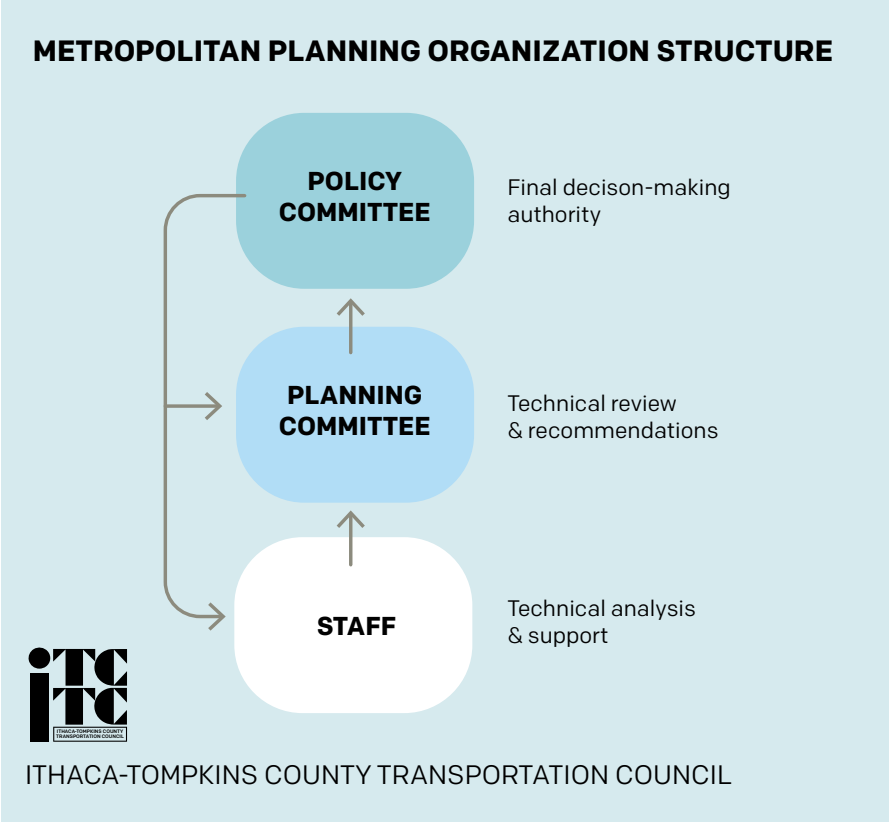
ITCTC Organizational Structure

As the designated MPO for the Ithaca metropolitan area, the ITCTC is responsible for conducting a transportation planning process that is "continuing, cooperative, and comprehensive" (see infographic at the end of this chapter). In order to achieve this objective, the ITCTC operates at three levels.

The **Transportation Policy Committee** is the final MPO decision-making authority of the ITCTC. Committee members consist of the primary elected official from each member government in the urbanized area. Cornell University, the New York State Department of Transportation, the Federal Highway Administration, the Federal Transit Administration and Tompkins Consolidated Area Transit (TCAT) and the other local governments in Tompkins County are also represented on the Policy Committee.

The **Transportation Planning Committee** is responsible for coordinating and managing the area's transportation planning activities and providing technical advice to the Policy Committee. The Planning Committee is composed primarily of lead technical staff from the member entities and local transit operators.

The **Central Staff** is responsible for performing the administrative and technical services necessary to operate the MPO. The efforts of the Central Staff are supplemented by the "in-kind services" of various participants in the MPO process.



The Policy and the Planning Committees meet alternately during the year, holding two joint committee meetings in June and December. All meetings are open to the public and held in accessible locations.

The core functions that the MPO must carry out include developing and maintaining both the Long-Range Transportation Plan (also called a Metropolitan Transportation Plan) and a Transportation Improvement Program, a 5-year program of transportation planning and capital projects. The MPO keeps the public informed and encourages participation and feedback during development of these planning documents.

The operations and procedures of the ITCTC are guided by the Unified Operations Plan. This document specifies that the Transportation Planning Committee is responsible for developing the Long-Range Transportation Plan.

Federal guidelines state the following basic direction for long-range transportation plans:

"The transportation plan shall include both long-range and short-range strategies/actions that provide for the development of an integrated multimodal transportation system to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand."

What is the Long-Range Transportation Plan

The federal regulations that guide the operation of all MPOs indicate that the transportation planning process must include the development of a transportation plan covering a 20-year planning horizon – **the Long-Range Transportation Plan (LRTP)**. The ITCTC Long-Range Transportation Plan needs to be updated every five years. The first ITCTC LRTP was developed in 1995. The 2040 LRTP is the fifth update since the original.

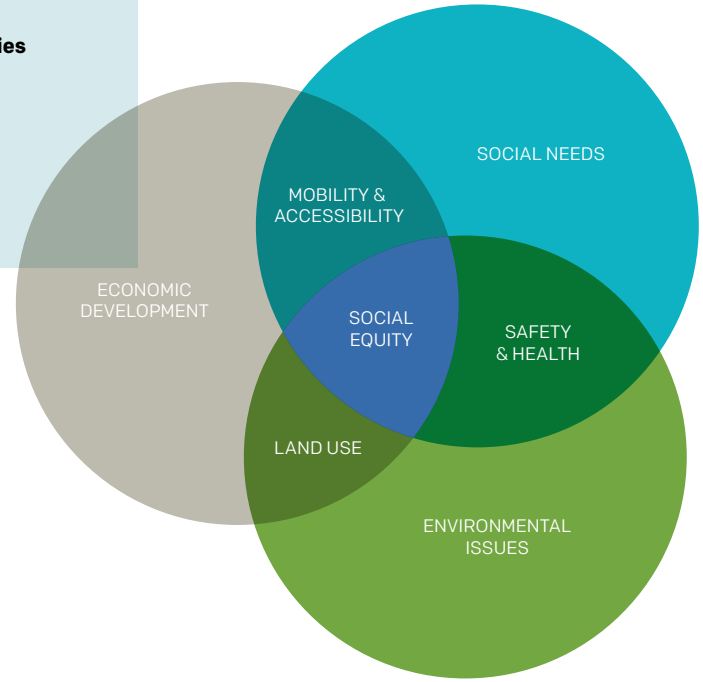
Public Involvement

In this 2040 update of the Long Range Transportation Plan, the Ithaca Tompkins County Transportation Council will describe the vision for the transportation systems in Tompkins County taking into account the expressed views of residents, transit users, bicyclists, pedestrians and motorists concerned for the environment and the quality of life in their communities.

In the broadest sense, transportation in its many forms affects our common future and what our community will be like as it evolves. The LRTP presents strategic goals aimed at having a positive impact on the overall quality of life of residents and visitors to Tompkins County.

Through a series of public meetings, printed materials, media outreach and public presentations, the Ithaca-Tompkins County Transportation County engaged the public and solicited comments and reactions on key components of the LRTP update. The intent was to learn and evaluate what the public thought about a transportation system that would:

1. **Include all modes**
2. **Be safe, convenient, and efficient**
3. **Serve and enhance existing land-use and planned growth**
4. **Sustain the quality of the environment and enhance our communities**
5. **Be financially feasible**
6. **Provide equitable access and connectivity**
7. **Be maintained through local officials and citizens participating in transportation decision-making**



Introduction to Tompkins County

Located in Upstate New York, Tompkins County contains nine towns, six villages and is home to the City of Ithaca, one of the principal cities of the scenic Finger Lakes region. The City of Ithaca, which is centrally located within Tompkins County, is situated at the southern end of Cayuga Lake and serves as the activity hub for the County and indeed for a greater multi-county region. The area is characterized by topography that is restricted and interrupted by the aftereffects of past glacial activity that created the Finger Lakes region. The climate of the area is variable and is characterized by well-defined seasons. The County is best known as an education center, as it is home to Cornell University, Ithaca College, and Tompkins Cortland Community College. These institutions provide important sources of revenue, employment, and cultural amenities for the residents of Tompkins County as well as surrounding counties.

Tompkins County Locater Map

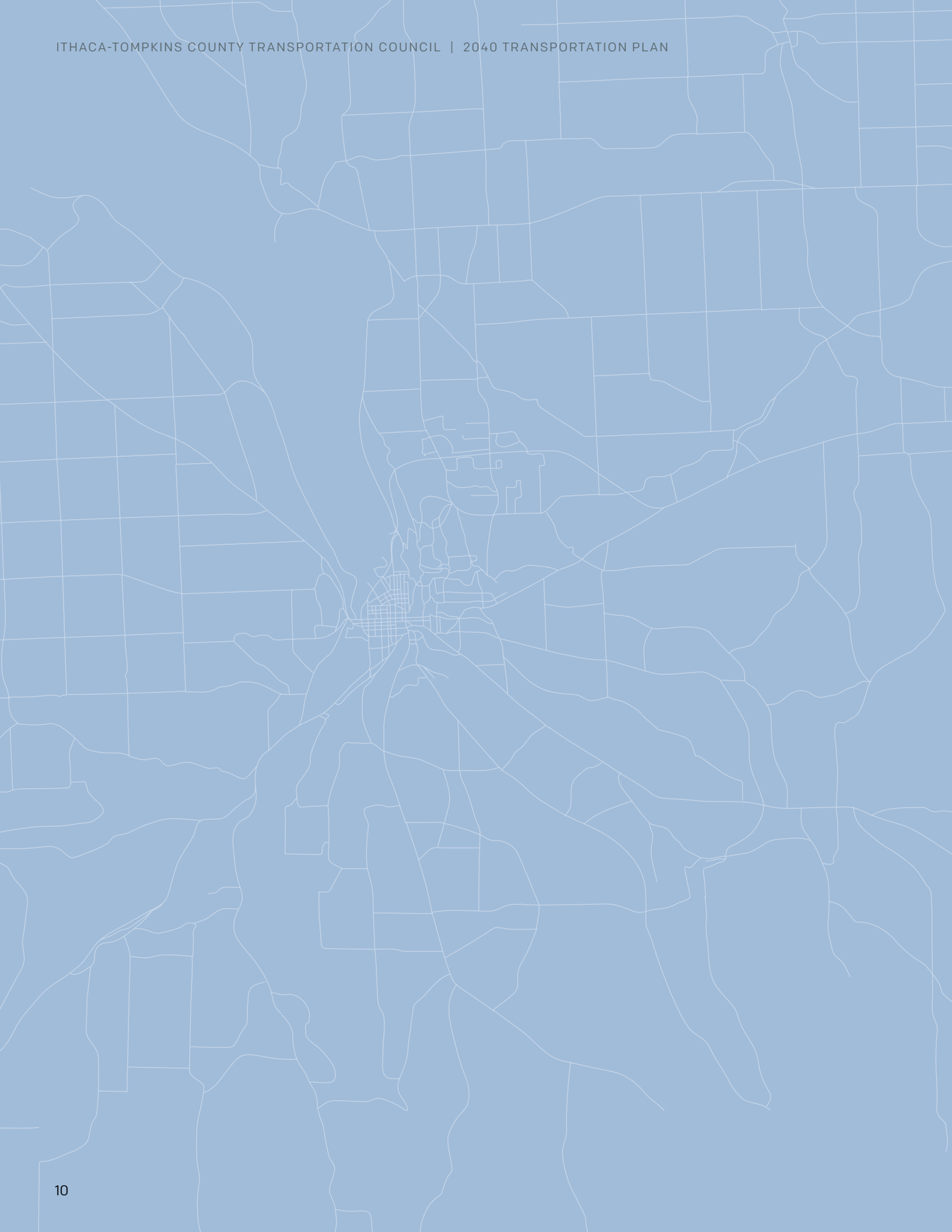
Metropolitan Planning Organization Geographic Structure

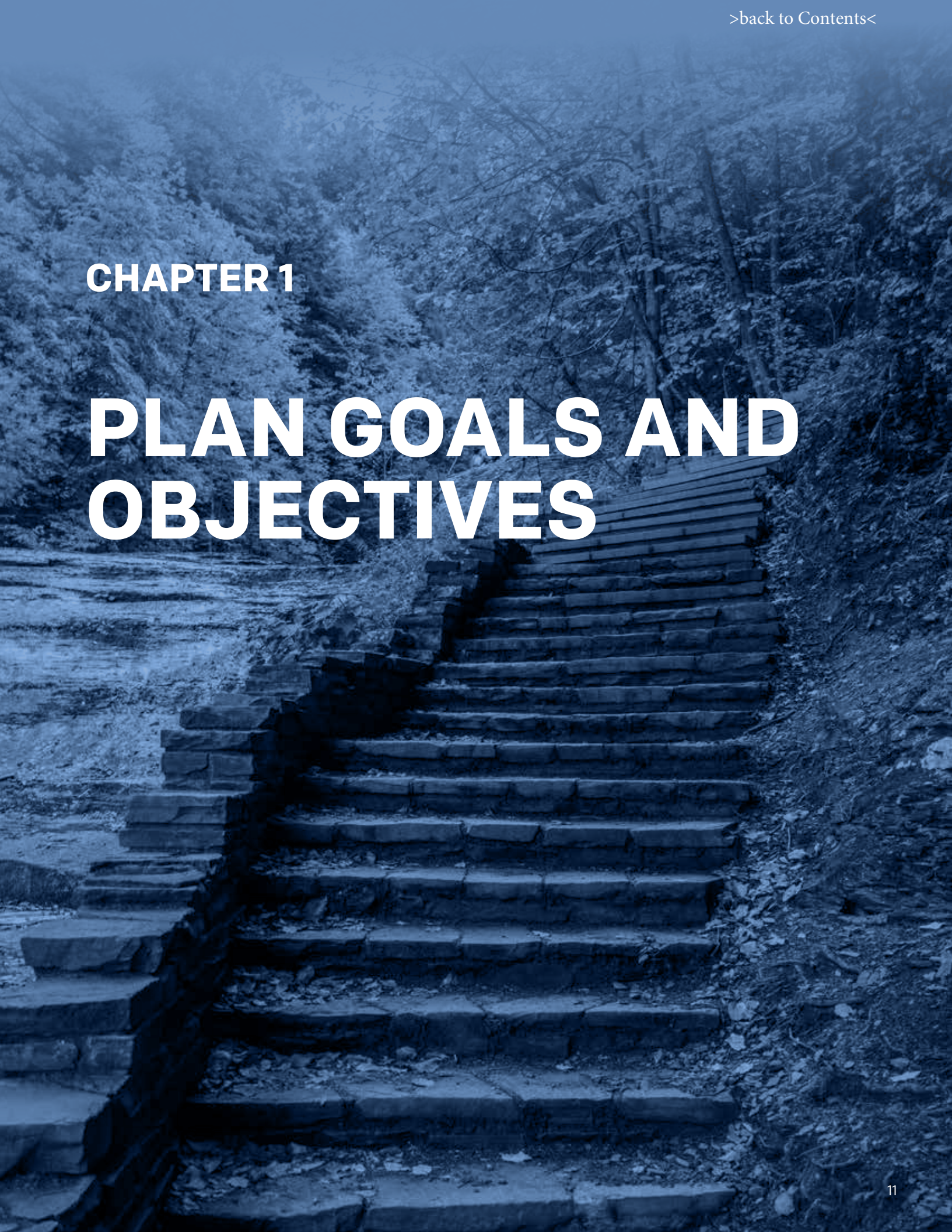
Urbanized Area

The ITCTC Urbanized Area is a Census designated contiguous urban area with a population greater than 50,000. The area is defined primarily by population density and the intensity of land uses. In Tompkins County the Urbanized Area is composed of the City of Ithaca, the Village of Cayuga Heights, the Village of Lansing, most of the Town of Ithaca, and portions of the Towns of Dryden, Lansing and Ulysses.

Metropolitan Planning Area

The Metropolitan Planning Area is the area for which the ITCTC engages in transportation planning. For the ITCTC, the Metropolitan Planning Area is all of Tompkins County. Any section of the planning area that is outside the Urbanized Area described above is considered rural for planning purposes. The urban/rural designation affects eligibility for certain programs and their associated funding sources.





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.

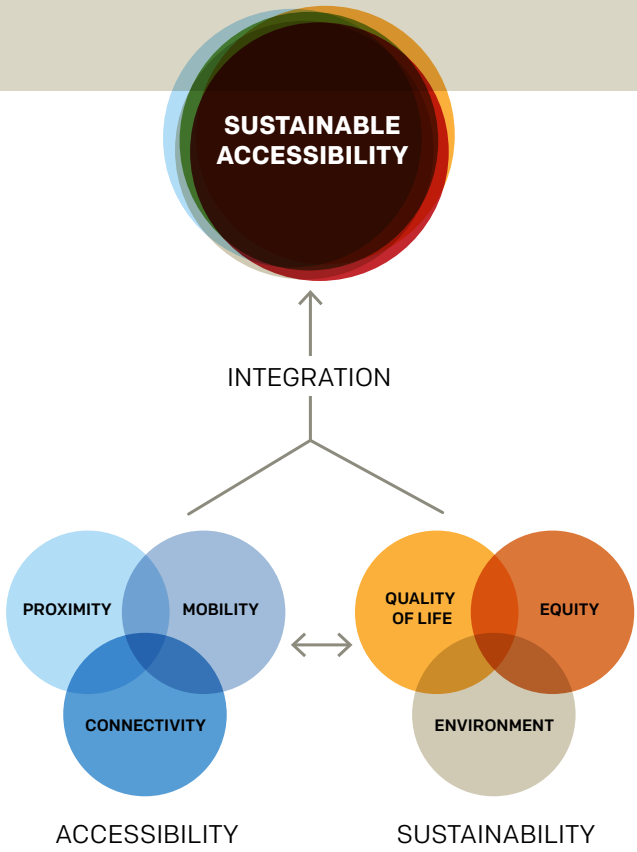
Sustainable Accessibility integrates transportation with land use planning to promote development patterns that reduce dependency on the automobile as the sole source of transportation. With Sustainable Accessibility at its core, the transportation network will integrate multiple modes of transportation 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

CHAPTER 2

TRANSPORTATION DEMAND OVERVIEW

TRANSPORTATION DEMAND OVERVIEW

INTRODUCTION

The purpose of this chapter is to provide a "snapshot" of demographic, economic and travel characteristics that may have significant effects on the transportation system. Charts and tables use the latest available data. In most cases, the 2010 Census, 2017 American Community Service and 2017 National Household Travel Survey data were used. Other sources are identified where used. The principal factors considered are population characteristics, travel patterns, and employment and economic characteristics.

DEMOGRAPHIC CHARACTERISTICS

Summary of the Impacts of Population Factors on Transportation

- Increasing population will continue to place increased demand for transportation services and capacity.
- As the area becomes more urbanized, the travel patterns and behaviors of its residents will continue to change. Urban areas offer the greatest opportunities to meet transportation needs with a variety of modes of transportation.
- The population density map displays how density data can be correlated to several important community resources: the location of the major employment centers (e.g., Cornell University, Ithaca College, Route 96-B industrial corridor, the Central Business District (CBD), and the northeast industrial corridor); the location of sanitary sewer and water service areas; and the ease and availability of transportation services/infrastructure.

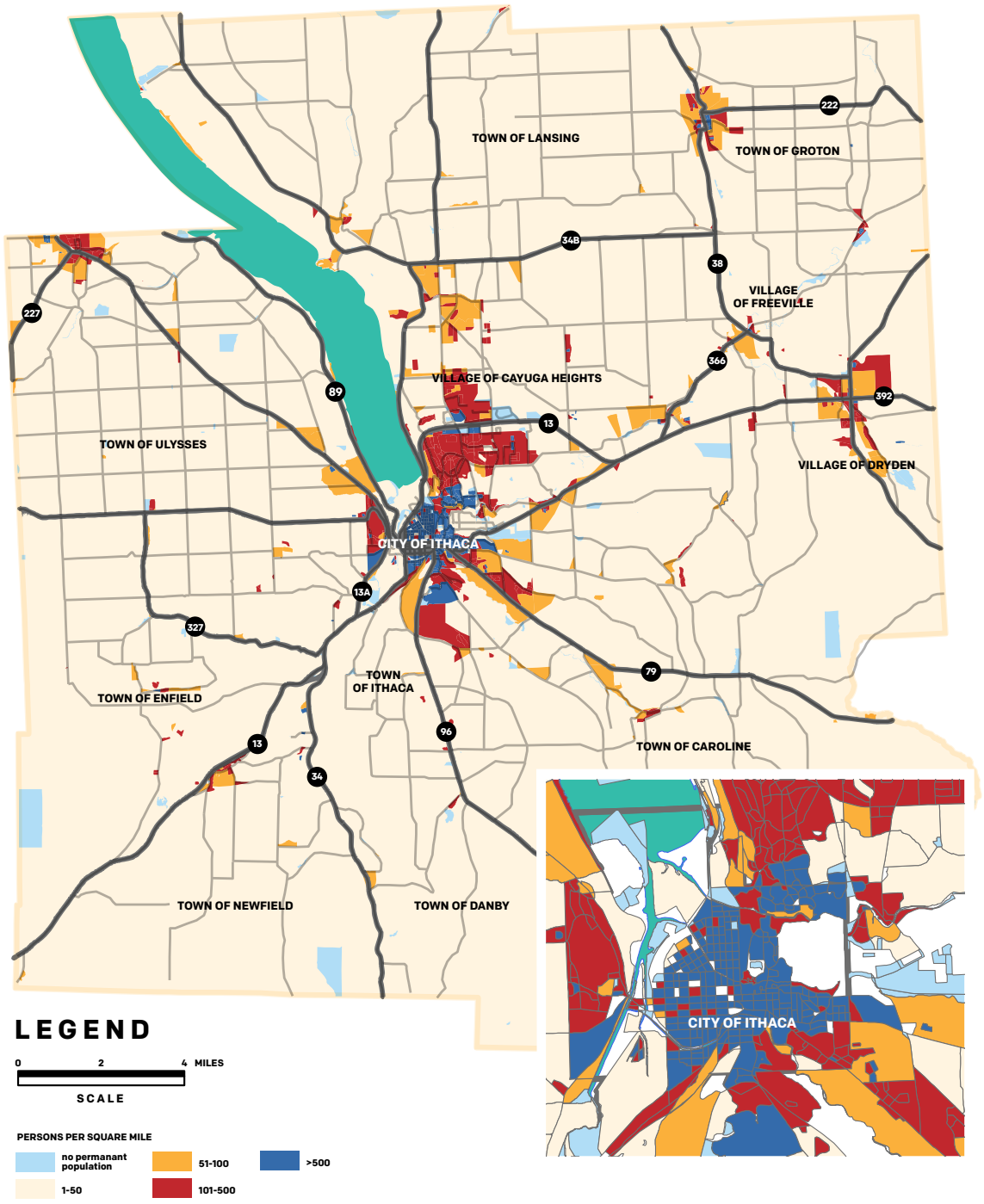
COLLEGE TOWN EFFECT

Tompkins County has a substantial student population of approximately 33,000. The bulk of the students attend Cornell University and Ithaca College, both within the Ithaca urban area. A third institution, Tompkins-Cortland Community College is located near the Village of Dryden.

The impact of college students making up approximately one-third of the population affects many areas of transportation planning. Census figures, travel patterns, mode choices, congestion cycles are all affected by the concentration of students.

Many of these students are year-round residents, but most reside in Tompkins County only during the school year. Therefore, they create a significant seasonal impact in the demand for services including transportation. ITCTC staff and other transportation professionals in the county are aware of this dynamic. Transportation studies and data gathering efforts are routinely coordinated with the academic schedules to capture the true peak in the travel demand.

CENSUS BLOCK POPULATION DENSITY 2010 IN TOMPKINS COUNTY



- Significant population density can be found in the Ithaca urbanized area and the County's villages.
- Tompkins County's topography along with Ithaca's location at the center of the county and at the southern tip of Cayuga Lake results in most NY state roads converging in the City as they extend across the county.
- The latest persons per household figure of 2.36 reverses a decreasing trend that dates to the 1980 census, however it is unknown how this factor will change in future years.
- Persons per household figures are slightly lower than State averages, probably due to the influence of the university community on the area's demographics.
- The number of 2 person households has shown continuous growth since 1990, while household with 4+ persons have been declining. One person households are the second most prevalent group.

POPULATION TOTALS FOR TOMPKINS COUNTY

CIVIL DIVISION	1990 (% OF COUNTY TOTAL)	2000 (% OF COUNTY TOTAL)	2010 (% OF COUNTY TOTAL)	2017 (% OF COUNTY TOTAL)	2000-2017 NUMERIC CHANGE (% OF CHANGE)	2000-2017 % CHANGE
TOWN OF CAROLINE	3,044 (3.2%)	2,910 (3.0%)	3,282 (3.2%)	3,419 (3.3%)	137 (4.8%)	**4.2%**
TOWN OF DANBY	2,858 (3.0%)	3,007 (3.1%)	3,329 (3.3%)	3,483 (3.3%)	154 (5.4%)	**4.6%**
TOWN OF DRYDEN	13,251 (14.1%)	13,352 (14.1%)	14,435 (14.2%)	14,897 (14.3%)	552 (19.4%)	**3.8%**
TOWN OF ENFIELD	3,054 (3.3%)	3,369 (3.5%)	3,512 (3.5%)	3,616 (3.5%)	104 (3.7%)	**3.0%**
TOWN OF GROTON	5,483 (5.8%)	5,794 (6.0%)	5,950 (5.9%)	6,078 (5.8%)	128 (4.5%)	**2.2%**
CITY OF ITHACA	29,541 (31.4%)	28,775 (29.8%)	30,014 (29.6%)	30,720 (29.4%)	611 (21.4%)	**2.0%**
TOWN OF ITHACA	17,797 (18.9%)	18,710 (19.4%)	19,930 (19.6%)	20,398 (19.5%)	468 (16.4%)	**2.3%**
TOWN OF LANSING	9,296 (9.9%)	10,521 (10.6%)	11,033 (10.9%)	11,454 (11.0%)	421 (14.8%)	**3.8%**
TOWN OF NEWFIELD	4,876 (5.2%)	5,108 (5.3%)	5,179 (5.1%)	5,314 (5.1%)	130 (4.6%)	**2.5%**
TOWN OF ULYSSES	4,906 (5.2%)	4,775 (5.0%)	4,900 (4.8%)	5,062 (4.9%)	162 (5.7%)	**3.3%**
TOTAL COUNTY	**94,097**	**96,501**	**101,564**	**104,441**	**2,851**	**2.8%**

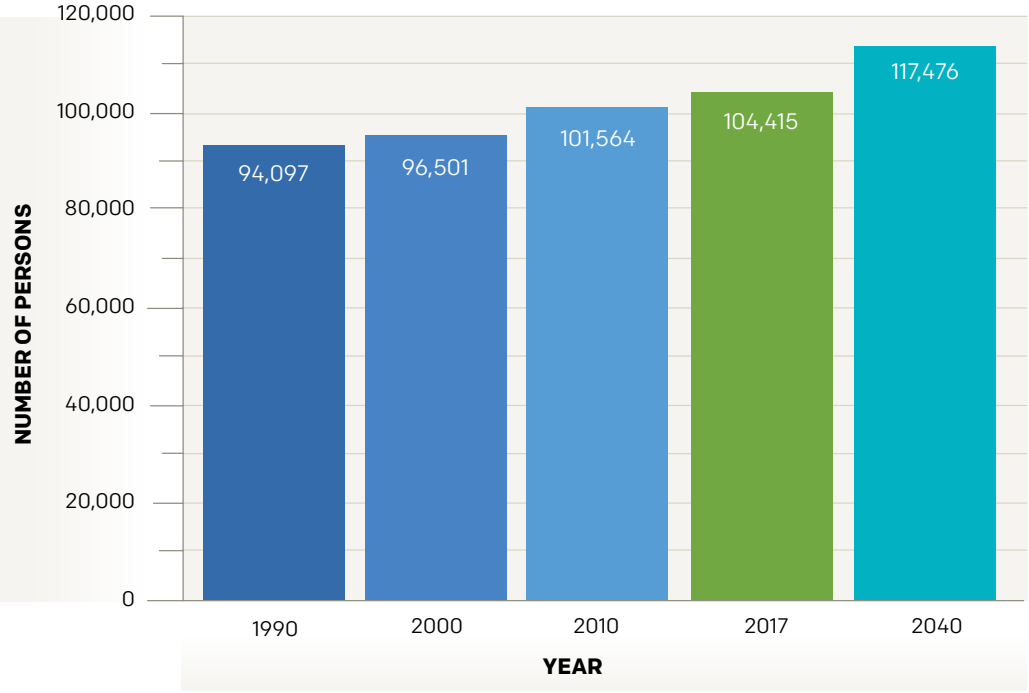
SOURCE: 1990, 2000, 2010 Decennial Census and 2017 5 American Community Survey
Note: Village population statistics are included as part of respective Town totals

POPULATION: VILLAGES OF TOMPKINS COUNTY 1990-2017

CIVIL DIVISION	2000 POPULATION	2010 POPULATION	2017 POPULATION
VILLAGE OF DRYDEN	1,832	1,838	2,040
VILLAGE OF FREEVILLE	505	520	399
VILLAGE OF GROTON	2,470	2,363	2,389
VILLAGE OF CAYUGA HEIGHTS	3,738	3,729	3,799
VILLAGE OF LANSING	3,417	3,529	3,601
VILLAGE OF TRUMANSBURG	1,581	1,797	1,818
TOTAL	**13,543**	**13,776**	**14,046**

SOURCE: 2000, 2010 Decennial Census, and 2017 5 American Community Survey

TOTAL POPULATION TOMPKINS COUNTY



SOURCE: 1990, 2000, 2010 Decennial Census and 2017 5 Census American Community Survey (ACS) and Woods and Poole data 2040

POPULATION TRENDS IN URBAN AND RURAL AREAS

CENSUS AREA	2000	2010	NUMERIC DIFFERENCE	PERCENT CHANGE
URBAN	53,528	59,636 (58.44%)	6,108	11.4%
RURAL	42,973	41,928 (41.28%)	-1,045	-2.4%
TOTAL	**96,501**	**101,564**	**5,063**	**5.3%**

SOURCE: 2000, 2010 Decennial Census

A SUMMARY REVIEW OF TOTAL POPULATION:

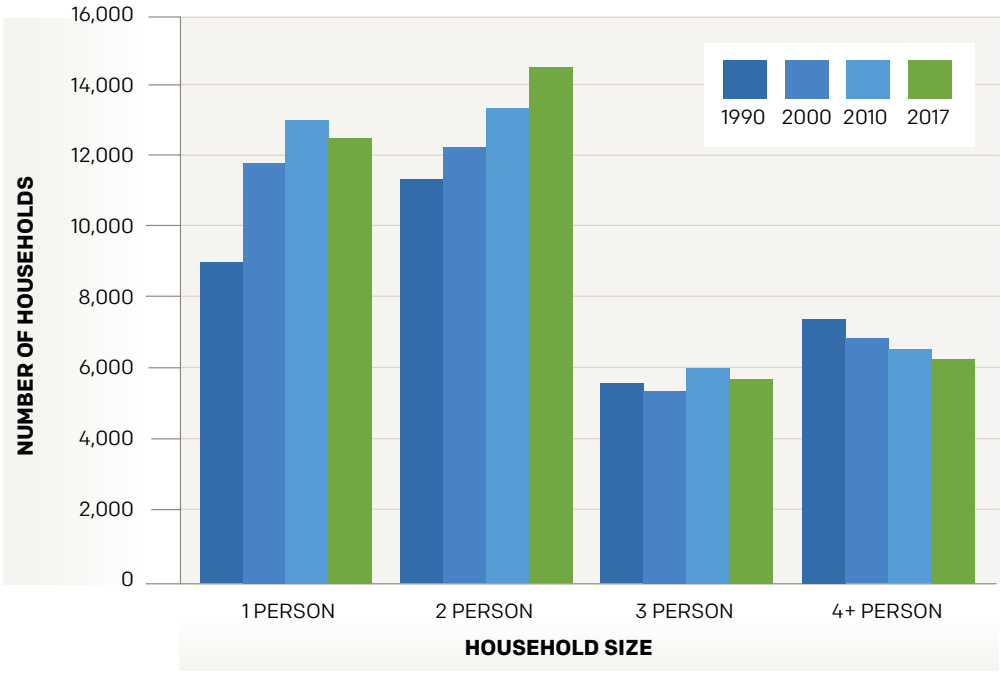
- According to the data, the Tompkins County population has increased at a modest annual average rate of .43% over the last 26 years
- Population in 2017 is approximately 104,415
- Projected population for 2040 is 117,476
- The City of Ithaca and all nine of the Towns in the County showed population increases over the last 30 years
- 40% of the population increase since 2010 has take place in the City and Town of Ithaca
- Population in the six villages in Tompkins County showed small increases except for Trumansburg which shows a loss in population since 2010
- The County's population is 58% urban and 41% rural

PERSONS PER HOUSEHOLD IN TOMPKINS COUNTY

POPULATION			HOUSEHOLDS			POPULATION CHANGE	HOUSEHOLD CHANGE	PERSONS PER HOUSEHOLD (excludes group quarters)		
2000	2010	2017	2000	2010	2017	2010-2017	2010-2017	2000	2010	2017
96,501	101,564	104,415	36,420	38,976	38,986	2,851 (2.7%)	19 (.05%)	2.32	2.27	2.33

SOURCE: 2000 Census, 2010 Census, and 2017 5 American Community Survey (ACS)

HOUSEHOLD SIZE IN TOMPKINS COUNTY

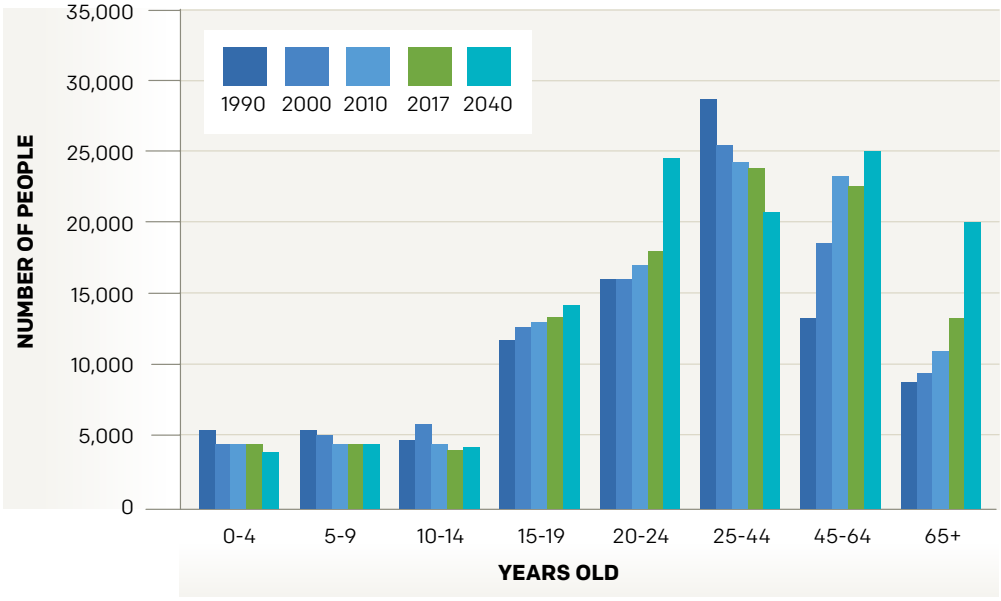


SOURCE: 1990, 2000, 2010 Decennial Census and 2017 5 Census American Community Survey (ACS)

A SUMMARY REVIEW OF POPULATION BY AGE:

- Population of children 0-14 years of age remains relatively steady
- Population of persons 15-24 continues to increase through 2040
- Population 25-44 has been decreasing since 1990
- Populations age 45 and above show significant increases through 2040
- By 2040 the population over 45 is projected to be similar to the population of 20-44 year olds
- The figures in this table reflect the national trend towards an aging population (www.prb.org/aging-unitedstates-fact-sheet/)

AGE OF POPULATION IN TOMPKINS COUNTY



SOURCE: 1990, 2000, 2010 Decennial Census and 2017 American Community Survey, 2040 Woods & Poole

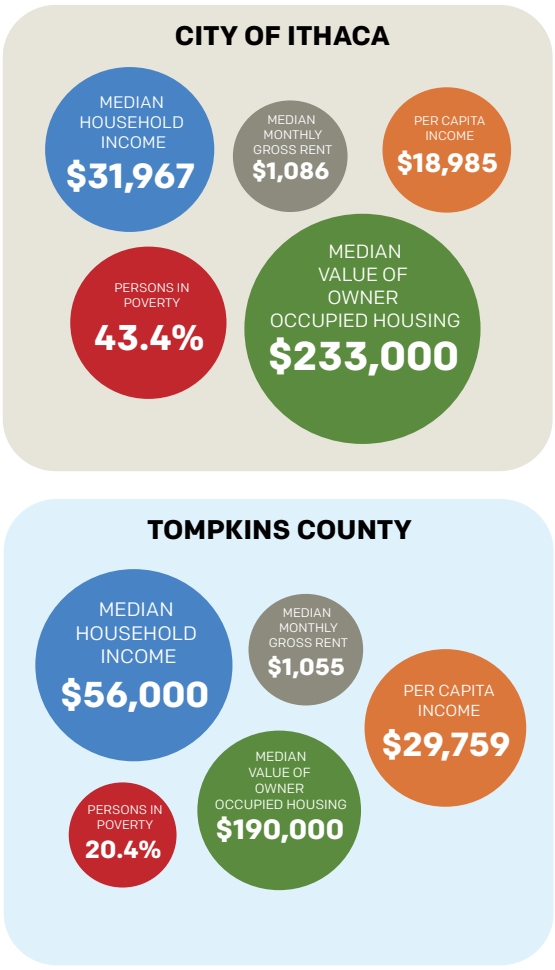
EMPLOYMENT AND ECONOMIC CHARACTERISTICS

Summary Review:

- Education is, by far, the leading employment sector in Tompkins County, followed by health services.
- The two principal employment centers in the county are Cornell University and Downtown Ithaca.
- Other important employment centers include:
  - Cayuga Medical Center;
  - Ithaca College/Therm, Inc./South Hill Business Campus;
  - Airport Area/BorgWarner, Inc./Cornell Business & Technology Park;
- The unemployment rate in Tompkins County is consistently one of the lowest in the State of New York, and yet there are still many pockets of poverty.
- The cost of living in Tompkins County is relatively high, affecting housing and transportation decisions.

Numerous factors, such as population increase, high demand for housing in the Ithaca Urban Area, and the disproportional demand for rental units from college students have influenced the housing sector, creating increased demand and price pressure. Tight housing supply and high prices have pushed people out of urban areas, fueling sprawl and longer trip lengths, which disproportionately affect low income households. While this plan does not directly address issues of housing and high taxes, it is important to recognize the complex interactions between employment, economic and regulatory factors and the transportation sector.

BASIC ECONOMIC DATA



SOURCE: 2017 5 Census American Community Survey (ACS)

EXTERNAL FACTORS AFFECTING TRANSPORTATION DEMAND

Gasoline prices

A small component of overall automobile cost but one that has a disproportionate impact on car use. The direct and recurring nature of this cost has a strong effect on driving habits.

Technology

Transportation systems across the US and the developed world have undergone significant changes in recent years. New technologies such as location-based tracking (GPS), reliable cellular networks, and secured online payment systems allow new players to enter the transportation marketplace, offering new mobility services that were not available even 5 to 10 years ago.

Transportation Network Companies (TNC) such as Uber and Lyft provide on-demand mobility services. In many cities, TNC's have grown significantly between 2012 and 2018, establishing on-demand transit as a legitimate option for many who choose not to drive their personal vehicle. TNC market proliferation is not as strong yet in rural and suburban areas, but it is poised to disrupt this market segment too.

Other services such as car sharing (Ithaca Carshare) and rideshare/carpool (Finger Lake Rideshare) and back-up/emergency ride home are facilitated by technology.

Meanwhile, micromobility services, both dock-based and smart dockless systems (including bike / e-bike and scooter-share), are rapidly growing and diversifying, reaching both major, densely-populated cities and smaller, less dense towns. Compared with traditional transit service, bike- and scooter-share use can be an affordable, on-demand alternative for short-distance trips. However, these services are not a feasible means of transportation for everyone, and are less convenient depending on trip length, weather conditions and topography.

GENERAL TRAVEL TRENDS AND CHARACTERISTICS

Data

This section presents data from the 2010 American Community Survey, and the 2017 National Household Transportation Survey (NHTS). The NHTS data include information specific to the Ithaca-Tompkins area. Where appropriate, national and New York State data is presented in addition to Tompkins County figures. The data that is available through the census and NHTS provides a starting point for the analysis of general travel trends and characteristics in the greater Ithaca-Tompkins County area.

Person Trips by Trip Purpose

Work based trips are most responsible for peak hour traffic trends by the way they cluster in the mornings and evenings. Because these trips are concentrated in a specific period of time and along certain corridors, work trips are responsible for much of the local daily congestion. For this reason, they receive much of the attention of planners and engineers seeking to address congestion at peak times. However, the bulk of trips on our roadways (approximately 80%) are not work related. They are the social, recreational, shopping and other trips that are common in everyday life. These trips also need to be considered when determining travel trends and characteristics. The distribution of trip purposes has remained relatively unchanged since year 2000 at the national, state and county levels.

PERSON TRIPS PER DAY BY TRIP PURPOSE: 2001, 2009 AND 2017 ESTIMATES

TRIP PURPOSE	REMAINDER OF US			NEW YORK STATE			TOMPKINS COUNTY		
	2001	2009	2017	2001	2009	2017	2001	2009	2017
% EARNING LIVING	18.8%	18.9%	19.0%	19.4%	18.6%	17.6%	18.4%	22.7%	18.6%
% FAMILY/PERSONAL	43.9%	42.8%	38.5%	43.4%	43.6%	38.2%	42.6%	38.6%	37.9%
% CIVIC/EDUCATION/RELIGIOUS	9.8%	9.7%	10.9%	9.7%	9.6%	10.0%	11.4%	7.0%	9.2%
% SOCIAL/RECREATION	26.6%	27.8%	27.5%	26.3%	27.2%	28.6%	26.4%	29.9%	29.4%
% OTHER	.08%	.08%	4.0%	1.2%	1.1%	4.0%	1.2%	1.8%	4.9%

SOURCE: 2001, 2009, and 2017 National Household Survey (NHTS)

NOTE: In NHTS graph to the right:

Earning Living means "to and from work" and "work related" trips;

Family/Personal means "family and personal errands";

Civic/Education/Religious means "to and from church", "to and from school" and "to and from civic events" trips;

Social/Recreational means "gym/exercise", "rest relaxation/ vacation", " visit friends and family", "visit public place", and/ or "other social/recreational event" trips

PERSON TRIPS PER DAY BY TRIP PURPOSE: 2017 NHTS

SOURCE: 1990, 2000, 2010 Decennial Census and 2017 5 Census American Community Survey (ACS)

PERSON TRIPS PER DAY BY MODE OF TRANSPORTATION: 2001, 2009 AND 2017 ESTIMATES

TRIP MODE	REMAINDER OF US			NEW YORK STATE			TOMPKINS COUNTY		
	2001	2009	2017	2001	2009	2017	2001	2009	2017
% PRIVATE VEHICLE	87.8%	85.0%	83.9%	65.7%	62.3%	58.8%	80.5%	73.1%	66.2%
% PUBLIC TRANSIT	1.0%	1.2%	1.3%	9.5%	9.9%	11.8%	1.0%	5.0%	4.2%
% WALK	7.9%	9.7%	9.7%	20.0%	22.0%	23.5%	14.8%	18.2%	22.9%
% OTHER	3.3%	4.1%	5.1%	4.6%	5.6%	5.9%	3.8%	3.7%	6.7%

NOTE: Tompkins County 2017 % Other includes 3.4% bicycling
SOURCE: 2001, 2009, and 2017 National Household Survey (NHTS)

Person Trips by Mode of Transportation

- Data on the Trips by Mode table include all trips types.
- One important trend from the data is a reduction in the use of Private Vehicles as a percentage of trips per day in Tompkins County, from 83.1% in 1995, to 66.2% in 2017. Similar but less pronounced reductions are reflected in the national and state figures.
- State figures for private vehicle use are relatively low thanks to the influence of New York City and its extraordinary transit use levels.
- Walking as a mode of transportation continues to show increases in National, State and County figures. County increases in the percent of Walk trips date back to 1990 at 7.8%, compared to 1995 (10.7%), 2001 (14.8%), 2009 (18.2%) and 2017 (22.9%).
- Public Transit use (transit plus paratransit ridership), as a percent of total daily trips, was below the national average for 1995 and 2001. A significant change arose from the creation of TCAT in 1998 and it's re-organization in 2005. Public transportation ridership grew from 2,360,400 in 1995 to well over 4,000,000 in 2013. The growth in ridership is reflected in the NHTS estimates of 2009 at 5% of trips using public transportation.
- After peaking in 2013, Public Transit ridership figures are down slightly in 2017. However, this trend may already be reversing since reported transit ridership increased in 2018 after a four-year period of reductions.
- Overall the 4.2% share of Public Transit is relatively low and is an mode that could grow, particularly outside the rush hour periods. The high NY State figure is influenced heavily by transit use in New York City. Upstate NY public transit share is approximately 1.7% of all person trips per day, well below the Tompkins County figure.
- Bicycling is estimated at 3.4% of all trips within the 'other' category. This compares favorably with .8% for Upstate NY, but there is still opportunity to expand cycling's mode share – see the Trip Length by Trip Mode table for more information.

TRIP LENGTH BY TRIP MODE IN TOMPKINS COUNTY NY

ANNUAL PERSON TRIPS (IN THOUSANDS)

DISTANCE	TRIP MODE, DERIVED							ALL TRIPS
	WALK	BICYCLE	ALL PRIVATE VEHICLES**	SCHOOL BUS	PUBLIC BUS	OTHER***	TOTAL TRIPS	% BELOW
LESS THAN .5 MILES*	25,863	1,728	5,489	-	424	65	33,595	<.5 MILES = **17.3%**
.5-1 MILE	14,654	3,454	21,039	569	2,420	451	42,589	< 1 MI = **39.2%**
1-2 MILES	2,819	707	10,840	761	2,247	400	26,775	< 2MI = **52.9%**
2-3 MILES	829	208	17,056	644	1,307	12	20,075	< 3 MI = **63.2%**
3-4 MILES	86	56	12.722	423	556	56	13,910	< 4 MI = **70.4%**
4-5 MILES	127	264	9,766	278	138	13	10,587	< 5 MI = **75.9%**
6-10 MILES	-	59	25,718	833	531	455	27,600	< 10 MI = **90%**
11-15 MILES	10	25	8,660	16	589	255	9,555	< 15 MI = **95%**
ALL TRIPS	44,585	6,611	128,918	3,599	8,233	2,250	194,509	

* Trip distance in miles, derived from route geometry returned by Google Maps API, or from reported loop-trip distance
** "Private Vehicles" includes Cars, SUVs, Vans, Pickup Trucks, RVs and Motorcycles
*** "Other" includes Paratransit, Private Bus, Taxi/Limo/Uber/Lyft, and Rental Car
Source: Federal Highway Administration, 2017 Natinoal Household Travel Survey (NHTS)

Trip Length by Mode

- Trip length is an important factor to help determine feasible transportation mode options.
- Short trips, less than 2 miles, may be accommodated by walking, bicycling and other personal mobility options. They present an opportunity to shift trips from personal motor vehicles.
- 77% of trips less than half a mile are completed by walking.
- Overall, 3.4% of trips are on bicycle.
- 53% of all trips are less than 2 miles in length. Of these, 42% are completed by walking; 5.7% by bicycle; 36% by private vehicle.
- Overall, 75% of trips are less than 5 miles in length.

COMMUTING

The work commute is an important daily ritual with wide ranging economic, environmental, safety and life style implications. Although work trips constitute 19% of all trips, the fact that they are clustered and repetitive creates a 'rush hour' which may lead to congestion and reduced safety in the transportation system. Location of employment relative to housing will help dictate what are the options for workers to get to work. Having housing near jobs provides greater accessibility and makes walking, bicycling and transit more convenient for commuters. Longer trips are more likely to be motor vehicle dependent. For those, carpooling is a viable option, and in some instances where demand is high, there may be transit options available.

Regional Commuting Patterns

- Tompkins County is a net labor importer - more workers come into Tompkins County to work from neighboring counties than the number Tompkins County residents who travel to work outside the county.
- The total number of persons working within Tompkins County is approximately 59,591, while the number of persons that live and work in Tompkins County is only 43,950.
- Approximately 4,280 (9%) of Tompkins County's resident workers commuted out of the county for work in 2016.
- Approximately 15,641 (26.2%) of all workers in Tompkins County commuted from more than eight other counties.
- The total net number of in-commuters is 11,361.
- Tioga County contributed the greatest number of workers to Tompkins County (3,250) followed closely by Cortland County (3,140), while Cortland County received the most workers (1,515) from Tompkins County.
- The data patterns described above have been noticeable since the 1980 Census. This provides strong and persistent evidence of Tompkins County as a regionally important center of economic activity.
- The mode of transportation used to get to work varies significantly for commuters within the county vs. in-commuters from other counties. 63% of commuters within the county drive alone, whereas 84% of in-commuters drive alone.
- Out-of-county public transportation connections currently exist to Cortland, Chemung, and Schuyler Counties. However, these are limited and focus on morning and evening rush hours to principal employment centers (Cornell and Downtown Ithaca). Few options exist for workers outside the conventional 6am to 8pm work day cycle.
- TCAT service is extensive in the Ithaca urbanized area but significantly more limited in the rural areas. Service focuses on morning and evening rush hour travel.

TOMPKINS COUNTY REGIONAL COMMUTING PATTERNS

COMMUTING PATTERNS	TOTAL 2013
A. TOTAL DAILY WORKERS IN TOMPKINS COUNTY (C+F)	59,591
B. TOTAL WORKERS WHO LIVE IN TOMPKINS COUNTY (C+D)	48,230
C. WORKERS WHO LIVE AND WORK IN TOMPKINS COUNTY (B-D)	43,950
D. TOTAL OUT COMMUTERS (B-C)	4,280
E. TOTAL IN COMMUTERS (A-C)	15,641
F. NET COMMUTERS (D-E)	11,361
PERSONS LIVING IN TOMPKINS COUNTY AND WORKING IN:	
TOMPKINS COUNTY	43,950
CORTLAND COUNTY	1,515
CAYUGA COUNTY	480
CHEMUNG COUNTY	445
ONONDAGA COUNTY	275
SENECA COUNTY	180
TIOGA COUNTY	125
SCHUYLER COUNTY	220
BROOME COUNTY	275
OTHER	655
PERSONS WORKING IN TOMPKINS COUNTY AND LIVING IN:	
TOMPKINS COUNTY	43,950
TIOGA COUNTY	3,250
SCHUYLER COUNTY	1,715
CORTLAND COUNTY	3,140
CAYUGA COUNTY	2,485
SENECA COUNTY	1,380
CHEMUNG COUNTY	1,325
ONONDAGA COUNTY	330
BROOME COUNTY	720
OTHER	1,236

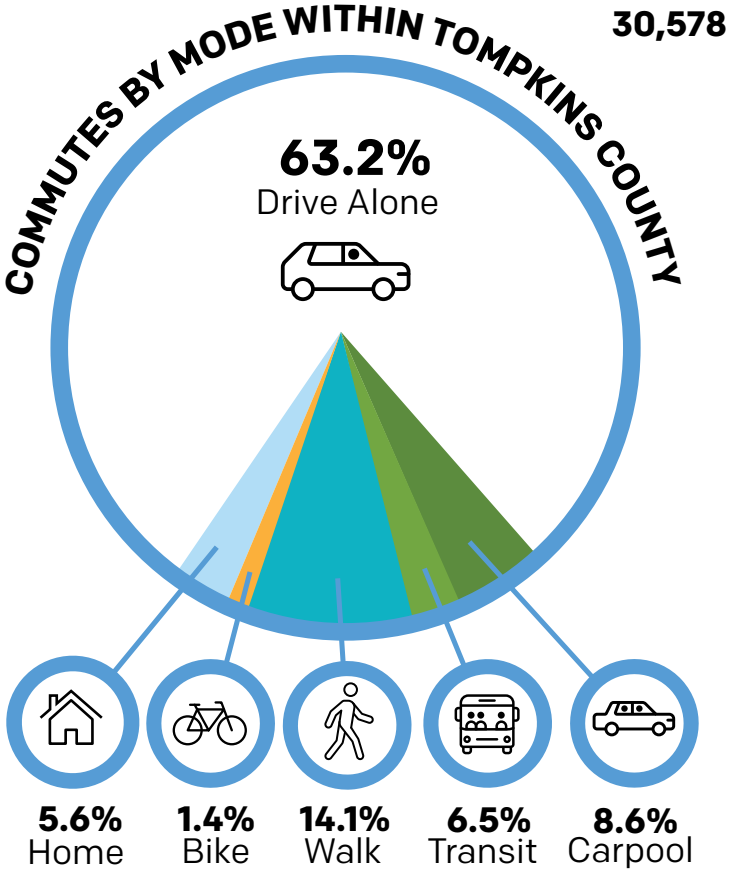
Source: 2016 5 American Community Survey

TOMPKINS COUNTY COMMUTER FLOW

43,950
live & work in TC

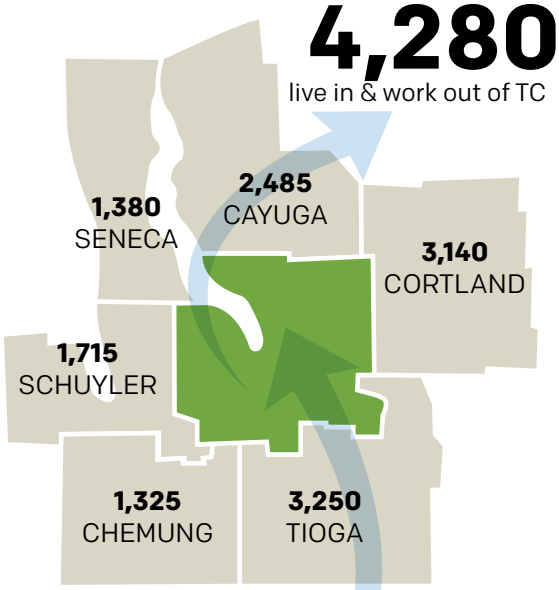
63.2% drive alone commutes

Source: 2016 5 American Community Survey



2.5% outbound commute decrease since 2013

4,280
live in & work out of TC



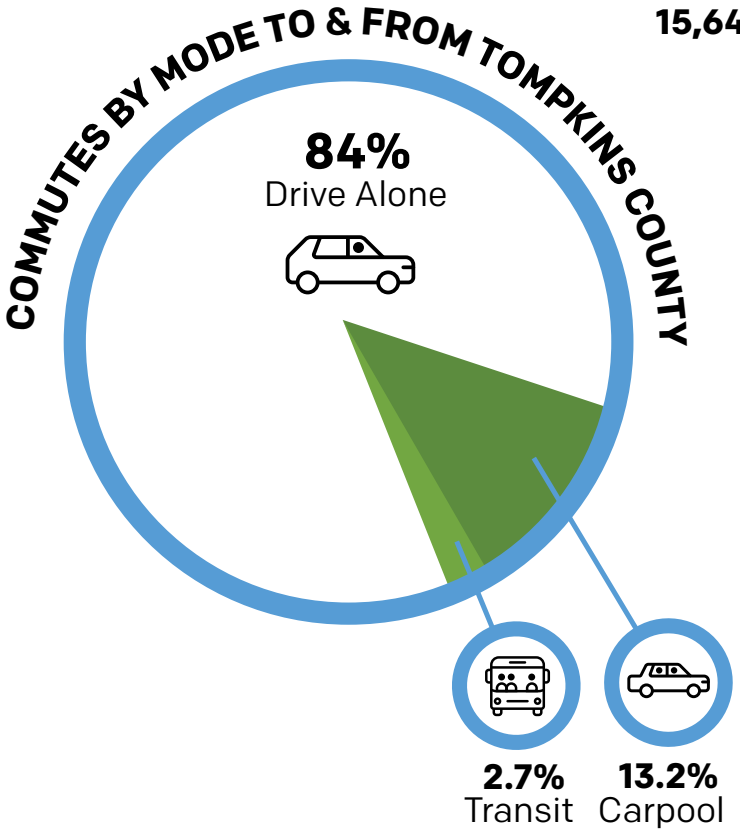
3.6% inbound commute increase since 2013

15,641
live out of county & work in TC

84% drive alone commutes

Source: 2016 5 American Community Survey

15,641



HOW PEOPLE GET TO WORK – COMMUTE MODE

Knowing what mode of transportation is used to get to work is useful to help understand how people travel and what opportunities exist to provide commuters with safer, more economical and convenient options for their travels. This information can also be used to determine potential current and future demand for bicycle and pedestrian facilities, ridesharing (carpooling) programs, transit service, and other facilities.

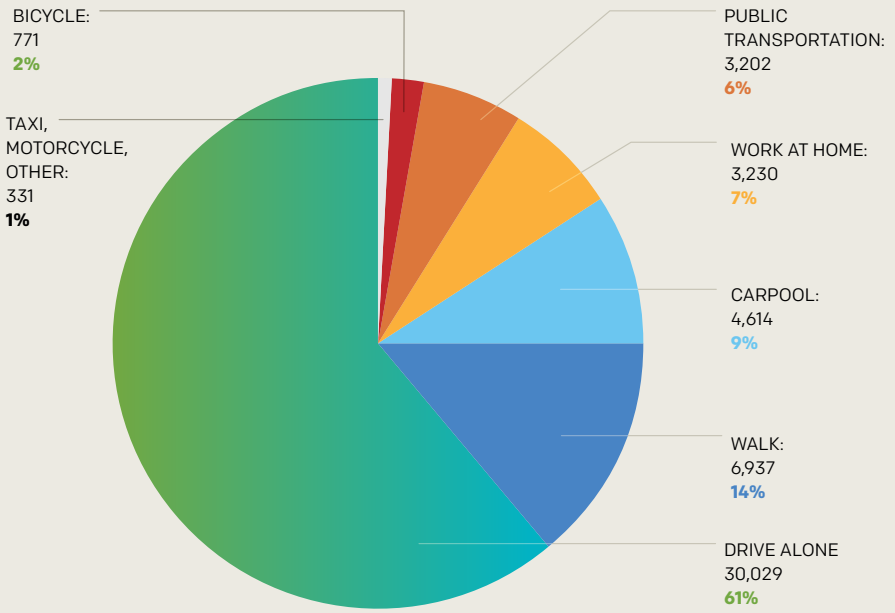
The desired trend is to decrease the percentage of drive alone vehicles. Drive alone trips will need to be reduced significantly over the next 20 years to meet the 80% reduction in carbon emission goal established in the Tompkins County Comprehensive Plan and to manage congestion in the transportation system (www.tompkinscountyny.gov/planning/energy-greenhouse-gas).

While it may seem that the recommendations of this Plan place an unusually high emphasis on transit, ridesharing (carpool), bicycle and pedestrian strategies and investments, consider that Tompkins County is already benefiting from lower car dependency for the trip to work. When combined into a category termed by some as "alternative modes of transportation", transit, ridesharing/carpool, pedestrian and bicycle trips account for the following percentages of work trips: 18% for the U.S., 42% for New York State, and 32% for Tompkins County (the figures for New York State are skewed by the disproportionately large participation in public transportation in the New York City metro area). Regardless, the 32% figure for Tompkins County, which does not include those 6% of workers that work at home, is almost twice the national average. This figure indicates that a significant number of trips are taking place by moving more people in fewer vehicles, or better yet without motor vehicles. These are enviable figures compared to many other urbanized areas but, clearly, there is room for improvements as Tompkins County strives to reduce carbon emissions and fossil fuel use, manage congestion and provide more equitable transportation options. To meet those goals the Tompkins County transportation system must be ready to accommodate and encourage increased use of transit, ridesharing (carpool), vanpooling, bicycling and walking not just for work based trips, but for all trip needs, i.e. family and personal business, social/recreational, educational. The non-drive alone modes alternative modes contribute to increased transportation system efficiency - i.e. transportation with reduced negative impacts. Programs like vanpools, car sharing, guaranteed/back-up ride home, employee incentives, etc. can also contribute to shifting travelers to non-drive alone modes.

The tables below and on the next page provides information on the distribution of the work trips by mode of transportation for each town and village in Tompkins County. This table gives a good indication of where the largest numbers of users for each mode are located.

- 61% of Tompkins County's workforce drive alone to work, a 1% increase from 2013 figures.
- Non-drive alone modes of transportation to work:
  - 9% rideshare (carpool)
  - 14% walk to work
  - 6% use public transportation
  - 2% bicycle
  - 7% working at home
- The walking to work percentage for Tompkins County (14.2%), the City of Ithaca (36.1%) and the Town of Ithaca (17.5%), including the Village of Cayuga Heights (16%), are all substantially higher than the national (2.8%) and state (6.3%) averages.
- The bulk of people who walk to work are in the City and Town of Ithaca (including the Village of Cayuga Heights), illustrating the transportation efficiency of the urban form.

TOMPKINS COUNTY MODE TO WORK 2017



MEANS OF TRANSPORTATION TO WORK

CIVIL DIVISION	DRIVE ALONE	CARPOOL	PUBLIC TRANSPORTATION	BICYCLE	WALK	WORK AT HOME	TAXI, MCYCLE, OTHER	TOTAL
TOWN OF CAROLINE	1,433 (77.3%) 4.8%	209 (11.3%) 4.4%	54 (2.9%) 1.7%	0 (0.0%) 3.1%	54 (2.9%) 0.8%	103 (5.6%) 3.2%	0 (0.0%) 0.0%	1,853 (100%) 3.8%
TOWN OF DANBY	1,559 (86.0%) 5.2%	147 (8.1%) 3.2%	56 (3.1%) 1.8%	0 (0.0%) 0.0%	32 (1.8%) 0.5%	19 (1.0%) 0.6%	0 (0.0%) 0.0%	1,813 (100%) 3.7%
TOWN OF DRYDEN	5,724 (73.8%) 19.1%	936 (12.1%) 20.3%	244 (13.1%) 7.6%	92 (1.2%) 11.9%	273 (3.5%) 3.9%	425 (5.5%) 13.2%	57 (0.7%) 17.2%	7,751 (100%) 15.8%
TOWN OF ENFIELD	1,442 (76.5%) 4.8%	277 (14.7%) 6.0%	14 (0.7%) 0.4%	0 (0.0%) 0.0%	18 (1.0%) 0.3%	133 (7.1%) 4.1%	0 (0.0%) 0.0%	1,884 (100%) 3.9%
TOWN OF GROTON	2,683 (83.5%) 8.9%	218 (6.8%) 4.7%	25 (0.8%) 0.8%	0 (0.0%) 0.0%	133 (4.1%) 1.9%	143 (4.5%) 4.4%	11 (0.3%) 3.3%	3,213 (100%) 6.6%
CITY OF ITHACA	4,567 (35.6%) 15.2%	741 (5.8%) 16.1%	1,544 (12.0%) 48.2%	314 (2.4%) 40.7%	4,638 (36.1%) 66.9%	925 (7.2%) 28.6%	101 (0.8%) 30.5%	12,830 (100%) 26.2%
TOWN OF ITHACA	5,586 (62.3%) 18.6%	951 (10.6%) 20.6%	700 (7.8%) 21.9%	252 (2.5%) 32.7%	1,568 (17.5%) 22.6%	783 (8.7%) 24.2%	84 (0.9%) 25.4%	8,973 (100%) 18.3%
TOWN OF LANSING	4,962 (84.2%) 16.5%	564 (9.6%) 12.2%	433 (7.4%) 13.5%	75 (1.3%) 9.7%	93 (1.6%) 1.3%	328 (5.6%) 10.2%	0 (0.0%) 0.0%	5,891 (100%) 12.0%
TOWN OF NEWFIELD	2,310 (80.3%) 7.7%	306 (10.6%) 6.6%	10 (0.3%) 0.3%	38 (1.3%) 4.9%	92 (3.2%) 1.3%	62 (2.2%) 1.9%	58 (2.0%) 17.5%	2,876 (100%) 5.9%
TOWN OF ULYSSES	2,248 (86.3%) 7.6%	265 (10.0%) 5.7%	122 (4.6%) 3.8%	0 (0.0%) 0.0%	36 (1.4%) 0.5%	185 (7.0%) 5.7%	20 (0.8%) 6.0%	2,577 (100%) 5.3%
TOMPKINS COUNTY	30,029 (61.3%)	4,614 (9.4%)	3,202 (6.5%)	771 (1.6%)	6,937 (14.2%)	3,230 (6.3%)	331 (0.7%)	48,990 (100%)
NEW YORK STATE	53.0%	6.7%	28.0%	0.7%	6.3%	4.0%	1.3%	100%
NATIONAL US	76.4%	9.3%	5.1%	0.6%	2.8%	4.6%	1.2%	100%

Source: Census: 2017 5 American Community Survey. Percentages may not add to 100% due to rounding.
Note: Row percentages are provided to the right of the numeric entry, while column percentages appear below the number (% of Tompkins County total)
Note: Village population statistics are included as part of respective Town totals

Vehicle Population

- The number of vehicles registered in Tompkins County increased steadily from 1998 to 2011, but data show a reduction in 2017. This figure needs to be monitored for emerging new trends.
- The great majority of registered vehicle are personal vehicles (cars, suv, vans, pickup trucks).
- Percentage of zero vehicle households is the only category to increase for every data period. This may be influenced the number of college student households.
- The percentage of three vehicle households increased in the decade between 2000 and 2010.
- The percentage of two vehicle households has been decreasing since 1990.

CIVIL DIVISION	DRIVE ALONE	CARPOOL	PUBLIC TRANSPORTATION	BICYCLE	WALK	WORK AT HOME	TAXI, MCYCLE, OTHER	TOTAL
VILLAGE OF CAYUGA HEIGHTS	745 (43.7%) 2.5%	261 (15.3%) 5.7%	230 (13.5%) 7.2%	103 (6.0%) 13.4%	273 (16.0%) 3.9%	94 (5.5%) 3.0%	0 (0.0%) 0.0%	1,706 (100.0%) 3.5%
VILLAGE OF DRYDEN	759 (80.1%) 2.5%	91 (9.6%) 2.0%	25 (2.6%) 0.8%	20 (2.1%) 2.6%	25 (2.6%) 0.4%	19 (2.0%) 0.6%	8 (0.8%) 2.4%	947 (100.0%) 1.9%
VILLAGE OF FREEVILLE	149 (70.6%) 0.5%	936 (12.1%) 20.3%	6 (2.8%) 0.2%	12 (5.7%) 2.0%	13 (6.2%) 0.2%	7 (3.3%) 0.2%	2 (0.9%) 0.6%	211 (100.0%) 0.4%
VILLAGE OF GROTON	899 (78.9%) 3.0%	277 (14.7%) 6.0%	25 (2.2%) 0.8%	0 (0.0%) 0.0%	47 (4.1%) 0.7%	34 (3.0%) 1.1%	11 (1.0%) 3.3%	1,139 (100.0%) 2.3%
VILLAGE OF LANSING	1,210 (64.1%) 4.0%	218 (6.8%) 4.7%	375 (19.9%) 11.7%	50 (2.6%) 6.5%	43 (2.3%) 0.6%	39 (2.1%) 1.3%	0 (0.0%) 0.0%	1,887 (100.0%) 3.9%
VILLAGE OF TRUMANSBURG	686 (73.4%) 2.3%	741 (5.8%) 16.1%	37 (4.0%) 1.2%	0 (0.0%) 0.0%	36 (3.9%) 0.5%	87 (9.3%) 2.8%	6 (0.6%) 1.8%	935 (100.0%) 1.9%
TOMPKINS COUNTY	30,029 (61.3%)	4,614 (9.4%)	3,202 (6.5%)	771 (1.6%)	6,937 (14.2%)	3,230 (6.3%)	331 (0.7%)	48,990 (100%)
NEW YORK STATE	53.0%	6.7%	28.0%	0.7%	6.3%	4.0%	1.3%	100%
NATIONAL US	76.4%	9.3%	5.1%	0.6%	2.8%	4.6%	1.2%	100%

Source: Census: 2017 5 American Community Survey. Percentages may not add to 100% due to rounding.
Note: Row percentages are provided to the right of the numeric entry, while column percentages appear below the number (% of Tompkins County total)

Driving Population

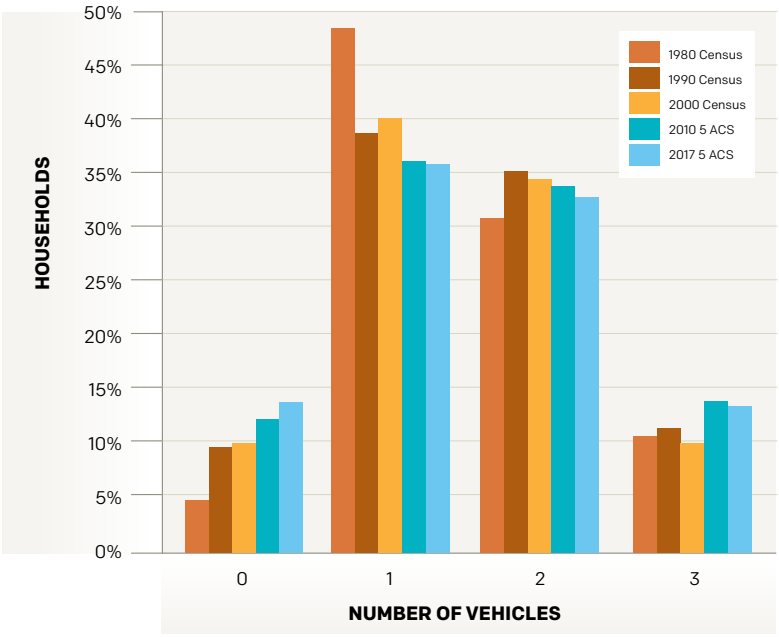
- The number of driver's licenses increased steadily over the period from 1988 to a peak in 2003. Since then, figures fluctuated until 2017 when data indicated a new peak of 65,634.
- The 2017 increase may be a reflection of the large 'millennial' population cohort. This trend needs to be monitored into future years.

TOTAL VEHICLE REGISTRATIONS IN TOMPKINS COUNTY

YEAR	PERSONAL VEHICLES	COMMERCIAL VEHICLES	TRAILERS	MOTORCYCLES	MOPEDS	AMBULANCE	FARM	TOTAL
1998	44,829	10,643	2,561	1,535	107	9	53	**59,737**
2000	47,182	10,733	2,903	1,592	88	9	57	**62,564**
2003	49,042	9,442	2,480	1,915	94	9	52	**63,034**
2007	50,985	8,136	2,918	2,466	146	13	63	**64,727**
2011	51,695	7,198	3,099	2,984	150	14	92	**65,232**
2017	48,515	6,078	1,751	2,817	98	13	205	**59,477**

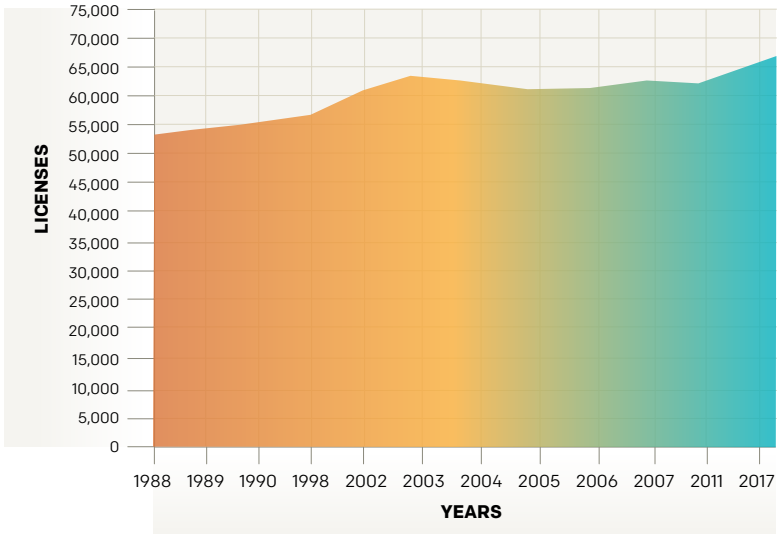
Source: New York State Department of Motor Vehicles – Statistics

NUMBER OF VEHICLES PER HOUSEHOLD TOMPKINS COUNTY NY



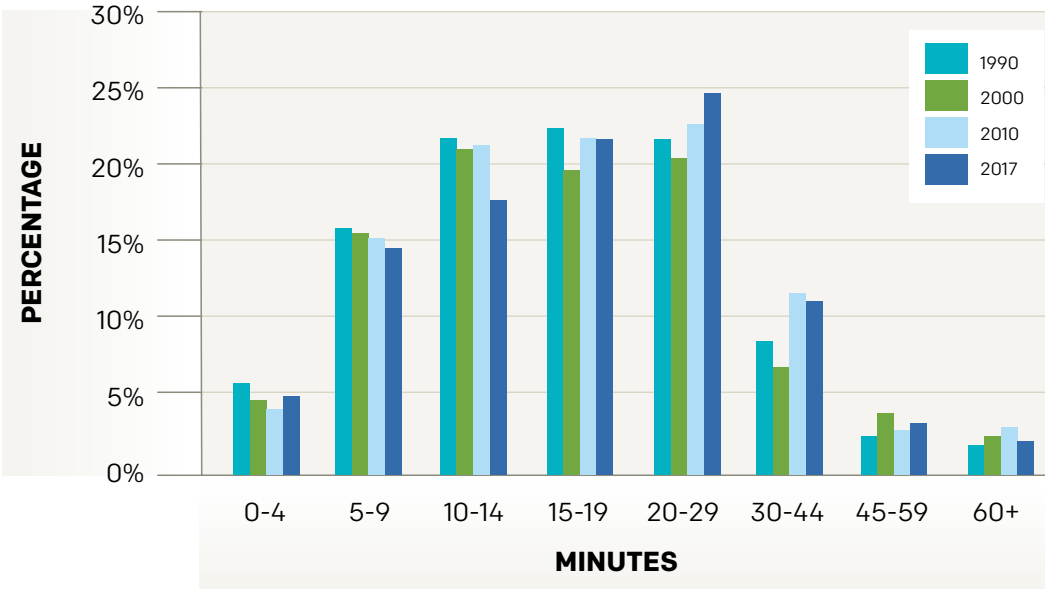
SOURCE: 1980, 1990, 2000 Decennial Census and 2010 5, 2017 5 American Community Survey

TOMPKINS COUNTY TOTAL NUMBER OF DRIVER'S LICENSES (1988-2017)



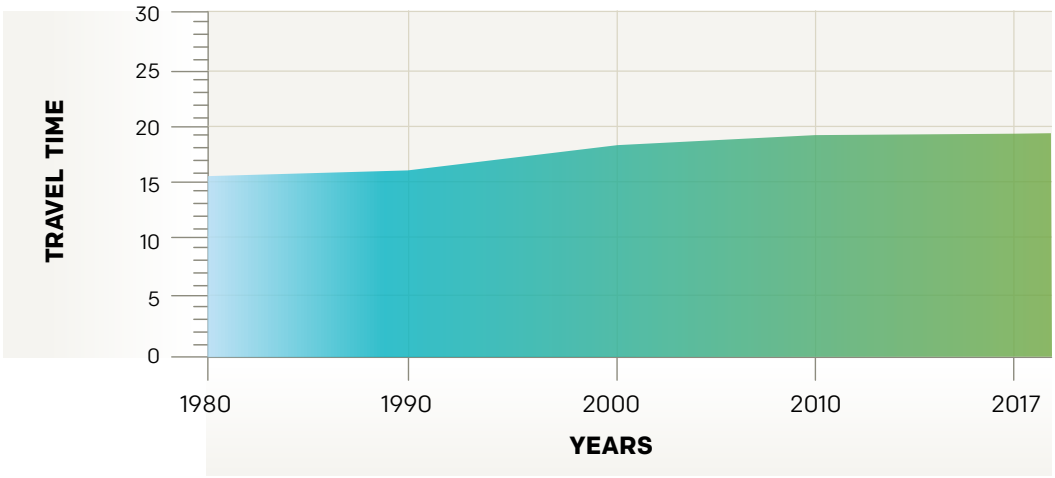
Source: New York State Department of Motor Vehicles – Statistics

TRAVEL TIME TO WORK (WORKERS AGE 16+, NOT WORKING AT HOME)



Source: 1990, 2000 Decennial Census and 2010 5, 2017 5 American Community Survey

MEAN TRAVEL TIME TO WORK (WORKERS AGE 16+, NOT WORKING AT HOME)



Source: Census 1980-2000 Decennial Census and 2017 5 American Community Survey

Travel Time to Work

Travel time to work is a function of the time, speed, and distance of the average trips, in a given study area. The Census gathers data on travel time to work as part of its Journey-to-Work effort. As explained before, the Journey-to-Work data is of importance to transportation planning because of its impact on the peak travel period.

- The most significant percentage increase in travel time is in the 20-29 minute trip interval
- The percentage of shorter trips (5-9min. and 10-14min.) is smaller in 2017
- Percentage of 30-44 minute trips increased in 2010 and has not significantly changed since then
- The mean travel time to work has not changed much since last reported measured in 2010. However, the overall trend is an increase in travel time to work
- Overall, the average travel time to work has been increasing since 1980 (15.7 minutes) to 2017 (18.6 minutes)

Traffic Accidents

- Despite the continued increase in the number of vehicles registered, number of licensed drivers, and the amount of vehicle miles of travel, the number of crashes in all categories is flat or declining, while the rate of crashes is declining.
- Many factors may interact to explain the decreasing rates of crashes and fatalities:
  - improved safety design for cars and highways
  - promotion of safety belt, child safety seat, and motorcycle helmet use
  - measures to discourage drunk driving and distracted driving
  - better and prompter medical attention for victims of transportation crashes and accidents.

The NY State Department of Transportation has an automated traffic crash reporting system called Accident Location Information System (ALIS), which provides crash data for Tompkins County. The ITCTC produces crash summary reports that are available in the agency's website – www.tompkinscountyny.gov/itctc/statistics.

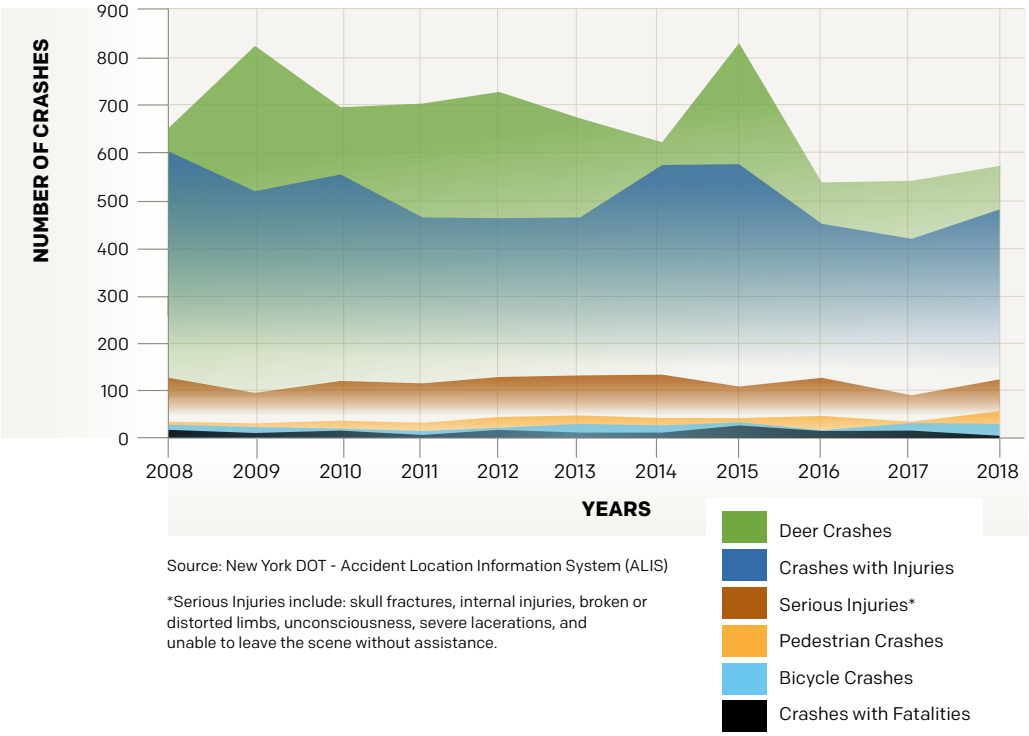
TRAFFIC CRASHES IN TOMPKINS COUNTY 2008-2018

YEAR	TOTAL CRASHES	BICYCLE CRASHES	PEDESTRIAN CRASHES	DEER CRASHES	CRASHES WITH INJURIES	SERIOUS INJURIES*	CRASHES WITH FATALITIES
2008	3,418	28	39	652	600	121	9
2009	3,422	25	32	820	515	99	7
2010	3,563	23	36	698	564	110	11
2011	3,508	17	32	700	478	106	6
2012	3,322	20	42	721	478	119	12
2013	3,516	24	39	673	479	123	6
2014	3,391	22	35	619	589	130	6
2015	4,170	26	34	834	589	101	20
2016	3,393	15	39	562	469	130	10
2017	3,05	23	20	550	413	94	7
2018	3,514	22	51	574	490	117	3

Source: New York DOT - Accident Location Information System (ALIS)

*Serious Injuries include: skull fractures, internal injuries, broken or distorted limbs, unconsciousness, severe lacerations, and unable to leave the scene without assistance.

TRAFFIC CRASHES IN TOMPKINS COUNTY 2008-2018



Source: New York DOT - Accident Location Information System (ALIS)

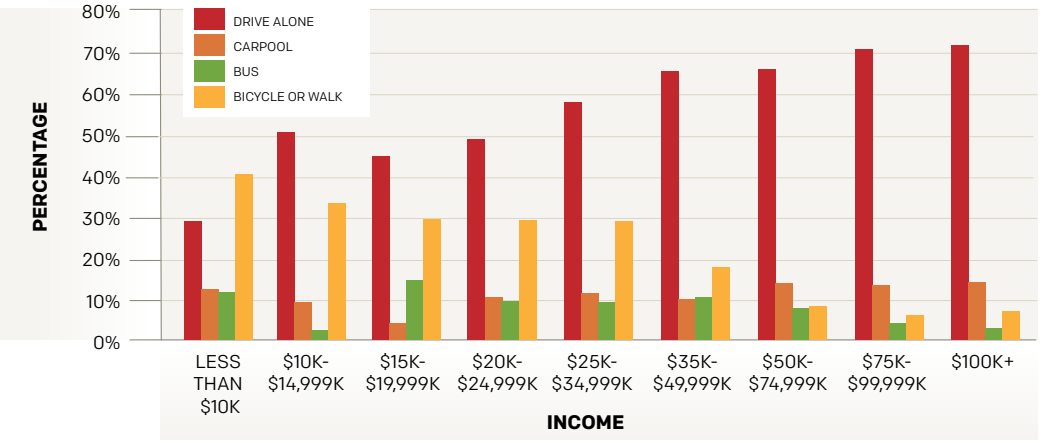
*Serious Injuries include: skull fractures, internal injuries, broken or distorted limbs, unconsciousness, severe lacerations, and unable to leave the scene without assistance.

Equity in Transportation

Another important dynamic is the multimodal nature of the work commute for minority and low income populations. These populations are more dependent on modes other than the privately owned vehicle for the critical 'trip to work'. The ability to have a dependable commute to work is critical for workers in low and moderate income households to retain their employment. This speaks strongly to the equity impacts of transportation decisions.

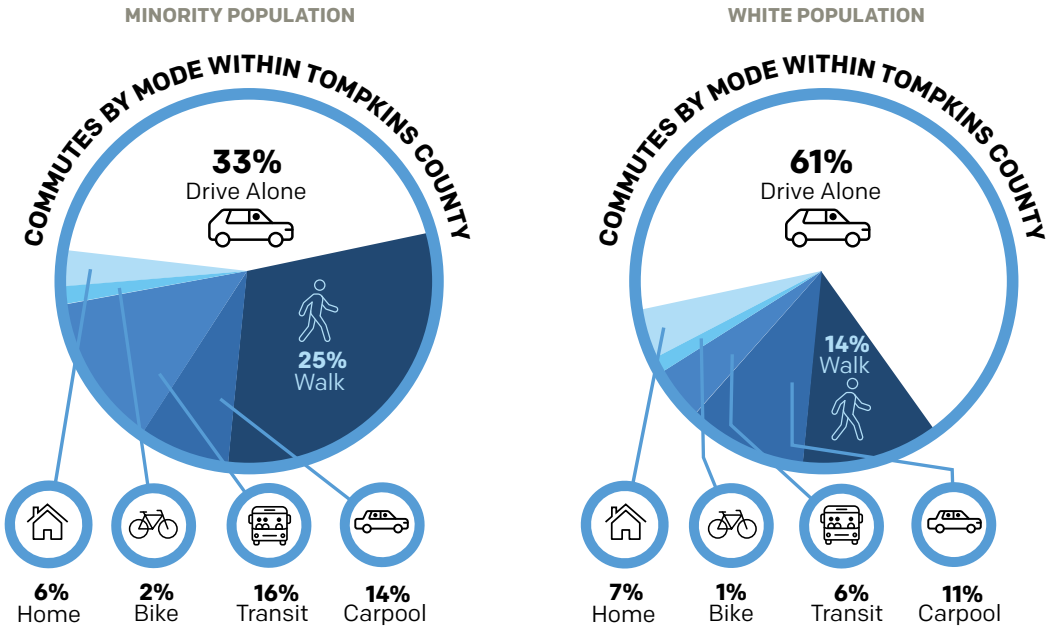
- Minority populations use transit and walk at a much higher rate than white (non-hispanics) for their work based trip.
- Minority populations also bike and carpool at a higher rate for their work based trip.
- A similar pattern for low income households. The proportion of households reporting driving alone increases with household income.

HOUSEHOLD INCOME BY MODE TO WORK – TOMPKINS COUNTY NY



Source: 2010 5 Census CTPP

COMMUTE MODE WITHIN TOMPKINS COUNTY



Source: 2010 5 Census CTPP

CONGESTION

The ITCTC travel demand model was used as a starting point to identify links with the highest levels of congestion. The model based its analysis on estimating Volume-to-Capacity ratios (V/C ratio) for the principal roadways in the county. V/C ratios relate the traffic volumes to the roadways traffic capacity based on the road's geometry, traffic flow speeds and adjacent land uses. The accompanying maps display the output from the travel demand model for 2019 conditions and projections to 2040. The travel demand model is currently designed to model the afternoon peak hour (5-6PM). Therefore, the map may not highlight links that experience congestion at other times.

Notes on Congestion in Tompkins County

- Five different numbered state route converge in a relatively small area at the City of Ithaca's West End (aka The Octopus). This area of short blocks, numerous traffic lights, high traffic volumes and a rail line, experiences delays at the rush hours, and periodically due to the presence of railroad trains, vehicular crashes or other seasonal community events. At rush hour, the congestion extends to the state route approaches. This area is expected to continue to be prone to congestion.
- Advanced traffic signal systems and transportation demand management (TDM) strategies that reduce the number of cars or shift work hours to reduce peak hour traffic may help mitigate recurring congestion in this area.
- State Route-13 northeast from the Ithaca Urbanized area, carries the highest traffic volumes in the county, specifically the SR-13/SR-366 Overlap section in the Town of Dryden.
- The travel demand model indicates that suburban areas will see an increase in the number of congested roadway links in future years.
- Cornell University has a huge impact as a traffic origin and destination. Several of the roads serving as approaches to the University are prone to congestion.

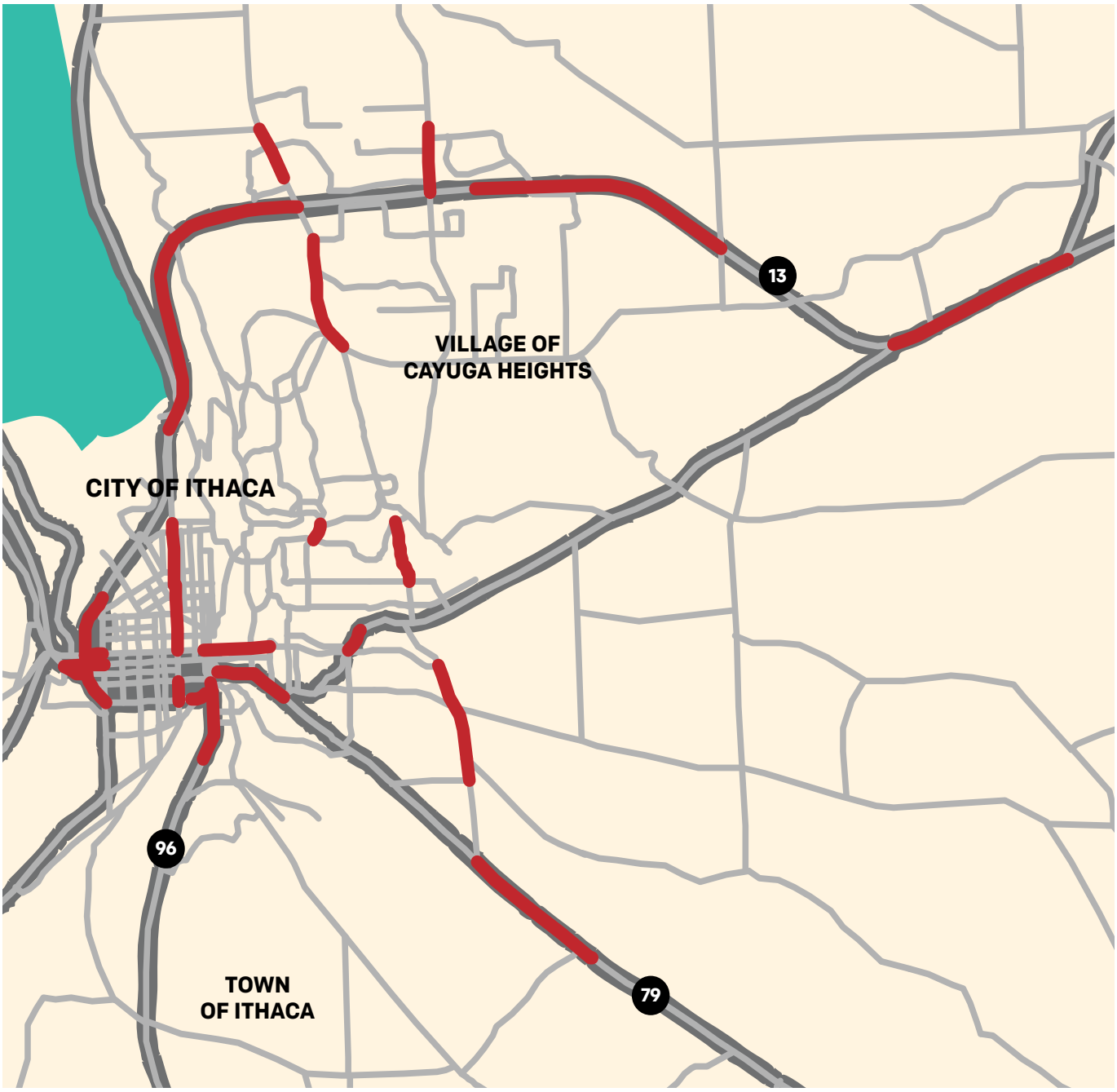
CONGESTED ROADS IN TOMPKINS COUNTY 2019

Actual traffic volumes compared to road capacity for AM/PM peak hours
Prepared by the Ithaca-Tompkins County Transportation Council 9/18

ABOUT CONGESTION

As explained in the TDM Encyclopedia (www.vtpi.org/tdm/), a resource of the Victoria Transport Policy Institute, "traffic congestion is a non-linear function, meaning that a small reduction in urban-peak traffic volume can cause a proportionally larger reduction in delay. For example, a 5% reduction in traffic volumes on a congested highway such as from 2,000 to 1,900 vehicles per hour may cause a 10-30% reduction in delay. As a result, even relatively small changes in traffic volume on congested roads can provide relatively large reductions in traffic delay" (Victoria Policy Transport Institute, 2003). Therefore, polices and projects that move even a small percentage of trips from automobiles to alternative modes or that shift traffic volumes from peak hours will result in noticeable reductions in congestion and improved performance of the roadway system. Additional secondary benefits will result from lower emissions, more active lifestyles, reduced energy consumption, reduce costs in roadway system expansion, etc.

CONGESTED ROADS IN TOMPKINS COUNTY 2040



LEGEND

0 2 4 MILES

SCALE

VOLUME OVER CAPACITY > .9

Actual traffic volumes compared to road capacity for AM/PM peak hours
Prepared by the Ithaca-Tompkins County Transportation Council 9/18

SUMMARY

The Ithaca Urban area is a regional employment center which attracts a significant number of daily in-commuters. The local economy, anchored in the education sector, is stable and growing. The county's population is also growing at a moderate rate and, like many other areas, it is getting older. However, due to the presence of institutions of higher education, the cohort of age 20-24 will remain significant into the future.

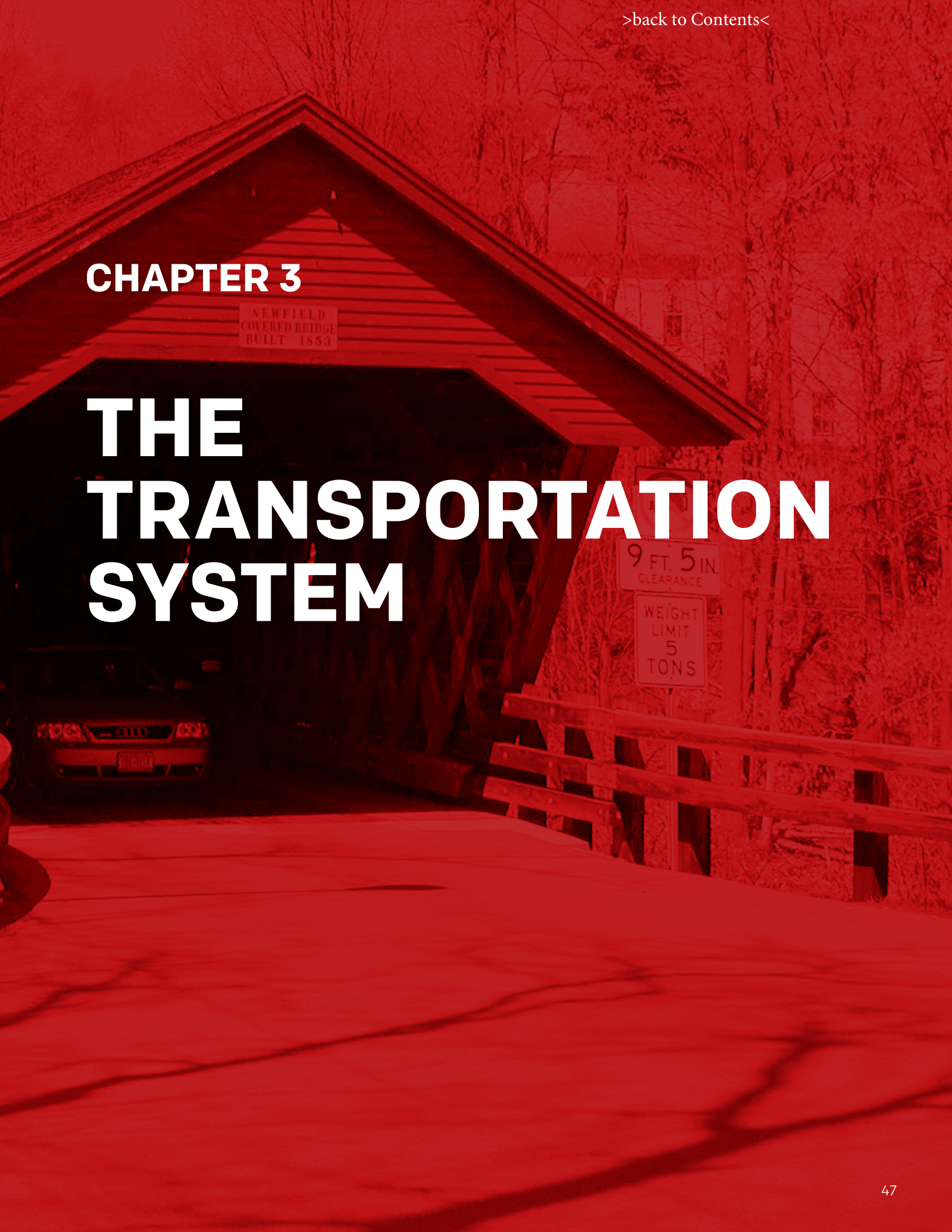
The general travel patterns for the greater Ithaca-Tompkins County show stronger than average participation in walking, public transportation and rideshare/carpooling for most trip purposes, and particularly for the journey to work. Nevertheless, there remains room for improvements. There continues to be a significant dependency on the automobile and drive alone trips to fulfill transportation needs. In particular, into-county and out-of-county commuting trips are overwhelmingly drive alone trips (81%). These patterns will continue unchanged unless there are continuous and coordinated efforts to facilitate mode shift away from single occupancy automobile use.

TCAT offers excellent service in the urbanized area of Ithaca but is more limited in the rural area. There continues to be a latent demand for transit that is evidenced by increased ridership. TCAT is working to enhance transit service to rural areas through application of new communication technologies and on-demand strategies.

Bicycle use for transportation has increased in the urban area, even when the data does not reflect the advent of bikeshare services in 2018. Bicycling remains an underutilized and underdeveloped mode. With 52% of all trips less than 2 miles in length, bicycling has great potential to positively impact mobility in the urban/suburban area.

Equity considerations in the transportation sector require that affordable and convenient alternatives to private automobile use be made available. This is essential for minority, low income and the continuously expanding senior population to be able to participate effectively in the economy, which in turn generates multiple societal benefits.

Shifting even a small percentage of trips from automobiles to alternative modes will result in noticeable reductions in congestion and improved performance of the roadway system. Limited local financial resources for surface transportation and the growing evidence of the negative externalities (emissions, safety, fossil fuel energy use, congestion, noise, etc.) of continued over-dependency on the automobile as the principal mode of transportation have made it particularly important to understand and seek to maximize the role of transportation modes, and programs and policies that serve to reduce automobile dependency.



CHAPTER 3

THE TRANSPORTATION SYSTEM

THE TRANSPORTATION SYSTEM

INTRODUCTION

This chapter provides a description of the existing transportation system in Tompkins County and identifies future challenges and initiatives. For more than a decade the transportation system in Tompkins County has been evolving to provide a menu of options for the traveling public. The private automobile continues to be the dominant mode of transportation. This condition is expected to extend into the future, however, as of 2019, surface transportation options to the private automobile in Tompkins County include walking, bicycling, transit (TCAT/Gadabout), intercity bus service, taxi, car rental, car sharing, bike sharing, ridesharing/ carpooling and ride hailing. The ITCTC and its transportation sector partners recognize the importance of continuing to expand transportation options that reduce automobile dependency and drive alone trips.

Infrastructure can be defined as the basic facilities, equipment, and installations needed for the functioning of a system. This chapter describes the existing capital transportation infrastructure including roadways, bridges, the transit system, intercity bus service, pedestrian and bicycle facilities. In addition, transportation related programs and initiatives are also mentioned as they play a key role in informing/educating and providing more options for the traveling public.

The existing transportation system in Tompkins County directly impacts the accessibility components of the LRTP Goals-mobility, connectivity, proximity. The layout and operation of the metropolitan transportation system also affects the sustainability components-environment, quality of life and equity- of the plan's goals.

The primary focus areas of connectivity in Tompkins County are the different transportation networks, including roads, bridges, transit, pedestrian, etc., that help to move people and goods in our community. A well-connected region has transportation networks with many links, numerous modal options, and minimal service dead-ends. Connectivity is related through land use to the proximity of trip origins and destinations. Improved connectivity with greater proximity result in greater mobility potential.

Mobility is enhanced by the integration of different strategies such as, congestion mitigation, transportation demand management (TDM), transportation system management, access to alternative travel modes, freight movement and intermodal links. These strategies help the transportation system operate more effectively and efficiently. This, in turn, relates directly to the environmental impacts from the transportation sector. All programs and projects need to be deliberate in their implementation and analysis of impacts to ensure meeting the equity goals of the LRTP.

Also included in this chapter are safety and financial elements as required by federal regulations. Safety and emergency management programs are identified and their relationship to transportation is described. The financial elements address the Federal requirement for a financial plan. The section estimates financial federal resources, along with their state ad local contributions, available for the development, operation, and maintenance of the transportation system and demonstrates how the long-range transportation plan is fiscally constrained.

While this chapter touches on the topics listed above, the reader should be aware that substantial overlap does exist. Transportation issues are critically interconnected with activities in the areas of land use, housing, watershed protection, agriculture, economic development, etc. This plan focuses attention on transportation but the interdependency of transportation with other sectors cannot be overstated.

Even as we work towards a future of reduced car dependency it is understood that the transportation system is, and will continue to be, heavily dependent on cars and trucks for the movement of people and goods. The road/bridge infrastructure in Tompkins County is a valuable existing asset that needs to be maintained for use by all modes of transportation in an increasingly complex transportation system.

Metropolitan Transportation System

Federal regulations state that the long-range transportation plan shall, at a minimum: "Identify existing and proposed transportation facilities (including major roadways, transit, multimodal and intermodal facilities, pedestrian walkways and bicycle facilities, and intermodal connectors) that should function as an integrated metropolitan transportation system, giving emphasis to those facilities that serve important national and regional transportation functions" (23 CFR§450.324.f(2), June 2, 2014). One of the functions of this section will be to meet this legislative requirement.

ROADWAYS

Highways and bridges form the backbone of the transportation system. These are used by all modes – automobiles, trucks, buses, bicycles, pedestrians, etc. Their adequate maintenance is critical to ensure safe and efficient movement of goods and people.

ROADWAY DESIGN

Roadway design can influence how transportation corridors operate: i.e. are they safe for non-motorized modes? Do they facilitate the provision of transit? What land uses are best suited for the road type? Therefore, one can expect the roadway design on a rural road to differ significantly from that in an urban area.

Within urbanized areas there are many different settings: main streets, residential neighborhoods, commercial districts, etc. In each of these, roadway design can play an important role on the land development patterns of adjacent properties. Designing a road as a single-mode automobile oriented commercial arterial, for example, will result in single-use development, large parking lots, and a road that is unfit for anything but driving. Walking and bicycling become inconvenient and unsafe, and with dispersed development, transit is less efficient.

In contrast, a different road design can welcome pedestrians and bicyclists without losing capacity while allowing for mixed use development of adjacent properties. In cases like these, road design can be the catalyst to help move away from sprawl development to a smarter, more efficient land use development pattern.

FEDERAL AID ROAD SYSTEM – DESCRIPTIVE STATISTICS

FUNCTIONAL CLASS	CENTERLINE MILES	PERCENT	FHWA GUIDELINES
URBAN ROADWAYS		% Urban	
URBAN PRINCIPAL ARTERIAL - FREEWAY	10.04	3.25%	
URBAN PRINCIPAL ARTERIAL	15.65	5.06%	
TOTAL URBAN PRINCIPAL ARTERIAL	25.69	8.31%	5-10%
URBAN MINOR ARTERIAL	49.17	15.91%	
TOTAL URBAN ARTERIAL	74.86	24.22%	15-25%
URBAN COLLECTOR	46.64	15.09%	5-10%
URBAN LOCAL STREET	161.89	52.38%	65-80%
RURAL ROADWAYS		% Rural	
RURAL PRINCIPAL ARTERIAL	28.67	2.90%	2-4%
RURAL MINOR ARTERIAL	51.78	5.24%	
TOTAL RURAL ARTERIAL	80.45	8.14%	6-12%
RURAL MAJOR COLLECTOR	123.35	12.48%	
RURAL MINOR COLLECTOR	82.94	8.39%	
TOTAL RURAL COLLECTOR	206.29	20.87%	20-25%
RURAL LOCAL ROAD	701.83	71.00%	65-75%
TOTAL	**1,271.96**	**100%**	

2010 System (based on 2010 Decennial Census)

Road System Summary

- Tompkins County is served by a network of roads that extends approximately 1,400 miles
- County and municipal roadways comprise 80% of the roadway miles
- State Roads comprise 13% of road miles
- Overall vehicle miles of travel in Tompkins County total approximately 1,977,000 miles daily (Source: NYSDOT)

ROAD SYSTEM BY ROUTE TYPE

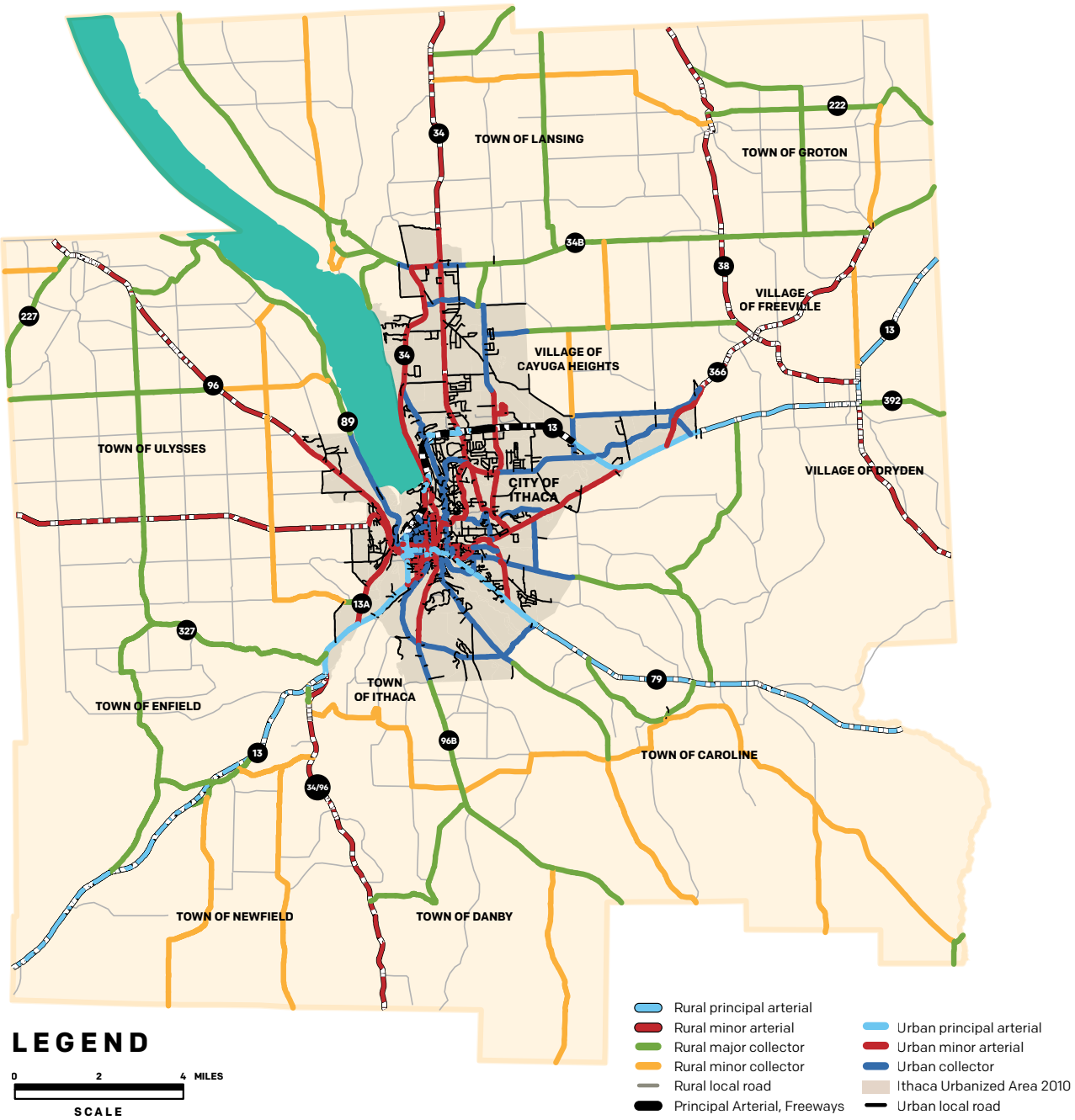
ROAD TYPE	CENTERLINE MILES	PERCENT OF TOTAL MILES
STATE ROADS	180.3	12.9%
COUNTY ROADS	302.7	21.6%
TOWN ROADS	648.4	46.4%
CITY STREETS	61.5	4.3%
VILLAGE STREETS	77.5	5.5%
INSTITUTIONAL STREETS (CU, IC, TC3)	21.8	1.6%
PRIVATE ROADS	63.4	4.5%
ABANDONED / VACANT	0.3	0.0%
NO INFO / NO PUBLIC ACCESS	42.6	3.1%
TOTAL	**1,398.5**	**100%**

Source: Tompkins County Road Centerline File

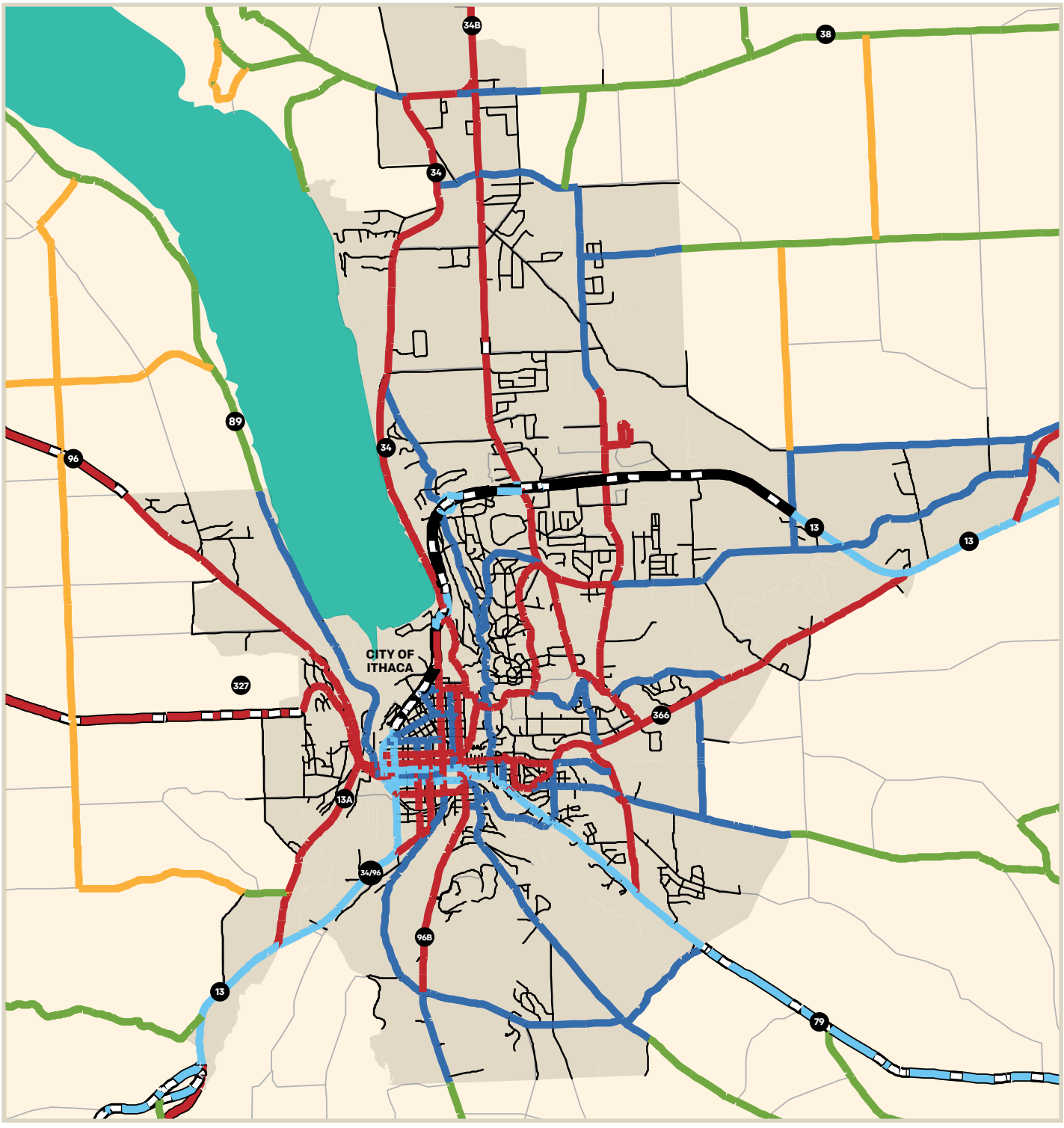
FUNCTIONAL CLASSIFICATION SYSTEM MAP

- The Highway Functional Classification System includes a network of roads providing connectivity to the most important trip origins and destinations.
- This functional classification scheme is legislatively required as a prerequisite to the use of federal transportation funds.
- Functionally Classified roadways are eligible for federal aid.
- Rural minor collectors and local roads are not eligible for federal aid funding.
- Tompkins County has two principal arterial roadways, which are also the only Tompkins County roadways included on the National Highway System (NHS): all of New York State Route 13 and SR-79 from SR-13 southeast to Tioga County.

2010 TOMPKINS COUNTY HIGHWAY FUNCTIONAL CLASSIFICATION SYSTEM COUNTY WIDE



2010 TOMPKINS COUNTY HIGHWAY FUNCTIONAL CLASSIFICATION SYSTEM URBANIZED AREA



BRIDGES

- Due to its topography, Tompkins County roadways include numerous bridges.
- There are 199 bridges plus seven pedestrian-only bridges in Tompkins County for a total of 206 (source: NYSDOT). Of these, 54 are under state jurisdiction (NYSDOT), 136 are locally owned. The remaining 9 nine are owned by 'other' parties; five by Cornell University, four by NY State Parks.
- NYSDOT performs periodic inspections of all bridges.
- 'Structurally Deficient' bridges are candidates for rehabilitation work or replacement. A 'Structurally Deficient' rating does not mean a bridge is unsafe. A bridge that is considered unsafe would be closed to further use.
- The ITCTC recognizes the importance of bridge maintenance as a critical factor in having a safe and efficient transportation system. Over the years numerous bridge projects have received funding through the TIP. The ITCTC will continue to include bridge maintenance as an important component of project development efforts.

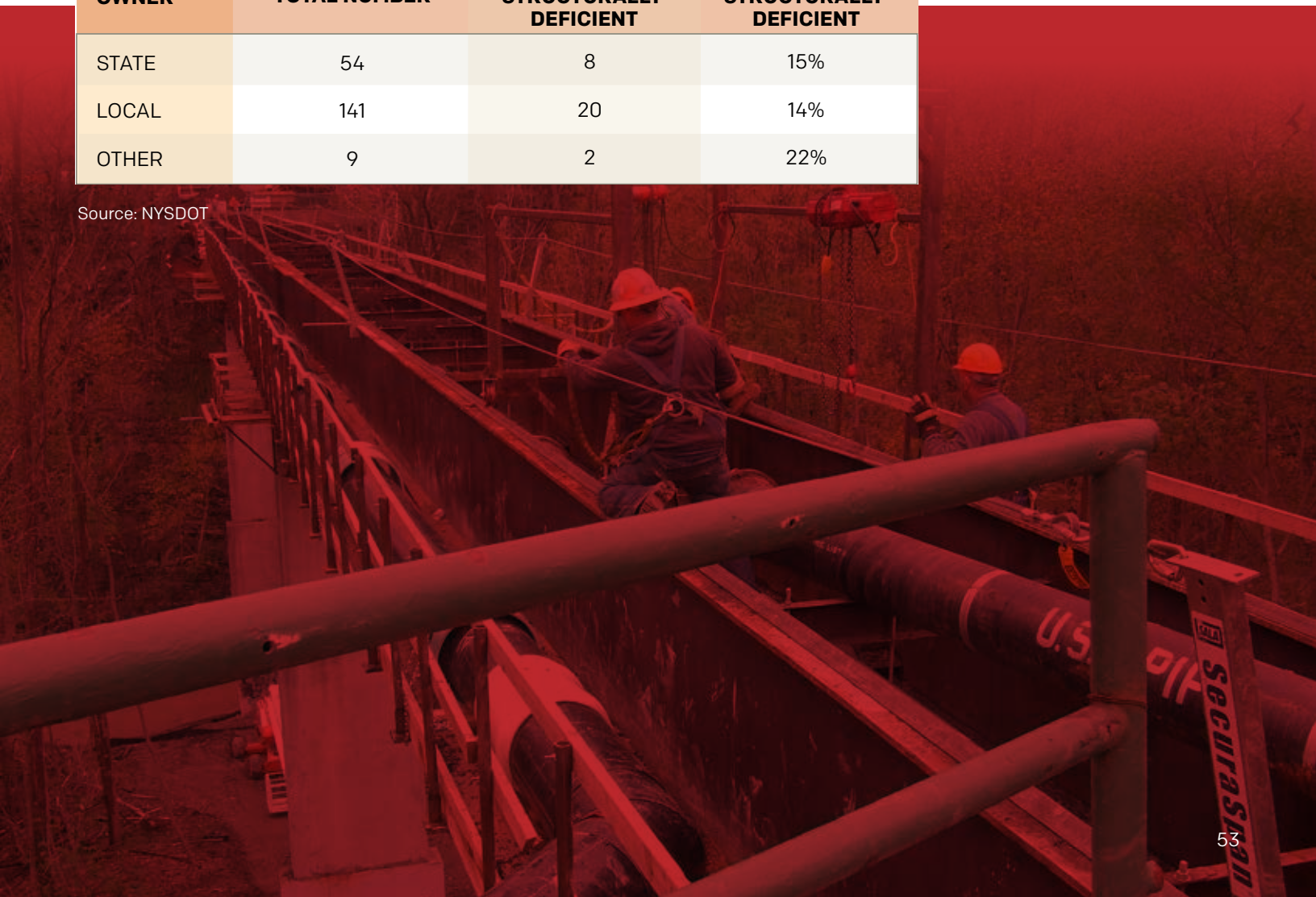
BRIDGE CONDITION RATINGS EXPLAINED

Bridge condition ratings are assigned on a scale from 3 to 9, where 9 is excellent. The scale uses a weighted formula that accounts for several structural components of a bridge: deck condition, superstructure condition and substructure condition. Bridges that score 4 or less for any component are considered 'Structurally Deficient'.

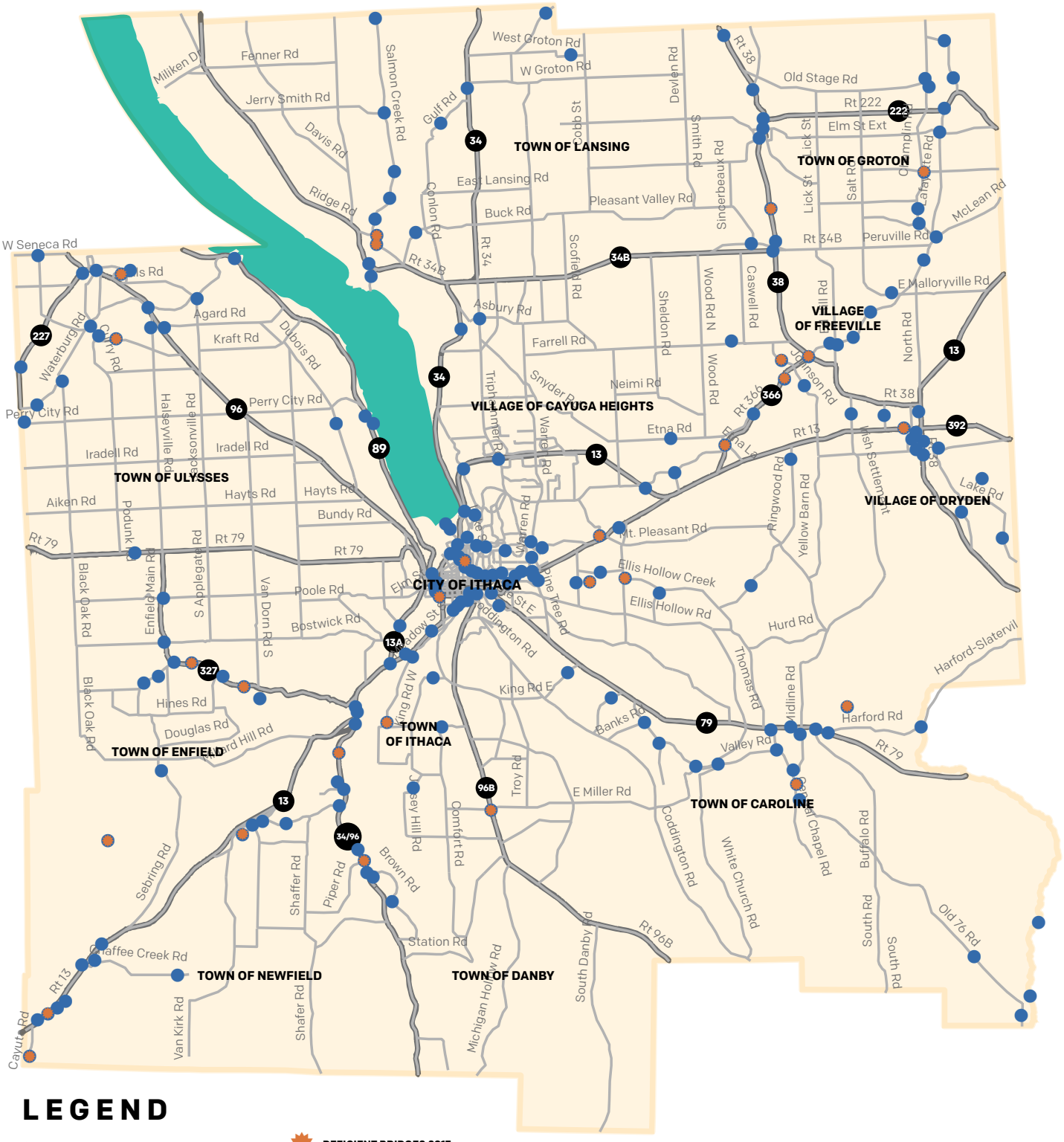
2017 BRIDGE CONDITION

OWNER	TOTAL NUMBER	NUMBER STRUCTURALLY DEFICIENT	% STRUCTURALLY DEFICIENT
STATE	54	8	15%
LOCAL	141	20	14%
OTHER	9	2	22%

Source: NYSDOT

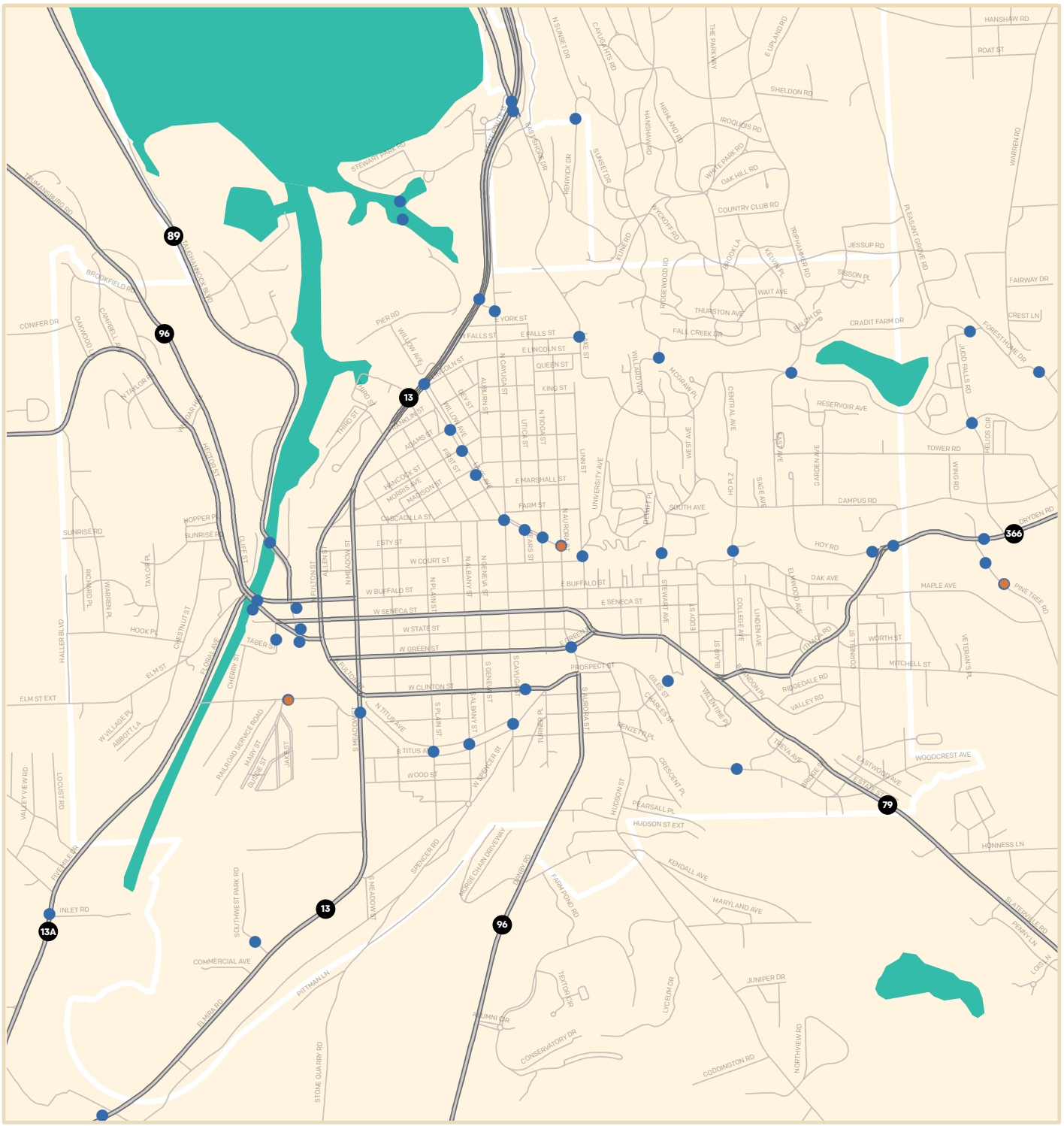


LOCATION OF STRUCTURALLY DEFICIENT BRIDGES TOMPKINS COUNTY



NOTE: per NYSDOT If Deck, Superstructure or Substructure has an inspection rating of 4.0 or less

STRUCTURALLY DEFICIENT BRIDGES ITHACA URBANIZED AREA



LEGEND

NOTE: per NYSDOT If Deck, Superstructure or Substructure has an inspection rating of 4.0 or less

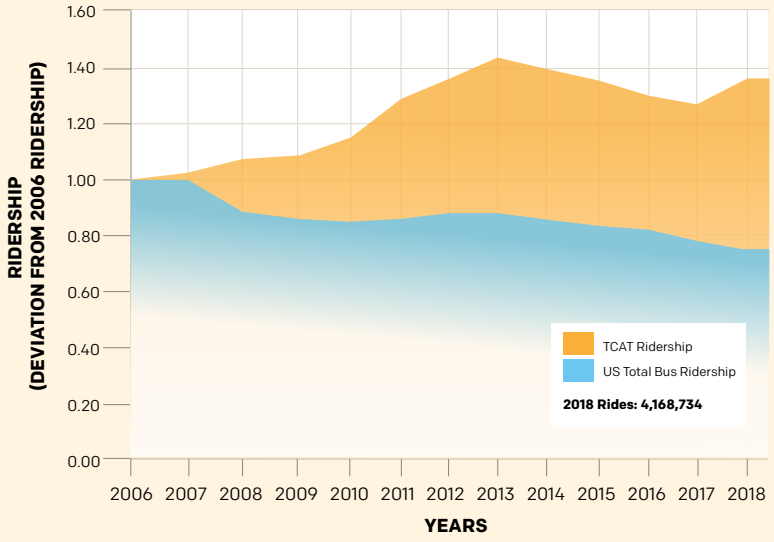
Prepared by the Ithaca-Tompkins County Transportation Council - 4/30-19

TRANSIT

Existing Conditions:

- Public transit service in Tompkins County is provided by Tompkins Consolidated Area Transit (TCAT) - www.tcatbus.com.
- TCAT contracts with GADABOUT Transportation Services, Inc. for demand responsive paratransit service required by the Americans with Disabilities Act (ADA paratransit).
- TCAT operates in every town in Tompkins County.
- Nearly 62% of Tompkins County residents live within one quarter (¼) mile of a bus route, with 88% for urban and 31% for rural populations.
- TCAT uses approximately 53 buses to operate service on 33 routes (including one summer-only route and one 'demand and response' route) with a diverse range of schedules for academic year, summer and yearlong service.
- TCAT service is affected disproportionately by congestion - just a few minutes delay per trip can cause operational costs to go up as they are forced to add another bus and driver to maintain the existing level of service.
- TCAT changes its service three times per year and continually analyzes ridership, route timings and service change requests.

RIDERSHIP CHANGES FROM 2006: TCAT VS. US AVERAGE



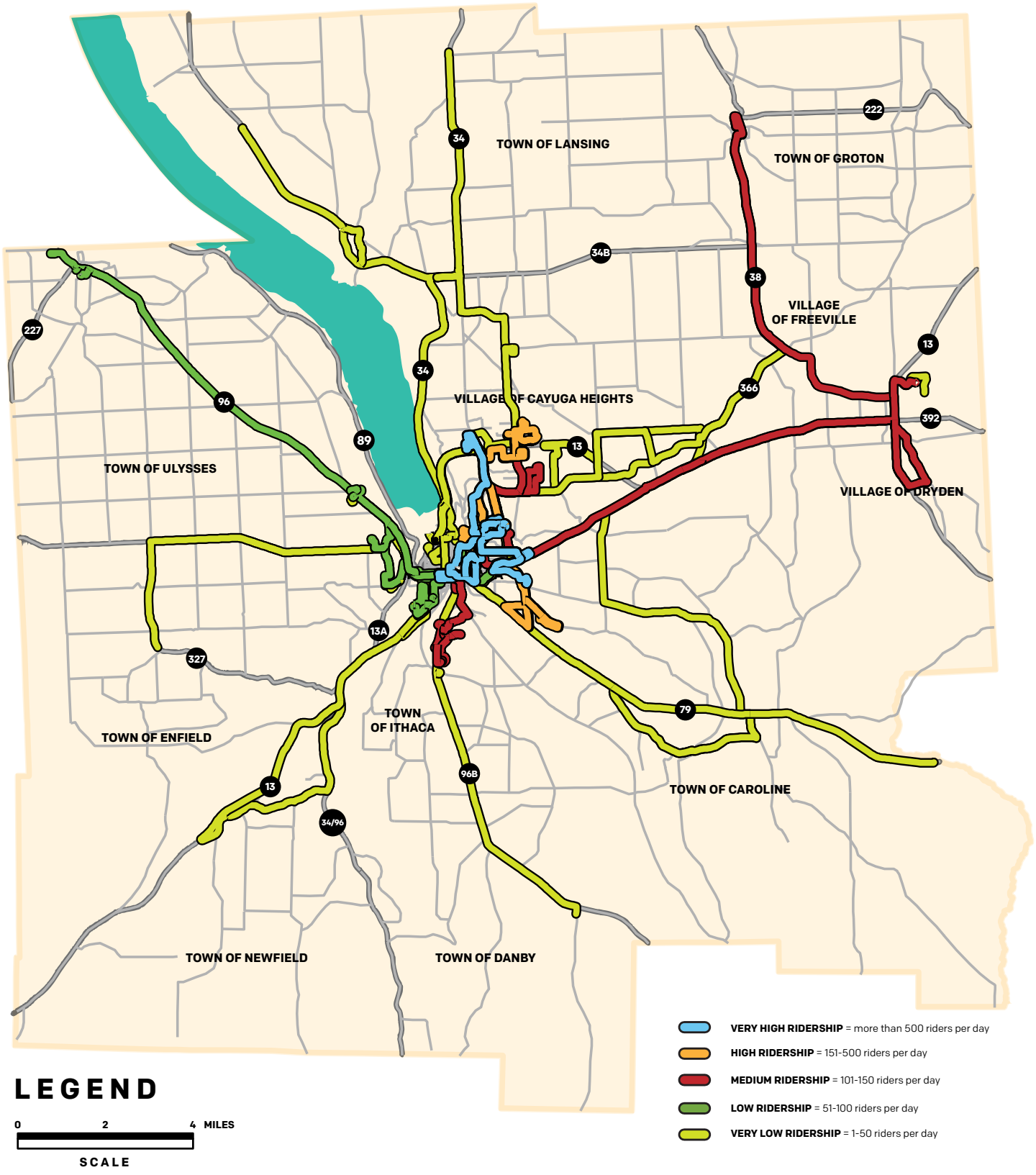
- The principal activity nodes are Downtown Ithaca, Collegetown, Cornell University, and the Shops at Ithaca Mall.
- TCAT ridership increased in 2018 (4.1million) after four years of reductions from its peak ridership of 4.4 million in 2013.
- TCAT continues to face funding shortfalls for timely bus replacement and operations.
- More information in the TCAT annual reports: www.tcatbus.com/about/ridership-and-statistics/

There is a clear demand for an expanded role for transit in Tompkins County based on ridership expectations, mobility needs and environmental and energy use community goals. To provide any realistic opportunity of advancing this vision, TCAT will need significant and continuous additional funding, which may require an entirely new paradigm of how the community selects and funds its priority transportation options. The ITCTC will continue to work closely with TCAT and other community partners to support high quality public transportation for Tompkins County. For more about TCAT see TCAT's 2018-2030 Strategic Plan at https://www.tcatbus.com/about/mission-vision/.

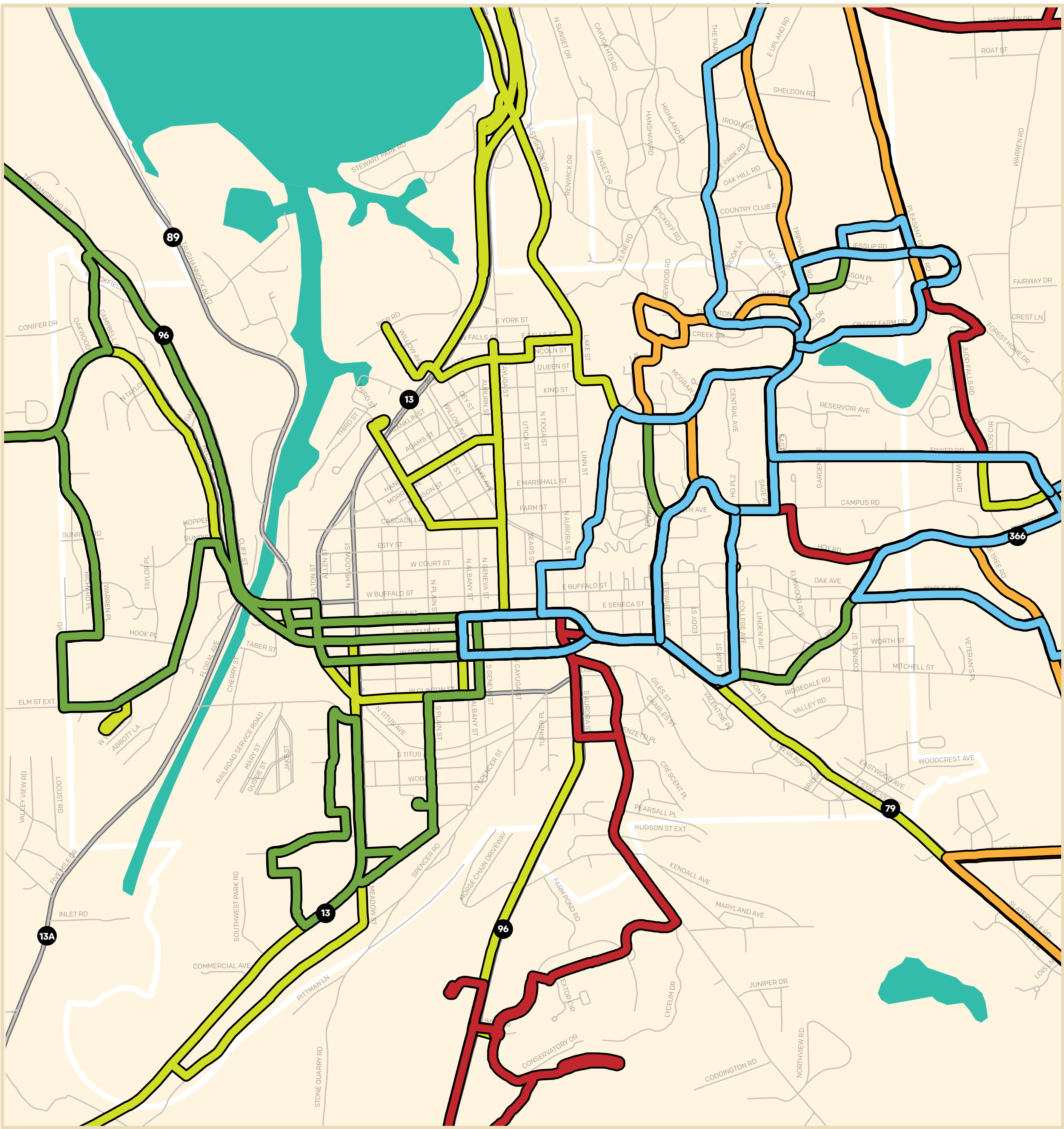
Transit needs over the next 20 years–

- Build a transit center in a new location that can accommodate an increased fleet size to meet growing demand for bus service in Tompkins and surrounding counties.
- Electric bus infrastructure to support a fully electric fleet in the future.
- Developing/enhancing park and ride facilities;
- Implementing/enhancing communication technologies to improve service and passenger experience;
- Updated fare collection system to automate fare accounting;
- Additional and renovated passenger shelters to increase accessibility, security and ease of use;
- With the aging population, the demand for mobility services (transit and paratransit) for seniors is expected to increase significantly;
- Implementation of new services such as on-demand routes, bus rapid transit (BRT), etc.;
- Like many other transit agencies, TCAT faces funding shortfalls for timely bus replacement and operations. Neither federal nor state capital assistance programs are adequate to the task, particularly in a transit intensive community like Tompkins County. In addition to rolling stock, there will be substantial capital facility need to be addressed in the next twenty years;

TCAT BUS ROUTES - 2018 TOMPKINS COUNTY



TCAT BUS ROUTES - 2018 ITHACA URBANIZED AREA



LEGEND

0 .45 .9 MILES

SCALE

- **VERY HIGH RIDERSHIP** = more than 500 riders per day
- **HIGH RIDERSHIP** = 151-500 riders per day
- **MEDIUM RIDERSHIP** = 101-150 riders per day
- **LOW RIDERSHIP** = 51-100 riders per day
- **VERY LOW RIDERSHIP** = 1-50 riders per day

PARATRANSIT

- GADABOUT Transportation Services, Inc. provides wheelchair accessible, demand responsive service for people over 60 years of age and persons with disabilities in Tompkins County.
- GADABOUT Transportation Services, Inc. was developed in 1976 and re-organized as a non-profit transportation corporation in 1981. Provides paratransit services under agreement with TCAT.
- Fleet size as of 2019 is 27 vehicles. System operates best with 30-31 vehicles.
- GADABOUT completes approximately 55,000 trips per year.
- Combines use of paid and volunteer drivers.
- GADABOUT's administration and operations center and paratransit buses are based and maintained at TCAT's transit facility.
- Over the next twenty years, with the aging population, the demand for mobility services for seniors is expected to increase significantly.
- Automating dispatch and communications, acquisition of additional vehicles and driver staffing will be important priorities in the near- and long-term.

SHARED TRANSPORTATION

Shared transportation other than public transit used to consist exclusively of taxi service. Thanks to advances in wireless communication and computer technologies the last 15 years have seen an explosion of shared transportation options. Several services are currently present in Tompkins County. This is a transportation sector that is rapidly evolving and will have significant impacts to traveling decisions for residents and visitors to the area.

Ithaca Carshare

Local non-profit with the mission of enhancing community access to transportation while reducing negative environmental and economic impacts of car use. Ithaca Carshare is closely aligned and supportive of the public transit system. Ithaca Carshare is a membership service offering 24/7 self-serve access to approximately 26 vehicles. www.ithacacarshare.org

Transportation Network Companies (TNC)

Also known as ride-hailing services. Currently there are two private companies offering service in the Ithaca area – Lyft and Uber. Service has been available since mid-2017.

Taxi

As of 2019 there were approximately 9 taxi companies offering service in the Ithaca-Tompkins area. This is a rapidly changing service with numerous startups and closures.

Limousine and other private services

There are several private companies offering limousine and other private transportation services. These companies focus on airport connections, others on tours/tourism travel and private events.

Finger Lakes Rideshare

This service offers a web based interface for persons offering and seeking rides. The goal is to facilitate carpooling for one-time rides and also for recurring trips or work commute trips. www.fingerlakesrideshareorg

Bikeshare

Starting in April 2018 and continuing through 2019, bikeshare services have been offered in Tompkins County by Lime. The service launched successfully in the City of Ithaca and expanded to several villages in Tompkins County, as well as in neighboring counties.

Scooters

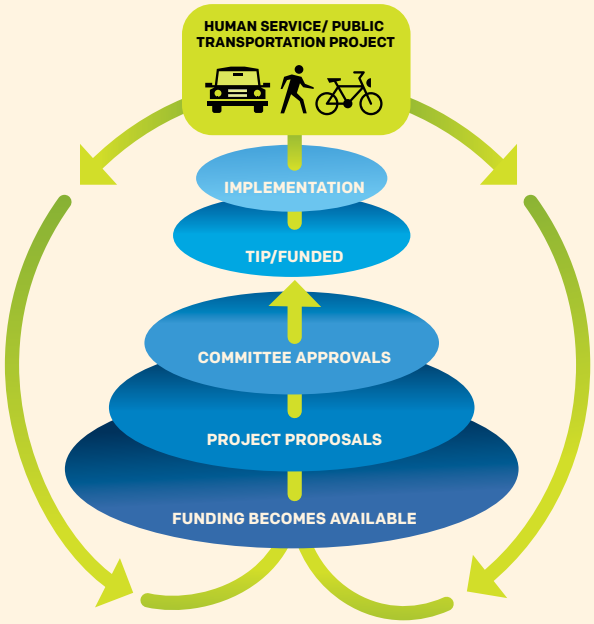
Scooter shared rentals are under consideration by the City of Ithaca as of 2019.

COORDINATED PLAN

The Tompkins County Department of Social Services and ITCTC have worked cooperatively to develop the Coordinated Public Transit - Human Services Transportation Plan for Tompkins County (Coordinated Plan www. tccoordinatedplan.org/). This planning process is used to identify and fund mobility services targeted to low income persons and special needs populations.

- The Coordinated Plan is required under the Federal Transit Administration's program for enhanced mobility of seniors and individuals with disabilities.
- FTA considers the coordinated planning process as a best practice for developing mobility management and job access operating assistance projects.
- Under the Coordinated Plan, human services and transportation agencies work together to identify resources (federal and otherwise), service gaps, and annual project priorities to improve community mobility, increase the capacity of providers to supply more service, and to increase the efficient delivery of transportation for human service needs.
- The County's Mobility Management program, in the Department of Social Services, coordinates project implementation. Federal transportation funds programmed through the Coordinated Plan process are included in the ITCTC Transportation Improvement Program and receive additional review through that process.

COORDINATED PLANNING PROCESS



- The ITCTC will continue to work with its local partners to implement and maintain the Coordinated Plan process. The Coordinate Plan process is an important example of collaborative planning in the transportation sector in Tompkins County.

INTERCITY BUS SERVICE

- The Ithaca area has a substantial amount of intercity bus service. In some cases, Ithaca serves as a stop between cities, i.e. Rochester to New York City. In other instances, service originates locally. Cornell University and Ithaca College both draw students from a large regional area and generate much of the demand for intercity bus travel.
- The Ithaca intercity bus station closed in 2018. Currently intercity buses are accommodated on an interim basis in the 100 block of E. Green Street, sharing space with TCAT buses. The City of Ithaca is actively planning and considering other locations to best accommodate intercity buses.
- At its interim location intercity bus passengers have easy access to many services in downtown Ithaca, along with ready connections toTCAT, carshare vehicles and bike share.
- Intercity bus service in Tompkins County as of 2019 includes four commercial carriers – Coach USA, Ourbus, Trailways and Greyhound - with approximately 19 to 23 buses per day depending on day of the week and season.
- Intercity bus service is variable. Announcements of new bus service and service cancellations are common.
- Most commercial bus service from Ithaca is to New York City, approximately 16 buses per day.

INTERCITY BUS DEPARTURES FROM ITHACA AS OF NOV. 2018

PROVIDER	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
COACH USA	10	10	10	10	11	11	9
OURBUS	4	3	2	2	2	4	2
TRAILWAYS	6	6	6	6	6	6	6
GREYHOUND	2	2	2	2	2	2	2
C2C	3	3	3	3	3	3	2
TOTAL	25	24	23	23	24	26	21

Number of buses per day-figures will vary

REGIONAL PUBLIC TRANSPORTATION

REGION	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
CORTLAND	2	2	2	2	2
ELMIRA	2	2	2	2	2
WATKINS GLEN	5	5	5	5	5
CORTLAND-DRYDEN	5	5	5	5	5
TOTAL	14	14	14	14	14

- Service to Owego, Binghamton, Scranton is offered as stops along the route to New York City, approximately 11 buses per day.
- Service to Rochester and Syracuse includes 2-3 buses per day.
- Service during university breaks and holidays usually exceeds regular service levels.
- Cornell University offers a Campus-to-Campus (C2C) bus service express to New York City 2-3 times per day.
- Intercounty public transportation is available to Cortland, Elmira area, Watkins Glen area.

MULTIMODAL AND INTERMODAL FACILITIES

Multimodal facilities refer to the accommodation of various modes of transportation. Intermodal facilities facilitate transfer/use between modes. All modes, including transit, bicycle and pedestrian facilities, are considered under the "multimodal" aspect of this section. To obtain the most efficient operation, transportation system users must be able to select the most appropriate mode for each segment of a trip and have safe and convenient transfer options. Invariably the transfer of people and goods within a transportation system will represent costs and time delays. The emphasis of intermodal planning is to provide users with the opportunity to choose between modes and provide them with the ability to transfer between them in a manner that minimizes costs and time delays.

The major intermodal (transfer) facilities in Tompkins County include: Ithaca-Tompkins Regional Airport, intercity bus facility, park-and-ride facilities, and the principal TCAT bus stops and stations.

Passenger Services

Connections to Bus Service

- TCAT's public transportation system serves as the backbone for multimodal travel in Tompkins County. The system serves all intermodal facilities. Travelers routinely transfer at bus stops and stations between pedestrian, bicycle and transit modes. TCAT's City Center bus stations on Seneca St. and Green St., adjacent to the Ithaca Commons, are the principal hubs in the transit system, providing a point of contact between multiple routes. The stops are located on opposite sides of the Ithaca Commons and are connected by excellent pedestrian accommodations.
- Other TCAT stops at Cornell and the Shops at Ithaca Mall also serve a substantial number of customers and function as important intermodal facilities.
- City Center bus stations have direct access to car share and bike share services.
- Currently, inter-city bus service connections are provided at Green St. adjacent to the TCAT bus stops. This allows for convenient transfers between services.
- All TCAT buses are equipped with bicycle racks. The Bikes on Buses program has been in place for many years and serves thousands of customers every year. This program allows riders to combine their bicycle trips with transit in those occasions were a bicycle-only trip is not possible.
- Tompkins County has a widespread network of 13 rural park and ride lots which receive a high level of use.

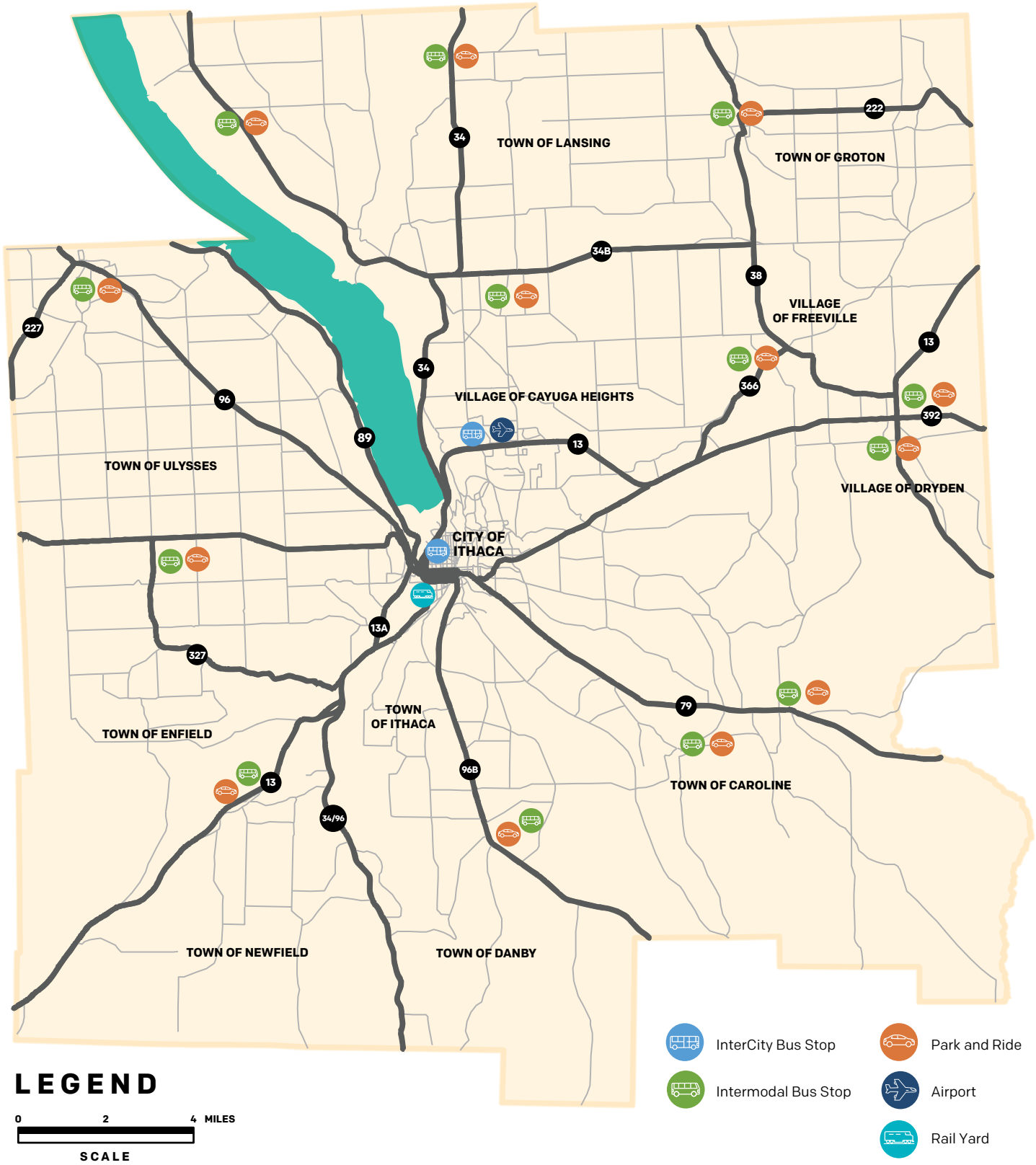
Other Private Sector Traveler Services

Taxi services, Limousine services, Car rental, and Transportation network companies (TNC)-currently Uber and Lyft.

Future Needs

- Continue to improve bus stops in ways that facilitate intermodal use. Projects may include: connecting bus stops to sidewalks, providing safe road crossings to reach bus stops (particularly in rural areas), providing bicycle parking, providing protected shelters, providing traveler information (next bus arrival time) – depending on the needs of individual stops.
- Rural service – implement initiatives to provide more cost-effective and convenient service to rural areas. Support pilot projects and trials that help identify effective solutions such as first mile-last mile connectors, on-demand or flex service, etc.
- Improve coordination between transportation providers to provide service enhancements that increase customer satisfaction – i.e. single payment systems, service frequency and quality, access to information, etc.
- Implement projects to reduce drive-alone commuter traffic – i.e. coordinate transit connections with neighboring counties, provide enhanced park and ride facilities, support ride sharing/carpooling programs, etc.

TOMPKINS COUNTY INTERMODAL FACILITIES 2018



Freight Movements

Freight movement in the Greater Ithaca-Tompkins County area must be addressed in a different manner than in larger metropolitan areas. This region does not serve as a major hub for the transport of goods, but rather serves mostly as a destination to which goods are brought. The area relies heavily on trucking for the movement of freight. Rail is used sporadically to transport materials to the Cayuga Power Plant. The railroad is also used to ship salt from the Cargill, Inc. salt mine in Lansing. A minimal amount of freight is flown into Tompkins County Airport and there are no specific plans to increase freight movement in this mode.

Tompkins County is served by a network of NY state roads that carry the bulk of truck traffic. Major freight destinations include downtown Ithaca, retail areas (i.e. Southwest Ithaca, NE Ithaca), Cornell University, Cargill Salt Mine, and various industrial parks. The ITCTC will work with NYSDOT and local governments to help implement projects and programs that lead to increased safety in freight movement and help mitigate the negative impacts of truck traffic in Tompkins County.

MAJOR FREIGHT GENERATORS AND MAJOR FREIGHT CORRIDORS IN TOMPKINS COUNTY

NON-MOTORIZED TRANSPORTATION FACILITIES

Active Transportation-Bicycle and Pedestrian Facilities

A fundamental policy position is that bicycling and walking are legitimate forms of transportation that must be incorporated in the design for transportation facilities and land use development. The Ithaca Urban area is well served with an extensive network of sidewalks and trails. Bicycling however continues to be the 'missing mode'. A few bicycle lanes have been installed in various municipalities and the Cornell campus, but they are not connected or part of a greater network. Creating a network of formal and coordinated on-road bike facilities will minimize the potential for conflict with motorized vehicles, thus making the system safer and more efficient for all modes. Together, the bicycle and pedestrian modes of transportation carry a significant percentage of the journey to work trips in Tompkins County (pedestrian = 14%; bicycling = 1.6%). These figures are significantly higher within urbanized areas, for example, in the City of Ithaca pedestrian = 36%; bicycling = 2.5%). To achieve most goals of the LRTP, every effort should be made to maintain and enhance the trip share of these alternative modes to the automobile.

Bicycle

The need to develop an integrated system of bicycling facilities is crucial. Various efforts have contributed to this end, but more work is needed.

- There are approximately 7 miles of dedicated bicycle lanes and 30 miles of multi-use trails in Tompkins County, mostly in the Ithaca urbanized area.
- The City of Ithaca adopted a Bicycle Plan in 1997. Much background and data work has been completed to help facilitate a plan update, possibly as part of a broader transportation plan for the city.
- The City of Ithaca has built a Bicycle Boulevard network that consist of about 3 miles of low-traffic and traffic-calmed streets in downtown Ithaca. In these streets, cyclist must share the travel lane with motor-vehicles.
- Bicycle parking is available throughout the Ithaca urban area, including the college campuses. However, more is needed at strategic origin and destination points. Covered and secure bicycle parking is also limited.
- The ITCTC produces a bicycling suitability map that is updated every two years – www.tompkinscountyny.gov/itctc/projects#bicyclemap.

2018 ITHACA BICYCLE USE AND ATTITUDES SURVEY

www.bikewalktompkins.org/blueprint

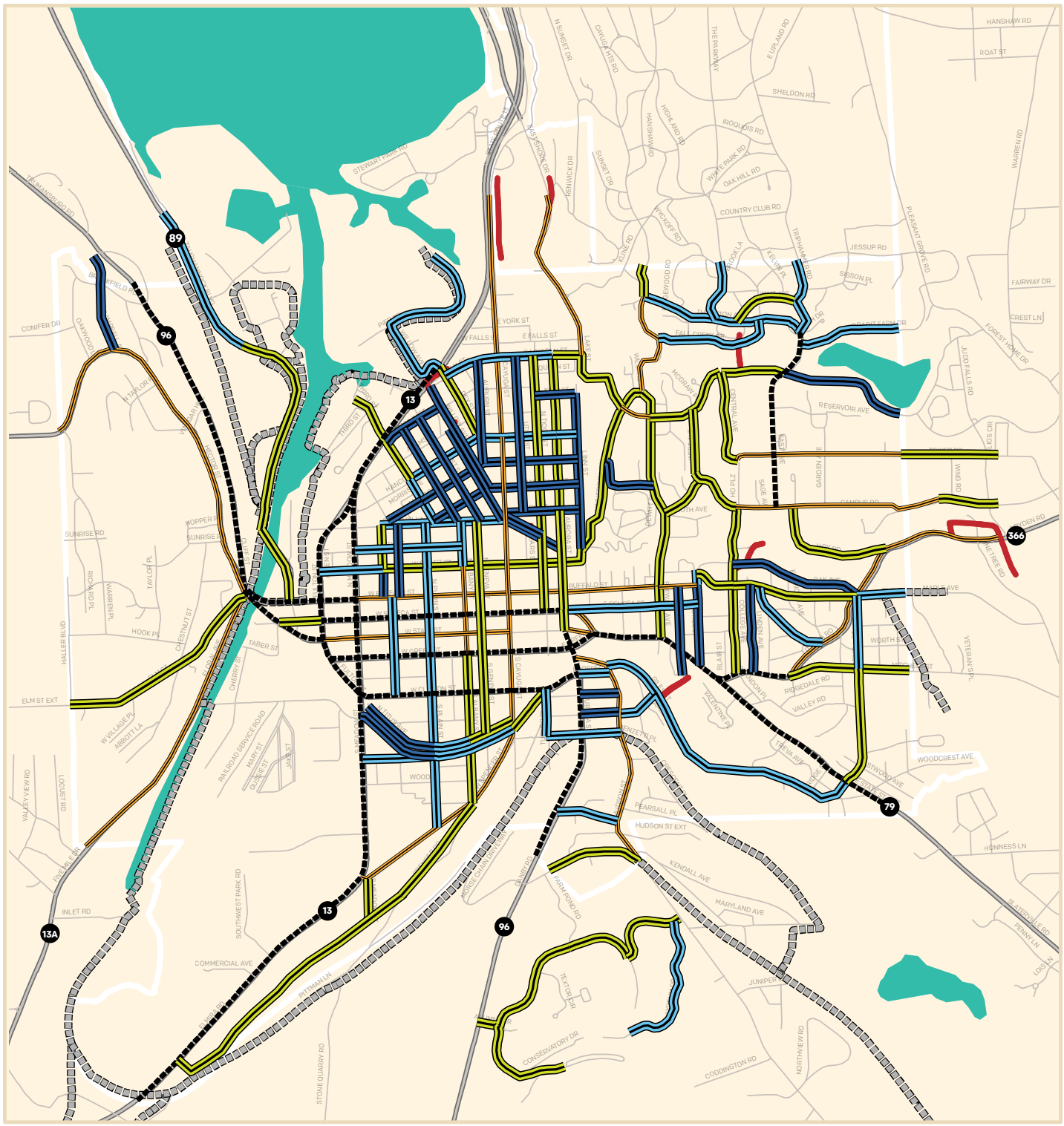
In February 2018, Bike Walk Tompkins and the Ithaca-Tompkins County Transportation Council commissioned the 2018 Ithaca Bicycle Use and Attitudes Survey. Over 300 randomly chosen residents were contacted to learn about their current bicycling use, their interest in bicycling, the barriers they face, and the infrastructure they would like to have available. The results show that there is a growing number of people bicycling, and a majority of people are interested in bicycling more often and want more bike infrastructure.

Principal Findings:

- 80% of survey respondents agree or strongly agree that bicycling is part of Ithaca's transportation mix.
- A majority of people (51%) are definitely or potentially interested in bicycling more often in and around Ithaca, while only 23% explicitly expressed disinterest in bicycling.
- 65% of non-student residents indicated that they would drive alone less often if they cycled more.
- The discrepancy between interest in cycling and current use means that there's a sizable group of people that would bicycle more often when their concerns are addressed. The City of Ithaca and Tompkins County could significantly advance multiple public policy goals by making bicycling a more desirable mode of transportation among the majority that is already interested in doing so.
- Main barriers to bicycling include hills and weather; unsure about bicycling skills; discomfort next to moving vehicles.
- Discomfort next to moving vehicles is the top barrier to bicycling in Ithaca that can be directly addressed, particularly through infrastructure improvements.
- Most people are most comfortable biking on protected bike lanes, traffic-calmed streets, and bicycle paths.
- It is necessary in and around Ithaca is that these types of facilities be part of a connected network.
- 77% of respondents agree or strongly agree that there should be more bike infrastructure on the streets in and around Ithaca.

BIKE SUITABILITY 2018 COUNTY WIDE

BIKE SUITABILITY 2018 CITY OF ITHACA



LEGEND

0 .45 .9 MILES

SCALE

- Very Heavy Volume
- Heavy Volume
- Medium Volume
- Low Volume
- Very Low Volume
- Multi-Use Trails

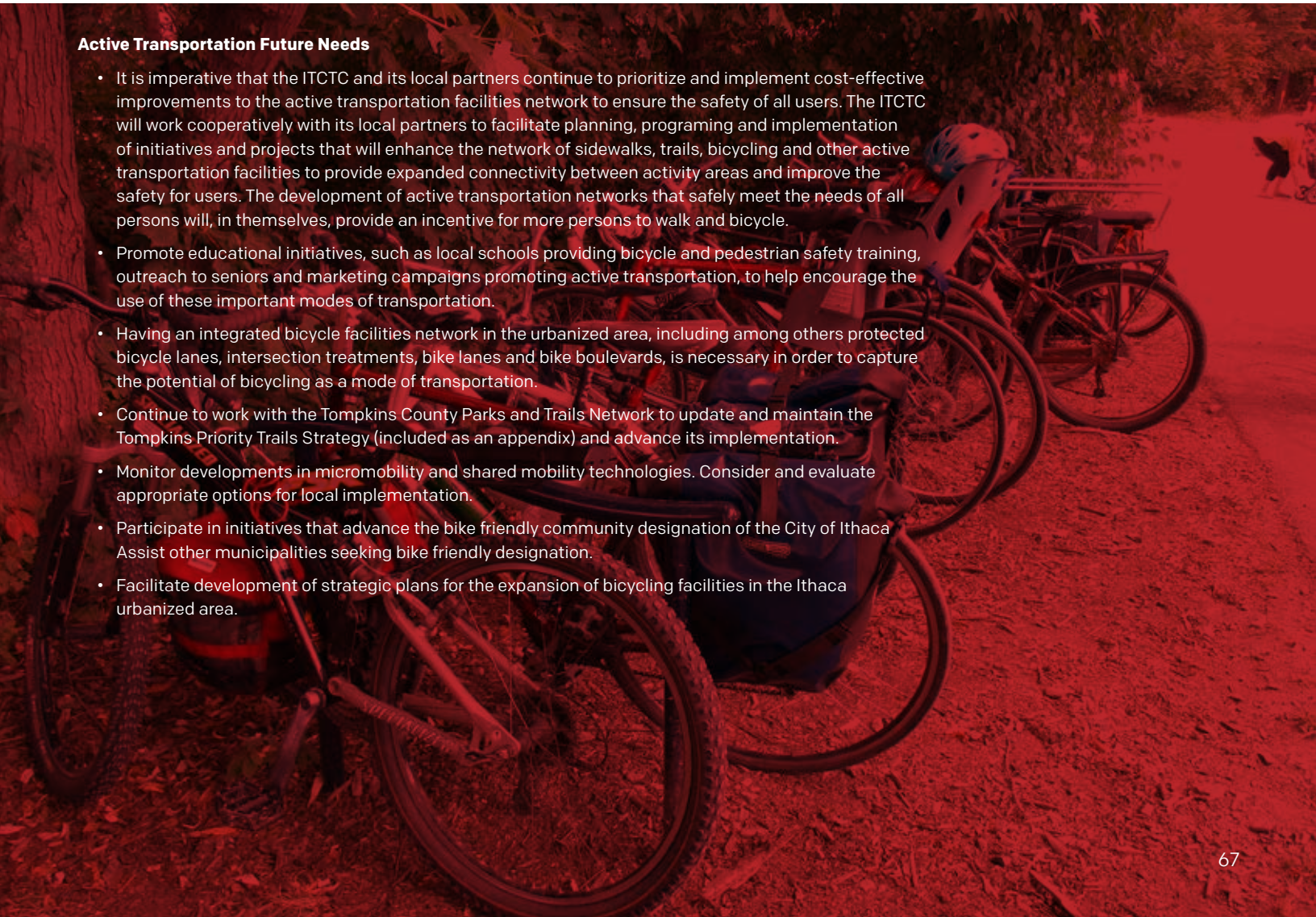
Pedestrian

Pedestrian movements are an extremely important component of local transportation planning. The ITCTC seeks to enhance the pedestrian experience to maintain and increase the number of people who choose this mode of transportation to complete their daily trips.

- The City of Ithaca has a comprehensive network of sidewalks. Through its exemplary sidewalk policy, the city is systematically maintaining existing sidewalks and providing the new facilities to help close gaps in network. The Sidewalk Policy dates to 2014 and moved away from burdening individual property owners with the entire cost of installation and maintenance for sidewalks adjoining their property, towards the creation of five Sidewalk Improvement Districts funded by an annual sidewalk assessment fee.
- Outside the City of Ithaca sidewalks are found mostly in the Tompkins County villages and in areas of the Town of Ithaca where there are denser settlement patterns.
- The need to comply with ADA standards, and to consider issues such as how traffic signal (phase) timing may affect an elderly/ disabled person's ability to safely cross a street, is an important consideration in pedestrian planning. The importance of this issue will continue to increase as the average age of the population increases over the next 20 years.

STREETS WITH SIDEWALKS

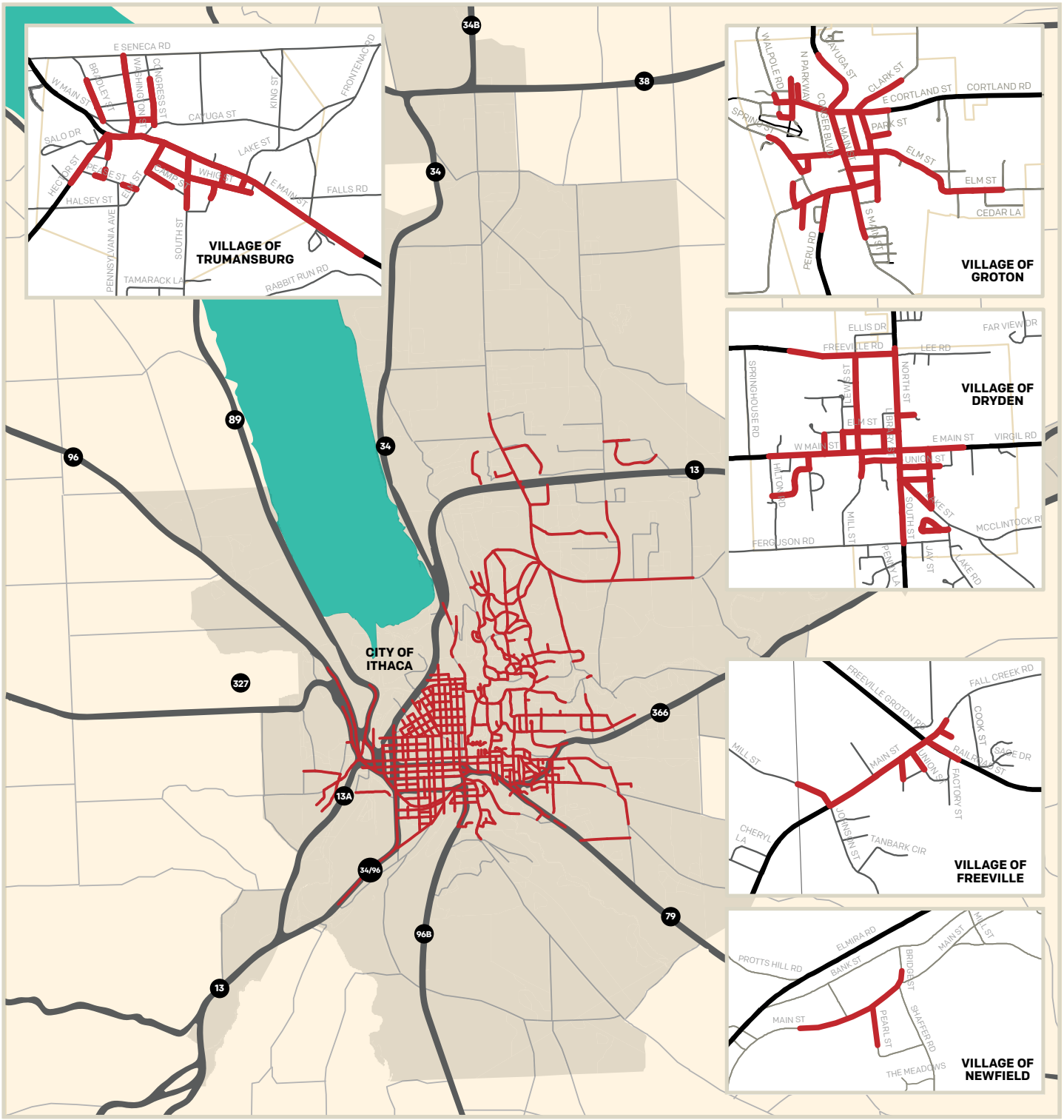
MUNICIPALITY	ROAD MILES	SIDEWALK MILES	% ROADS W/ SIDEWALKS
CITY OF ITHACA	89.7	56.3	62.7%
TOWN OF ITHACA (W/O V.CAY.HGTS)	115.3	12.1	10.5%
VILLAGE OF CAYUGA HEIGHTS	24.6	8.8	35.8%
VILLAGE OF DRYDEN	11.9	5.8	48.7%
VILLAGE OF FREEVILLE	6.1	.5	8.2%
VILLAGE OF GROTON	12.5	6.5	52.0%
VILLAGE OF LANSING	33.0	3.1	9.4%
VILLAGE OF TRUMANSBURG	12.6	3.9	31.0%



Active Transportation Future Needs

- It is imperative that the ITCTC and its local partners continue to prioritize and implement cost-effective improvements to the active transportation facilities network to ensure the safety of all users. The ITCTC will work cooperatively with its local partners to facilitate planning, programing and implementation of initiatives and projects that will enhance the network of sidewalks, trails, bicycling and other active transportation facilities to provide expanded connectivity between activity areas and improve the safety for users. The development of active transportation networks that safely meet the needs of all persons will, in themselves, provide an incentive for more persons to walk and bicycle.
- Promote educational initiatives, such as local schools providing bicycle and pedestrian safety training, outreach to seniors and marketing campaigns promoting active transportation, to help encourage the use of these important modes of transportation.
- Having an integrated bicycle facilities network in the urbanized area, including among others protected bicycle lanes, intersection treatments, bike lanes and bike boulevards, is necessary in order to capture the potential of bicycling as a mode of transportation.
- Continue to work with the Tompkins County Parks and Trails Network to update and maintain the Tompkins Priority Trails Strategy (included as an appendix) and advance its implementation.
- Monitor developments in micromobility and shared mobility technologies. Consider and evaluate appropriate options for local implementation.
- Participate in initiatives that advance the bike friendly community designation of the City of Ithaca Assist other municipalities seeking bike friendly designation.
- Facilitate development of strategic plans for the expansion of bicycling facilities in the Ithaca urbanized area.

TOMPKINS COUNTY SIDEWALK INVENTORY 2018



LEGEND

Roads with sidewalks

0 1 2 MILES

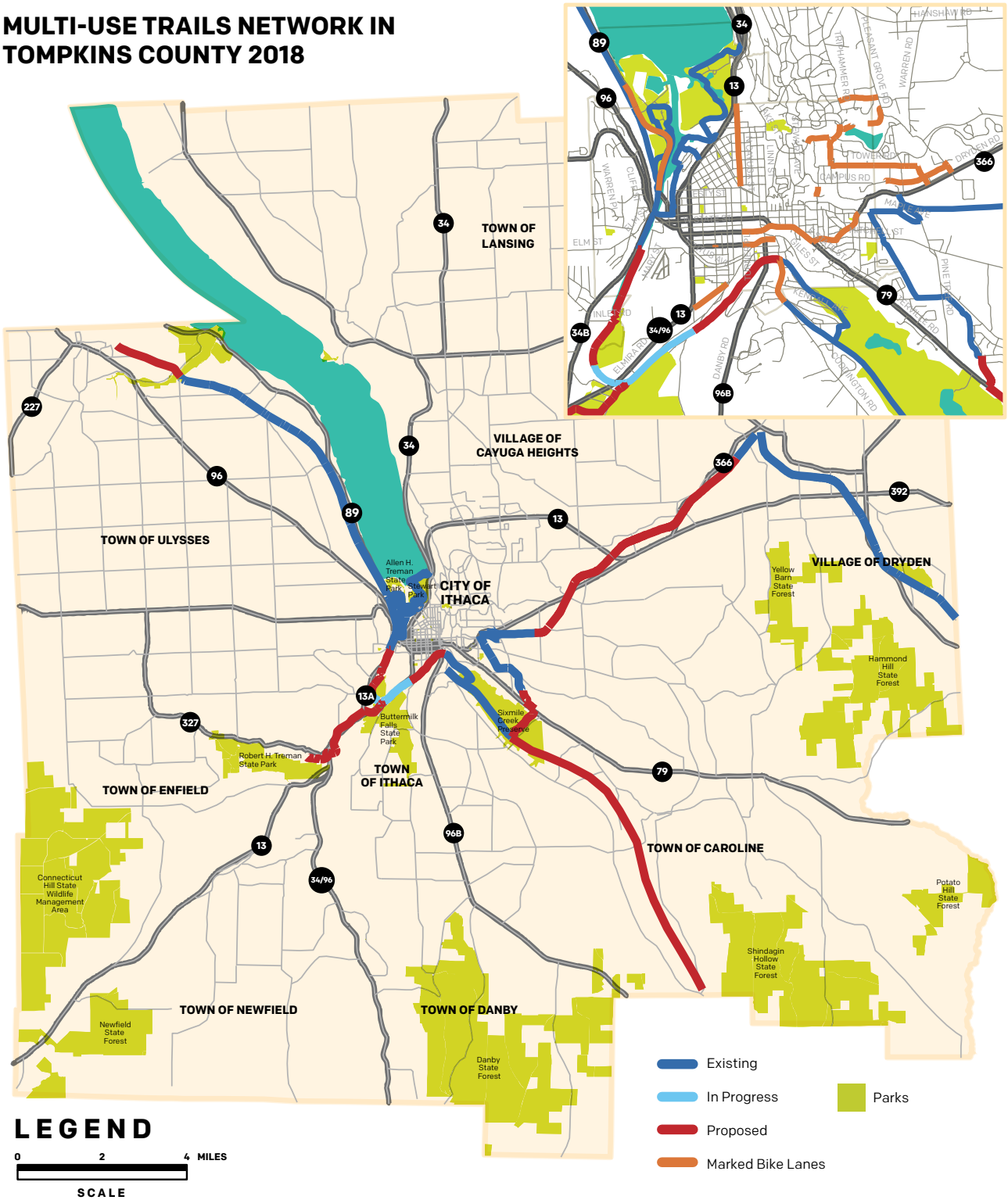
SCALE

Multi-Use Trails

The Tompkins Priority Trails Strategy is included as an appendix to this plan. It identifies a network of trails, the Tompkins County Priority Trails and Urban Connectors, and specifies steps needed to reach trail development. The Tompkins Priority Trails Strategy includes plans for up to 51 miles of connected multi-use trails that will provide regional pedestrian and bicycle connections to many population centers and important destinations.

- There are approximately 30 miles of existing multi-use trails Tompkins County.
- The Black Diamond and Cayuga Waterfront Trails meet at Cass Park in the City of Ithaca. Together they extend approximately 14 miles linking Taughannock Falls State Park near Trumansburg to the City of Ithaca and ending at Stewart Park.

MULTI-USE TRAILS NETWORK IN TOMPKINS COUNTY 2018

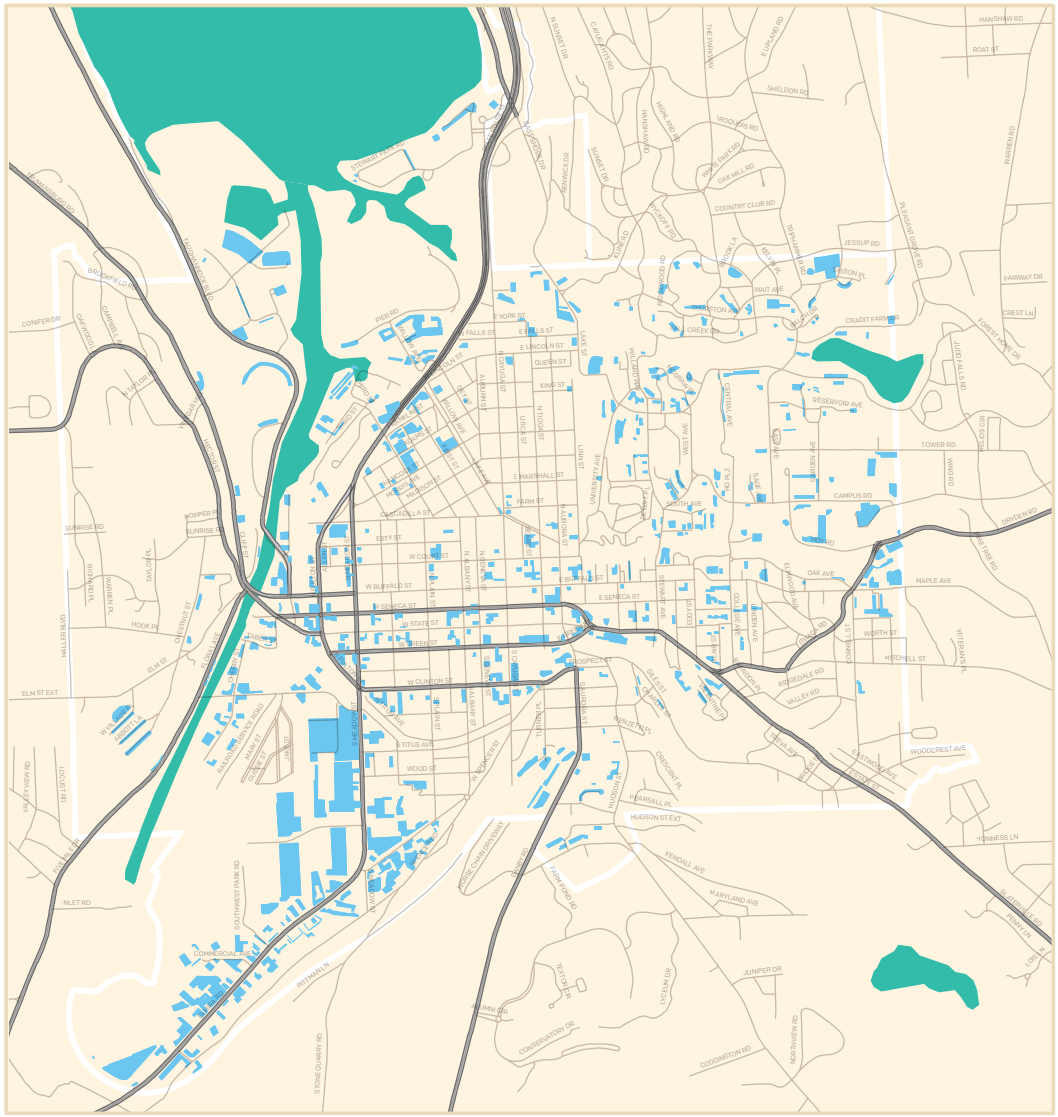


PARKING FACILITIES

Parking areas are an integral part of the transportation system. Their construction, maintenance (including snow removal), and performance must be considered as part of any planning process. The City of Ithaca and Cornell University include the principal employment centers in Tompkins County. In addition, they generate a significant number of recreational and other personal trips. Parking management in these two critical areas is crucial to addressing traffic circulation and public transportation issues.

- The City of Ithaca has three structural parking garages that serve the downtown area and one in Collegetown.
- There extensive on-street parking including metered parking in the vicinity of downtown Ithaca.
- Many businesses also offer parking to their customers particularly in the automobile-oriented retail developments along State Route 13/Elmira Road.
- The City of Ithaca has an ongoing parking study (2019-2020) that will help identify parking management strategies. The ITCTC will monitor developments and cooperate with the City in this effort.
- Cornell offers a network of parking facilities focusing on the campus periphery including two parking garages and two major surface lots.

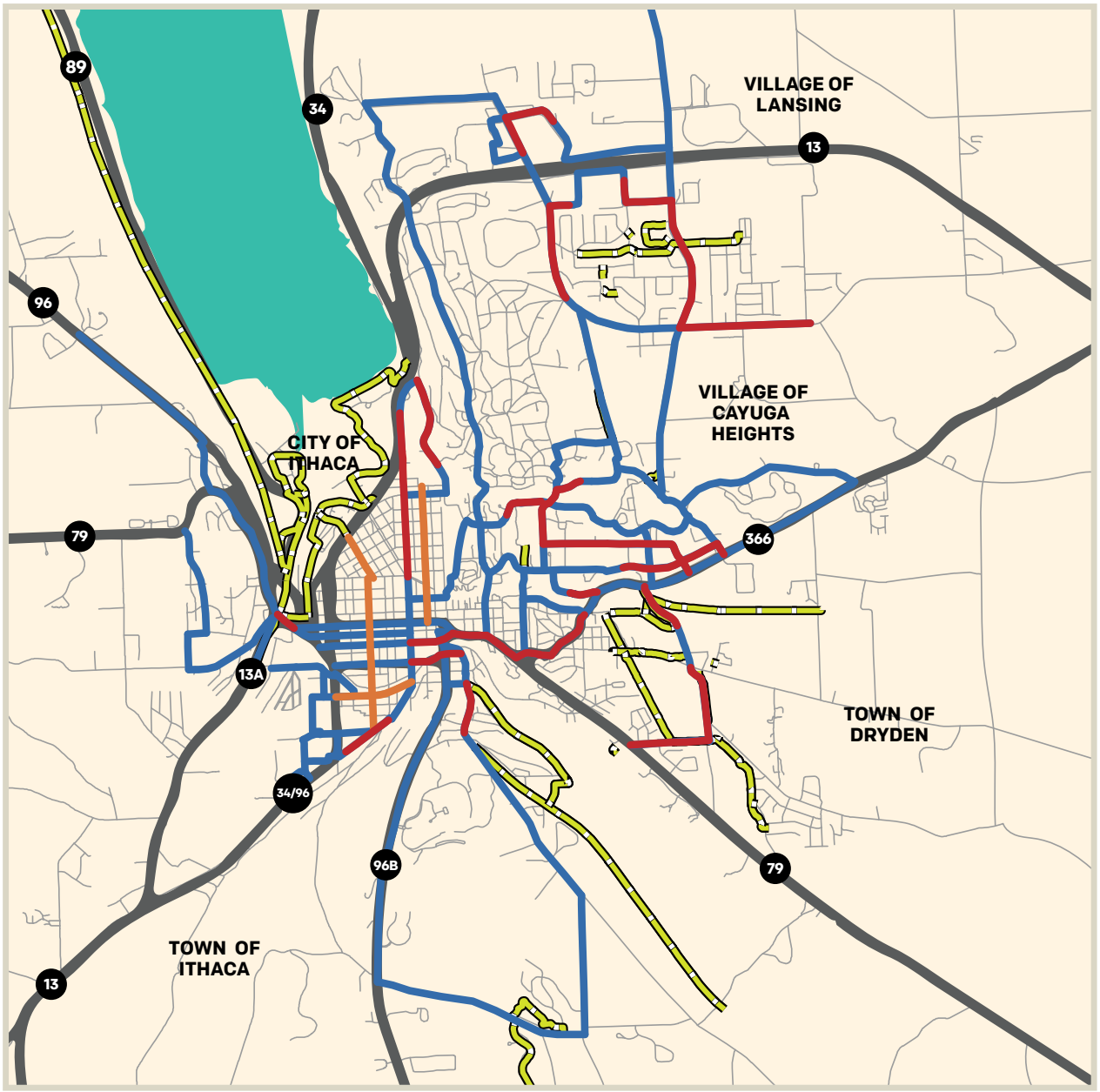
LOCATION OF PARKING AREAS CITY OF ITHACA



COMPLETE STREETS NETWORK

The Planning Committee of the ITCTC, identified a well-coordinated network of roads to form a Complete Streets Network for the urbanized area of Tompkins County. A 'Complete Street' is a street designed and operated to enable safe access for all users regardless of their mode of transportation, so that pedestrians, bicyclists, motorists or public transportation users of all ages and abilities can move safely along and across the street. The roadways selected have been inventoried to determine existing complete street design components. Over time, as maintenance and construction take place on these roads, the ITCTC will work with local project sponsors to include additional complete street components. As the network is completed it will tie together numerous residential, employment and activity centers so that travelers will have multiple transportation options to reach their destinations.

COMPLETE STREETS NETWORK APRIL 2019



LEGEND

0 1 2 MILES

SCALE

Complete Street definition:
- Sidewalk on at least one side of the street
- Marked Bicyle Lane, Wide Road Shoulder, or Bicyle Boulevard
- Within 1/4 mile of hourly (minimum) Bus service

- Current Complete Streets - meets all modes
- Bike Boulevard
- Proposed Complete Streets Inventory
- Existing Multi-Use Trails and Paths

Environmental Concerns

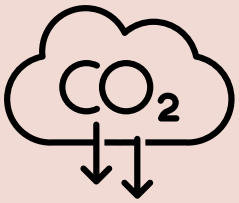
The transportation system must balance the protection of our natural, social, cultural, and historical resources with the need to address transportation demands. It is undeniable that the provision of transportation, particularly a system based on internal combustion engine cars and trucks, generates significant undesirable environmental impacts. Environmental concerns range from the more vehicle related issues (e.g. air quality, noise impacts, energy use, etc.), to project construction issues (location relative to sensitive lands, impacts to water resources, habitats, etc.), to more community-level planning concerns (e.g. neighborhood preservation/impacts, jobs/housing balance, appropriate mixed-use development, etc.). As a result, addressing environmental impacts related to transportation will necessarily result in considerable overlap between multiple planning disciplines, i.e. land use, economic development, neighborhood planning, natural areas planning, etc.

Air Quality-Greenhouse Gas Emissions (GHG)

- The Tompkins County Comprehensive Plan includes an 'Energy and Greenhouse Gas Emissions Element' and a ''Greenhouse Gas Emissions and Energy Use Inventory' (2016). ITCTC staff worked with the Tompkins County Planning Department to ensure that their plans and the ITCTC's Long Range Transportation Plan were mutually supportive.
- The Tompkins County community has established a goal to reduce GHG emissions at least 80% from 2008 levels.
- Currently, Tompkins County is in attainment of National Ambient Air Quality Standards. However, it is understood that failure to consider emission issues in an integrated and comprehensive manner could lead to continued and unacceptable degradations in air quality.
- Nationwide the transportation sector produces the most GHG emission, approximately 29% of total emissions (Source: U.S. Environmental Protection Agency (EPA), Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017, April 2019). Trucks and cars account for 83% of the transportation related emissions.
- In Tompkins County, transportation (31%) and commercial (35%) are the two largest sectors contributing to GHG emissions, with near equal emissions totals.
- Gasoline is the fuel that emits the highest level of greenhouse gases. In the Tompkins County transportation sector, the vast majority of energy use and GHG emissions are from gasoline (81.1%), followed by diesel (15.1%). Approximately 95% of vehicle miles of travel are from passenger vehicles and light trucks. This means that to have a real impact on emissions reductions the focus needs to be on cars, SUVs, vans, minivans and light trucks, less so on buses and heavy trucks.

REDUCING EMISSIONS

Future scenario analyses by the ITCTC demonstrate that there is no single solution to the challenge of reducing GHG emissions from transportation. In order to reduce GHG emissions to match county goals, it is necessary to reduce overall vehicle miles of travel and replace internal combustion engines with electric or plug-in hybrid electric technologies.



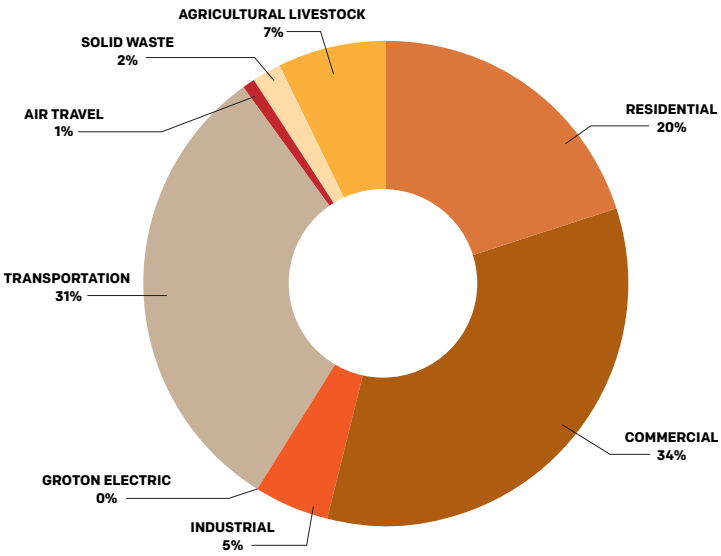
The policies, projects and initiatives in the LRTP support the development of transportation systems and programs that reduce dependence on internal combustion engine (ICE) automobiles, and particularly single occupancy vehicle use. This is encouraged by providing improved services and facilities for other modes, by supporting transportation demand management (TDM) programs and by supporting land use development practices that facilitate multiple modes of transportation. Concurrent with the above, the LRTP recommends fleet efficiency improvements that reduce fossil fuel use (shift to electric and plug-in electric vehicles) and improvements in transportation system operations that result in enhanced system efficiency, reducing congestion and idle time. Together, these will result in reduced GHG emissions and other negative impacts of ICE automobile use.

SUMMARY OF 2014 ENERGY CONSUMPTION AND GHG EMISSIONS BY SECTOR

SECTORS	ENERGY IN MMBTu	% OF TOTAL	EMISSIONS MTCO2e	% OF TOTAL
RESIDENTIAL	3,444,657	24%	197,241	20%
COMMERCIAL	5,435,572	38%	349,579	34%
INDUSTRIAL	854,854	6%	48,141	5%
GROTON ELECTRIC	86,457	1%	2,137	0%
TRANSPORTATION	4,275,412	30%	304,923	31%
AIR TRAVEL	152,969	1%	12,172	1%
SOLID WASTE	0	0%	15,114	2%
AGRICULTURAL LIVESTOCK	0	0%	66,612	7%
TOTAL	14,249,921	100%	995,919	100%

Source: 2014 Tompkins County Community Greenhouse Gas Emissions and Energy Use Inventory
MTCO2e–metric ton of carbon dioxide equivalent-a measure of the combined ability of emitted GHGs to trap heat.
MMBtu–Million British Thermal Units-measure of energy content in fuel; used in comparing energy content of various fuels.

EMISSIONS BY SECTOR-TOMPKINS COUNTY-2014



TRANSPORTATION FUELS: 2014 ENERGY CONSUMPTION AND GHG EMISSIONS – TOMPKINS COUNTY

FUEL	US GALLON	ENERGY IN MMBTu	% OF TOTAL	EMISSIONS MTCO2e	% OF TOTAL
GASOLINE	29,034,150	3,631,500	82.0%	257,272	81.1%
DIESEL	4,673,058	643,912	14.5%	47,651	15.0%
JET FUEL	1,241,929	149,031	3.4%	11,898	3.8%
AVIATION GASOLINE	32,820	3,938	0.1%	274	0.1%
TOTAL	34,981,957	4,428,381	100%	317,095	100.0%

Source: 2014 Tompkins County Community Greenhouse Gas Emissions and Energy Use Inventory

Land Use Planning

In New York, land use and transportation planning have occurred in relative isolation from each other. In the July 1994 edition of the Land Use Law Reporter (Pace University School of Law, Albany, New York) it was stated the following...

"...failure to coordinate land use and transportation planning has:

- **made it very difficult if not impossible, to predict transportation demand and plan effective regional transportation systems;**
- **created land use patterns that are automobile dependent, energy inefficient, environmentally damaging and that cannot be serviced properly by public transportation systems;**
- **generated traffic congestion that increases air pollution..."**

These statements are still valid twenty-five years later as communities across the New York continue to struggle with containing sprawl development, and managing congestion, energy and air pollution issues.

- Land use patterns are fundamental determinants of the number of trips that people make.
- Zones that offer a mix of complementary land uses (e.g., commercial, residential, recreational) together with supporting design guidelines, enable persons to combine trips, encourage more pedestrian and bicycle trips, facilitate the provision of transit, reduce the number and length of automobile trips, and result in reductions in congestion, and consequently, energy consumption and vehicular emissions. The ITCTC will work with municipalities in support of developing and implementing land use policies and projects that take advantage of these urban efficiencies.
- In all cases transportation challenges must be managed based on the conditions of each location and considering the need and desires of the community. There is no single strategy or recommendation that will serve all locations or address all issues.
- Equity considerations. Proposed transportation projects must be evaluated to ensure environmental, social, cultural, and economic impacts are not disproportionately affecting any neighborhood, community or group, so as to not unfairly burden or advantage any socioeconomic group or community. Transportation related technical project evaluations are important, but it is also crucial to analyze the transportation system to ensure that the principles of social and environmental justice and ecological sustainability are achieved. Not all population groups have similar demands from our transportation system. Census data shows that minority and low-income populations use a greater variety of modes than white non-Hispanics for the important trip to work. This type of differences must be recognized in order to best serve the needs of all communities.

Minimizing Negative Impacts on the Natural Environments and Historic Resources

Although transportation projects can have undesirable impacts on the natural environment, measures can be taken to reduce and minimize these effects. The ITCTC will continue to monitor proposed federally funded projects and programs to make sure they don't impact environmentally sensitive areas. Projects with severe environmental impact, such as construction of new roadways, are rare within the ITCTC planning area. Nevertheless, Tompkins County features a high concentration of natural and historic resources that may be subject to the adverse impacts of transportation projects. These resources include gorges, forests, and wetlands, as well as significant architectural sites.

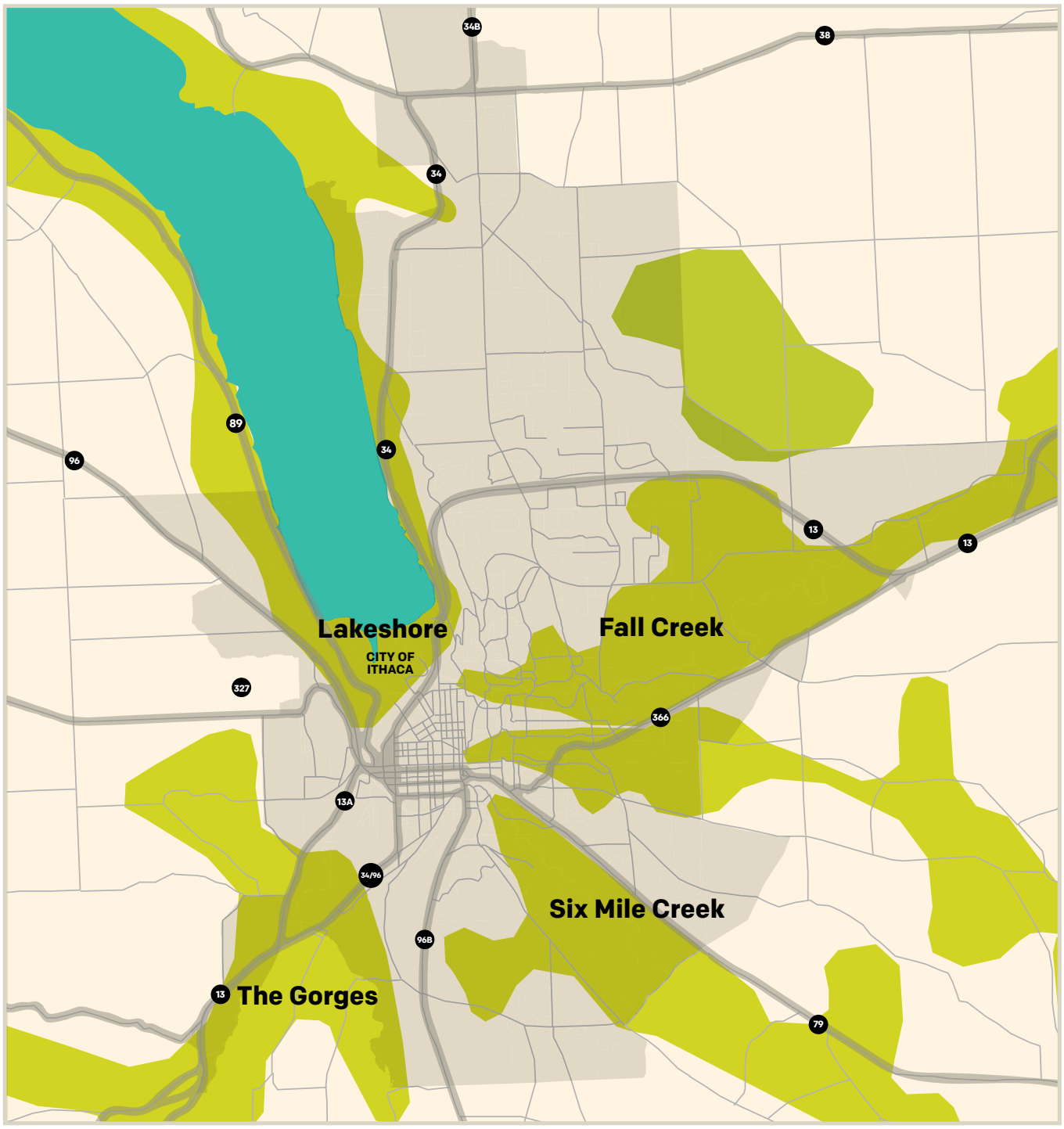
To that end, the ITCTC will continue to coordinate with the Tompkins County Department of Planning and Sustainability (TCDPS) and their Natural Resources and Agriculture initiatives – www.tompkins countyny.gov/planning/nri. TCDPS has identified Natural Features Focus Areas; Unique Natural Areas, Federal and State Wetlands; and Historic Bridges and Structures in the ITCTC region. This information is used to track potential impact of transportation projects.

Additional recommended actions that reduce environmental impacts include:

- diverting storm-water runoff to retention basins to reduce salt, silt, and thermal contamination;
- collecting paint chips from bridge maintenance projects to protect streams from lead contamination;
- minimize the use of salt in winter;
- ensure sedimentation and herbicidal pollution are minimized during maintenance practices;
- minimize the use of defoliants and herbicides by planning for maintenance free plantings through State or National wildflower programs;
- maintain the health and effectiveness of roadside trees, shrubs and groundcover;
- Work to eliminate the use of herbicides;
- Cleaning roadside drainage systems has been identified as a major source of sedimentation in creeks feeding Cayuga Lake. Effective mitigation measures such as immediate reseeding of ditch sides after cleaning should always be implemented.

NATURAL FEATURES FOCUS AREAS IN TOMPKINS COUNTY, NY

NATURAL FEATURES FOCUS AREAS IN ITHACA, NY



LEGEND

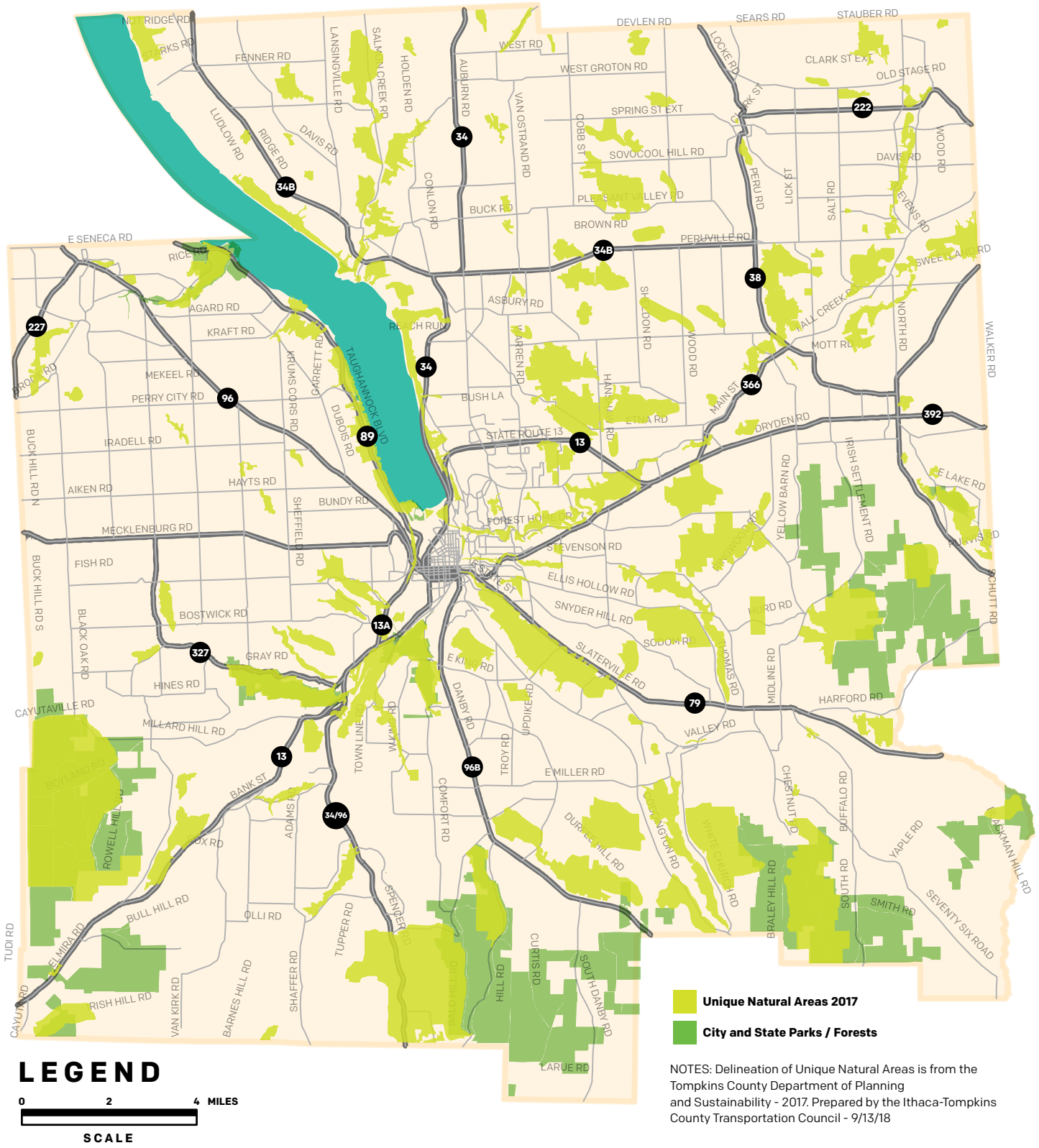
0 1 2 MILES

SCALE

Natural Features Focus Areas

Delineation of Natural Features Focus Areas is from the Tompkins County Planning Department - 2004.

UNIQUE NATURAL AREAS (UNAs) IN TOMPKINS COUNTY, NY



UNIQUE NATURAL AREAS (UNAs) IN ITHACA, NY

LEGEND

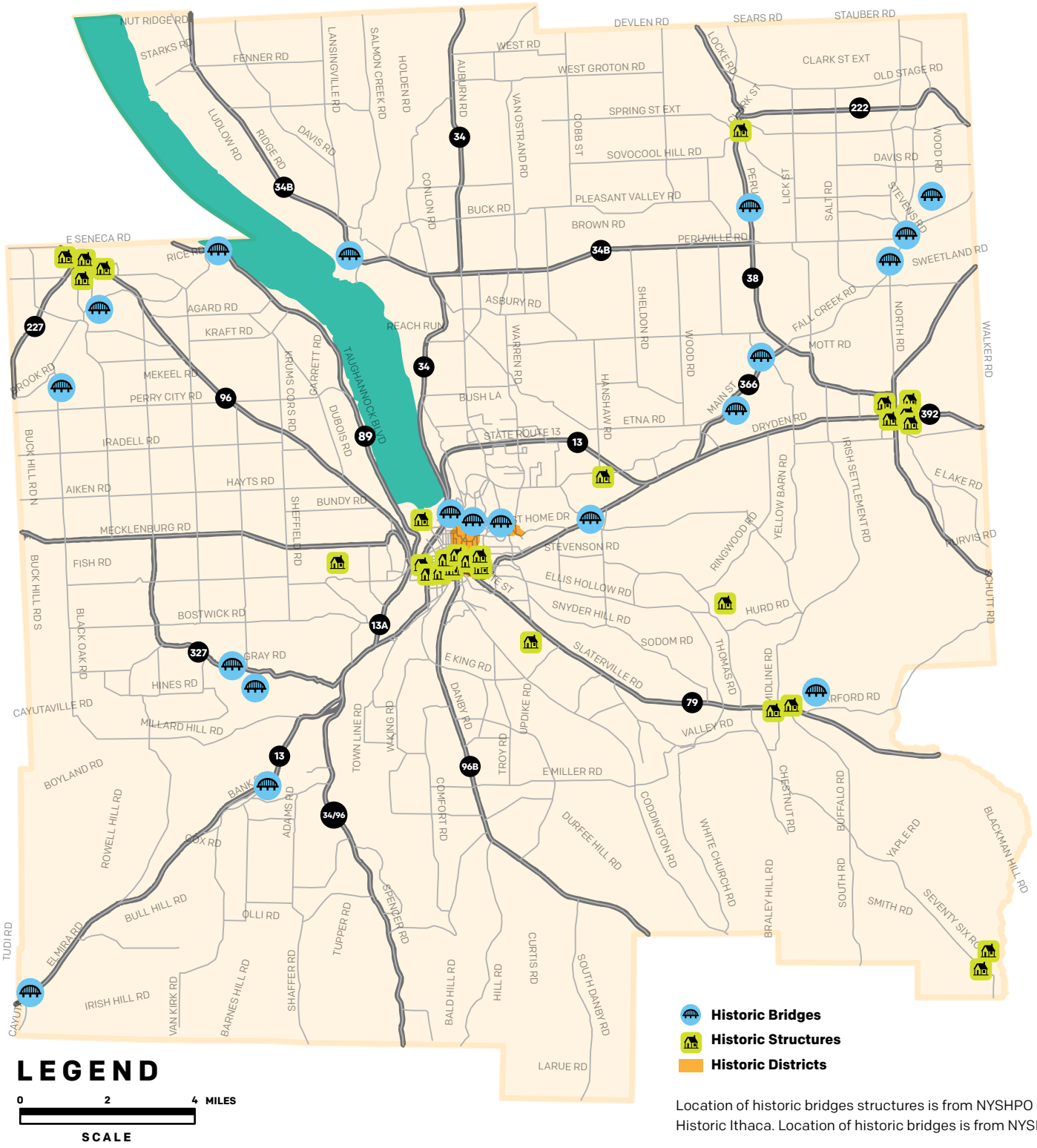
0 1 2 MILES

SCALE

- **Unique Natural Areas 2017**
- **City and State Parks / Forests**

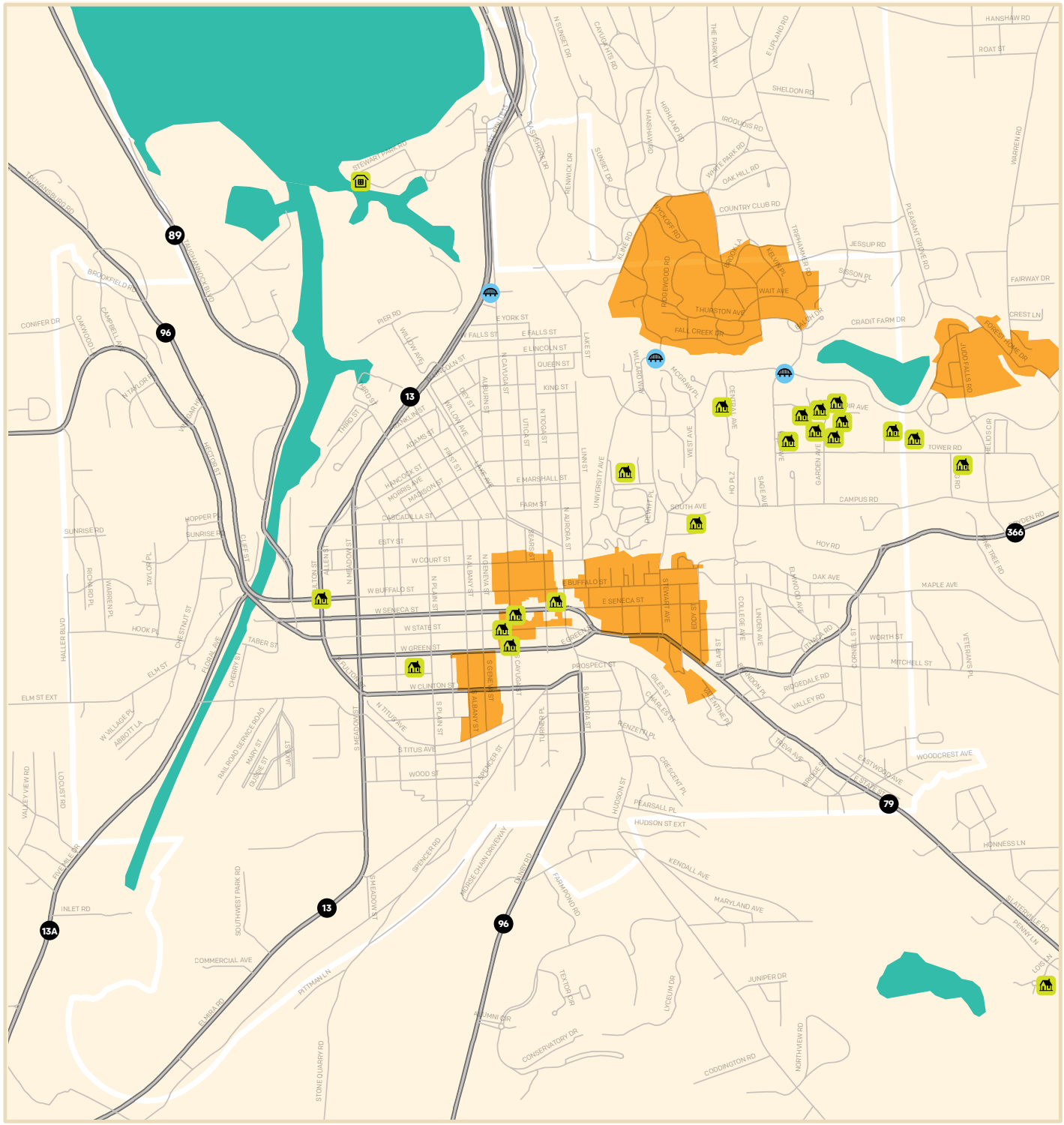
NOTES: Delineation of Unique Natural Areas is from the Tompkins County Department of Planning and Sustainability - 2017. Prepared by the Ithaca-Tompkins County Transportation Council - 9/13/18

HISTORIC BRIDGES AND STRUCTURES IN TOMPKINS COUNTY, NY



Location of historic bridges structures is from NYSHPO and Historic Ithaca. Location of historic bridges is from NYSDOT.

HISTORIC BRIDGES AND STRUCTURES IN THE CITY OF ITHACA, NY



Location of historic bridges structures is from NYSHPO and Historic Ithaca. Location of historic bridges is from NYSDOT.

Scenic Resources

Residents in Tompkins County have shown a strong desire to consider the aesthetics and impacts of roadway projects during the planning stages. The ITCTC supports the idea that "infrastructure should fit the land", through consideration of geographic and environmental conditions, but also through placement and design. To help identify and protect scenic areas, vistas, and corridors, Tompkins County completed a Tompkins County Scenic Resources Inventory, (www.tompkinscountyny.gov/planning/nri-scenic_resources).

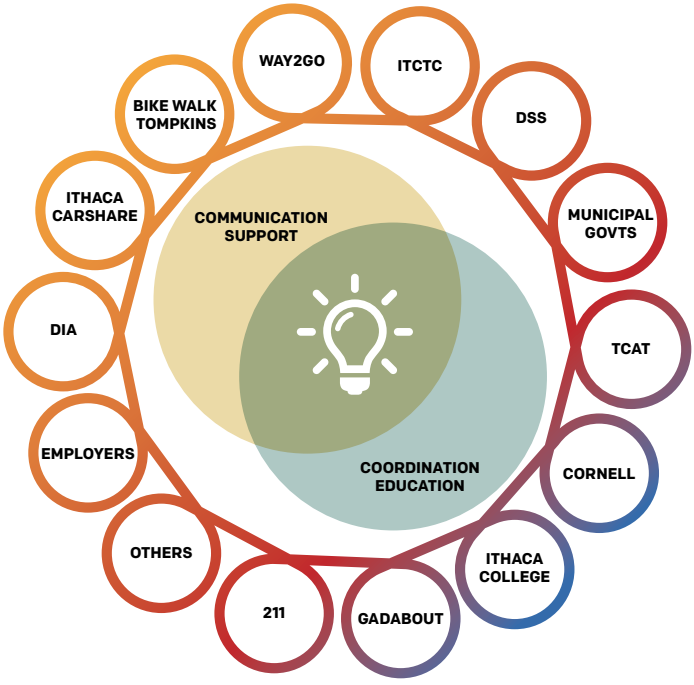
The New York State Scenic Byways Program designated the Cayuga Lake Scenic Byway (CLSB) as a scenic byway in 2001. The CLSB is an eighty-six-mile-long system of roads circumventing Cayuga Lake, including: State Roads 89, 90, 34, 34B and 5/20 (www.cayugalake.com). Currently, the non-profit corporation Cayuga Lake Scenic Byways, Inc., serves as the facilitator agency implementing the byway's corridor management plan, applying for funding and otherwise managing the development of the CLSB in cooperation with interested parties and all three counties with jurisdiction: Cayuga, Seneca and Tompkins. It is expected that, together with the Route 90 Scenic Byway, the CLSB will provide a solid foundation for the development of a broader Finger Lakes Scenic Byway network. The ITCTC will continue its support of the CLSB for the benefit of residents and visitors to Tompkins County.

Collaborations

Achieving the goals of this plan will require active collaboration between all stakeholder parties in the provision of transportation. This includes everyone from civic groups, like Downtown Ithaca Alliance to private non-profits, like the Center for Community Transportation, to municipalities and other government agencies. Most major recent achievements in transportation in Tompkins County are the result of significant collaboration efforts. Examples include :

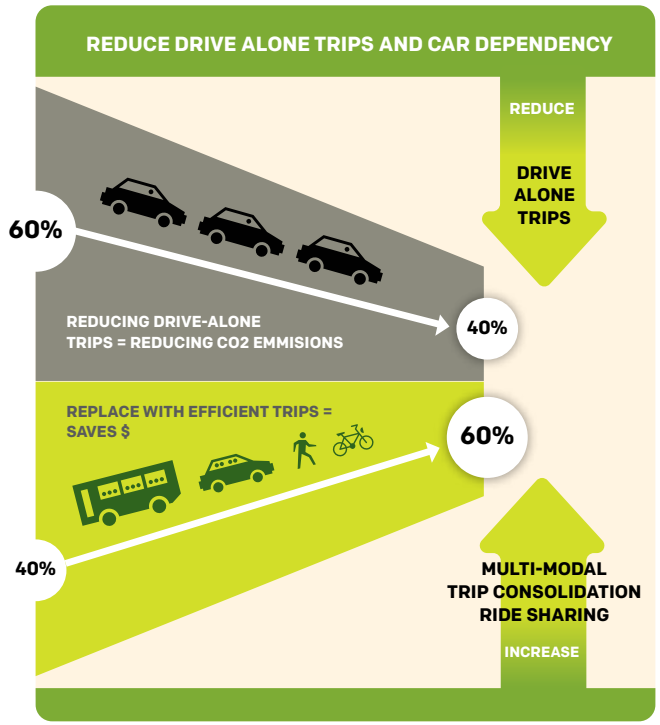
- TCAT – City of Ithaca, Cornell University and Tompkins County
- Ithaca Carshare – citizen involvement, Cornell University, Ithaca College, ITCTC
- Finger Lakes Rideshare – ITCTC, Cornell University, Ithaca College, TC3, Wells College, Binghamton University, City of Cortland, Tompkins County, TCAT, Way2Go
- Cayuga Waterfront Trail - Tompkins County Chamber of Commerce, City of Ithaca, ITCTC, citizen involvement
- School Success Transportation Coalition – www.schoolsuccesstc.weebly.com/ - school district, Way2Go, ITCTC, Dept. of Social Services

This is just a small sampling of collaborations that have resulted in significant projects. There are many more already built or ongoing as well as in the planning stages. An important function of the ITCTC is to continue to foster and support collaborative efforts that help a small urban area like Ithaca-Tompkins County achieve success in the implementation of transportation projects and programs.



Looking to the Future

Experience and analysis show that in the transportation sector there is no single solution to meet the needs of all travelers. Every person has individual needs and although it will be possible to serve many with particular services such as fixed route transit, there will always be some that are left out and will need different strategies to meet their needs. There is also an operational imperative to increase safety and help reduce negative impacts to our communities and the environment. In summary, the ITCTC's action plan seeks to meet the transportation challenges in our community by maintaining existing infrastructure and systems, expanding and promoting multi-modal mobility, and expanding community collaboration for transportation demand management, mobility services, education and promotion.

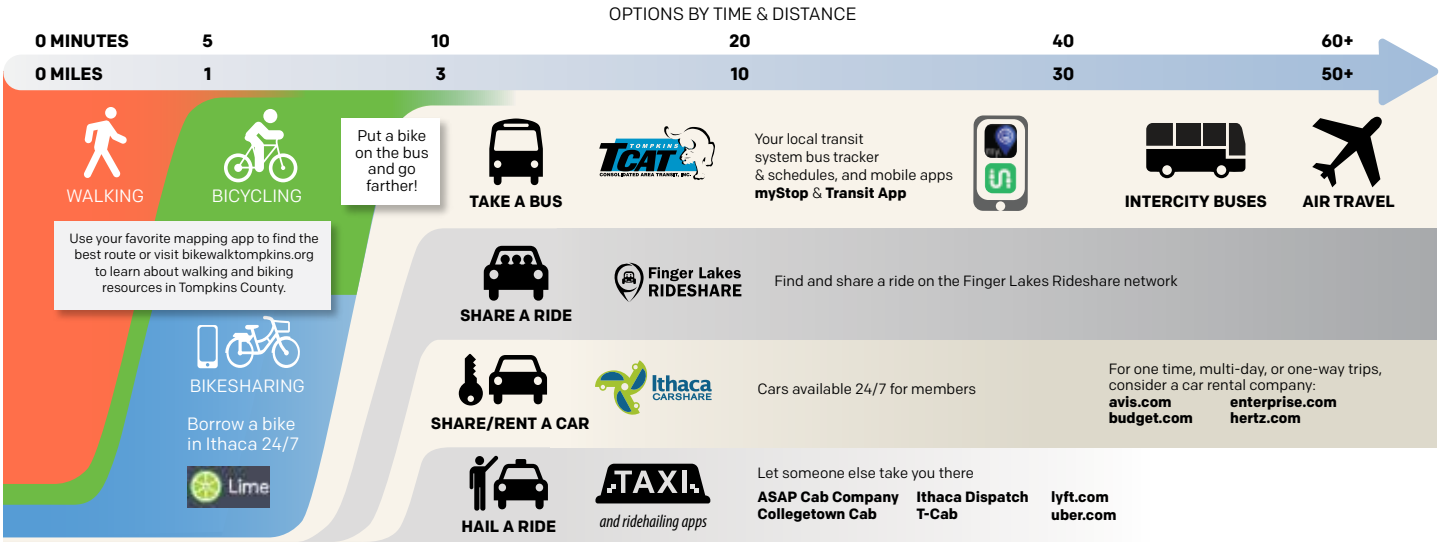


Expand and Promote Multimodal Mobility Options and Integration

The LRTP goals and objectives stress the need to facilitate the use of alternatives to the automobile. Having more options for transportation creates multiple community benefits such as: cost savings from reduced private automobile expenses; reduced Greenhouse Gas emissions and fossil fuel consumption; reduced water pollution from vehicular fluids; reduced congestion; less traffic accidents; health improvements from active transportation; transit enhancements; more equitable access to transportation; etc.

In Tompkins County the main strategy for improving mobility is founded on reducing drive-alone trips and miles traveled through the diversion of trips to other modes of transportation, primarily transit, ridesharing/carpooling, walking and bicycling. As an area with moderate growth rates and a relatively small population base, there is the opportunity to develop and market effective programs that address the needs of different population groups. Overall in Tompkins County, drive-alone trips encompass

YOUR EVERYDAY TRANSPORTATION OPTIONS WITHIN TOMPKINS COUNTY



INFORMATION

Finger Lakes Region, New York 2-1-1 Get Connected. Get Answers.
Need help finding help?

Way2Go Take Charge of Your Transportation
Learn how we can help you or your organization

SPECIALIZED TRANSPORTATION

GADABOUT
For seniors (60+) and people with disabilities

FISH FRIENDS IN SERVICE HELPING
Volunteer transportation service to in-county medical appointments

RETIRED EDUCATORS DRIVE SCHOOL RIDES
For ICSD students and families to attend school events and activities

There are other non-emergency medical transportation options available

ADDITIONAL SUPPORT

AVRE Travel training for people who are visually impaired

Catholic Charities Bus passes and gas cards for people who qualify

Challenge Travel training for people with disabilities and other barriers

County Office for the Aging Referrals to people who can help seniors with transportation

60% of all trips; shared, transit, bicycle and pedestrian modes accommodate the other 40%. The challenge identified in future scenario analysis is to essentially invert the proportion of drive-alone to active and shared modes, together with the shift to electric vehicles.

As of 2019, surface transportation options to the private automobile in the Tompkins County area include transit (TCAT/Gadabout), intercity bus service, taxi, car rental, car sharing, bike sharing, ridesharing/carpooling, ride hailing, bicycling and walking. The adequacy of walking and bicycling facilities varies across the county. Opportunities exist to enhance and expand the ridesharing/carpooling programs and possibly add vanpooling. In addition, the provision of public transportation needs to be constantly evaluated to ensure that service is always optimized and supported. Having robust alternatives to the private automobile for transportation will make Tompkins County more efficient, and economically and environmentally resilient.

Equity Considerations

It is important to include equity considerations in every facet of transportation planning and design. Each person has a particular set of needs and limitations that community wide, cannot be addressed by a single transportation-mode strategy. Providing options in transportation - transit, paratransit, car share, ride share, bicycling, pedestrian, taxi, etc. - will allow individuals to achieve mobility without the need and economic burden of private automobile ownership. The following should be considered:

(a) making transportation a consideration in the planning of programs and facilities serving the elderly and people with disabilities;

(b) studying and considering the development of day care facilities and other services in conjunction with major activity nodes/employment centers, and

(c) considering the need to link low income neighborhoods to employment opportunities, retail and service centers, and recreational facilities through a variety of transportation modes and program strategies.

Transportation Demand Management

Transportation Demand Management (TDM) is the name given to a series of strategies that can be utilized singly or in tandem to create a program whose purpose is to alleviate traffic problems through reduction of automobiles on the road, especially single occupancy vehicles. The strategies include combinations of improved alternatives to driving alone, incentives to use alternative modes, disincentives for driving alone, along with work hour management. Cornell University has a well-established TDM program that serves its students and employees. A more recent effort the Downtown Ithaca Alliance, in coordination with the City of Ithaca and various business and civic partners, including the ITCTC, is establishing a TDM program with a focus on the downtown Ithaca area - www.downtownithaca.com/living-in-downtown-ithaca/go-ithaca/.

Mobility as a Service

Mobility as a Service (MaaS) is an approach for the provision of transportation as a series of mobility solutions that are consumed as a service. This is achieved by coordinating all available transportation services, from private and public providers alike, through a unified process that creates and manages the trip with payment from a single account. The goal is to be customer focused, simplify access to multiple transportation modes and offer affordable payment plans for transportation services. In 2018 Tompkins County received an FTA Mobility on Demand On-Ramp grant for technical assistance to develop a MaaS pilot project. Programs that help simplify access and financing for different transportation options will be instrumental in facilitating the transition away from private automobile dependency.

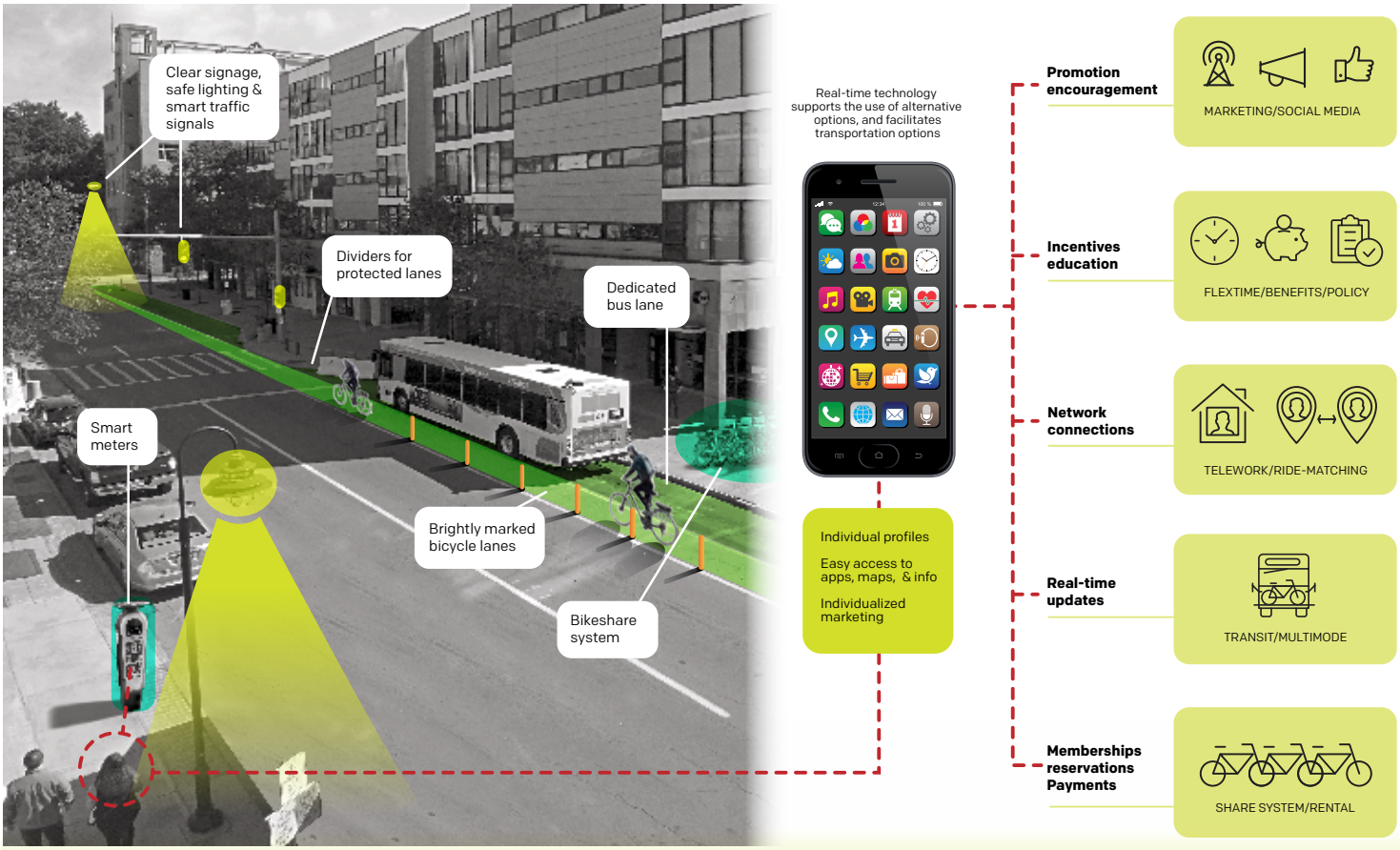
Transportation System Management

Transportation System Management (TSM) involves managing the existing transportation system to obtain increased efficiency, which relates to the "supply side" of the transportation system equation. TSM projects are often used as cost-effective means of reducing intersection or corridor related congestion. TSM strategies focus on upgrades to coordinated traffic signals, establishing formal traffic incident management plans addressing accidents and weather events, advanced planning for detour routes, providing real time information to drivers and coordinated/shared data collection. Specific roadway design changes such as alleviating bottlenecks on a road, adding a turn lane at an intersection or the use of alternative intersection designs (e.g., roundabouts) may be considered as TSM strategies. However more intensive capacity expansion projects – adding new lanes or new roads –are not considered TSM. The appropriate use of TSM measures should be determined on a case-by-case basis within the framework of a regional plan of action. The ITCTC is supportive of implementing TSM projects that help improve operational efficiencies.

Support Regional Solutions

Tompkins County is a significant regional employment center. Thousands commute into the county daily for work. Tompkins County also offers services, recreation and shopping destinations that attract significant regional traffic. The ITCTC will continue to work cooperatively with neighboring agencies and governments to promote transportation programs and services that further the goals of the LRTP. For example, Move Together NY (www.movetogetherny.org/) is a project of the Cornell Cooperative Extension of Tompkins County (CCETC). The goal of the project is to improve transportation access to health care and employment, particularly in rural areas, where cross county travel is required. Move Together NY was formed after completion of the ITCTC sponsored seven-county 2013 Regional Transportation Study.

SMART URBANIZATION - URBAN EFFICIENCIES IN TRANSPORTATION



TECHNOLOGY AND URBAN DESIGN

Purposeful urban design and communication technologies can work together to facilitate the shift to efficient and convenient multiple transportation options. Urban centers, even in small settings like our villages, offer the opportunity to tap into urban transportation efficiencies – more affordable transit options, opportunities for bicycling and walking, feasible shared transportation services. Technology has made possible the explosion of shared transportation services such as car share, bike share, ride matching services, access to bus location and next bus information. Technology is also allowing public transportation agencies to develop innovative on-demand services that offer great promise for harder to serve rural areas. Another important effect of access to communication technologies is the continuing increase of people working from home (up to 7% of workers in Tompkins County), which helps reduce the number of people and congestion during the rush hour.

Safety Element

PARKING FACILITIES

Traffic safety is the paramount concern of all ITCTC actions. The areas of traffic distribution, facility design, education, and enforcement emerge as the primary issues.

Transportation generated congestion, noise, vibrations and emissions all contribute to create legitimate health and safety concerns. The use of a variety of traffic calming techniques to "tame" the traffic moving through residential and other built-up areas is accepted practice with many local examples of implementation. The transportation planning profession including NYSDOT, and organizations such as the Transportation Research Board, the Institute of Transportation Engineers and the American Association of State Highway and Transportation Officials have all developed guidelines and positions that allow for the implementation of traffic calming techniques. In rural area with higher speed limits, there are roadway designs and treatments (i.e. safety road markings, clear line of sight, etc.) that can be implemented to improve safety. The ITCTC will continue to support the appropriate application of traffic calming to encourage the development of a transportation system that minimizes the negative impacts of motor vehicles without affecting overall mobility.

Education is a major component of any effort to address traffic safety. The idea of promoting multi-modal transportation, offering skills training, and raising public consciousness levels regarding the presence of different modes, principally pedestrians and bicyclists, are all important. The Ithaca-Tompkins area will work with local partners to continue and enhance existing efforts to reach more of the population. Programs, such as bicycling safety programs in our schools, need to be renewed and pursued with vigor.

Another area of constant concern regarding traffic safety is traffic law enforcement. Speeding traffic is an issue of overwhelming concern. While providing additional traffic control officers sounds like an easy solution, it is generally recognized that the costs of doing so are prohibitive. Technological solutions, such as remote radar "smart signs" and traffic light enforcement systems, might play a role in addressing this issue. Prioritized enforcement actions, based on data collected from traffic counters and vehicular crash and other incident information, offer another potential strategy for targeted enforcement implementation. Traffic calming techniques, mentioned earlier in this chapter, also offer a variety of options to help deal with speeding traffic through roadway design.

Data from the statewide Accident Information Location System (ALIS) is available to New York MPOs. The ITCTC distributes this information and will work with local partners and law enforcement agencies in planning and program development efforts that will lead to increased safety on our roadways.

The Safe Routes to School (SRTS) program, funded through the Transportation Alternatives Program, brings to the forefront issues addressing the relationship of childhood obesity, safety and transportation. In the last ten years, funds from this program have been awarded in the City of Ithaca, Villages of Trumansburg, Cayuga Heights and Dryden and the Towns of Ithaca. The ITCTC will continue to provide data, technical assistance and funding opportunities to promote the safety of pedestrian and bicycle routes to schools in Tompkins County.

State and Regional Safety Planning

Federal legislation requires the Metropolitan Transportation Plan to include a safety element that incorporates or summarizes the priorities, goals and countermeasures or projects for the Metropolitan Planning Area (MPA) as contained in the State Strategic Highway Safety Plan. In addition, this section provides an overview of Federal, State and Local Government's participation in the development of Tompkins County's emergency response preparedness. The chapter outlines the general responsibilities of the operational departments and provides a chronology of some key legislation affecting the Tompkins County Comprehensive Emergency Management Plan and related documents. These topics are discussed below in Part I- New York State Strategic Highway Safety Plan and Part II-Tompkins County Emergency Preparedness.

PART I - NEW YORK STATE STRATEGIC HIGHWAY SAFETY PLAN

The purpose of the New York State Strategic Highway Safety Plan (SHSP) is to promote best practices and strategies that, if implemented, could have a substantial impact on reducing fatal and serious injury crashes. Fatal and serious injury crashes have the most profound impact on those involved. The effects of these crashes are far-reaching. Even with reductions in fatalities and serious injuries since the 2010 SHSP, there remains an average of over 1,000 deaths on New York roads annually. The reduction of fatalities and serious injuries remains the primary goal of the New York SHSP. During the 2017- 2022 plan timeframe

partners across the state will seek to reduce the number of fatalities and serious injuries 5-year moving averages by two percent annually.

The Vision Statement of the Tompkins County LRTP organizes its Goals and Objectives under the concept of a Transportation System that is Sustainable and Accessible. Below are LRTP goals and objectives, which demonstrate how the LRTP's vision of a Sustainable Transportation System relates to the Vision Statement of the New York State Strategic Highway Safety Plan. A complete record of the goals and objectives can be found in the LRTP Chapter 2.

OVERARCHING GOALS THAT PERVADE ALL THE GOALS AND POLICIES:

1. Improve the safety of the transportation system.
2. Enhance coordination between transportation providers to the benefit and convenience of users.
3. Minimize negative environmental impacts of transportation.
4. Reduce vehicle miles of travel and number of drive-alone trips.
5. Ensure equitable availability of mobility options

LRTP GOALS

Sustainable Accessibility

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

Mobility

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

Connectivity

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

Proximity

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

Integration

Goal: To develop an integrated transportation system for Tompkins County that is seamless, multimodal and coordinated to achieve greater operational efficiencies and increase the safety and convenience of users.

Quality Of Life

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

Environment

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

Equity

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

LRTP PERFORMANCE PLANNING OBJECTIVES

The LRTP includes a series of measurable safety, infrastructure and system reliability objectives that directly and indirectly will help promote and measure transportation safety progress in Tompkins County. These include:

- Reduce the number of motor vehicle crash fatalities and severe injuries
- Reduce the number of bicycle and pedestrian crashes
- Reduce the number of bicycle and pedestrian fatalities and injuries
- Reduce the percentage of structurally deficient bridges
- Reduce the percentage of roads in 'fair or poor' condition
- Increase the provision and access to multiple transportation options

Measuring and locating motor vehicle, bicycle and pedestrian crashes, fatalities and injuries will assist in planning to make targeted safety improvements. The ITCTC reviews available data and compiles summaries and maps that are shared with staff from municipalities and are published on the agency's website. Continuous maintenance of bridges and pavements is important in reducing infrastructure factors in crashes. Providing more and enhanced transit, bicycle and pedestrian facilities will also serve to more safely

accommodate these important modes in the transportation network.

PART II-TOMPKINS COUNTY EMERGENCY PREPAREDNESS

Organization Description

The County's emergency management program is a three-pronged effort implemented by the County's Department of Emergency Response, the County's inter-agency Emergency Management Planning Committee and its internal Emergency Management Strategic Group. The ITCTC fully supports the work of these groups and their efforts to address the emergency response needs of Tompkins County. The emergency management program is further described below.

Department of Emergency Response

The Department holds responsibility for managing the county's emergency dispatch and communications system, implementation of the county's 911 communications system, oversight of county mutual aid and disaster plans, and training and development of emergency medical and fire personnel. In addition, the Department provides Emergency Preparedness information to the public including development and maintenance of the Tompkins Ready website - www.tompkinsready.org.

The Tompkins County Emergency Planning Committee (TCEPC)

The TCEPC was established by resolution of the Tompkins County Legislature in 2000. Its mission is to facilitate the planning process for emergency management of disaster responses and to assist with operations during times of local emergencies. The committee is composed of representatives of county government, city government and other local response agencies. Its responsibilities include identifying appropriate local measures and resources to prevent disasters, developing mechanism to coordinate local resources, and delivering services to aid citizens during and after disasters. Among the Committee's responsibilities, are to annually update the Tompkins County's Comprehensive Emergency Management Plan. A diverse team of individuals and local agencies participate in support of TCEPC and the County's emergency management programs.

The Emergency Management Strategic Group

The Emergency Management Strategic Group chaired by Deputy County Administrator and is an internal team of County department staff, focusing on readiness issues within county government and related to maintaining services in the event of an emergency. Responsibilities involve assessment of the county government infrastructure, internal countywide emergency planning and developing a workforce emergency management plan.

Background

Federal and State agencies and their rules provide support and mandates for Tompkins County emergency management efforts. The Federal Emergency Management Agency's (FEMA) mission is to support citizens and first responders to ensure that the nation works together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards. The New York Division of Homeland Security and Emergency Services (DHSES), previously the Office of Emergency Management, serves as the lead state agency responsible for the maintenance and 5-year update of the State Hazard Mitigation Plan (SHMP). This plan was last updated and approved by FEMA on December 2018 (www.mitigateny.availabs.org). The 2019 New York State Hazard Mitigation Plan represents the State's approach to mitigating the adverse impacts of natural disasters within its borders and to fulfill its Federal obligations to mitigate the risks resulting from natural hazards.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act, enacted by Section 104 of the Federal Disaster Mitigation Act of 2000 (DMA2K) provided new emphasis on mitigation planning. Operationally, Hazard Mitigation is defined as the process whereby hazards are identified, risks and vulnerabilities are quantified, risk elimination or reduction measures are identified, awareness is created, and cooperative efforts are undertaken to prevent, reduce or eliminate losses.

The DMA2K emphasizes the need for State and Local governments to closely coordinate mitigation planning and implementation efforts as well as continuing the requirement for a State Mitigation Plan as a condition of disaster assistance. This plan is also intended to serve local jurisdictions as a guide in completing and updating natural hazard mitigation plans that will meet the requirements set forth in DMA2K. To be eligible for future disaster mitigation funding, FEMA requires that all local governments have an approved Federal hazard mitigation plan. Tompkins County completed the Tompkins County Hazard Mitigation Plan (www.tompkinscountyny.gov/planning/community-planning), which was approved by FEMA in 2014. The plan covers all jurisdictions in Tompkins County. This document will be updated by the end of 2020. The new plan will be expanded to cover other disaster recovery components in addition to hazard mitigation. The propose new plan will be covered in the Tompkins County Resiliency and Recovery Plan.

Financial Element

INTRODUCTION

A difficult part in any planning process involves estimating and forecasting financial resources, particularly when working with a long planning horizon. This is also complicated when funding is dependent on the political process. The federal transportation program is vulnerable to political and procedural vagaries, where a legislative body sets one level of funding ("authorized") but may appropriate a lesser amount or change funding levels with other legislation. Given the unpredictability of the funding process, inflation and other economic factors, it is difficult to make accurate annual projections, and impractical when projections are forecasted for twenty years. In addition, the multi-agency/governmental arena of an MPO makes it difficult to determine exact equivalences of diverse funding streams.

This financial element will focus on the transit and highway federal funding resources that are managed by the ITCTC and which are eligible for use in federal-aid projects. Federal funds are available for federal-aid highways and transit. It is important to note that federal transportation expenditures are only part of the total resources assigned to transportation. Municipal, County and State governments utilize significant amounts of their resources to maintain, operate and expand non-federal aid eligible transportation networks and facilities within their jurisdictions.

This financial analysis is largely based on a continuation of the priority guidance to "preserve existing facilities". The analysis is based on past revenue and expenditure levels and does not attempt to incorporate fundamental cost changes that may result from the implementation of this plan. For instance, implementing some measures may lead to increased governmental expenditures (e.g., computer models, computerized traffic signals, real-time transit information, new and improved bicycle/pedestrian facilities, etc.), but may also result in reduced societal and actual costs (e.g., reduction in the costs of congestion, improved air quality, improved personal health, reduced traffic accidents, injuries and fatalities, etc.). Others may lead to decreased government expenditure (e.g., prioritized snow removal plans, local roadways built to more modest design standards, less rigorous maintenance practices, etc.), but may lead to other undetermined costs. This type of comprehensive, cumulative analysis is beyond the scope of this plan.

TIP YEARS	APPROXIMATE TOTAL FHWA FUNDING
2007-2012	$53 million
2011-2015	$49 million
2014-2018	$24.5 million
2017-2021	$26.2 million
2020-2024	$33.7 million

RESOURCE ESTIMATION

Information on fiscal resources was gathered from four sources: the New York State Department of Transportation, Tompkins Consolidated Area Transit, Tompkins County and ITCTC records. In all cases resources were estimated to the 20-year planning horizon based on historical funding trends that are reflective of variations and inflationary forces.

At the time of this writing, federal funding for transportation is in a period of transition. The U.S.Congress is debating the best way to fund the federal transportation program in the long term. In the meantime, total TIP FHWA funding has changed as follows:

Appropriations nationwide and thus, locally, are substantially below levels from 10 years earlier. By using the latest TIP figures to build the plan budget we are certain to be working with fiscally conservative scenarios. Most figures in this analysis are rounded for ease of use.

The calculations for this financial element are based on highway and transit federal funds that flow through the ITCTC. The basic source is the 2020-2024 TIP, which as mentioned above, will give us a fiscally conservative base for our future estimates. Annual average programmed federal funds and their local and state matches were calculated. For highway projects future year estimates were determined applying varying inflation rates. The average Consumer Price Index (CPI) for the 15-year period from 2003-2018,

2.10%, was used for the first five years 2020-2024. This inflation rate was reduced to 2.00% for the following 5 year period, and by .5% every five years through 2039. The purpose of this reduction is to mitigate the compounding effect of using the same inflation rate for 20 years. This is particularly important in a region like Tompkins County which has a very moderate rate of population growth and minimal highway network expansion rates.

As a final step in the 20-year projections the analysis includes a present value calculation that reflects 'year of expenditure' dollars for the funding resource projections. The sections below describe the estimated federal resource projections and their accompanying state and local matches.

FEDERAL AID RESOURCE PROJECTIONS

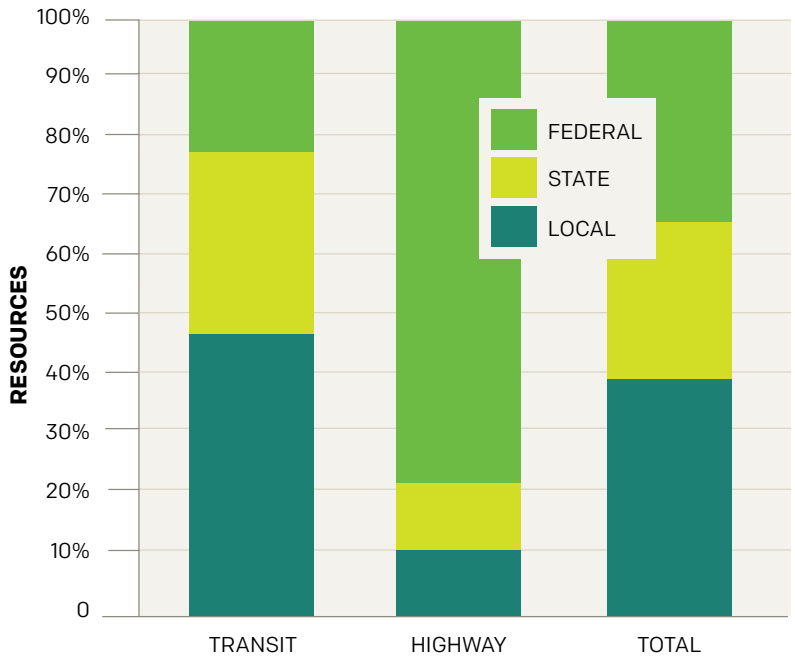
Highway

Federal aid for highway programs was estimated at $155.4 million after applying CPI and year of expenditure calculations. This figure is based on the approximately $6,700,000 per year that were programmed in the 2020-2024 ITCTC TIP. This figure incorporates projects that are funded outside the regional formula allocation to the ITCTC in programs such as, the Transportation Alternatives Program, Bridge-NY and the NY Pedestrian Safety Action Plan. These funds were included in the annual TIP funds at the rate of approximately $1.6 million per year to reflect their availability.

Local Resource Projections

A 20-year projection of local resources for federal aid highway transportation projects were developed based on annual funding of approximately $851,562 per year programmed in the 2020-2024 TIP. In addition, private sector contributions were estimated at approximately $1,700,000 over 20 years. Private contributions are transportation funds that originate from non-governmental sources. The estimated number was calculated by setting the private contributions to 10% of the local resources in the TIP. Private contributions are most common in the form of participation in the local share of federally funded projects and are often in-kind in nature. This component of project funding may see substantial change in future years. Crowd sourcing and other technology-based strategies can be used to help expand the private sector contributions in the future, where already a variety of fundraising strategies have been used to help supplement municipal contributions to the local share of certain projects. The resulting total local resource projection after applying CPI and year of expenditure calculations is

2020-2039 SUMMARY OF ESTIMATED FEDERAL TRANSPORTATION RESOURCES



FEDERAL HIGHWAY AND TRANSIT RESOURCE ESTIMATE 2020-2039

FUNDING PROGRAM	LOCAL	STATE	FEDERAL	TOTAL
NATL. HIGHWAY PERFORMANCE PROGRAM - NHPP	$ 8,923,502	$ 7,765,116	$ 63,739,622	$ 80,428,240
SURFACE TRANSPORTATION BLOCK GRANT FLEXIBLE - STBG-FLEX	$ 6,311,745	$ 5,492,399	$ 45,084,123	$ 56,888,267
HIGHWAY SAFETY IMPROVEMENT PROGRAM - HSIP	$ 1,523,525	$ 1,325,751	$ 10,882,375	$ 13,731,651
TRANSPORTATION ALTERNATIVES PROGRAM - TAP	$ 1,741,171	$ 1,515,144	$ 12,436,999	$ 15,693,315
OFF-SYSTEM BRIDGE - STBG-OSB	$ 3,264,696	$ 2,840,896	$ 23,319,374	$ 29,424,966
HIGHWAY PROGRAM SUB-TOTAL[1]	**$ 21,764,639**	**$18,939,306**	**$155,462,439**	**$196,166,439**
% of Highway	11.09%	9.65%	79.25%	
TRANSIT[2]:				
SECT. 5307 – URBAN FORMULA (CAPITAL)	$ 5,039,345	$ 5,039,345	$ 40,314,762	$ 50,393,452
SECT. 5339 – DISCRETIONARY CAPITAL	$ 1,099,082	$ 1,099,082	$ 8,792,655	$ 10,990,819
SECT. 5339 – FEDERAL COMPETITIVE[3]	$ 4,033,750	$ 4,033,750	$ 32,270,000	$ 40,337,500
SECT. 5310 – PARATRANSIT (CAPITAL)	$ 800,000	$0	$ 3,200,000	$ 4,000,000
SECT. 5311 – RURAL CAPITAL	$ 3,121,501	$ 3,121,501	$ 24,972,008	$ 31,215,010
SDF – STATE DEDICATED FUNDS (CAPITAL)	$ 0	$ 30,631,913		$ 30,631,913
TOMPKINS COUNTY MORTGAGE REPORTING TAX[4]	$ 14,487,247	$ 0	$ 0	$ 14,487,247
SUBTOTAL TRANSIT CAPITAL	$ 28,580,926	$ 43,925,591	$109,549,424	$ 182,055,941
TRANSIT OPERATIONS*	$289,961,608	$167,096,520	$ 34,402,225	$491,460,352
TRANSIT SUB-TOTAL	**$318,542,533**	**$211,022,111**	**$143,951,649**	**$673,516,293**
% Of Transit	47.30%	31.33%	21.37%	
TOTAL TRANSPORTATION	**$340,307,173**	**$229,961,417**	**$299,414,142**	**$869,682,732**
% Of Total	39.13%	26.44%	34.43%	

Sources and Notes:
[1]Based on distribution of funding categories in the 2020-2024 Transportation Improvement Program. Includes estimates for Transportation Alternatives Program and other competitive award programs (BridgeNY, PaveNY, PSAP-HSIP).
[2]Source: Tompkins Consolidated Area Transit and Tompkins County
[3] Incorporates costs of new/expanded TCAT facility at $30million
[4]Mortgage Reporting Tax (MRT) estimated at $708,000 per year increasing 1% per year after 10 years.

*Funds for Transit Operations come from the following sources:
Local: – fare revenue+MRT+local subsidy -- based on 2019 adopted TCAT budget, increasing at 3%/yr. first ten years & 2.5%/yr. thereafter.
– Gadabout 2019 budget increasing 3% per year
State: – New York State Transit Operating Assistance
Federal: – Section 5307 funds (includes transfer from 5311 to 5307)
– Special Community Mobility Projects (SCMP)

$21.7 million.

NY State Resource Projections

The NY State TIP based contributions to federally funded projects in Tompkins County average approximately $815,000 per year. This amounts to approximately $18.9 million over 20 years after applying CPI and year of expenditure calculations.

Transit

TCAT and Tompkins County, the designated FTA grant recipient, provided the information required to develop the transit estimates. The local and State "matching" contributions to these funds were calculated based on current program requirements. The FTA Section 5307 (urban area transit service) figures for capital and operating assistance were based on actual Federal Fiscal Year 2019 figures. The State Dedicated Funds (SDF)-Capital funds were calculated based on actual 2019 funds. The estimates from TCAT reflect the most recent changes in funding formulae and appropriate fund levels.

Summary

In summary, for the 2020-2039 planning horizon, local resources are estimated to provide 47% of the transit funds, 11% of the highway funds, and 39% of the total federal transportation program funds. State resources are calculated at 31% of the transit funds, 9.6% of the Highway funds, and 26% of the total federal program funds. Federal government funds are estimated to contribute 21% of the transit funds, 79% of the highway funds, and 34% of the total federal transportation program funds.

EXPENDITURE ESTIMATION

The estimation of expenditures is based on several factors. Due to the flexibility included in federal transportation legislation, it is expected that funds will be transferred between programs to best meet the expenditure demands of the area. This section does not attempt to differentiate federal from state from local fund sources, nor does it address project level details of the distribution of different federal fund categories. That information is presented in detail in the ITCTC's Transportation Improvement Program.

A clear division between "transit" and "highway" projects has been maintained since this distinction continues to be in effect in federal transportation funding. These estimates are based on "historic trends" which are subject to variables such as annual state and federal appropriations. Transit expenditure allocations were based on expenditures proportions utilized by TCAT. The Capital Facilities include projects with a high probability of implementation.

No attempt has been made in this plan to allocate costs by individual project year. The expenditures reflect 'year of expenditure dollars' based on the analysis used above under Resource Estimation. The accompanying table provides a summary of the estimated expenditure allocations.

Highways

Federal and state highway funds were distributed one-third to bridges, one-third to pavement projects. The last third of distributed to cover safety (approximately 10%) and mobility projects (approximately 24%). Transportation Alternatives Program funds and other competitive funding, such as Bridge NY and Pave NY, are included as part of the annual average calculations. This proportion in the distribution of funds adequately reflects plan goals and continues a pattern used in previous long-range plans.

The proposed expenditure allocations support LRTP goals to maintain existing transportation infrastructure, with two thirds of projected federal funds allocated to bridge and pavement maintenance projects. The aim of the bridge and pavement programs is to maintain and improve the condition of the highway infrastructure.

Increased safety has been a priority of the ITCTC since its initial LRTP. Even so, few projects get funded exclusively from surface transportation program "safety" funds. This, however, does not detract from the importance of the safety focus in the ITCTC program. The fact is that safety features are designed and constructed as principal or incidental aspects of nearly every type of transportation project. This plan includes an allocation of highway funds for safety projects at approximately 10% of the total transportation program. While this may underestimate the "needs" for safety improvements, it also under-represents the commitment and investment to safety that is part of every TIP project.

The LRTP goals and vision strongly recommend the need to expand mobility options in Tompkins County. This emphasis will help meet multiple energy efficiency, emissions reduction and sustainable accessibility goals and objectives.

Funds under mobility projects are intended to be used for Transportation System Management (TSM) activities (e.g., signal synchronization, traveler information systems, traffic circles, bike lanes, "flex" to transit, etc.); for expansion of multimodal facilities and programs (primarily bicycle, pedestrian and transit); and for the implementation of transportation demand management and transportation mobility programs such as ridesharing, car sharing, vanpools, back-up/ emergency ride home, Mobility as a Service, etc. Implementation of these transportation strategies coupled with more efficient land use development patterns provide a framework for long-term sustainable transportation in Tompkins County.

Transit

Estimated expenditures generally follow the expenditure patterns found in the current TCAT transit system. Operating and maintenance expenditures make up the bulk of transit expenses.

Capital Facilities: This category includes funding for TCAT facility rehabilitation, and replacement of passenger facilities and shelters. Funds have also been included to account for the anticipated relocation or expansion of the Tompkins County Transit Center. The estimate for capital facilities, particularly the transit center initiative, assumes TCAT will be successful in getting funding from different non-formula Federal sources (i.e. competitive grant programs).

Operating: The total operating budget estimate reflects an annual growth rate of 3%/year over the first 10 years and 2.5%/year over the last 10 years of the 20-year planning horizon. The Operating projections include all aspects of operations of transit service including administrative costs. This is, by far, the largest expenditure category for transit.

Maintenance/Miscellaneous: This category includes vehicle and facility regular maintenance plus a variety of projects that may range from short-range planning to implementation of special transit projects; from communications and data processing equipment replacements to improved signage.

Buses: The 'buses' estimate includes urban, rural and paratransit buses operated by TCAT, its contractors, and GADABOUT. The resources estimate for purchasing buses includes purchases for GADABOUT under the Section 5310 program. The estimate for bus acquisition assumes TCAT will be successful in getting funding from different non-formula Federal sources (i.e. competitive grant programs). Further, the estimate

assumes regular allocations from the New York State Dedicated Transportation Fund.

TCAT's most significant long-term funding challenge is securing capital funding. This is the case for specific projects like the transit center initiative, but it is also a recurring challenge when addressing the need for replacement buses. The size of TCAT's bus fleet requires capital funding at a level that far exceeds its annual urban formula allocation (Sec. 5307). Therefore, TCAT must compete for discretionary capital funding from federal and state programs. The cost of not being able to replace buses in a timely fashion is reflected in the high maintenance costs of an aging bus fleet. As part of its strategic planning, TCAT with local partners

ESTIMATED FEDERAL FUNDING EXPENDITURE ALLOCATIONS 2020-2039

PROJECT TYPE	EXPENSE ALLOCATION	PERCENT OF TOTAL*	PERCENT OF CATEGORY*
HIGHWAY			
BRIDGE	$ 64,734,907	7.4%	33.0%
PAVEMENT	$ 64,734,907	7.4%	33.0%
SAFETY	$ 19,616,638	2.3%	10.0%
MOBILITY PROJECTS	$ 47,079,945	5.4%	24.0%
SUBTOTAL	**$196,166,384**	**22.6%**	**100.0%**
TRANSIT			
CAPITAL FACILITIES	$ 72,822,376	8.4%	10.8%
OPERATING	$491,460,352	56.5%	73.0%
MAINTENANCE/MISC.	$ 72,822,376	8.4%	10.8%
BUSES	$ 36,411,188	4.2%	5.4%
SUBTOTAL	**$673,516,293**	**77.4%**	**100.0%**
TOTAL	**$869,682,732**	**100%**	

*Discrepancies in the figures are due to rounding errors

identify strategies for funding replacement buses, bus rehabilitation and re-manufacturing.

CONCLUSIONS

Funding transportation programs in Tompkins County is all about collaborations and partnerships. Over the decades programs like Gadabout, TCAT, Ithaca Carshare, Way2Go, Finger Lakes Rideshare and others have been created by bringing together government agencies, institutions of higher education, civic groups and interested citizens to work on solutions. As a result, Tompkins County offers an unusually rich menu of transportation options for a small upstate NY urban area.

Despite its size, and missing the economies of scale of larger urban areas, Ithaca-Tompkins County transportation providers and planners have worked together to improve service efficiency and take advantage of all available funding opportunities. The ITCTC will continue to lead in efforts to forge strong partnerships and coalitions in the transportation sector.

CHAPTER 4

PROJECTS FOR IMPLEMENTATION

PROJECTS FOR IMPLEMENTATION

INTRODUCTION

This chapter lists selected transportation related initiatives and projects for implementation. Where possible, the narratives will define the appropriate party(ies) to implement the project or initiative. This plan aims to capture the activities of all groups and agencies dealing with transportation in Tompkins County. Therefore, principal project responsibility may lie with municipalities, state agencies, other public/private agencies or a combination of these. When there is sufficient detail or previous experience in conducting such projects or initiatives, a cost estimate will be included.

The initiatives and projects that are presented here are intended to help advance the community's vision as expressed in the plan goals and objectives.

This section of the Long-Range Transportation Plan is organized around the functional headings of:

PLANNING EFFORTS **MOBILITY EFFORTS**

While not every initiative fits neatly under one of these headings, they provide a useful organizational framework. The projects and initiatives listed in this chapter exist at different stages of implementation. Many are listed as desirable projects but have not been implemented. Others have been started and exist at some stage of implementation. The action item description will indicate if implementation is ongoing. Otherwise, the expected implementation time interval is indicated following the project title as short, intermediate, or long as represented below. It is understood that implementation for many of these projects will be continuous in nature, stretching over several years:

SHORT = 1-5 YEARS

INTERMEDIATE = 5-10 YEARS

LONG = 10-20 YEARS

PRIORITY AREAS

For the activities listed in this chapter, the ITCTC has chosen to focus on the following priority areas to facilitate implementation:

- **Expand and Promote Multimodal Mobility Options and Integration**
- **Maintain Existing Transportation Infrastructure and Systems**

These priority areas seek to secure existing infrastructure investments while enhancing the efficiency of the current transportation system through technology and physical enhancements while also providing for services that reduce automobile dependency.

COMPLETED INITIATIVES FROM 2035 LRTP

The projects and initiatives listed below were implemented in the period between 2014 and 2019.

- **Back Up Ride Home Program -** The Center for Community Transportation (CCT) offers a program Backup Ride Home program that provides peace of mind for commuters who travel to work without a personal vehicle. Local Ithaca Carshare on-call staff facilitates alternate transportation home if something unexpectedly happens in the middle of a work day that makes original travel plans unfeasible. The cost of trips is covered by the Backup Ride Home Program. **www.ithacacarshare.org/backup-ride-home/**
- **Bike Sharing –** Lime bike sharing began service in the City of Ithaca on April 2018. Since then the service has grown significantly and spread to other neighboring communities – Trumansburg, Watkins Glen, Cortland. Bike sharing is a rapidly changing program. How it is implemented locally is likely to change.
- **Finger Lakes Rideshare (ride-matching) Program –** Rideshare Coalition established – includes the ITCTC, Cornell Univ., Ithaca College, TC3, TCAT, Tompkins County DSS, TST-Boces, Wells College, Binghamton University and Way2Go. Evolved from a previous project that used a NYSERDA grant to establish a web-based rideshare system – Zimride Tompkins. The system provides computerized ride-matching services in support of carpooling for commuters and for one-time ride needs. This service is on-going and currently being reevaluated. **www.fingerlakesrideshare.org**
- **Travel Demand Management program for the Ithaca Urbanized Area -** The Downtown Ithaca Alliance (DIA) received a NYSERDA loan to implement a downtown TDM program. The DIA works with a coalition of interested agencies, businesses and the City of Ithaca. The project is ongoing and evolving. **www.goithaca.org**
- **Study of Electric Vehicle Technology Adoption–** The ITCTC led a project to create an Electric Vehicle Infrastructure Plan for Tompkins County. Other participating partners included Cornell Univ., City and Town of Ithaca, Tompkins County and Cooperative Extension. This project was completed in 2017. It included four reports and development of a site evaluation spreadsheet - **www.tompkinscountyny.gov/itctc/projects#EV**. A follow-up project led by Energetics, Inc. and completed in December 2018, resulted in the installation of 11 charging stations and a year-long EV promotional effort. (**Facebook: Tompkins Electric Vehicle Network**)
- **Transit Operational Improvements & Customer Information Services -** TCAT completed an information technology needs assessment and has implemented numerous components from the resulting plan. A variety of technology improvements for transit operations (e.g. automated scheduling, payroll, bus fleet management, etc.) and customer service (e.g. multi-format real-time access to next bus information, schedules, etc.) have been implemented or are under active development. The ITCTC will continue to work with TCAT and other community partners to facilitate the timely implementation and use of these technology improvements.

TRANSPORTATION INITIATIVES

PLANNING EFFORTS

TRANSPORTATION PLANNING INITIATIVES

Several important transportation planning initiatives are scheduled for 2019 to 2023. All these efforts can play a significant role in advancing the implementation of LRTP goals and objectives. The ITCTC will participate and support these planning efforts. Currently anticipated and ongoing initiatives include:

- **Bike Blueprint - 2019-2020**, a vision and strategic plan for enhancing bicycling in Tompkins County as an impactful mode of transportation
- **City of Ithaca Parking Study** – 2020-2021
- **City of Ithaca Transportation Plan** – 2020-2021, a focus area plan included in the City's Comprehensive Plan
- **Transit Development Plan** – TCAT – 2019-2020
- **Downtown Ithaca Alliance** – 2030 Downtown Plan – 2019-2020

PROMOTIONAL AND EDUCATIONAL STRATEGIES

1. Safety Education

IMPLEMENTATION  1-5

To be jointly conducted by various participants | **$:** To be determined

General safety education has been identified as a priority. Education efforts may be directed towards a variety of audiences, which may range from elementary school programs to programs for seniors. Community partners can include health services providers, County Health Department, public transportation operators, Way2Go, School Success Transportation Coalition and active transportation advocacy groups.

2. Transit Promotions

IMPLEMENTATION  1-5

Ongoing project managed by TCAT Marketing Division | **$:** Varying, to be determined

TCAT follows a marketing strategy with comprehensive public outreach. In addition to advertising, TCAT operates a website (**www.tcatbus.com**) that includes an automated trip planner and on-line bus pass sales. In addition, TCAT data is available in various transit apps and schedule information can be found at bus stops and in widely distributed printed schedules and route maps. ITCTC will provide support and assistance in continuing and expanding the promotion of public transportation.

3. Bicycle Promotions

IMPLEMENTATION  1-5

To be jointly conducted by various participants | **$:** To be determined

Efforts, such as the organization of Streets Alive! and Bike to Work and School day events, have been promising in communicating a positive message for bicycling. These efforts need to be continued and enhanced. The ITCTC will provide support for local government and civic groups promoting the expansion of bicycling in Tompkins County. All programs should ensure that bicycling safety is addressed.

4. Pedestrian Promotions

IMPLEMENTATION 1-5

To be jointly conducted by various participants

$: To be determined

The ITCTC will provide support to local government and civic groups which promote walking as transportation. This effort should be linked to other education programs to ensure that pedestrian safety is addressed.

Transportation Infrastructure

Work with municipalities and other local partners to assess transportation infrastructure needs, including roadways, transit, bicycles and pedestrians, to support local planning efforts.

1. Bicycling Facilities Planning and Improvements

IMPLEMENTATION 5-10

To be completed by various participants in conjunction with the ITCTC

$: To be determined

The ITCTC will assist with efforts to enhance the provision of bicycling infrastructure such as: bike lanes, bicycle boulevards, parking facilities, etc. The ITCTC will also support efforts to produce bicycle plans at the local and regional levels.

2. Pedestrian Facilities Planning and Improvements

IMPLEMENTATION 5-10

To be completed by various participants in cooperation with the ITCTC

$: To be determined

The ITCTC will assist with efforts to enhance the provision of pedestrian infrastructure such as: sidewalks, multi-use and hiking trails. The ITCTC will assist local governments interested in facilitating planning for their pedestrian facilities and will help identify funding sources.

3. Transit Infrastructure and Capital Needs

IMPLEMENTATION 5-10

To be completed by TCAT in cooperation with Tompkins County and the ITCTC

$: To be determined

TCAT has a detailed capital needs plan that addresses the acquisition/replacement of vehicles, communications equipment, transit facility equipment, safety and security equipment, and bus stops and shelters. The ITCTC will work in coordination with TCAT and Tompkins County to ensure that its facilities and equipment needs are met in order to provide the highest quality public transportation system for the residents of Tompkins County.

4. Passenger Facilities Improvements

IMPLEMENTATION 5-10

To be conducted by TCAT

$: Up to $2.5 Million over 5 years to complete planning and installation of facility improvements

TCAT has assessed needs at passenger stops and shelters for signage, ADA and pedestrian access, lighting, safety, communications, bike storage and physical and design integration with surroundings, including the need for bus pull-offs and road shoulder improvements. These efforts will be coordinated with planned pedestrian facility improvements. In addition, TCAT would like to explore passenger facility luxuries, such as wireless internet access at key stops and on vehicles, energy-efficient lighting and heating, etc. TCAT will work to meet identified needs in with the ITCTC and other relevant agencies, such as NYSDOT, the County Highway Department, and other municipalities.

5. Complete Streets Network

IMPLEMENTATION 10-20

To be completed by highway project sponsors in cooperation with the ITCTC

$: To be determined

A 'Complete Street' is a street designed and operated to enable safe access for all users regardless of their mode of transportation, so that pedestrians, bicyclists, motorists or public transportation users of all ages and abilities can move safely along and across the street. The ITCTC has identified a coordinated network of roads to form a Complete Streets Network for the urbanized area of Tompkins County. The ITCTC will work with local project sponsors to facilitate the incorporation of Complete Streets features in the roads identified in the network.

6. State Route 13 Corridor Study

IMPLEMENTATION 1-5

To be completed by Tompkins County in cooperation with the ITCTC, NYSDOT, Town of Dryden and Village of Lansing

$: Approximately $200,000

Implement a corridor planning study that will identify issues that affect the effective and safe operation of SR-13 between Warren Rd. and the Village of Dryden. The study will make road design, access management and land use policy recommendations that together will protect the functionality of this important travel corridor. Project implementation is on-going.

7. Inter-City Bus Station Location Evaluation

IMPLEMENTATION 1-5

To be completed by the City of Ithaca in cooperation with the ITCTC, NYSDOT, TCAT, inter-city bus operators and other interested parties

$: To be determined

The long-time location of the inter-city bus terminal in Ithaca closed in 2018. The City of Ithaca is accommodating inter-city buses on an interim basis offering curbside service on the 100 block of E. Green Street. Further evaluation is needed to identify potential locations for a permanent facility for inter-city buses.

MOBILITY EFFORTS

Transportation Demand Management Programs

1. Implement a Coordinated Travel Demand Management Program (TDM) for the Ithaca Urbanized Area

IMPLEMENTATION 1-5

Lead agency-Downtown Ithaca Alliance (DIA). Collaborative effort to be implemented with participation from the ITCTC, TCAT, Way2Go, CCT and other interested civic groups, with the cooperation of local municipalities and in close coordination with area employers

The DIA is in the middle stages of implementing a TDM program for the City of Ithaca downtown business district. The ITCTC will continue to support this project with the aim of creating a TDM program structure that is effective and generates multiple benefits for the community.

2. Employer and Employee Commute Education Program

IMPLEMENTATION 1-5

Lead agency Way2Go. To be conducted with participation from the ITCTC, TCAT and other interested civic groups, with the cooperation of local employers

$: To be determined

Initiatives to reach out to employers and human resources managers with transportation information and education that benefits employers and their employees. This project may be implemented in coordination or as part of the Transportation Demand Management program under I.1 above.

Other Mobility Initiatives

1. Finger Lakes Rideshare (Ride-Matching) Program

IMPLEMENTATION 1-5

To be conducted jointly by the ITCTC, Way2Go, Tompkins County, Cortland County, Cornell University, Ithaca College, Tompkins Cortland Community College, Wells College and Binghamton University

$: To be determined

Although the community has an ongoing community wide program to provide computerized ride-matching services, Finger Lakes Rideshare, this program is not secure for the long term. The ITCTC and other partners in the Tompkins County Rideshare Coalition need to continue their work to monitor rapidly evolving service options and secure a sustainable automated rideshare program for Tompkins County and the surrounding area.

2. Mobility as a Service

IMPLEMENTATION 5-10

To be conducted collaboratively by Tompkins County, TCAT, CCT (Ithaca Carshare), Mobility as a Service (MaaS), and other transportation providers in association with the ITCTC and other interested parties

$: To be determined

The purpose of this project is to facilitate the implementation of a 'seamless' transportation system in Tompkins County through customer focused access to transportation information and the coordination of service provision and payment options. Tompkins County was selected by the FTA for a technical assistance grant for MaaS, an effort that is ongoing.

Transit Programs

1. Rural Transportation Services

IMPLEMENTATION 1-5

To be conducted by TCAT in association with Gadabout and other interested parties

$: up to $1.2 Million depending on service provided

TCAT sees provision of rural commuter transportation service as a key need and growth opportunity over the next ten years. The components of TCAT's rural transportation strategy include: First, coordination of TCAT's fixed-route services with service in neighboring counties. Second, TCAT will explore the feasibility of implementing alternative service delivery models in rural areas such as the expanded park-and-ride system and the demand-response feeder service. TCAT and Gadabout are engaged in designing a First Mile/Last Mile Pilot project that integrates paratransit and fixed route services to allow passengers to make connections to/from a main bus stop to their home or other destination address.

Transportation Systems Management

1. Traffic Signal Upgrade Program for Downtown City of Ithaca

IMPLEMENTATION 5-10

To be conducted by the City of Ithaca in cooperation with NYSDOT

$: Up to $2 Million depending on scope of work and technologies implemented

The upgrade of the traffic signal system in the core urban area of the City of Ithaca is one of the most important capital projects facing the area. Developing a linked, interconnected system using sensors to actuate signals in the presence of vehicles, bicycles, and pedestrians and to allow real time adjustments would help maximize operational efficiency, reduce congestion, reduce emissions and improve safety. In addition, it is recommended that the use of emergency vehicle and transit traffic signal priority systems be studied and considered for implementation. Additional resources are needed to address the continuing deployment of the advanced traffic signal system.

2. State Route 13 Signal Management Program

IMPLEMENTATION

1-5

To be conducted by the NYSDOT in cooperation with the City of Ithaca

$: To be determined

Periodic review and evaluation of the signal system operations in the West End area of the City of Ithaca. This project needs to be repeated periodically to respond to changing traffic conditions.

Assistance To Local Trail Development Efforts

1. Implementation of Trail Development Strategy

IMPLEMENTATION

10-20

To be conducted by ITCTC staff, in coordination with the Tompkins County Planning Department, in support of local trail development efforts

Development of a comprehensive multi-use trails network in Tompkins County has the potential for a significant positive impact on the transportation system. In addition, multi-use trails serve as a regional asset, providing harder to quantify but no less important, economic and quality of life benefits to residents of Tompkins County.

On March 1996 the ITCTC completed the Transportation Trail/ Corridor Study. The ITCTC has expressed its support and priority for the aggressive and effective implementation of the trail network described in the Trail/Corridor Study.

In 2013, a trails coalition representing municipalities, Tompkins County, the ITCTC, numerous community organizations and interested private individuals, prepared a plan called the Tompkins Priority Trails Strategy: a vision for networked trails in Tompkins County (see Appendices). This plan identifies a network of trails, the Tompkins County Priority Trails and Urban Connectors, and specifies steps needed to reach trail development. The ITCTC will continue to work and support the work of the trails coalition, including working towards implementation of the Tompkins Priority Trails Strategy.

The ITCTC will provide trail development technical assistance, i.e. mapping, data, grant applications, funding information, to interested municipalities and other government and civic agencies advancing development of the Tompkins County Priority Trails and Urban Connectors network.

APPENDICES

A. Tompkins Priority Trails Strategy

B. Glossary of Acronyms, Definitions and Transportation Web Sites

C. Inventory of Transportation Documents

D. Summary of Comments and Responses

APPENDIX A:
TOMPKINS COUNTY PRIORITY TRAILS STRATEGY

Picture it

By 2018, Tompkins County has become a destination for outstanding trail-based recreation and transportation. Residents and visitors alike can increasingly access our gorgeous parks and natural areas, the Cayuga Lake waterfront, downtown Ithaca, neighborhoods, and our rural villages and hamlets on a network of connected multi-use and thru- hiking trails.

We can get there from here

Tompkins County has remarkable potential to enhance its draw for trail-based recreation. We have natural beauty, cultural resources, and a large number of existing trails and proposed trail routes that can be completed and connected. Targeted trail development in the next two to five years can create a cohesive network that will form the basis of an impressive destination-quality trail system and local recreation and transportation resource. The County is fortunate to have many community trails, snowmobile trails, four-season trails, and state trails with which to build the network, and this effort will be further complemented by linking to the future Cayuga Lake Blueway Trail.

This paper outlines priority actions related to the development of five key trails that will provide the basis of such a network. All of these are at stages where real progress can be made in the near future with the right kind of focus and support. The five trails are: (A) the northern and middle sections of the **Black Diamond Trail**, (B) the **Ithaca-Dryden Trail** from the East Hill Recreation Way to Varna, (C) the extension of the **South Hill Recreation Way** to Brooktondale, (D) the **Cayuga Waterfront Trail**, **Gateway Trail**, and additional **Urban Connectors**, and (E) the **Finger Lakes Trail**. When completed, this network will form more than 120 miles of continuously connected trail in Tompkins County, with 51 miles on connected multi-use paths and 69 miles on the pedestrian-only Finger Lakes Trail.

The benefits are many

- **Tourism and Economic Development**
  $1.2 - $3 million: annual local visitor revenues generated into communities hosting comparable trails[1]
  100 million / 6 million: number of Americans who bicycle / cross-country ski
- **Quality of Life and Livability**
  58%/40% : Tompkins County households living within 1 mile / half mile of the completed trail network[2]
  12 : major parks and natural areas connected by the future trail network
- **Public Health**
  $3 billion: annual cost of physical inactivity in New York State
  33% / 67% : portion of American children/adults who are overweight or obese[3]
- **Environment and Conservation**
  80% : county goal for reduction of greenhouse gas emissions by 2050 (*20%* reduction by 2020)
  47% : portion of Tompkins County greenhouse gas emissions from transportation
  2.4 billion: gallons of fuel saved nationally every year if 10 percentage point increase in use of walking and bicycling for trips under three miles[4]
- **Transportation**
  50% : trips under three miles in the US, which are ripe for conversion to walking and cycling
  5-fold : increase in cycling in Portland, OR between 1990 and 2005 due to investment in bicycling infrastructure (from 1.2% to 6% of all trips)

CONTENTS

Comparison Case: Pine Creek Rail Trail, PA
Economic Benefits

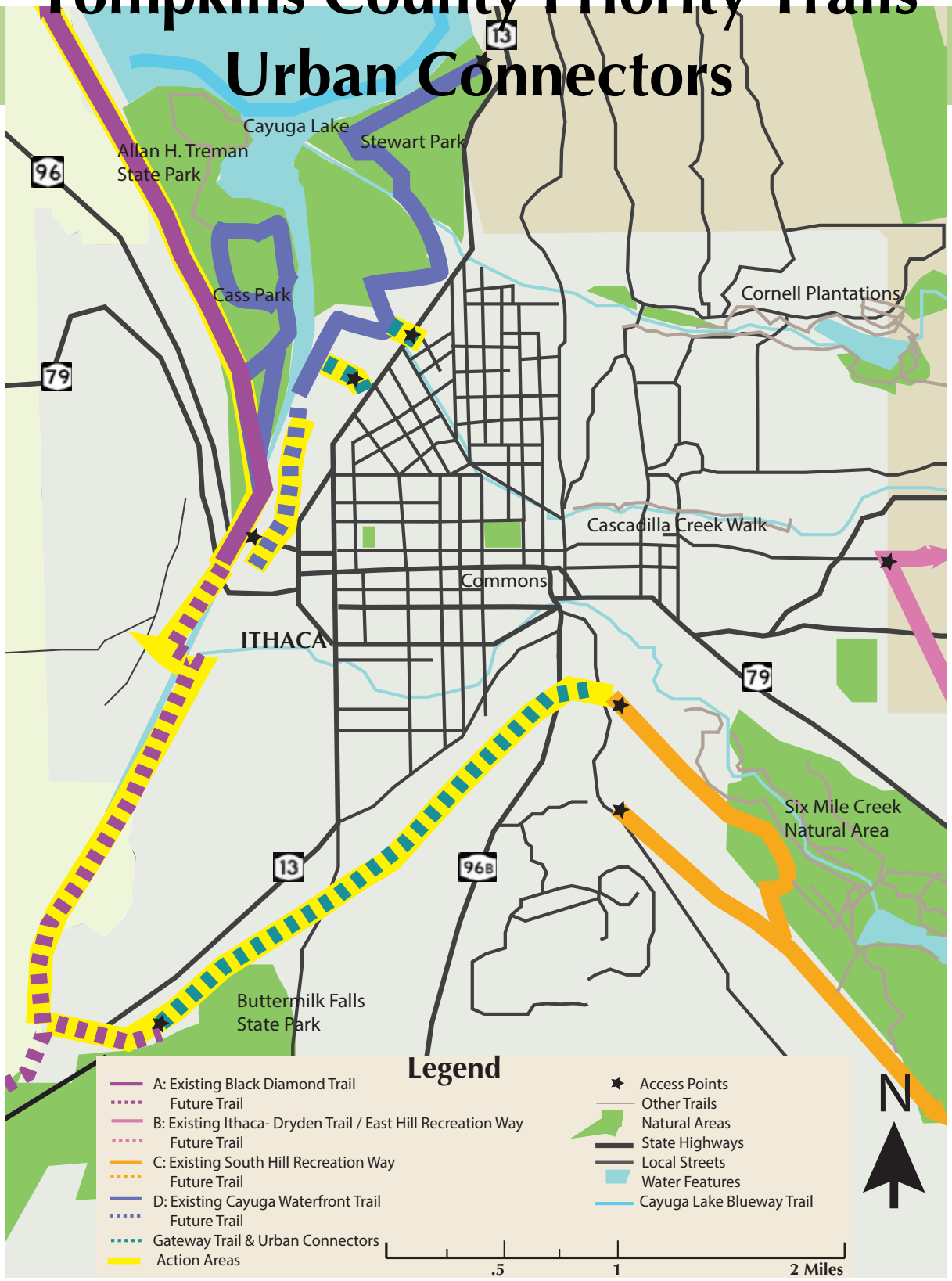
- 65 miles: length of connected trail
- 69% non-local trail users
- Majority reason for trail use: Recreation
- 138,227 annual users
- 57% of trail users stayed overnight
- 3.34 nights: average trail-associated stay
- $3-$5 million annual trail-associated spending on soft goods* and lodging

Source: Pine Creek Rail Trail 2006 User Survey and Economic Impact Analysis

** soft goods are beverages, candy/snack foods, sandwiches, ice cream, restaurant meals, other (does not include hard goods such as bicycles and other equipment)*

Tompkins County Priority Trails Map

Tompkins County Priority Trails
Urban Connectors



KEY ACTION SUMMARY

Much can be accomplished to create this **county-wide trails network** if all parties involved share a focus on a small number of key actions. Municipal, county and state officials; trails advocates and users groups; property owners; business groups; conservation groups; institutions of higher education and other stakeholders, together can make this vision a reality. Below are key actions that can be implemented in the next two to five years. More detailed descriptions and status summaries for each of the five major trails follow in this document.

A: Black Diamond Trail (BDT)

A1. Support the ongoing activity and the collaborative work of the City of Ithaca, Towns of Ithaca and Ulysses, Village of Trumansburg and NYS Parks to open the northern section between Cass Park and Taughannock Falls State Park.

A2. Support State Parks, working with the City and other partners, in identifying a funding strategy and project management plan to develop the portion of the trail from the end of the Floral Ave extension near Cass Park to Buttermilk Falls State Park.

A3. Develop highly visible trailhead amenities, such as in Cass Park.

B: Ithaca- Dryden Trail

B1. Address concerns of the DEC Game Farm which is adjacent to the trail alignment in Varna.

C: Extension of South Hill Recreation Way

C1. Communicate with and develop accommodations for a landowner adjacent to the eastern terminus of the existing recreation way who currently uses the proposed corridor as a driveway.

C2. Address ownership and maintenance issues through discussions between the current trail planning committee and members of the Town of Ithaca's Public Works Committee.

C3. Negotiate a Memorandum of Understanding for maintenance and management between Ithaca, Danby, Dryden and Caroline (and NYSEG as the owner if an easement is provided).

D: Cayuga Waterfront Trail, Gateway Trail, and Urban Connectors

D1. CWT: Stay committed to the completion of the CWT through the final stage. Further fundraising for furnishings will also be solicited.

D2. Gateway Trail: Support easement negotiations on Emerson property. Plan for and support crossing improvements at Stone Quarry Road. City and Town: Develop a Project Management Plan for the section between Emerson and Hudson Street.

D3. Streets and Sidewalks: Identify and improve on-street bike and pedestrian networks within the urban area that provide clear connections to trails.

D4. Creek Corridors: Develop corridor plans for Six Mile Creek, Cascadilla Creek, and Lower Fall Creek.

E: Finger Lakes Trail (FLT)

E1. Secure permanent protection of the entire FLT within the Emerald Necklace, with the goal of maintaining a scenic corridor width of at least 300 feet.

E2. Develop a FLT gateway in Tompkins County to enhance public access to the trail and offer interpretation of nearby natural and cultural resources.

E3. Encourage municipalities along the trail to recognize the value of the trail as a recreational resource for our residents and develop or strengthen land-use planning tools that can be used to protect the Finger Lakes Trail and buffer it from nearby development.

E4. Encourage associated connecting trails such as the Hammond Hill- Yellow Barn Connector.

Sustaining the Network: Key Actions to sustain all priority trails

S1. Ensure appropriate funding for maintenance so that trails can remain safe and usable.

S2. Develop/support volunteer Friends of the Trail groups.

S3. Pursue accessibility improvements so that everyone can use the trails.

S4. Install wayfinding and interpretive signs.

S5. Market the trail network to residents and visitors.

S6. Establish a formal County trail advisory board.

S7. Encourage participating municipalities to officially recognize this trails strategy.

S8. Develop links to nearby attractions and services.

A: Black Diamond Trail

Description

The Black Diamond Trail (BDT) is a proposed multi-use trail network connecting Taughannock Falls State Park, Allan H. Treman State Marine Park (adjacent to Cass Park), Buttermilk Falls State Park and Robert H. Treman State Park. When built, it will provide over 15 miles of off-road, connected pathways for non-motorized users (i.e. bicyclists and pedestrians). It is helpful to view the development in three sections: Taughannock Falls State Park to Cass Park; Cass Park to Buttermilk Falls State Park; and Buttermilk Falls State Park to Robert H. Treman State Park. The northern portion of the trail, from the city of Ithaca to Taughanock Falls State Park, is on track to be completed in the near term. The section between Cass Park and Buttermilk Falls also has potential to be developed in the near term, and would provide a key connection between the BDT, Cayuga Waterfront Trail and the South Hill Recreation Way.

Who Is Involved

New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) - Finger Lakes Region is responsible for the Black Diamond Trail. Other stakeholders include the City of Ithaca, the Towns of Ithaca and Ulysses, and other destinations and organizations along the route. A citizens group, Black Diamond Trail Enthusiasts Network (BDTEN) came together in February 2006 to advocate for completion of the project, particularly the northern section from Cass Park to Taughannock Falls State Park.

Current Status/ Recent Action

The land acquisition issues that have stalled progress on the section from Taughannock Falls State Park to Cass Park are resolved. State Parks now owns and has easement access to the corridor. Other recent actions:

- Culvert installations at road crossings on the northern section are complete.
- Construction of the Glenwood Creek Bridge and Willow Creek Bridge is complete, thanks in part to a large bequest from the Treman family.
- In 2013, NYSOPRHP received significant NY Works funds to complete construction of the northern section of the trail including culvert/drainage upgrades, surfacing, railings and signage. Construction is expected to begin in 2014.
- The City of Ithaca built a 2,000 foot trail section along Floral Avenue in 2013 that will become part of the BDT section between Cass Park and Buttermilk Falls State Park.
- In early 2013, the City of Ithaca applied for STEP funding to complete the segment from Floral Avenue to Buttermilk Falls State Park. While the application was not funded, it articulates clear steps to develop this section and can be used as a basis for future funding requests.

Action Items and Overcoming Key Barriers to Progress

A1. Support the ongoing activity and the collaborative work of the City of Ithaca, Towns of Ithaca and Ulysses, Village of Trumansburg and NYS Parks to open the northern section between Cass Park and Taughannock Falls State Park.

A2. Support State Parks, working with the City and other partners, in identifying a funding strategy and project management plan to develop the portion of the trail from the end of the Floral Ave extension near Cass Park to Buttermilk Falls State Park.

A3. Develop highly visible trailhead amenities, such as in Cass Park.

Future Phases

- Right-of-way acquisitions still need to be addressed in the section between Buttermilk Falls and Robert H.Treman State Parks.

B: Ithaca-Dryden Trail

Description

The future Ithaca-Dryden Rail Trail will provide a continuous off-street connection from East Ithaca and Cornell University out to Dryden Lake, passing through Varna, Etna, Freeville and Dryden. It will also link up with the Finger Lakes Trail at its eastern end. The section proposed for immediate action is an extension of the East Hill Recreation Way, connecting Cornell University and the East Hill neighborhood to the hamlet of Varna. Future sections will connect to the Village of Freeville and finally, the Village of Dryden. The East Hill Recreation Way currently terminates at Game Farm Road.

Who Is Involved

The East Hill Recreation Way is located in the Town of Ithaca and goes to the border of the Town of Ithaca / Town of Dryden. The proposed trail extension (the Varna Segment) is fully in the Town of Dryden. Large stretches of this 2.8 mile segment are currently owned by Cornell University and the New York State Department of Environmental Conservation (DEC).

Current Status/ Recent Action

- The Town of Dryden Planning Department and the Town of Dryden Recreation Department have begun conversations with Cornell University and the DEC about routes and trail development. The Varna Section runs south along the Monkey Run Preserve, part of Cornell Plantations. Cornell is working with Dryden on development of the trail.
- Other parts of the proposed trail to Varna are somewhat clear of brush and are used informally. There is also an informal network of trails off of the main trail.

Action Items and Overcoming Key Barriers to Progress

B1: Address concerns of the DEC Game Farm which is adjacent to the trail alignment in Varna. The DEC- managed Game Farm is adjacent to the trail and addressing concerns from the DEC Game Farm is the most important step required to move this trail project forward. A formal decision from the state needs to be made.

Future Phases

The Ithaca-Dryden Rail Trail can be thought about in five sections: 1) Varna section - recommended for short-term action to provide a continuation of the Recreation Way to the east, to the intersection of Routes 13 and 366; 2) Fall Creek Valley Corridor - a future section that would connect Varna to Freeville through Etna, 3) Freeville section – an existing trail in the Village of Freeville, 4) Freeville-Dryden section - a future section connecting Freeville to the western start of the Jim Schug Trail, and 5) Jim Schug Trail – an existing rail-trail connecting the Village of Dryden to Dryden Lake and the Finger Lakes Trail.

After the Varna section, the Fall Creek Valley Corridor is the next recommended trail project in the Town of Dryden. The Route 13 to Etna Lane section begins at the intersection of Route 13 and Hall Lane and extends to the Hamlet of Etna. Hall Lane would provide an on-street route to connect with the railroad right-of-way. Private land owners control most of this corridor with one-third of its 2.1 mile length being located on two farms. NYSEG owns an 800’ section and the Finger Lakes Land Trust is the adjacent owner of a 900’ section in Etna. An at-grade crossing of Route 366 would be required. There is currently a large property for sale that is within the future trail alignment between Route 13 and Etna. Since the Ithaca-Dryden Trail is on the Official Town of Dryden map any development proposal will need to accommodate the trail. The lower portion of the property is in a Conservation Zoning District and an easement or other protection of open space will be required prior to development.

The Etna Lane to Freeville section is a 2.9 mile segment that crosses large stretches of active farm land. Between Etna Lane and the Freeville Village boundary, land is privately owned but two-thirds of the total right-of-way for this stretch is located on one farm. The corridor appears to be intact for most of its length. Inside the Freeville Village boundary, most of the right-of-way is publicly owned and known as the Freeville Trail.

C: Extension of South Hill Recreation Way

Description

The South Hill Recreation Way is a non-motorized, multi-use recreation way that follows the route of a former rail bed. There is community interest to extend the South Hill Recreation Way two miles east of its current terminus on Burns Road in the Town of Ithaca to reach Banks Road in the Town of Caroline. This extension would greatly improve the accessibility of the trail corridor to residents of the hamlet of Brooktondale, and other nearby communities. From the terminus of the current South Hill Recreation Way (Burns Road), the proposed trail extension would follow the former railway east and terminate at Banks Road in the Town of Caroline, passing through the Towns of Ithaca, Danby, and Dryden.

Who Is Involved

The Town of Ithaca owns the majority of the existing South Hill Recreation Way, and a portion is owned by New York State Electric and Gas (NYSEG). NYSEG currently owns the corridor for the proposed extension. The corridor is within the Towns of Ithaca, Danby, Dryden and Caroline. Establishment of the trail requires involvement from the four towns and community members. A Friends of the South Hill Recreation Way has also been proposed.

Current Status/ Recent Action

- This project has received initial support from adjacent landowners and users of the current South Hill Recreation Way. The involved Towns have passed resolutions in support of the proposed project.
- In May 2010, the Cornell student group Design Connect administered a phone survey of adjacent landowners along the proposed extension of the trail to gauge their support. Of the 16 landowners along this corridor, thirteen were reached and eleven were willing to discuss their feeling on this project. Nine landowners expressed their support for the trail and two expressed their opposition.

Action Items and Overcoming Key Barriers to Progress

C1. Communicate with and develop accommodations for a landowner adjacent to the eastern terminus of the existing recreation way who currently uses the proposed corridor as a driveway.

C2. Address ownership and maintenance issues through discussions between the current trail planning committee and members of the Town of Ithaca's Public Works Committee.

C3. Negotiate a Memorandum of Understanding for maintenance and management between Ithaca, Danby, Dryden and Caroline, and NYSEG as the owner if an easement is provided.

Future Phases

An informal trail from Banks Road to White Church Road is currently used by snowmobilers and property owners along a NYSEG easement. A plan for a future extension along this corridor to the Finger Lakes Trail should be developed.

D: Cayuga Waterfront Trail, Gateway Trail, and Urban Connectors

Description

A system of trails across the county requires a clear, understandable system of 'urban connectors.' These include on-street bike routes, sidewalks, city foot trails and key multi-use trail connectors that create convenient, easily found, usable routes across the city core. Some key trail elements of this system are in place, are underway or are envisioned:

- The Cayuga Waterfront Trail (CWT) is a six mile paved multi-use trail to be completed in 2014. The CWT connects waterfront destinations to several neighborhoods.
- The Black Diamond Trail (BDT) planned middle section (described in A).
- The Town of Ithaca planned multi-use Gateway Trail will connect the South Hill Recreation Way (Hudson Street trailhead) to Buttermilk Falls State Park and the Cass Park to Buttermilk Falls section of the BDT. It will connect to the BDT via an existing pedestrian bridge over Route 13 at Buttermilk Falls.
- If linked, existing foot trails along Fall Creek, Cascadilla Creek and Six Mile Creek gorges can provide additional pedestrian connections to and between multi-use trails.

The City of Ithaca Trails Master Plan (2004) outlines multi-use and pedestrian trails that currently exist, are in the planning phase, or have been proposed. Additional connections are available, particularly bike routes such as envisioned in the 2011 ITCTC Ithaca Neighborhood Greenways Study and the 2012 City of Ithaca Bicycle Boulevard Plan. On East Hill, an extension of the Lower Fall Creek Walk could be a key element in a connection between the CWT and the future Ithaca-Dryden Rail Trail. The existing Lower Fall Creek Walk is accessible via Stewart Avenue a short distance uphill from Ithaca High School (near the CWT) and links with Cornell Plantations' 45 miles of foot trails in the Fall Creek gorge area.

Who Is Involved

The Cayuga Waterfront Trail Initiative is a partnership between the Tompkins County Chamber of Commerce Foundation and the City of Ithaca. The project lead for the Gateway Trail is the Town of Ithaca. Cornell Plantations oversees the existing Cascadilla Creek and Fall Creek footpaths. The City of Ithaca and the Town of Ithaca are responsible for all streets and sidewalks, and those within Cornell campus are the institution's responsibility.

Current Status/ Recent Action

- The two-mile CWT Cass Park loop and a 1.7 mile section between Stewart Park and the Farmers Market are complete. Construction on the gap between Cass Park and the Farmers Market is expected in 2014. Funding has been secured; the State of New York has completed final land acquisition. Pedestrian crossings across Route 13 are to be improved at both Dey and Third Streets in 2014.
- The Emerson Property is being subdivided and a trail easement for the Gateway Trail is being negotiated with the City of Ithaca.
- Reconstruction of the Cascadilla Creek footpath has been underway since its closing after tropical storm Lee in fall 2011. FEMA funding was secured. Full reopening is expected in 2014.

Action Items and Overcoming Key Barriers to Progress

D1: CWT: The community needs to stay committed to its completion through the final stage. Further fund-raising for furnishings will also be solicited.

D2: Gateway Trail: Support easement negotiations on Emerson property. Plan for and support crossing improvements at Stone Quarry Road. City and Town: Develop a project management plan for the section between Emerson and Hudson Street.

D3: Streets and Sidewalks: Identify and improve on-street bike and pedestrian networks within the urban area that provide clear connections to trails.

D4: Develop corridor plans for Six Mile Creek, Cascadilla Creek, and Lower Fall Creek

- Explore the potential of a foot bridge over Six Mile Creek from the Commons to the Wildflower Preserve, to create a connected trail.
- Perform a planning/feasibility study for the Lower Fall Creek Walk between the East side of the CWT and the start of the existing Lower Fall Creek walk at the Stewart Avenue bridge over Fall Creek.

Future Phases

Future urban connectors include: Lehman Alternative Community School Multi-Use Trail, and the Lower Fall Creek Walk. The LACS Trail could provide much needed pedestrian and bicycle infrastructure on West Hill and connection to CWT and BDT.

E: Finger Lakes Trail

Description

The Finger Lakes Trail (FLT) is a 900-mile system of hiking trails that includes a 563-mile main trail extending from Allegany State Park to the Catskill Mountains through the Finger Lakes and Southern Tier regions. A 78-mile section of the FLT runs through the Emerald Necklace, a corridor of forested, hilly landscapes south of Cayuga Lake in Schuyler, Tompkins and Tioga counties. The Emerald Necklace encompasses more than 50,000 acres of public open space and features a diversity of wildlife habitats and landscape features. Approximately 40 percent of the FLT within the Emerald Necklace corridor is on publicly-owned land and the remaining 60 percent is hosted by 58 private landowners.

Who Is Involved

The Finger Lakes Trail Conference was formed by volunteers in 1962 and is the coordinating group for the Finger Lakes Trail System. Since its creation, the portion of the trail in southern Tompkins County traversing the "Emerald Necklace" has been stewarded by the Ithaca-based Cayuga Trails Club. The Cayuga Trails Club maintains and constructs the trail, associated bridges, lean-tos and trailhead signage. The Cayuga Trails Club is also responsible for maintaining relations with private landowners who host the trail.

Current Status/ Recent Action

In recent years, development pressures and other factors have led to displacement of the trail from private lands and subsequent routing along public roads in some areas – not the hiking experience that was originally intended. The Cayuga Trails Club is currently working on adding FLT signage to identify the trail at road crossings. The Finger Lakes Land Trust and Finger Lakes Trail Conference recently completed acquisition of a 48-acre parcel in Enfield featuring half a mile of the trail as well as a remnant old growth maple forest.

Action Items and Overcoming Key Barriers to Progress

E1: Secure permanent protection of the entire FLT within the Emerald Necklace, with a goal of protecting a scenic corridor width of at least 300 feet.

E2: Develop a FLT gateway in Tompkins County to enhance the public access to the trail and offer interpretation of nearby natural and cultural resources.

- In the Town of Danby: locate gateway within Jennings Pond section of Buttermilk Falls State Park on Bald Hill Road, located a short distance from 96B. The trail gateway will be developed in conjunction with the NYS Office of Parks, Recreation and Historic Preservation and the Town of Danby. Wayfinding signs should be placed along NY State Route 96B to direct visitors to gateway.
- Explore development of a connecting trail between Jennings Pond and the Finger Lakes Trail. This would require a land owner agreement that has not yet been secured.

E3: Encourage municipalities along the trail to recognize the value of the trail as a recreational resource for our residents and develop or strengthen land-use planning tools that can be used to protect the Finger Lakes Trail and buffer it from nearby development.

E4: Encourage associated connecting trails such as Hammond Hill- Yellow Barn Connector.

Future Phases

As additional trail connections are made to the Black Diamond Trail, South Hill Recreation Way, Buttermilk Falls State Park, Robert Treman State Park and the Dryden Jim Schug Trail, there will be great opportunities to enhance the visibility of the Finger Lakes Trail – Emerald Necklace for locals and visitors.

Two additional gateways/trailheads have also been envisioned: in the Town of Caroline on Route 79, and in the Town of Ithaca on the east side of Route 13. Future phases should look to develop these.

Sustaining the Network

Proper maintenance and promotion of the county-wide trail network is necessary to provide a safe and useful system, protect the financial investment that has been made to construct the trails, and ensure continued future use of the trails for residents and visitors of the County.

The following items will be considered and, if appropriate, implemented to support the development of all trails that are part of the county-wide trail network:

1. **Maintenance:** Securing appropriate funding for maintenance is necessary to ensure that trails remain safe and usable. Some types of maintenance can be performed by citizen volunteers and some types of maintenance require trained professionals.
2. **Support and/or Develop Volunteer Friends of the Trail groups:** Citizen groups play an important role in trail development and success. To better respond to simple trail maintenance issues and to help identify needs for larger improvements, volunteer Friends of the Trail groups should be developed and/or supported.
3. **Accessible Trails:** Accessibility improvements should be proactively pursued and expanded; such as installing measures to allow people with mobility impairments and/or vision restrictions to better use the trails.
4. **Wayfinding Signs:** Appropriate, detailed and uniform signage is necessary to the success of the county-wide trails network, both within the City urban connectors and for those trails connecting to the rural areas of our county. It is also important that the signage provide information such as points of interest along the trail and an overview of the larger trail network.
5. **Marketing of Trails:** Partner with county, regional and statewide tourism promotion agencies to encourage use by both residents and visitors.
6. **Advisory Board:** Establish a County Trails Advisory Board to support implementation of this strategy.
7. **Endorsement:** Encourage participating municipalities to officially recognize this strategy so that future boards know and understand the intent of pursuing the trails network project.
8. **Develop** on-street, sidewalk, and/or spur trail connections between main trail corridors and attractions, business districts and services, especially for the Black Diamond Trail (links to Cayuga Medical Center, Cayuga Nature Center, Village of Trumansburg), Ithaca-Dryden Trail and Cayuga Waterfront Trail.

More Benefits of Trails

Stories of Trail Benefits from Other Places

Owners of restaurants and lodging facilities report that they are serving customers who have come into town specifically to ride the trail. – Mineral Belt Trail, Leadville, CO

In recognition of the many health, educational, and travel benefits the Greenway Trail offers, Blount Memorial Hospital, Alcoa, Inc, and other businesses have donated more than $300,000 worth of funds and easements to enhance the trail. – Greenway Trail, Maryville to Alcoa, TN

Residential developers are recognizing the value of the Silver Comet Trail as an attraction for prospective homeowners. For example, a community of 322 homes is being constructed adjacent to the trail in Dallas, GA. The developer also plans to construct a community trail that will connect to the Silver Comet Trail. – Silver Comet Trail, Rockmart, GA.

"Good recreational facilities are a critical part of the mix when recruiting employees," says James Stitt, President and Chief Operating Officer of Cutco Cutlery Corporation, which employs upwards of 850 people near the Allegheny River Trail in Olean, NY.

A study of Maryland's Northern Central Rail-Trail found that trail-related tax income to the state totaled $303,000, while the trail's management and maintenance costs were $192,000.

In Vermont, tourists stay an average of one day longer in Stowe than in other resort areas in the state; this extra day and revenue are attributed to the Stowe Recreation Path, a 5.5 mile multi-use trail.

References for Trail Benefits on page 1

1 http://www.ptny.org/pdfs/greenways/publications/economic_benefits.pdf
2 Tompkins County Planning Department analysis
3 http://www.railstotrails.org/resources/documents/whatwedo/atfa/ATFA_20081020.pdf
4 http://www.railstotrails.org/resources/documents/whatwedo/atfa/ATFA_20081020.pdf

Further Resources

Links: Tompkins County Multi -Use Map

The **Tompkins County Multi-Use Trail Map** was updated by the Ithaca/Tompkins County Transportation Council (ITCTC) in November 2010. It shows the status of the full planned multi-use trail network for Tompkins County, which was articulated in the 1996 Transportation Trail/Corridor Study. Trails shown as existing have been built and are open to the public. Trails in progress are those that have been allocated funding and are at some stage in their design or construction. Proposed trails are those that have been identified in plans but have not been funded or advanced in any other way. The Tompkins Priority Trails Strategy is intended to complement this existing planning work by identifying trail segments which are current priorities for development, along with specific short-term key actions.
View the map: http://tompkinscountyny.gov/files/itctc/projects/MultiUseTrails2010.pdf

Links: Related Trail Plans and Studies

- Black Diamond Trail Master Plan – New York State Parks, 2008 (blackdiamondtrail.org/?page_id=13)
- Dryden-Freeville Trail Map and Description on the Town of Dryden's website (dryden.ny.us/departments/planning-department/dryden-trails/dryden-freeville-trail)
- Finger Lakes Trail System Map – Finger Lakes Trail Conference website (fltconference.org/trail/go-hiking/interactive-map-segmented/)
- City of Ithaca Bike Boulevard Plan (www.cityofithaca.org/departments/dpw/engineering/traffic.cfm)
- Cayuga Waterfront Trail (cayugawaterfronttrail.com)
- Ithaca Neighborhood Greenways Study and Conceptual Plan, ITCTC, 2011(tompkins-co./itctc/projects/#NeighborhoodGreenways)
- South Hill Recreation Way – Extension Feasibility Study - DesignConnect, 2012 (designconnectcornell.com/wp-content/uploads/Feasibility_Study.pdf)
- Transportation Trail/Corridor Study - ITCTC, 1996
- Town of Ithaca Parks, Recreation, and Open Space Plan(1997), Transportation Plan (2007), and Trail Survey (2009): town.ithaca.ny.us/documents-publications

Recommended Reading

- Benefits of Trails and Greenways, AmericanTrails.org (americantrails.org/resources/benefits/index.html)
- Benefits of Rail-Trails, Rails to Trails Conservancy (railstotrails.org/ourWork/trailBasics/benefits.html)
- Greenways & Trails: Bringing economic benefits to New York, Parks and Trails NY, 2010 (ptny.org/pdfs/greenways/publications/economic_benefits.pdf)
- Research Summary – Economic Benefits of Trails and Greenways, Newton Trails (newtontrails.org/uploads/5/3/1/5/5315816/economic_impact.pdf)
- Pine Creek Trail 2006 User Survey and Economic Impact Analysis (railstotrails.org/resources/documents/resource_docs/RTC_PineCreekGuide_web.pdf)

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APPENDIX B:
GLOSSARY OF ACRONYMS, DEFINITIONS AND WEBSITES

ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
AADT	Average Annual Daily Traffic
AAR	American Association of Railroads
ARRA	American Recovery and Reinvestment Act – February 17, 2009
ACS	Advanced Communication System
ACS	American Community Survey
ADA	Americans with Disabilities Act of 1990
ADT	Average Daily Traffic
ADP	Advance Detail Plans
AFC	Automated Fare Control
AFV	Alternative Fuel Vehicle
A/I	Accident Incident
AICP	American Institute of Certified Planners
ALIS	Accident Location Information System (NYSDOT)
APA	American Planning Association or Adirondack Park Agency (New York State)
AQMP	Air Quality Management Plan
APTA	American Public Transit Association
APTS	Advanced Public Transportation System
ARTS	Advanced Rural Transportation Systems
ARRA	American Recovery and Reinvestment Act of 2009
ASCE	American Society of Civil Engineers
ATMS	Advanced Traffic Management System
ATS	Automated Transportation Systems
ATIS	Advanced Traveler Information System
ATV	Accurate Traffic Volume
ATV	All Terrain Vehicles
AVCS	Advanced Vehicle Control System
AVI	Automated Vehicle Identification
AVO	Average Vehicle Occupancy
BAC	Bicycle Advisory Council
BFU	Bicycle Facilities Unit
BPM	Best Management Practice
BMS	Bridge Management System
BNAM	Bridge Needs Assessment Model
BPAC	Bicycle Pedestrian Advisory Committee
BSA	Bridge Safety Assurance
BTP	Bicycle Transportation Plan
BTS	Bureau of Transportation Statistics (USDOT)
CA	Certification Acceptance
CAA	Clean Air Act of 1970
CAAA	Clean Air Act Amendments of 1990 (previously 1977)
CADD	Computer Aided Design and Drafting
CAFE	Corporate Average Fuel Economy Standards of 1975
CBD	Central Business District
CBO	Community-Based Organization
CBP	Comprehensive Business Plan
CDL	Commercial Driver's License
CDBG	Community Development Block Grant
CFC	Chloroflourocarbon
CH4	Methane
CHAS	Comprehensive Housing Affordability Strategy
CIP	Capital Improvements Program
CMAQ	Congestion Mitigation and Air Quality program
CMP	Congestion Management Plan
CMS	Congestion Management System
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CO2	Carbon Dioxide
COG	Council of Governments
CPI	Consumer Price Index
CPMIS	Capital Program Management Information System
CRA	Community Redevelopment Agency
CSS	Context Sensitive Solutions
CSSQ	Cost, Schedule, Scope and Quality
CSSQA	Cost, Schedule, Scope and Quality Agreement
CTAA	Community Transportation Association of America
CTPP	Census Transportation Planning Package
CVO	Commercial Vehicle Operations
CU	Cornell University
DA	Design Approval
DAD	Design Approval Document
db	Decibels
DBE	Disadvantaged Business Enterprise
DDR	Draft Design Report
DEC	New York State Department of Environmental Conservation
DEIS	Draft Environmental Impact Statement
DIA	Downtown Ithaca Alliance
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOT	Department of Transportation
DSS	Department of Social Services
EA	Environmental Assessment
EAP	Environmental Action Plan
ECO	Employee Commute Options
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency

EV	Electric Vehicle
FAA	Federal Aviation Administration (USDOT)
FARS	Fatal Accident Reporting System (USDOT)
FDR	Final Design Report
FEIS	Final Environmental Impact Statement
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration (USDOT)
FIPS	Federal Information Processing Standards
FISH	Friends in Service Helping
FLIC	Finger Lakes Independence Center
FRA	Federal Railroad Administration (USDOT)
FTA	Federal Transit Administration (formerly UMTA, USDOT)
FTIP	Federal Transportation Improvement Program
FTS	Freight Transportation Study
FY	Fiscal Year
GAO	General Accounting Office
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GNP	Gross National Product
GPS	Global Positioning Satellite
HBRR	Highway Bridge Rehabilitation & Replacement
HBW	Home-Based Work (trip type)
HC	Hydrocarbons
HCM	Highway Capacity Manual
HEV	Hybrid Electric Vehicle
HNW	Home Non-Work (trip type)
HOT	High Occupancy Toll Lane
HOV	High Occupancy Vehicle
HPMS	Highway Performance Management System
HRDB	Human Resource Development Bureau
HSC	Human Services Coalition
HSIP	Highway Safety Improvement Program
HUD	U.S. Department of Housing & Urban Development
IC	Ithaca College
ICC	Interstate Commerce Commission
IM	Interstate Maintenance
IMS	Intermodal Management System
INAM	Infrastructure Needs Assessment Model
IPP	Initial Project Proposal
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITCTC	Ithaca-Tompkins County Transportation Council
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation System
JTW	Journey-to-Work (US Census survey)
KPH	Kilometer Per Hour
LHI	Local Highway Inventory
LNG	Liquefied Natural Gas
LOS	Level of Service
LPG	Liquefied Petroleum Gas
LRP	Long Range Plan
LRRT	Light Rail Rapid Transit
LRTP	Long Range Transportation Plan
LTC	Local Transportation Commission
LULU	Locally Unwanted Land Use
MAB	Metropolitan (Planning) Area Boundary
MAP-21	Moving Ahead for Progress in the 21st Century
MSA	Metropolitan Statistical Area
MOVES	Motor Vehicle Emission Simulator
MOU	Memorandum of Understanding
MPG	Miles Per Gallon
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
MTIS	Major Transportation Investment Study
MTP	Metropolitan Transportation Plan
MUTCD	Manual of Uniform Traffic Control Devices
N2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESTS	North East Subarea Transportation Study
NHB	Non-Home Based (trip type)
NHPP	National Highway Performance Program
NHS	National Highway System
NHTS	National Household Travel Survey
NHTSA	National Highway Traffic Safety Administration (USDOT)
NIMBY	Not In My Back Yard
NOx	Nitrogen Oxides
NPS	National Park Service
NTPP	NESTS Transit Planning Project
NTS	National Transportation System
NYPTA	New York Public Transit Association
NYSDOT	New York State Department of Transportation
O3	Ozone
OMB	Office of Management and Budget
OPPM	Office of Planning and Program Management (NYSDOT Main Office)
OPRHP	New York State Office of Parks, Recreation & Historic Preservation
OTAQ	Office of Transportation and Air Quality
PE	Professional Engineer
PFR	Project Feasibility Report
PIN	Project Identification Number
PIP	Public Involvement Procedures
PM	Project Manager
PMP	Project Management Plan
PMS	Pavement Management System
PMSA	Primary Metropolitan Statistical Area
PMT	Person Miles of Travel
PRT	Personal Rapid Transit
PS&E	Plans, Specifications and Estimate
PTMS	Public Transportation Management System
RFB	Request for Bids
RFP	Request for Proposals
RFQ	Request for Qualifications

RHME Regional Highway Maintenance Engineer
ROW Right of Way
RPPM Regional Planning and Program Manager
RREGGAE Roadway & Rail, Energy& Greenhouse Gas Analysis Extension
RSTP Regional Surface Transportation Program
RTIP Regional Transportation Improvement Program
RTPA Regional Transportation Planning Agency
RTP Regional Transportation Plan
SAFE Service Authority for Freeways and Expressways
SAFETEA-LU Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users
SDF State Dedicated Fund
SDL Safety Deficient Location
SEQR New York State Environmental Quality Review
SEQRA New York State Environmental Quality Review Act
SFY State Fiscal Year (April 1 - March 31)
SHPO State Historic Preservation Officer
SIC Standard Industrial Classification
SMS Safety Management System
SMSA Standard Metropolitan Statistical Area
SOV Single Occupant Vehicle
SOx Sulfur Oxides
SPDS State Pollution Discharge Elimination System
SRTP Short Range Transit Plan
STBG Surface Transportation Block Grant
STIP State Transportation Improvement Program
STOA State Transit Operating Assistance
STP Surface Transportation Program
STPP Surface Transportation Policy Project
SWS Statewide Significant
TAC Technical Advisory Committee
TAP Transportation Alternatives Program
TC3 Tompkins Cortland Community College
TCI Transit Capital Improvement
TCM Transit Control Measure
TAZ Traffic Analysis Zone (see TSZ)
TCAT Tompkins Consolidated Area Transit
TCM Transportation Control Measure
TCRP Traffic Congestion Relief Program
TDC U.S. Travel Data Center
TDM Transportation Demand Management
TEA-21 Transportation Equity Act for the 21st century
TEP Transportation Enhancement Program
TIA Transportation Improvement Area
TIF Transportation Improvement Fund
TIGER Topologically Integrated Geographic Encoding and Reference System
TIGER Transportation Investment Generating Economic Recovery (Federal Grant Program)
TIP Transportation Improvement Program
TMA Transportation Management Area (metropolitan areas over 200,000 pop.)
TMA Transportation Management Association
TOD Transit Oriented Development
TOS Traffic Operation System
TP Total Particulate Matter
TPA Transportation Planning Agency
TPB Transportation Planning Board
TRB Transportation Research Board
TSM Transportation System Management
TSZ Traffic Survey Zone (see TAZ)
UA Urbanized Area (Census Bureau)
UBC Uniform Building Code
UNIPCC United Nations Intergovernmental Panel on Climate Change
UOP Unified Operations Plan
UPWP Unified Planning Work Program
USC United States Code
USDOT U.S. Department of Transportation
USGS U.S. Geological Survey
USTTA U.S. Travel and Tourism Information Association
UZA Urbanized Area (FHWA, revised)
V2V Vehicle to Vehicle Technologies
V/C Volume to Capacity Ratio
VHT Vehicle Hours Traveled
VLS Vehicle Location System
VMT Vehicle Miles Traveled
VNTSC Volpe National Transportation Systems Center
VOC Volume Over Capacity
VPD Vehicles Per Day
VPH Vehicles Per Hour
VPHH Vehicles Per Household
VOC Volatile Organic Compounds
WBE Women (owned) Business Enterprise
WIC Women, Infants and Children

DEFINITIONS

The definitions below are for commonly used terms and concepts in transportation planning. The listing below may be supplemented by an online glossary maintained by the Federal Highway Administration at: http://www.fhwa.dot.gov/planning/glossary/glossary_listing.cfm .

Accelerated Retirement of Vehicles (a.k.a. "Cash for Clunkers") - programs that allow industries that exceed federal emission standards to purchase older model vehicles from the general public to remove them from the road (for air quality and energy reasons).

Access, Accessibility - The opportunity to reach a given destination within a certain time frame, or without being impeded by physical or economic barriers. Accessible also means, with respect to vehicles and facilities, complying with the accessibility requirements of 49 CFR parts 37 and 38 (ADA transportation provisions).

Aggregate Demand Model - Model obtained by combining travel observations for individuals into geographic zones.

Air Quality Conformity Analysis - Analysis that determines if certain transportation plans and programs conform to federal air-quality goals, namely that the plans and programs won't increase vehicular emissions. Federal Clean Air Act requires these analyses for areas that in non-attainment of federal air quality standards.

Allocation - An administrative distribution of funds among the States, done for funds that do not have statutory distribution formulas. The State of New York also allocates funds among its eleven administrative regions.

Alternative Fuels - Any motor fuel other than ordinary gasoline which generally results in lower levels of air pollutants (e.g., reformulated gasoline, methane, ethanol, natural gas, liquid propane, and vegetable oils). See "Clean Fuels" and "Oxygenated Fuels", below.

Americans with Disabilities Act of 1990 (ADA) - Federal Law which requires accessible public transportation services for persons with disabilities, including complementary or supplemental paratransit services in areas where fixed route transit service is operated. Expands definition of eligibility for accessible services to persons with mental disabilities, temporary disabilities, and the conditions related to substance abuse. The Act is an augmentation to, but does not supersede, Section 504 of the Rehabilitation Act of 1973 which prohibits discrimination on the basis of disability against otherwise qualified individuals in programs receiving federal assistance.

Annual Element (A.E.) - The section of the Transportation Improvement Program which lists all transportation improvement projects proposed for the first year of the program.

Apportionment - A term that refers to a statutorily prescribed division or assignment of funds. An apportionment is based on prescribed formulas in the law and consists of dividing authorized obligation authority for a specific program among the States.

Appropriations Act - Action of a legislative body that makes funds available for expenditure with specific limitations as to amount, purpose, and duration. In most cases, it permits money previously authorized to be obligated and payments made, but for the highway program operating under contract authority, appropriations specify amounts of funds that Congress will make available to liquidate prior obligations.

Arterial - Roadways designed to carry large volumes of traffic to and from collector streets. The emphasis is on mobility, not access to adjoining land uses.

Assignment - The last step in a transportation model in which the estimated trips are loaded on to the simulated travel network (e.g., highway or transit).

Attainment Area - An area considered to have air quality that meets the National Ambient Air Quality Standards for a given pollutant. An area may be in attainment for one pollutant while being in non-attainment for others.

Average Daily Traffic (ADT) - The average number of vehicles passing a fixed point in a 24-hour time frame. A convention for measuring traffic volume.

Average Annual Daily Traffic (AADT) - The total number of vehicles passing a fixed point in a 365-day time period divided by 365. AADT figures may also be derived from ADT counts using monthly adjustment factors derived from continuous count station readings.

Average Vehicle Occupancy (AVO) - A measure of the number of people using each automobile. A higher AVO assists in the reduction of traffic congestion and improving air quality.

Base Year - The first year of data and analysis used in a study (usually the current year).

Bicycle Boulevard – A roadway that has been modified to enhance bicyclists' safety and convenience. Bicycle Boulevards are ideally incorporated into a network that allows bicyclists to travel between major points activity. Bicycle Boulevards frequently incorporate traffic calming strategies to enhance multi-modal transportation, especially bicycling.

Bikeway - Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

Bike Facilities - A general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling, including parking facilities, mapping all bikeways, and shared roadways not specifically designated for bicycle use. See "Shared Roadway", below.

Bike Lane - A portion of a roadway, which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

Bike Path - A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right of way or within an independent right of way.

Bike Route - A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without specific bicycle route number.

Budget Authority - Empowerment by the Congress that allows federal agencies to incur obligations to spend or lend money. This empowerment is generally in the form of appropriations. However, for the major highway program categories, it is in the form of "contract authority." Budget authority permits agencies to obligate all or part of the funds that were previously "authorized." Without budget authority, federal agencies cannot commit the Government to make expenditures or loans.

Bus Lane - A lane reserved for bus use only. Also known as a "diamond lane."

Capacity - The maximum number of vehicles that can pass over a given section of a lane or roadway in one direction (or in both directions for a two-lane or three-lane highway) during a given time period under prevailing roadway and traffic conditions. It is the maximum rate of flow that has a reasonable expectation of occurring. In the absence of a time modifier, capacity is an hourly volume.

Capacity Restraint - The modeling process by which the assigned volume on a link is compared with the practical capacity of that link and the speed of the link adjusted to reflect the relationship between speed, volume, and capacity. The procedure is iterative until a realistic representation of traffic flow is achieved.

Carbon Monoxide (CO) - A colorless, odorless gas emitted primarily from the incomplete combustion of fossil fuels. CO is absorbed into the bloodstream through the respiratory tract and reacts primarily with the hemoglobin in the red blood cells, decreasing the blood's oxygen carrying capacity.

Carsharing - A model of car rental where people rent cars for short periods of time, often by the hour. They are attractive to customers who make only occasional use of a vehicle, as well as others who would like occasional access to a vehicle of a different type than they use day-to-day.

Catenary - The overhead power line system for electrically propelled rail vehicles, including light-rail cars.

Central Business District (CBD) - The most intensely commercial sector of a city.

Clean Air Act (CAA) - Originally adopted in 1970, substantially amended in 1977. The act established maximum allowable emission levels for various pollutants and required the development of State Implementation Plans (SIPs) that monitor air quality and enforce emission standards.

Clean Air Act Amendments of 1990 (CAAA) - Federal law establishing criteria for attaining and maintaining National Ambient Air Quality Standards. A nonattainment area is a region that fails to meet one or more of the standards. The CAAA have shifted the emphasis of conformity analysis from a system-level review of the SIP towards a more project-oriented approach. Transportation agencies are concerned with projects that help to reduce pollutant levels by reducing vehicle congestion and vehicle miles of travel.

Clean Fuels - Blends and/or substitutes for gasoline. Compressed natural gas (CNG), methanol, ethanol, and others are considered clean fuels. The addition of oxygenated compounds directly to gasoline can improve the efficiency of combustion and lower the output of CO and reactive organic emissions. See "Alternative Fuels", above and "Oxygenated Fuels", below.

Closed Barrier System - A type of toll collection system in which vehicles pay at toll booth "barriers" across the highway, rather than at toll booths at each exit from the highway.

Collector - A roadway that both provides access to adjoining land uses, as well as conducts traffic from local streets to arterial streets and freeways.

Commercial Driver's License (CDL) - A standard state requirement for trucking, bus, and some for-profit passenger bus services. The CDL is becoming a standard driver qualification for employment in professional paratransit organizations.

Commuter Rail - Local and regional passenger train operations between a central city, its suburbs, and/or another central city. Commuter rail usually has only one or two stations in the CBD. Also known as "suburban rail".

Complete Streets - In urban planning and highway engineering, roadways designed and operated to enable safe, attractive, and comfortable access and travel for all users. Pedestrians, bicyclists, motorists and public transport users of all ages and abilities are able to safely and comfortably move along and across a complete street.

Conformity - Process to assess the compliance of any transportation plan, program, or project with air quality control plans. The conformity process is defined by the Clean Air Act.

Congestion Management and Air Quality Improvement Program (CMAQ) - A categorical type of funding program which directs funding to projects within air quality nonattainment areas that contribute to meeting national air quality standards. CMAQ funds generally may not be used for projects which result in the construction of new capacity available to SOVs (single occupant vehicles).

Congestion Management Process (CMP) - Each Transportation Management Area (see "TMA", below) is required to develop a CMP that provides for effective management of new and existing transportation facilities through the use of travel demand reduction and operational management strategies.

Consolidation - Restructuring transportation services to serve the same market with fewer service providers.

Context Sensitive Solutions - A collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist.

Contract Authority - A form of budget authority that permits obligations to be made in advance of appropriations. The Federal-Aid Highway Program operates mostly under contract authority rules due to the existence of a dedicated trust fund.

Controlled Access - A roadway design that permits no access to adjoining land, just access to other public roads.

Coordination - When agencies share responsibilities related to transporting clients (e.g., carrying other clients, arranging with other agencies to carry clients, sharing vehicles or vehicle support services including maintenance, etcetera). For example, a provider whose major activity is transporting elderly clients may make mid-day schedule space to serve clients of an AFDC, WIC, or substance abuse prevention program.

Core-Based Statistical Area - An area defined by the Census Bureau for statistical reporting purposes. Such areas have an urban core of 10,000 persons or more, as well as adjacent counties that are socioeconomically linked to the urban center due to commuting patterns. See "Metropolitan Statistical Area" below.

Corporate Average Fuel Economy Standards (CAFE) - Refers to the federal fuel efficiency standards for automobiles.

Crosswalk – A point along a street that is identified by striping, signage, and/or signal lights that designate it as a spot for pedestrians to cross the street.

Curb Cut - a ramp leading smoothly down from a sidewalk to a street, rather than abruptly ending with a curb and dropping roughly 4–6 inches.

Deadhead - Refers to bus travel between a garage and a passenger route. Less deadhead time means more efficiency.

Demand-Responsive System - Any system of transporting individuals, including the provision of designated public transportation service by public entities and the provision of transportation service by private entities, including but not limited to specified public transportation service, which is not a fixed route system. Trips are usually requested and scheduled in advance by the trip maker. See "Dial-A-Ride" and "Paratransit", below.

Desire Line - The straightened path between the origin and destination of a trip. Desire lines are mapped by analysts, where the width of the line is correlated to the patterns of travel intensity.

Dial-a-Ride - A door-to-door, demand responsive transit operation similar to a taxicab (zone cab) service. Trip reservations may be required. See "Demand-Responsive", above and "Paratransit", below.

Discretionary Funding - Projects are selected for construction or reconstruction at the discretion of the U.S. Secretary of Transportation. These projects usually involve high cost or require long periods of construction time.

Ecological Sustainability - Based on the principles of ecology which recognize the connectedness and interrelationship of all living things. Long-term survival (sustainability) of any species in an ecosystem depends on a limited resource base. See "Sustainable Society", below.

Energy Descent - is the post-peak oil transitional phase, when humankind goes from the ascending use of energy that has occurred since the industrial revolution to a descending use of energy. Commonly used to refer to the retraction of oil use after the peak oil availability.

Environmental Capacity - Environmental capacity (EC) quantifies the impact that traffic has on the human environment (noise, air pollution, vibration, pedestrian safety, etc.). It was first quantified by Buchanan (Traffic in Towns, HMSO,1963, London), and has been expanded and refined by many authors since. A road's environmental capacity is determined by both the physical environment through which the road passes (land use, building set-back, vegetation, etc.) and by the characteristics of the road itself (width, number of lanes, traffic speed, percent trucks, etc.). As a rule, roads in residential areas have a low EC (200-300 vph, 800-1200 vpd), while commercial areas have higher ECs (perhaps twice as high). Environmental capacity is rarely a limiting factor in undeveloped or heavy industrial areas. Many methods can be used to keep a road operating within its EC: reduce the amount of traffic, reduce vehicle speeds, reduce pavement width, plant trees and shrubs along the road, or move the road further from the land-use focal point (e.g., building, playground, etcetera). While it is possible to modify a road to make it operate within its EC without necessarily decreasing the amount of traffic, typical carrying capacity improvements (e.g., wider, straighter, faster) decrease the road's EC. Local examples of successfully implemented measures to improve EC include: prohibiting through-trucks in some residential areas, reducing speed limits near schools, restricting through-traffic from the Cornell University campus, and eliminating all traffic from the Ithaca Commons. [Source: Bruce Brittain]

Environmental Impact Statement (EIS) – A written report that (1) details any adverse economic, social, and environmental effects of a proposed project for which federal funding or approval is sought, (2) examines alternatives to the project, and (3) discusses possible mitigation measures for the negative impacts of the project. It is intended to be a disclosure document, to provide decision-makers with necessary information to make an informed decision. Adverse effects could include air, water, or noise pollution; destruction or disruption of natural resources; adverse employment effects; injurious displacement of people or businesses; or disruption of desirable community or regional growth.

Environmental Protection Agency (EPA) - EPA is the source agency of air quality control regulations affecting transportation.

Expressway - A divided arterial highway for through traffic with controlled access, the intersections of which are usually separated from other roadways by differing grades.

Federal-Aid Highway Program - An umbrella term generally referring to all activities funded through the FHWA and administered by the States' highway/transportation agencies or, in some cases, by local transportation agencies. While there are many components to the Program, the principal categories are: (1) the Interstate Maintenance Program, (2) the National Highway Performance Program (NHPP), (3) the Surface Transportation Block Grant Program (STBG), and (4) the Congestion Mitigation and Air Quality Improvement Program (CMAQ).

Federal Fiscal Year (FFY) - Since FFY 1977, the yearly accounting period beginning October 1 and ending September 30 of the subsequent calendar year. Fiscal years are denoted by the calendar year in which they end (e.g., FY 2020 began October 1, 2019, and ended September 30, 2020). See "Fiscal Year" and "State Fiscal Year", below.

Federal Highway Administration (FHWA) - The agency within the U.S. Department of Transportation responsible for the administration of the Federal-Aid Highway Program.

Federal Transit Administration (FTA) - The agency within the U.S. Department of Transportation responsible for administering the provisions of the Urban Mass Transportation Act of 1964 (as amended). Formerly named the Urban Mass Transportation Administration (UMTA).

Fiscal Year - The program and budget year of a given business, agency, or other enterprise. See "Federal Fiscal Year", above and "State Fiscal Year", below.

Fixed Route - A system of transporting individuals (other than by aircraft), including the provision of designated public transportation service by public entities and the provision of transportation service by private entities, including, but not limited to, specified public transportation service, on which a vehicle is operated along a prescribed route according to a fixed schedule.

Fragmentation - A situation stemming from the lack of effective and efficient integration of programs, facilities and services.

Freeway - A divided arterial highway designed for the unimpeded flow of large traffic volumes. Access to a freeway is rigorously controlled; grade separated intersections are the rule.

Gasohol - A special motor fuel that is a blend of 90% ordinary gasoline and 10% ethanol which is fermented from biomass (e.g., corn).

Headway - Time spacing between transit vehicles (e.g., 10-minute headways means a bus comes by a particular location every 10 minutes).

High Accident Location - A location that has experienced eight or more accidents within the previous three years and that has a "critical rate" of accidents greater than 1. "Critical rate" is a statistic that compares the accident experience among similar locations. A "critical rate" greater than 1 indicates a higher than average rate of accidents for the location given its traffic volume and other characteristics.

High Occupancy Vehicles (HOVs) - Generally applied to vehicles carrying three or more persons. Freeways, expressways and other large volume roads may have lanes designated for the exclusive use of HOVs

(carpoolers, vanpools, and buses). The term HOV is also sometimes used to refer to high occupancy vehicle lanes themselves.

Highway - Term applies to roads, streets, and parkways, and also includes rights-of-way, bridges, railroad crossings, tunnels, drainage structures, signs, guard rails, and protective structures in connection with highways.

Home-Based Work (HBW) - A trip for the purpose of one's employment, with either trip end being one's home.

Home Non-Work (HNW) - A trip for a purpose other than employment (e.g., shopping, recreation, social, school, etcetera), with either trip end being at one's home.

Infrastructure - A term connoting the physical underpinnings of society at large, including, both human made -- including, but not limited to: roads, bridges, transit, water systems, public housing, sidewalks, utility installations, parks, public buildings, and communications networks -- and the natural (environmental) infrastructure of land, water, air, and life-forms.

Initial Project Proposal (IPP) - The first step in developing NYSDOT capital project, the IPP begins as a two-page form that provides a thumbnail sketch of the proposed improvement. The IPP describes the specific problem, possible solutions to it, and the possible benefits and costs resulting from the project's implementation. It serves as the point of departure for subsequent planning and design.

Intelligent Vehicle Highway Systems (IVHS) - Uses computer and communications technology to provide information to travelers about road and transit conditions and to monitor, guide, or control the operation of vehicles. Included concepts such as "freeway management systems," "urban signal control systems," and "automated highways." Similar to Intelligent Transportation System.

Intermodal - A term that refers to connectivity between modes as a means of facilitating linked trip making. It emphasizes connections (transfers of people or freight in a single journey), choices (provisions of transportation options to facilitate trip making), and coordination and consolidation (collaboration among transportation organizations).

Intermodal Facility - A transportation element that accommodates and interconnects different modes of transportation and serves intrastate, interstate, and possibly international movement of people and goods.

Interstate System - That system of highways which connects the principal metropolitan areas, cities, and industrial centers of the United States. The interstate system also connects at suitable border points with routes of continental importance in Canada and Mexico. The routes of the interstate system are selected by joint action of the state highway department of each state and the adjoining states, subject to the approval of the U.S. Secretary of Transportation. May be referred to as the Dwight D. Eisenhower National System of Interstate and Defense Highways.

Land Use - The way specific portions of land or the structures on them are used. Basic land use categories are: single family residential, multi-family residential, retail, commercial/office, industrial, agricultural, recreation, and so on.

Letting - The term used to describe the acceptance of a contract bid. The letting date follows or coincides with the obligation of funds and is followed by a notice to proceed. See "Obligation Date", below.

Level of Service (LOS) - A qualitative measure of the degree of mobility on a roadway. There are six levels of service defined, ranging from LOS "A" to LOS "F":

- LOS A:
  free-flow conditions; delays are minimal or nonexistent
- LOS B:
  stable flow, but motorists begin to experience some delays
- LOS C:
  flow is still stable, but delays lengthen and maneuvering within the traffic stream is noticeably more difficult
- LOS D:
  flow is still stable, but speed and maneuverability are severely restricted; moderately long delays (25 to 40 seconds per vehicle) at intersection
- LOS E:
  road is at or near capacity; speeds are reduced to low, uniform flow; delays at intersection of 40 to 60 seconds per vehicle
- LOS F:
  roadway is operating under "breakdown" conditions; intersection delays of more than 60 seconds per vehicle

Link - The abstract representation of a discrete roadway or transit route segment in a travel demand model network. See "Network", below.

Local Street - A street intended only to provide access to abutting properties.

Long-range - Typically, long-range plans address a period of at least twenty years. Federal regulations specify that transportation plans must address "at least a twenty-year planning horizon". See "Metropolitan Transportation Plan", below.

Maintenance Area - Any geographic region of the United States designated nonattainment pursuant to the Clean Air Act, and subsequently re-designated in attainment and required to develop a maintenance plan.

Matching Funds - Funds which one funding source requires from others as a condition of receiving the funds from that funding source. Generally, the match is set as a percentage of the total project, or project phase, cost. Federal legislation establishes a 20% matching share for nearly all federal-aid transportation programs.

Metropolitan Planning Area Boundary (MAB) - The geographic area in which the metropolitan transportation planning process must be carried out. This area must, at minimum, include the Census defined Urbanized Area and the area expected to be urbanized within twenty years. The MAB may encompass the entire metropolitan statistical or consolidated metropolitan statistical area (defined by the Census Bureau) and shall include the boundaries of air quality nonattainment and maintenance areas, if applicable. In addition, the MAB should be defined to reflect a comprehensive and effective transportation planning process that ensures connectivity between modes, reduces access disadvantages experienced by modal systems, and promotes efficient overall transportation investment strategies.

Metropolitan Planning Organization (MPO) - The organizational entity designated by law with lead responsibility for developing transportation plans and programs for urbanized areas of 50,000 or more in population. MPOs are established by agreement of the Governor and units of general purpose local government which together represents 75% of the affected population of an urbanized area.

Metropolitan Statistical Area (MSA) - An area defined by the Census Bureau for statistical reporting purposes. Such areas have a core City of 50,000 persons or more and an Urbanized Area of 50,000 persons or more (provided total county/counties population is 100,000 persons or more). MSAs may also be designated on the basis of various economic variables (i.e., regional employment destinations). See "Core-Based Statistical Area" above.

Metropolitan Transportation Plan - A long-range transportation plan, which federal legislation requires be completed by Metropolitan Planning Organizations (MPOs). See "Long-range", above.

Mobility - The ease with which desired destinations can be reached.

Mobility Impaired - A descriptive, non-regulatory definition that generally applies to those persons who, for one reason or another (e.g., age, physical, economic, or other), do not have personal access to or the ability to use an automobile. In general, these persons are elderly, disabled, youths, or economically disadvantaged.

Modal Balance - The percentage of all forms of transportation in use (e.g., 85% autos, 7% pedestrian, 5% bus, 3% bicycle) that represents an optimal mix of modes. Modal balance is influenced by such factors as price, speed, ease of access, demographics (age, economics, education, occupation, etcetera), and land use composition.

Modal Interface - The interaction between two or more modes of transportation (e.g., the ability to change from the pedestrian to bicycle to bus modes in order to complete a trip).

Mode - Means of travel, whether by automobile, transit, bicycle, walking, or other available methods of transportation. Modes also apply to freight movements.

Mode Choice Model - A mathematical model used as part of the transportation modeling process to determine what mode of transportation (principally automobile or mass transit) a specific trip is inclined to use. May also be referred to as "mode split".

Model - A mathematical and geometric projection of activity and the interactions in the transportation system in an area. This projection must be able to be evaluated according to a given set of criteria which typically include criteria pertaining to land use, economics, social values, and travel patterns. The transportation planning process relies heavily on the use of travel demand models that predict travel behavior in order to assess the feasibility, effectiveness, and efficiency of current and future transportation alternatives.

National Ambient Air Quality Standards (NAAQS) - Those standards established pursuant to section 109 of the CAAA and included standards for carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide.

National Highway System (NHS) – Federal legislation specifies that "the purpose of the National Highway System is to provide an interconnected system of principal arterial routes which will serve major population centers, international border crossings, ports, airports, public transportation facilities, and other intermodal transportation facilities and other major travel destinations; meet national defense requirements; and serve interstate and interregional travel". The NHS is comprised of the Interstate Highway System, urban and rural principal arterials, and the strategic defense highway system.

Network - A graphic and/or mathematical representation of multimodal paths in a transportation system. Highway network representations used in travel demand modeling are comprised of "links", representing the discrete roadway or transit route segments, and "nodes", representing roadway intersections or activity locations.

Node - Designates intersections or changes in characteristics/attributes in a network representation. Nodes may also represent areas of concentrated activity in both network or land use terms.

Nonattainment Area - Any geographic region of the United States that the Environmental Protection Agency (EPA) has designated as a nonattainment area for transportation related pollutant(s) for which a National Ambient Air Quality Standard (NAAQS) exists. Nonattainment is generally declared when air quality monitors reveal that the NAAQS levels have been exceeded for one or more hours on two or more separate days.

Non-Home-Based (NHB) - A trip that takes place between two points, neither of which is the home end of the trip-maker.

Obligation Date - The point in the life of a project at which the administering agency (usually the state DOT) commits a portion of its allocated federal funds to a project. See "Letting", above.

Obligations - Commitments made by Federal agencies to pay out money as distinct from the actual payments, which are "outlays." Generally, obligations are incurred after the enactment of budget authority. However, since budget authority in many highway programs is in the form of contract authority, obligations in these cases are permitted to be incurred immediately after apportionment or allocation. The obligations are for the Federal share of the estimated full cost of each project at the time it is approved regardless of when the actual payments are made or the expected time of project completion.

Operating Cost - The costs of operating a transportation system. These are separate from capital costs, and include such items as: wages, fuel, oil, maintenance, etcetera.

Operating Revenues - Money received from users of a transportation system such as fares, tolls, charter fees, etcetera.

Origin-Destination Survey (O-D Survey) - A survey typically undertaken of travelers (motorists or transit passengers) to identify travel patterns, habits and needs.

Oxygenated Fuels - Gasoline blended with alcohol or ether containing oxygen. Use of such fuels reduces carbon monoxide production and other emissions. See "Alternative Fuels" and "Clean Fuels", above.

Paratransit - Comparable transportation service required by the ADA for individuals with disabilities who are unable to use fixed route transportation services. See "Demand-Responsive System" and "Dial-A-Ride", above.

Park-and-Ride Lots - Commuter parking lots located on the periphery of the urban area adjacent to major travel corridors, where commuters may park their cars and ride transit to the CBD or other major employment centers/destinations.

Peak Hour - The sixty-minute period observed during either the AM or PM peak period that contains the largest amount of travel.

Peak-Hour Factor - The fraction of the average daily traffic volume occurring during the highest volume sixty-minute period during the day.

Peak Hour-Peak Direction - The travel direction which, during the sixty-minute peak hour, contains the highest percentage of travel.

Peak Period - The two consecutive AM or PM sixty-minute periods which collectively contain the maximum amount of AM or PM travel. Peak period can be associated with person-trip movement, vehicle trip movement, or transit stops.

Pedestrian Walkway - Secured walkway provided as an alternate to auto travel. Sidewalks.

Performance Measures - Indicators of how well the transportation system is performing regarding such things as mode share, accident rates, congestion, etc. Used as feedback in the decision-making process.

Person-Trips - The sum of trips made as passengers of an automobile, bus, taxi, truck, and the like, plus as an automobile driver. Auto person-trips are trips made as a passenger or driver in an automobile.

Personal Rapid Transit (PRT) - A public transportation concept that offers on-demand, non-stop transportation, using small, automated vehicles on a network of specially-built guideways.

Planner - In the transportation field, a title likely having to do with the management and analysis of data which directly supports qualitatively oriented, strategic, or "macro" decision-making.

Plans, Specifications and Estimate (PS&E) - The preliminary data submitted by the state to FHWA so that federal funds are set aside for a specific highway project.

Podcars – see Personal Rapid Transit

Preliminary Engineering (PE) - The cost of preparing the detailed design of a project. PE entails surveying, mapping, preparation of plans and contract documents, environmental analyses, all required public hearing, and any other required state or federal procedures. In addition, PE may include "right-of-way incidental activity" which is the field and office work preparatory to the actual purchase of property.

President's Budget - A document submitted annually (due by the first Monday in February) by the President to Congress. It sets forth the Executive recommendations for the Federal budget for the upcoming fiscal year.

Privatization - Concept or theory having to do with for-profit business supplying goods and services for government, public programs or systems, with the intent of enhancing cost-efficiency.

Project Identification Number (PIN) - Identification number given to each project by NYSDOT.

Programmed Funds - Funds proposed for use on the transportation improvement projects which appear in the Transportation Improvement Programs of the State and/or MPOs.

Provider - An agency that provides services that causes clients to be transported, as opposed to an agency whose role is limited to funding programs.

Public Authority - A Federal, State, city, county, town, township, Indian tribe, municipal or other local government or instrumentality with authority to finance, build, operate, or maintain toll or toll-free transportation facilities. Authorities usually have some type of enabling legislation and are usually authorized to fund projects through the sales of bonds with its dedicated revenue stream (tolls, taxes, etcetera) pledged to repayment of the bonds.

Public Participation - The active involvement of the public in the development of transportation plans and improvement programs. Federal legislation requires that state departments of transportation and MPOs "shall provide citizens, affected public agencies, representatives of transportation agency employees, private providers of transportation, and other interested parties with a reasonable opportunity to comment on the development of the long-range plan and the TIP".

Public Road - Any road or street open to public traffic, which is under the jurisdiction, ownership, and maintained by a public authority.

Regionally Significant Project – A project that has significant impact on regional transportation due to its location, operational impacts and/or cost.

Request for Bids, Proposals, Qualifications (RFB, RFP, RFQ) - Preliminary stages of a competitive procurement process, most commonly associated with procurement of capital items or consulting services. The RFP is a request for project proposals and includes a description of cost and methodology; the RFQ is a request for information on the qualification of the proposing firm; the RFB is a request to receive project bids.

Rescission - A legislative action to cancel the obligation of unused budget authority previously provided by Congress before the time when the authority would have otherwise lapsed. Rescission may be proposed by the executive branch but requires legislative action to become effective.

Ridesharing - Sharing a ride (and related costs), usually to an employment location, with other commuters, usually by carpooling or vanpooling.

Right-of-Way (R/W or ROW) - Priority paths for the construction and operation of transportation facilities (highways, rail, trails, etc.). Right-of-Way is usually acquired by the public authority either by fee title or by easement real estate transactions.

Scenic Byway Program - Roadways that provide an enjoyable and relaxing experience or that offer cultural or historical enrichment to travelers are legislatively designated as part of a Scenic Byway System. Scenic byways are typically secondary roads having significant cultural, historic, scenic, geological, or natural features. They often include vista, rest areas, and interpretive sites in harmony with the scenic characteristics of the road. The Federal-Aid Highway Program includes limited funding for such statewide systems.

Shared Roadways - Any roadway upon which a bicycle lane is not designated, and which may be legally used by bicycles regardless of whether such facility is specifically designated as a bikeway.

Shuttle - Usually a service provided with a 20-or-less passenger vehicle connecting major trip destinations and origins on a fixed- or route-deviation basis. Shuttles can provide feeder service to main transit routes or operate in point-to-point or circular fashions.

Single Occupant Vehicles (SOVs) - A SOV is a vehicle used to get just one person to a destination.

Social Equity, Justice - The provision of affordable, efficient and accessible transportation services to all people regardless of race, ethnicity, income, gender, or disability. A socially equitable transportation system provides all people with convenient access to meaningful jobs, services and recreational opportunities.

State Environmental Quality Review Act (SEQR or SEQRA) - New York State law and regulations (Article 8 of the Environmental Conservation Law and Part 617 of 6NYCRR) that requires that every state and local agency examine the environmental impacts (including social and economic factors) and mitigation methods in agency decision-making.

State Implementation Plan (SIP) - A portion (or portions) of an applicable implementation plan approved or promulgated, or the most recent revision thereof, under the Clean Air Act. The SIP establishes emissions budgets, monitoring and enforcement procedures, and other procedures designed to control air pollution in order to meet the national air quality standards established by the Clean Air Act.

Statewide Transportation Improvement Program (STIP) - Required by federal legislation as a prioritized, fiscally constrained list of

transportation projects that covers at minimum a three-year period. STIPs are compiled by the state DOT in order to program authorized levels of federal funding.

Surface Transportation Block Grant Program (STBG) - A categorical funding program in federal legislation. Funds may be used for a wide variety of purposes, including: roadway construction, reconstruction, resurfacing, restoration, and rehabilitation; roadway operational improvements; capital costs for transit projects; highway and transit safety improvements; bicycle and pedestrian facilities.

State Fiscal Year (SFY) - The State of New York operates on a fiscal year beginning April 1 and ending March 31. This period may be referred to by the two affected years (e.g., SFY1019-20 began April 1, 2019 and will end March 31, 2020) or by the calendar year in which it ends. See "Federal Fiscal Year" and "Fiscal Year", above.

Tax Incentives – A means of employing the tax code to stimulate investment in or development of a socially desirable economic objective without the direct expenditure from the budget of a given unit of government. Such incentives can take the form of tax exemptions or credits.

Toll Booth Collection system - A type of toll collection system in which vehicles pay at toll booth "barriers" across the highway, rather than at toll booths at each exit from the highway.

Tompkins Consolidated Area Transit (TCAT) – Authorized by New York State Legislature in 1996, to combine Tompkins County transit services into one service.

Traffic Analysis Zone (TAZ) - The smallest geographically designated area for analysis of transportation activity. Zones vary greatly in size depending on such factors as: homogeneity of land use, amount of transportation network, level of analysis desired, and physical geography. Zones can range in size from a city block to very large rural areas (census tract size).

Traffic Calming - A variety of techniques designed to reduce the speed of motor vehicles by affecting driver behavior rather than through enforcement. Traffic calming creates an environment that facilitates the mix of different transport modes and allows a form of "peaceful coexistence" between them.

Transit - Public mass transportation such as buses, subways, commuter rail, etc.

Transit Dependent - Persons who must rely on public transit or paratransit services for most of their transportation. Typically refers to individuals without access to a personal vehicle.

Transit Oriented Development (TOD) - is a mixed-use residential or commercial area designed to maximize access to public transport, and often incorporates features to encourage transit ridership.

Transportation Control Measures (TCMs) - Local actions to adjust traffic patterns or reduce vehicle use in order to reduce air pollutant emissions and ease congestion. These may include: transportation system management techniques (e.g., signal optimization, ramp metering, incident detection, special events planning, etcetera), transportation demand management techniques (e.g., reduced transit fares, preferential parking, telecommuting, compressed work hours, etcetera), facilities development (e.g., HOV lanes, fixed guideway transit, on-site child care facilities, etcetera), or growth management policies (e.g., mixed use developments, transit corridor development, job/housing balances, etcetera).

Transportation Demand Management (TDM) - The reduction of traffic congestion by reducing the number of automobiles, especially SOVs, on the road. Measures that can reduce demand include: ridesharing, mass transit, "flex" time, telecommuting, employer incentives to use alternative modes, and restriction on the amount of free or cheap parking, among others.

Transportation Improvement Program (TIP) - Required by federal legislation as a prioritized, fiscally constrained list of transportation projects that covers at minimum a three-year period. TIPs are compiled by the MPO in order to program authorized levels of federal funding. The state DOT is responsible for creating a statewide version of the TIP called the Statewide Transportation Improvement Program (STIP).

Transportation Management Association (TMA) - A voluntary association of public and private agencies and firms joined to cooperatively develop transportation-enhancing programs in a given area. TMAs are appropriate organizations to better manage transportation demand in congested suburban communities.

Transportation Modeling - A computerized procedure to predict future trip making. Also referred to as a travel demand model. The traditional model has four steps: trip generation, trip distribution, mode choice, and assignment to a simulated transportation network (e.g., highway or transit).

Transportation System Management (TSM) - The concept of managing the existing transportation system for increased efficiency through the use of generally lower cost projects such as exclusive bus lanes, improved traffic signal systems, improvements to increase capacity of the facility, intersection channelization, and provisions for parking.

Trip Distribution - The process by which the movement of trips between zones is allocated in a travel demand model. Trip distribution is generally based on a gravity model.

Trip Length Frequency Distribution - The array which relates the trips, or the percentage of trips made at various time intervals or various trip distances.

Trust Funds - Accounts established by law to hold receipts that are collected by the Federal Government and earmarked for specific purposes and programs. These receipts are not available for the general purposes of the Federal Government. The Highway Trust Fund is comprised of receipts form certain highway user taxes (e.g., excise taxes on motor fuel, rubber, and heavy vehicles) and reserved for use for highway construction, mass transportation, and related purposes.

Trip Generation - The process by which the number of trips within each analysis zone are estimated in a transportation model. Trips are generated on the basis of demographic (number of households, household size, income, etcetera) and economic (number and type of employers, commercial activities, etcetera) attributes, and are given in the form of attractions and productions.

Unified Operations Plan (UOP) - The by-laws of an MPO.

Unified Planning Work Program (UPWP) - A document describing the transportation planning activities for an urbanized/metropolitan area for a fiscal year. Federal legislation requires that each MPO develop this document as a prerequisite for obtaining federal planning funds.

U.S. Department of Transportation (DOT) - The principal direct federal funding and regulating agency for transportation facilities and programs. Contains FHWA and FTA.

Urban - The Census Bureau defines urban as: (a) the population living in urbanized areas; plus (b) the population in other incorporated or census designated places of at least 2,500 population at the most recent national census.

Urbanized Area (UA) - An area defined by the Census Bureau according to specific criteria, designed to include the densely settled area around a large place. The definition is based primarily on population density rather than governmental unit boundaries. An urbanized area must have a total population of at least 50,000 persons.

Vehicle Hours Traveled (VHT) - A measure of motor vehicle use over some period of time, usually a day or a year. It represents the total time spent on the roadway system by all vehicles combined, over the specified period of time.

Vehicle Location System (VLS) - Information Technology enabling the ever-changing locations of vehicles to be monitored at a central location. For public transit, VLS enables passengers waiting for rides to continuously be informed of the status of service.

Vehicle Miles Traveled (VMT) - An areawide measure of motor vehicle use. VMT is calculated by summing data on a link basis or by multiplying average trip length (in miles) times the total number of vehicle trips.

TRANSPORTATION RELATED WEB PAGES

There are too many transportation related web sites to include them all in a document such as the LRTP. The list below includes some of the organizations and agencies where ITCTC staff have found useful sources of information, and others that address different transportation components in Tompkins County.

Advanced Transit Association - http://www.advancedtransit.org/

American Public Transportation Association – www.apta.com

America's Byways – National Scenic Byways - http://www.byways.org/

Association for Commuter Transportation – www.actweb.org

Association of MPOs-national – www.ampo.org

Bike Walk Tompkins – www.bikewalktompkins.org

Car Sharing Network - http://www.carsharing.net/ - includes links to car sharing programs nationwide and international.

Cayuga Lake Scenic Byway - http://cayugalake.com

Center for Neighborhood Technology – http://www.cnt.org/ - "The Neighborhood Works" site

Center for Transportation Excellence – www.cfte.org

Census Transportation Planning Package (CTPP) – http://www.fhwa.dot.gov/ctpp/

Congress for New Urbanism - http://www.cnu.org/

Cornell Bicycles – information about bicycling at Cornell University - https://fcs.cornell.edu/content/cycling-campus

Federal Register – http://federalregister.gov

Federal Highway Administration (FHWA) – https://www.fhwa.dot.gov/ - FHWA Home Page

FHWA Office of Environment and Planning – http://www.fhwa.dot.gov/environment

Federal Transit Administration (FTA) - http://www.fta.dot.gov/ - FTA Home Page web site

Finger Lakes Cycling Club - http://www.flcycling.org/

Finger Lakes Trail Conference - http://www.fingerlakestrail.org/

Finger Lakes Rideshare - ridesharing for travelers to, from and in Tompkins County, surrounding regions and academic institutions. http://fingerlakesrideshare.org

Institute of Transportation Engineers (ITE) – https://www.ite.org/ -

Ithaca Tompkins Regional Airport – http://flyithaca.com/

Ithaca Carshare - www.ithacacarshare.org

Ithaca-Tompkins County Transportation Council – http://www.tompkinscountyny.gov/itctc

National Highway Traffic Safety Administration - http://www.nhtsa.dot.gov/

National Transportation Library-bts – RITA (Research and Innovative Technology Administration) - https://ntl.bts.gov/

National Transit Institute at Rutgers University (NTI) – https://www.ntionline.com/-

New York State Association of MPOs (NYSAMPO) – http://www.nysmpos.org/ - links to all New York State MPOs.

New York Department of Transportation (NYSDOT) – http://www.dot.ny.gov / -

Rails to Trails Conservancy - http://www.railstotrails.org

Tompkins Consolidated Area Transit, Inc. (TCAT) - http://www.tcatbus.com/

Tompkins County – http://www.tompkinscountyny.gov/

Tompkins County Comprehensive Plan – www.tompkinscountny.gov/compplan

Tompkins County Department of Planning and Sustainability – www.tompkinscountyny.gov/planning

Transportation Research Board – http://www.trb.org/Main/Home.aspx

Travel Model Improvement Program (TMIP) – http://www.fhwa.dot.gov/planning/tmip/ - a service of the U.S. Department of Transportation

Surface Transportation Policy Partnership –http://transact.org/ - Information on transportation alternatives and sustainable communities

USEPA – https://www.epa.gov/ - extensive resources on environmental issues from the U.S. Environmental Protection Agency

Victoria Transport Policy Institute – https://www.vtpi.org/ - "an independent research organization dedicated to developing innovative and practical solutions to transportation problems".

Voorhees Transportation Center – Rutgers University – http://vtc.rutgers.edu/

Way2Go of Tompkins County - http://ccetompkins.org/community/way2go - Way2Go works collaboratively to help people save money, stress less, go green and together, improve our mobility options.

APPENDIX C: INVENTORY OF TRANSPORTATION DOCUMENTS

The list of documents included in this appendix is meant to serve as resource to readers. It includes a variety of reports, plans and studies that have an impact on transportation in Tompkins County. Although every effort was made to identify all documents, this should not be considered an exhaustive list.

2020 State Route 13 Corridor Study (Ongoing as of 2019), administered by the Tompkins County Department of Planning and Sustainability with the ITCTC operating as a technical advisor in conjunction with a consultant group.

Study which evaluates the impact of current and future growth/development patterns and safety measures for all users on a 9-mile section of SR-13 from Warren Rd. to the Village of Dryden. The study's objective is to develop a blueprint for improvement strategies/designs going forward while simultaneously ensuring safety and optimizing the route's functionality.

Blueprint for Better Cycling (Ongoing as of 2019), sponsored by Bike Walk Tompkins

Community-sponsored plan and public engagement effort to identify barriers to cycling in Tompkins County. The goal is a 100% increase in total cycling trips as a strategy to reduce car traffic and carbon emissions, promote economic vitality and community health, as well as promote cycling access for more potential users.

Available online at: https://www.bikewalktompkins.org/blueprint

Tompkins Chamber of Commerce "Live in Ithaca" Workforce Recruitment Campaign, announced on March 18, 2019

Includes a Live-in-Ithaca website and marketing campaign to encourage employees to live and work in Ithaca. The two strategies operate in tandem to provide information on local housing, parks, restaurants, healthcare facilities, etc., to potential job seekers and to facilitate relocation to the area. The website also provides transition tools for new residents to better access local services. This initiative also seeks to decrease travel time and Vehicle Miles Traveled (VMT) by having county employees live closer to where they work.

Available online at: https://www.liveinithaca.org/

Cornell University Parking Optimization Study-2019 (Ongoing as of 2019)

Assessment of existing parking and transportation infrastructure on the Cornell University Campus, as well as strategies to improve its overall function for all users. These strategies include a more multimodal focus and balanced parking network, along with better systems management. This study will enable Cornell to better plan for future mobility needs on campus based on hard data analyses.

2020-2024 Transportation Improvement Program (TIP), approved June 18, 2019 by the ITCTC by the ITCTC Joint Planning & Policy Committee

The TIP is a listing of all federally funded transportation projects in Tompkins County including project descriptions, development phases and funding distribution for the 2020-2024 federal fiscal years (FFY). This document is updated every two to three years.

Available online at: http://tompkinscountyny.gov/files2/itctc/tip/20-24tip/TIP20-24-text%20final-approved%20070919.pdf

Tompkins County Consolidated Area Transit (TCAT) Strategic Plan 2018-2030, independent TCAT study with Sam Schwartz City Strategies and Jean McPheeters Consulting, LLC agencies

The TCAT Strategic Plan 2018-20130, announced on January 4, 2019, provides a roadmap for over 100 short-term and long-term improvement and modernization actions across six categories of public transit system improvement in Tompkins County. Ultimately, it is an action plan for TCAT, in cooperation with local stakeholders, to modernize their transit services.

Available online at: https://www.tcatbus.com/content/uploads/2019/01/Strategic-Plan_2018-to-2030.pdf

2019-2020 Unified Planning Work Program, approved by the ITCTC Planning & Policy Committee on February 19, 2019

Annual work program for the ITCTC. This document is updated every year in February or March.

Available online at: http://tompkinscountyny.gov/files2/itctc/upwp/UPWP19-20-FINAL-approved%2002192019.pdf

Cornell University North Campus Transportation Study-2018

Evaluation of constraints on transportation infrastructure on Cornell's North Campus in the face of a growing student population and housing market. The study identifies potential issues and solutions for all users, including cyclists, pedestrians, motorists, and transit riders as system capacity demand increases.

City of Ithaca Parks and Recreation Master Plan, adopted as of 2018

The Parks and Recreation Master Plan entails a comprehensive systems management approach to managing the City of Ithaca's nearly 380 acres of parkland, as well the entirety of the city's public waterfront. The plan seeks to enhance the existing parkland infrastructure, including its 14.6 miles of trails. To see planned trail upgrades, please visit page 10, Section 2.2.1 of the Master Plan.

Available online at: https://www.cityofithaca.org/DocumentCenter/View/8561/Parks--Recreation-Master-Plan---June-2018

Ithaca & Tompkins County Bicycle Map, 2018 Update

Bicycle suitability map of Tompkins County roads. Updated approximately every two years. The finished product is a user-friendly full-color map of the City of Ithaca and Tompkins County offered to the public for free. The first map was released August 1, 2007; it was updated in 2008, 2010 and 2013.

Available online at: http://tompkinscountyny.gov/files2/itctc/BikeSuitability/BikeSuitabilityMap2018web_spindler.pdf

Ithaca Bicycle Use and Attitudes Survey - 2018, jointly commissioned by the ITCTC and Bike Walk Tompkins, and conducted by the Yasamin Miller Group.

This survey assesses the barriers and perceptions that Tompkins County residents have with regards to cycling as a transportation mode, as well as their current usage patterns and infrastructure preferences.

Full Report Available at: https://www.bikewalktompkins.org/blueprint

Downtown Ithaca Alliance 2018 Annual Work Plan, prepared by the Downtown Ithaca Alliance

The Annual Work Plan functions as a guidebook for DIA's goals, tasks, and activities for the calendar fiscal year, from January through December.

Available online at: https://www.downtownithaca.com/about-dia/#https://www.downtownithaca.com/wp-content/uploads/2018-DIA-WORK-PLAN.pdf

Way2GO Five Year Strategic Plan – 2018-2022, prepared by Cornell Cooperative Extension

The Five Year Strategic Plan outlines Way2GO's four primary goals and objectives aiming to break down transportation barriers and create equitable access. These goals include creating awareness of transportation options and support services, fostering cooperative leadership across transportation related fields from housing to education and health, changing community attitudes towards supporting a more balanced and equitable transportation system, and reducing greenhouse gas emissions through electric vehicles.

Available online at: https://s3.amazonaws.com/assets.cce.cornell.edu/attachments/37683/Way2Go_Strategic_Plan_2018-2022.pdf?1556808686

2017 TCAT Annual Report, compiled by TCAT in October 2018

Yearly report on TCAT system performance, including ridership, travel patterns, technological innovation, finances, and projected changes/challenges to the system going forward.

Available online at: https://www.tcatbus.com/content/uploads/2018/11/TCAT-2017-Annual-Report-FINAL.pdf

Bikeshare in Ithaca Request for Information, sent by Bike Walk Tompkins on November 20, 2017

This is a request for letters of interest that Bike Walk Tompkins sent out to potential bikeshare program operators. The RFI includes a general overview of Ithaca, its geography, travel patterns, and bicycling culture, as well as a request for best practices in developing a bikeshare program and specific program case study information. This RFI led to Bike Walk Tompkins recommending Lime bikeshare to the City and Cornell University.

Available online at: https://static1.squarespace.com/static/56527655e4b0a58f1858707d/t/5a13481f0852295008de6a99/1511213087543/Bike+Walk+Tompkins+Bikeshare+in+Ithaca+RFI.pdf

Tompkins County Housing Strategy - 2017

Housing strategy which concentrates on addressing gaps in the County's housing market, especially affordable and good quality housing for middle and low-income residents. It entails a three-pronged approach that focuses on enhancing existing housing, developing new housing units, and promoting collaboration and support within the community.

Available online at: http://tompkinscountyny.gov/files2/planning/housing_choices/documents/HousingStrategy_Final_6-29-17.pdf

Tompkins County Plug-In Electric Vehicle Infrastructure Plan - 2017, Plan and Steering Committee coordinated by ITCTC under contract with Energetics, Inc. and Clean Communities of Central New York

The Electric Vehicle Infrastructure Plan is a collaborative effort to facilitate and promote the widespread adoption of electric vehicles in Tompkins County. The full detailed Infrastructure Plan Overview and Executive Summary are available online at http://tompkinscountyny.gov/itctc/projects#EV

Tompkins County Coordinated Public Transit-Human Services Transportation Plan (aka The Coordinated Plan), continuously updated - sponsored by the ITCTC and Tompkins County Department of Social Services

The Coordinated Plan is a collaborative effort to coordinate human services to provide comprehensive, affordable, accessible and seamless mobility services for older adults, persons with disabilities, persons with lower incomes, and the public at large. The plan includes current transportation services, a needs and gaps in service assessment, and a list of federally funded projects/programs and solutions.

Available online at: https://www.tccoordinatedplan.org/

Smart Trips Ithaca Final Report-2017, prepared by Ithaca Carshare in collaboration with the Downtown Ithaca Alliance and the Tompkins County Cornell Cooperative Extension Way2Go Program

The Smart Trips Grant Report details an education outreach campaign conducted with grant money from NYSERDA which sought to shift Downtown Ithaca residents towards more energy-efficient and environmentally friendly modes of transportation. The report includes an inventory of available transportation resources, neighborhood demographics, travel behaviors, and the barriers that alternative modes face in Downtown Ithaca.

Full Report Available at: http://smarttripsithaca.org/wp-content/uploads/2016/10/DIA-Survey-Report.pdf

True Cost Tompkins Report, prepared by Ithaca Carshare in collaboration with Way2GO, Cornell Cooperative Extension, the Ithaca Tompkins County Transportation Council, & Tompkins Consolidated Area Transit.

The report highlights the challenges that Tompkins County households making $45,000 or less face when it comes to commuting in an economically efficient manner. The report details the strategies used by 12 households as case studies in order to better gauge the needs and challenges of residents.

Full Report Available at: https://s3.amazonaws.com/assets.cce.cornell.edu/attachments/25015/True_Cost_Case_Studies_2017.pdf?1502220989

Downtown Ithaca Parking Study-2017, prepared by the Downtown Ithaca Alliance

Study examines downtown parking policies in Ithaca and compares them to those of 18 comparable cities across the country. The study aimed to provide a best-practices analysis for Downtown Ithaca when it comes to implementing future parking policies that support downtown businesses.

Study Summary Available at: https://downtownith.com/2017/05/02/downtown-ithaca-completes-parking-study-of-18-comparable-cities/

NYSDOT Maintenance Relocation & Redevelopment Feasibility Study – prepared by Fisher Associates for NYSDOT and updated August 2016

Cost-benefit analysis study that compares alternative locations for a new NYSDOT maintenance facility. It also evaluates the cost-benefits of consolidating NYSDOT's maintenance facilities in Tompkins County vs. replacing and relocating the existing Cayuga Inlet facility.

Available online at: http://tompkinscountyny.gov/files2/planning/community%20planning/NYSDOT_Redevelopment/NYSDOT%20Final%20Report%2009%2016%202016%20%281%29.pdf

Cornell University Signage and Wayfinding Master Plan-November 8, 2016

The Signage and Wayfinding Master Plan intends to make it easier for people to navigate and enjoy the Cornell University Campus by enhancing gateway, pedestrian transit, and vehicular signage and maps, as well as improving vehicular circulation and campus landscaping. The overall goal is to create a better campus experience for faculty, students, and visitors alike.

Available online at https://fcs.cornell.edu/sites/default/files/imce/site_contributor/Svc_Campus_Planning/documents/Web%20Cornell%20Signage%20and%20WF%20Master%20Plan%20Volume%20I.pdf

Ithaca Neighborhood Biking Map-2016

The Neighborhood Biking Map was created by the City of Ithaca as a guide for cycling safely in Downtown Ithaca. It details bike lanes, trails, bike boulevard networks, multi-use trails, and downtown cycling safety tips.

Available online at http://tompkinscountyny.gov/files2/itctc/BikeSuitability/CityIthaca-Bike%20Map%2011-27-17.pdf

Report: Lighting the Way – Learning from People with Limited Transportation Options – 2016

Report detailing a comprehensive survey of low-income residents in Tompkins County which evaluates their transportation needs, issues, and solutions.

Available online at: https://www.tccoordinatedplan.org/uploads/3/1/4/7/3147084/lightingtheway--final_report.pdf

Tompkins County Housing Needs Assessment – 2016, prepared for Tompkins County by Danter Company

Updated housing market analysis which uses the following indicators to evaluate housing needs and demands over a 10-year period; employment trends, labor force trends, population growth, student population size, student employment, on-campus student housing, off-campus student housing, & in-commuters.

Executive Summary available at: http://tompkinscountyny.gov/files2/planning/housing_choices/documents/HNA_2016/HNA%20Executive%20Summary.pdf

City of Ithaca Comprehensive Plan - Completed Phase I 2015

Phase I involves the preparation of a city-wide plan that identifies a vision and goals for the future, while Phase II includes the subsequent preparation of specific neighborhood or thematic plans, identified in Phase I. Phase II includes the subsequent preparation of specific neighborhood or thematic plans, identified in Phase I. After the Comprehensive Plan Committee reviewed and approved the final draft, the Common Council officially adopted the completed Comprehensive Plan on September 2, 2015.

Available at: http://www.cityofithaca.org/DocumentCenter/View/4054/Plan-Ithaca?bidId=

Complete Streets Network Map – 2015, Ithaca-Tompkins County Transportation Council, March 2015

Complete Streets Network map which identifies urban corridors best-suited for complete street makeovers, making them accessible to all modes of transportation from walking, bicycling, driving, to transit. An overview of the Complete Streets Network project and the map are available online at http://tompkinscountyny.gov/itctc/projects#UAB

Town of Ithaca Comprehensive Plan – 2014, Town of Ithaca Planning Department, August 11, 2014

A revision of the Town's 1993 Comprehensive Plan. Officially adopted March 3, 2015 by the Tompkins County Legislature.

Available online at https://docs.google.com/a/town.ithaca.ny.us/

Tompkins County Wayfinding & Interpretive Signage Project Phases 1 & 2, project managed by the Tompkins County Chamber of Commerce – July 2014

The Wayfinding & Interpretive Signage Plan was developed for Tompkins County, its towns and villages and the City of Ithaca. It includes the design of a comprehensive directional and interpretive signage system for pedestrians, bicyclists and automobile users. The plan concentrates on the gateway areas into Tompkins County and its municipalities and main routes within the urbanized area that are likely to be travelled by visitors. The resulting product provides consistency in the physical design and placement of wayfinding signage county-wide. The plan is also envisaged to help "build the brand" for the county by directing visitors to and informing them about the county's attractions and unique places.

Available online at: https://www.tompkinschamber.org/wp-content/uploads/2014/07/TompkinsWayfinding_Ph1and2-final_sm-file-size.pdf

Tompkins County Senior Housing Preferences Survey, launched by the Tompkins County Office for the Aging - June 2014

This survey gathers information on the housing needs and preferences of the growing elderly population so that municipal planners can better plan for future housing developments.

Available online at: http://tompkinscountyny.gov/files2/planning/housing_choices/documents/2014SeniorHousingPreferenceSurvey.pdf

Tompkins County Rideshare Coalition Final Report – 2013, prepared for NYSERDA & NYSDOT by the Tompkins County Rideshare Coalition

This report details the ridership, miles-traveled, and environmental outcomes from using the web-based automated ride-matching service Zimride as a carsharing tool between its launch in January 2011 through August of 2013. It also details future potential use going forward using Zimride for carshare expansion.

Available online at: http://tompkinscountyny.gov/files2/itctc/NYSERDA%20PRT%20Report/Rideshare%20Project%20Final%20Report-101613-complete.pdf

Tompkins Priority Trails Strategy, A Vision for Networked Trails in Tompkins County - 2013

A joint effort of the Tompkins County Planning Department and Tourism Program, the Creating Healthy Places Project of the Human Services Coalition and the Health Planning Council.

Available online at: http://www.tompkinscountyny.gov/tourism

Regional Transportation Study - 2013

A collaborative transportation planning effort of various county governments and agencies in the seven-county area including

Tompkins, Cayuga, Cortland, Tioga, Chemung, Schuyler and Seneca counties.

Available online at: http://www.tompkinscountyny.gov/itctc/rts

Tompkins County Hazard Mitigation Plan, 2013 Update

A joint effort of Tompkins County Municipalities. Project manager Tompkins County Planning Department. Updates the 2006 Hazard Mitigation Plan.

Available online at: http://tompkinscountyny.gov/files2/planning/HazMitRpt/Tompkins%20County%20HMP%20Final%20Draft%20-%20July%202013%20-%20ALL.pdf

Summary Report of High Crash Road Segments and Intersections in Tompkins County, NY, prepared by the ITCTC, (revised 3/4/2013)

The Ithaca-Tompkins County Transportation Council (ITCTC) analyzed traffic accident data for the first time in 2013. The traffic accident data was downloaded for each municipality from the New York State Department of Transportation (NYSDOT)'s ALIS database (Accident Location Information System) for the years 2000 through 2010. This database utilizes all crashes reported to the Department of Motor Vehicles (DMV). Available online at: http://www.tompkinscountyny.gov/itctc/statistics

Building Vibrant Communities in Tompkins County…, a Development Focus Areas Strategy, Tompkins County Planning and Sustainability Department, October 2, 2012

Prioritizes specific Development Focus Areas with existing public amenities for future development, stipulating that these areas be transit-oriented and multimodal with the overarching goal to reduce sprawl in the area.

Available online: http://www.tompkinscountyny.gov/files/planning/documents/DevelopmentFocusAreasStrategy_adopted_10-2-12.pdf

City of Ithaca Bike Boulevard Plan, prepared by City of Ithaca, September 2012

Developed to facilitate the review of bike boulevards, route selection and infrastructure improvements. Plan outlines the recommended physical design of the proposed bike boulevard network, including initial route selection and description of signs, pavement markings and traffic calming devices. The plan also includes planning level cost estimates.

Available online at: http://www.cityofithaca.org/DocumentCenter/View/331

Ithaca Neighborhood Greenways, prepared by the ITCTC, April 2011

This study supports the City of Ithaca's efforts to improve multi-modal transportation infrastructure. It offers a detailed draft plan for the development of a network of low-stress bicycle routes designed for casual cyclists to use safely and comfortably. The proposed network is designed with the intent to minimizing parking removal and preserve Ithaca's functional grid street pattern.

Available online at: http://tompkinscountyny.gov/files2/itctc/projects/Ithaca%20Neighborhood%20Greenways/ING%20-%20Full%20Report%20with%20Appendices%20and%20Maps%5B1%5D.pdf

Tompkins County 2020 Energy Strategy, Interim Actions Toward Achieving the Community 2050 Greenhouse Gas Emission Reduction Goal, Tompkins County Planning Department, August 20, 2010

Available online at: http://www.tompkinscountyny.gov/files/planning/energyclimate/documents/EnergyStrategy20208-20-10_2.pdf

Countywide Inter-Municipal Water and Sewer Feasibility for Tompkins County, Final Draft March 31, 2010

This study examines existing municipal water and sewer system infrastructure in Tompkins County and evaluates its potential capacity to support future development projects.

Indicators of Success: Achieving the Policies of the Tompkins County Comprehensive Plan (2008), Tompkins County Planning Department, December 2009

The Tompkins County Comprehensive Plan provides that the Planning Commissioner will report annually to the County Legislature on progress in implementing the Plan.

DRAFT: 2009 Tompkins County Comprehensive Emergency Management Plan: Annex 17, Transportation, November 2009

Purpose: To ensure effective utilization of all available transportation resources and systems during emergencies and disasters.

Town of Ulysses Comprehensive Plan, Town of Ulysses Comprehensive Plan Committee and Planning Board, April 1999. Revised September 2009.

This comprehensive plan includes a section on transportation. It recommends developing a diversified transportation system and an appropriate transportation network.

Available at: http://www.ulysses.ny.us/tou-comp-plan-2009.pdf

New York State Energy Plan, New York State Energy Research and Development Authority (NYSERDA), June 2002. Revised DRAFT 2015.

The 2002 State Energy Plan and Final Environmental Impact Statement (Energy Plan) encompasses policies designed to keep New York at the forefront among the states in providing its citizens with fairly-priced, clean, and efficient energy resources. This Energy Plan positions New York to take advantage of technological developments among the most advanced uses of energy, and to participate in emerging markets for valuing and trading environmental attributes associated with energy use. In addition, implementation of this plan will stimulate job growth associated with the development of new technologies for the efficient production and use of a variety of energy resources and the expanded use of indigenous sources of power.

The Energy Plan is a blueprint to inform energy decision making and help ensure that: customers have the ability to choose the energy products and services that best suit their needs; a secure and well-maintained energy infrastructure is provided; the State's transportation system becomes more energy-efficient; and, adequate energy supplies that are critical to the State's stability are available.

Available at: https://energyplan.ny.gov/Plans/2015.aspx

Town of Ithaca Transportation Plan, Town of Ithaca Planning Department, July 9, 2009

The overall mission of the Transportation Plan is to foster a transportation system that enhances the quality of life in the Town. The Plan envisions a multi-modal transportation

system that is compatible with the Town's growth objectives as expressed in the Comprehensive Plan, sensitive to the built and natural environments, and accessible to all.

Tompkins Consolidated Area Transit (TCAT) Transit Development Plan/ Route Study, Approved by the TCAT Board of Directors - May 5, 2009

The Transit Development Plan (TDP) considered four main areas:

- Simplification and clarification of the fixed transit route system
- Introduction of alternative transit services (for example, demand-responsive transit or Park-and-Rides)
- Improved use of technology
- Better use of existing financial, capital, and human resources and identification of opportunities to receive additional funding or other resources

NYS Route 96 Corridor Management Study, Tompkins County Planning Department, April 2009

The Route 96 Corridor Management Study evaluates traffic impacts associated with development along the corridor from the Village of Trumansburg to the junction of NYS Routes 96 and 13 and provides recommendations and mitigation strategies. The Study quantifies existing and projected traffic and levels of service and evaluate how a nodal development pattern with mixed uses, enhanced transit service, access management, and additional transportation system improvements, including bike and pedestrian facilities, could mitigate the impacts of this traffic. The Study examines the option of promoting development nodes in the vicinities of Cayuga Medical Center and the Hamlet of Jacksonville as well as considering the impacts of anticipated development in the City of Ithaca and Village of Trumansburg, as an alternative to a sprawling suburban and rural development pattern. The final product defines the extent of nodal development and identifying specific access and corridor management improvements that could be made to mitigate traffic impacts. Key considerations include identifying multi-modal options in the corridor and protecting livability of impacted areas. The Study recommends specific land use regulatory changes and transportation system improvements that would have the effect of reducing the traffic impacts of future development in the corridor.

The full NYS Route 96 Corridor Management Study document is available online at: http://tompkinscountyny.gov/files2/planning/documents/Route13-366CorridorManagementPlanFinalReportREVIS_001.pdf

Tompkins County Comprehensive Plan 2008 Amendment – Energy and Greenhouse Gas Emissions Element, Tompkins County Planning Department, adopted by the Tompkins County Legislature - December 2008

This amendment sets in motion a multi-faceted plan for the Tompkins County community to reduce energy demand, improve energy efficiency, make the transition to renewable sources of energy, and reduce greenhouse gas emissions. The overarching goal of the Energy and Greenhouse Gas Emissions Element is to reduce greenhouse gas emissions in Tompkins County by at least two percent annually for the next 40 years, achieving at least an 80 percent reduction from 2008 levels of greenhouse gas emissions by the year 2050. This goal is tied to the greenhouse gas emissions reductions target proposed by the United Nations Intergovernmental Panel on Climate Change, which asserts that this stated decrease in greenhouse gas emissions is necessary in order to mitigate human impact on climate and to avoid the worst effects of global climate change.

Available online at: http://tompkinscountyny.gov/files2/planning/compplan/index.htm

NYS Route 13 / 366 Corridor Management Plan, Tompkins County Planning Department, (Revised June 2008)

The Route 13 Corridor Management Plan will develop land use and access management recommendations that maintain the primary function of NYS Routes 13 and 366, Tompkins County's only principal arterial connecting Tompkins County with points north and east, and with Interstate 81. The study area is located in the Town of Dryden and extends along NYS Route 13 from the Cortland County border westward to the western intersection with NYS Route 366 and, following NYS Route 366, to the Town of Ithaca border. The project will explore the feasibility of promoting a nodal development pattern along this major highway corridor and implementing access management techniques in order to, among other goals, preserve the functions of these highways.

Available online at: http://tompkinscountyny.gov/files2/planning/documents/Route13-366CorridorManagementPlanFinalReportREVIS_001.pdf

Northside Waterfront Circulation Plan Tompkins County Planning Department, Draft Document: March 2008

The Northside Waterfront Circulation Plan will take a close look at the entire traffic and transportation system serving the area, including automotive, transit, pedestrian, and bicycle traffic and parking. The study area is located in the City of Ithaca and is bounded by Route 13/Fulton Street on the east, Cayuga Inlet on the West, Dey Street on the north, and Buffalo Street on the south. The study will take into account a number of existing and proposed projects, such as expansion of the Ithaca Farmers' Market, construction of Phase II of the Cayuga Waterfront Trail, development of Carpenter Business Park, redevelopment of the NYSDOT Maintenance Facility site, and expansion of the Cornell University and Ithaca College boathouses.

Full study available online at: http://tompkinscountyny.gov/files2/planning/transportation/TCNSWFCSFinalReport3-08.pdf

Cornell Master Plan for the Ithaca Campus, Cornell University, approved by the Board of Trustees on March 7, 2008

A campus master plan is a living document that weaves together the functional relationships, environmental issues, landscaping, recreational space, vehicular and pedestrian traffic patterns, architectural character and future possibilities into a whole sufficiently capacious to realize the aspirations of the university. (https://masterplan.cornell.edu/)

Village of Trumansburg Comprehensive Plan, adopted by the Trumansburg Village Board of Trustees - February 2008

20-Year Vision:

In 2027, Trumansburg is a community that values safety, economic and cultural diversity, and local cultural history – residents actively plan to protect the Village's rural and friendly nature. Visitors feel a sense of community pride because of the welcoming entrances, and the well-maintained walkways and tree-lined streets. As a quiet, rural upstate New York village, with an accessible and attractive commercial center, Trumansburg is a place where people of all ages can freely engage in community life activities. (https://trumansburg-ny.gov/zoning-revision-committee/)

Black Diamond Trail Master Plan, 2008 Update, confirmed 2009, NYS Office of Parks, Recreation and Historic Preservation. Finger Lakes State Parks office, Trumansburg, NY

The Black Diamond Trail is a 15-mile, off-road pedestrian and bicycle dedicated trail facility proposed for Tompkins County, New York. The trail will provide residents and visitors with an alternate way to travel to several destinations in the county including the four major State Parks and many other popular community destinations in the City of Ithaca and the Towns of Ithaca and Ulysses. The trail's setting includes stream bottomlands, the urban setting of the City of Ithaca, and pastoral rural lands. State Parks proposed this project back in the 1970s. For lots of detail about the BDT, see the "THE PLAN" — a summary of the "Master Plan" that was released November 2007.

Executive Summary available at: https://parks.ny.gov/inside-our-agency/documents/MasterPlans/BlackDiamondTrail/BlackDiamondExecutiveSummaryText.pdf

Full document available at: https://www.parks.ny.gov/inside-our-agency/master-plans.aspx

Tompkins County Walkability: Final Report, Tompkins County Planning Department, June 16, 2007

The intent of the project was to develop a methodology that could be used to help other interested communities evaluate and improve their walking conditions by outlining a method, or methods, for collecting information on existing walking conditions and for developing recommendations and implementation strategies for improving walkability.

The two communities selected for this project are the Village of Trumansburg and Northeast Ithaca, which consists of parts of both the Town of Ithaca and the Village of Cayuga Heights. Both communities are located within Tompkins County, New York.

Transportation Focused Generic Environmental Impact Statement (TGEIS), Town of Ithaca - Cornell University, October 2006

Cornell University, in conjunction with the Town of Ithaca, prepared a transportation-focused Generic Environmental Impact Statement (t-GEIS) to identify and evaluate the transportation-related impacts, on transportation systems and neighborhoods, of hypothetical university population growth scenarios over the next decade, and identify potential mitigation strategies for those impacts. This will result in a set of strategies intended to improve transportation options for the entire Cornell community and reduce adverse transportation impacts on the community. The primary emphasis will be on identifying ways to reduce the number of trips by motor vehicles traveling through residential neighborhoods to and from Cornell. It will identify ways of getting people, not vehicles, to campus, and will include recommendations for transportation demand management, multi-modal transportation strategies including pedestrian, bicycle, transit and parking, safety, access and circulation modifications, such as traffic calming, zoning changes and other measures.

Village of Dryden Comprehensive Plan, Village of Dryden formally adopted its Comprehensive Plan - September 2006

Year 2025 Vision:

The Village of Dryden, enriched by its past, will have a healthy "small town" atmosphere where attractive residences and vibrant businesses co-exist. The quality of life for our diverse and involved population is sustained by a sound infrastructure of roads, systems, and services. To achieve this quality of life, and to preserve and enhance our community, we will have reasonable and enforceable policies.

Tompkins County Multi-Jurisdictional All-Hazard Mitigation Plan, Tompkins County Planning Department, April 2006

In response to the requirements and deadlines of DMA 2000, Tompkins County and seven towns located in the county (Caroline, Danby, Enfield, Groton, Ithaca, Lansing, and Ulysses) have developed this Multi-Jurisdictional All Hazard Mitigation Plan (mitigation plan). The Disaster Mitigation Act of 2000 (DMA 2000) amends the Stafford Act and is the most recent legislation designed to improve planning for, response to, and recovery from disasters by requiring state and local entities to have all hazard mitigation plans in place by November 2004. The Federal Emergency Management Agency (FEMA) has issued guidelines for all hazard mitigation plans under DMA 2000 regulation. The New York State Emergency Management Office (SEMO) is also supporting local implementation of the plan.

Tompkins County / Cornell Employee Commuter Survey: Phase 2 – Downtown Business Employees, Ithaca-Tompkins County Transportation Council (ITCTC), February 2006

The main purpose of this survey was to understand more clearly how members of the Tompkins County/Cornell community get to work, why they choose one transportation mode over another, and what other options might be considered, if they were available.

Tompkins County / Cornell Employee Commuter Survey: Phase 1 – Cornell Employees, Ithaca-Tompkins County Transportation Council (ITCTC), June 2005

The main purpose of this survey was to understand more clearly how members of the Tompkins County/Cornell community get to work, why they choose one transportation mode over another, and what other options might be considered, if they were available.

Town of Dryden Comprehensive Plan, Town of Dryden Planning Board, December 8, 2005

This comprehensive plan includes a section on transportation. It recommends controlling traffic congestion along NYS Route 13, limiting traffic volumes within the hamlets and villages, and providing alternatives to the automobile as a means of transportation. Future growth and development to the year 2020 and beyond are discussed.

Available online at: http://dryden.ny.us/wp-content/uploads/2018/03/Comp-Plan-Full-Final-Print-2005.pdf

Tompkins County Comprehensive Plan, Tompkins County Planning Department, adopted by the Tompkins County Legislature - December 21, 2004

This comprehensive plan includes a section on transportation choices recommending the following action items: (1) developing a bicycle suitability map, (2) developing a Route 13 corridor access management plan, (3) completing a traffic signal upgrade and intersection evaluation program, (4) developing a centralized and uniform accident reporting system, (5) conducting a transportation infrastructure needs assessment, (6) implementing Freight Transportation Study recommendations, and (7) developing a countywide comprehensive park and ride plan. Future growth and development to the year 2020 and beyond are discussed.

Fewer Cars in Ithaca! Recommendations for Transportation Demand Management Strategies for Ithaca, NY, a Professional Report to Cornell University by Gloria Lau, September 2004

Discusses need for transportation demand management for City of Ithaca employees, ridesharing, park-n-ride lots, parking improvements, transit improvements, and education/ marketing needs.

Park and Ride for Tompkins County: White Paper, Ithaca-Tompkins County Transportation Council (ITCTC), Tompkins County, September 2004

This paper presents the concept of Park and Ride as a transportation system component and how it can be applied in the County.

Report of the Mayor's Task Force on the Selective Implementation of a 25 Mile-Per-Hour Speed Limit, City of Ithaca, November 2003

Recommends a "first round" list of eligible streets in the City of Ithaca that should be considered for reducing speed limits to 25 miles-per-hour. Speed reductions to 25 miles-per-hour would improve pedestrian safety and quality of life in the neighborhoods.

Enhancing Pedestrian Access in Tompkins County: a Guidebook on Sidewalk Improvements, a Professional Report to Cornell University by Brian J. Varricchione, May 2003

This report analyzes the location and condition of sidewalks in the towns and villages of Tompkins County. It discusses the adequacy of existing pedestrian transportation networks and identifies potential areas for improvement. Implementation mechanisms are discussed to improve the condition and number of sidewalks along with suggested sources of federal and state funding and grantmaking foundations.

Town of Danby Comprehensive Plan, Danby Town Board and Planning Board, September 2003

This comprehensive plan includes a section on transportation. It recommends developing a safe and adequate system of roads to minimize traffic impacts, developing a variety of transportation options, and performing road related construction that minimizes negative impacts on neighborhoods and natural resources.

Full document with September 12, 2011 amendments available at: http://danbyny.org/Documents/CompPlan_Summary_20110902.pdf

The Northeast Subarea Transportation Study (NESTS) Transit Planning Project, Ithaca-Tompkins County Transportation Council, Northeast Subarea (City of Ithaca extending north and east), Tompkins County, February 2003

Summary Report of Market Research: Results of fifteen-minute telephone survey in the study area. The questions were designed to survey both regular users and non-users of the transit system. A total of 500 households were contacted regarding questions about age, marital status, income, gender, journey-to-work mode, and advantages/drawbacks of using public transit.

Final Report: Determined feasibility of encouraging people who currently drive in the northeast subarea to use transit instead. Service coverage and the frequency of service were determined as the most important factors. Parking cost was also a significant factor. Three new transit routes, four with significant modifications, six with slight modifications, and one eliminated route were recommended.

Technical Appendices to the Final Report: Describes the methodology used to determine what it would take to shift 3%, 5%, or 10% of person-trips in automobiles onto the transit system. Also discusses potential technologies that Cornell could employ if it chose to move from its current annual parking permit program to a daily fee program.

DRAFT FINAL REPORT: Parking Garage Feasibility Study, City of Ithaca, January 2003

Discusses parking garages located in Downtown Ithaca, Collegetown, and West End / Inlet Island. Includes repair recommendations, cost estimates, structural expansion studies, and parking management analysis. Discusses long-term parking, meter rates, parking fines, and alternative transportation choices.

North Campus Circulation Study, Cornell University, May 2002

The purpose of this study is to recommend circulation and site improvements for the Thurston Avenue Bridge and its north and south approaches in association with the City of Ithaca's Thurston Avenue Bridge Rehabilitation Project. The goals of the study are to:

- Improve pedestrian safety and capacity in and around the bridge.
- Accommodate bicycles on the bridge.
- Create a coherent unified image appropriate for the major northern gateway to the University.

Tompkins County Pedestrian Facilities Inventory Data Report-October 2002, prepared by the ITCTC

Countywide inventory, mapping and photo catalog of pedestrian facilities – sidewalks, intersections, etc.- for Tompkins County.

Ithaca College Master Plan Report, Ithaca College, September 2002

This report discusses pedestrian / vehicular conflicts, the need to expand parking on the periphery and the need to remove some parking at core campus. Providing a more pedestrian-friendly, green environment is stressed.

Tompkins County Freight Transportation Study, Ithaca-Tompkins County Transportation Council (ITCTC), Tompkins County, April 2002

Identified as needed by ITCTC's 2020 Long Range Plan and the Northeast Subarea Transportation Study, this study obtained new data on freight movements in and through the County, accessed existing travel routes, developed alternative routes, and accessed alternative route impacts. Recommendations were made regarding nine routes/areas throughout the County. These recommendations included new signage, meetings with major shippers/receivers, and functional classification changes.

Evaluation of a Six Point Traffic Plan – Final Report, City of Ithaca, October 2001

To estimate future traffic projections, Southwest Area Development generated trips were added to the Year 2001 trip tables in the Transportation Demand Model. Four alternative packages were developed in this study, each containing a combination of Six Point Plan Improvements. The future traffic resulting for alternative was generated including increased traffic counts and projected changes in road segment levels-of-service.

City of Ithaca: Downtown Traffic Circulation Study, City of Ithaca, July 2001

Evaluates the following: restoration of two-way traffic on Aurora and Cayuga Streets; reduced travel width and angled parking on Green and Seneca Streets; relocation or addition of traffic signal on Green Street; and realignment of East State Street @ Aurora Street to create a pedestrian plaza.

Collegetown Parking Study: Ithaca, NY, a Professional Report to Cornell University by Jessica Greig, July 2000

Provides parking space inventory, and includes residential survey, business survey, public parking survey, and license plate survey.

Program Development and Pilot Project for the City of Ithaca Citywide Traffic Calming Program: Working Paper, City of Ithaca, April 2000

Discusses the traffic calming program, which is currently under development for the City of Ithaca. Includes overview of the entire process, tasks accomplished to-date, and planned future tasks.

The Millennium Report: Status of Seniors in Tompkins County, Office of the Aging, Tompkins County, October 1999

The Tompkins County Office for the Aging convened a Steering Committee to assemble Task Forces in the categories of health care financing, health status, housing, income and employment, leisure and volunteerism, long term care, mental health and transportation. These Task Forces were charged with assessing the status of the County's seniors, identifying needs, issues and highlights, and recommending some action steps, which could realistically be tackled within the first few years of the New Millennium.

The Northeast Subarea Transportation Study (NESTS) Transportation Plan, Ithaca-Tompkins County Transportation Council, Tompkins County, Village of Cayuga Heights, Village and Town of Lansing, Cornell University, Towns of Ithaca and Dryden, New York State Department of Transportation, July 1999

Transportation plan resulting from a public participation planning process aimed at developing recommendations for improving the local transportation network in the northeast area of Tompkins County. The recommendations from this study address the future of vehicular, bicycle, pedestrian, and transit systems in the study subarea which includes the Town and Village of Lansing, the Village of Cayuga Heights, Cornell University and parts of the Towns of Ithaca and Dryden.

Town of Ithaca Park, Recreation and Open Space Plan, Town of Ithaca Planning Department, December 1997

Provides the Town of Ithaca with a blueprint by which it can develop a comprehensive park system for all residents. Also provides a means by which the Town can protect its unique ecological, agricultural and scenic resources for future generations.

City of Ithaca Bicycle Plan, Ithaca Bicycle Advisory Council, March 1997

This Plan, created by a citizen advisory committee appointed in 1990, presents a proposed framework for making the City of Ithaca a "bicycle friendly" community. Of particular interest are the maps of existing and proposed bikeways. In 1995, it served as the basis for a successful project application under the ISTEA Enhancement program. The final plan identifies a Phase One Bikeway Route Network – north-south and east-west routes through the town of Ithaca and routes up East Hill, South Hill, and West Hill. Its Long-Term Bikeway Route Network would build on Phase One and increase bicycle lane numbers on commercial / arterial streets and propose traffic calming on residential streets.

Tompkins County Waterfront Plan, Tompkins County Planning Department, City of Ithaca Department of Planning and Development, Town of Ithaca Planning Department, Tompkins County Chamber of Commerce, and Cornell University, January 1997

This Waterfront Plan was developed to increase public access, improve waterfront parks, improve boating facilities and operations, encourage appropriate economic development, including tourism, and improve linkages between waterfront destinations, existing residential neighborhoods and business districts. Five goals were adopted to help achieve the vision of the waterfront expressed at the public workshops. They were to increase public access and improve waterfront parks; improve boating facilities and operations; encourage appropriate tourism, improve linkages between waterfront destination, existing residential neighborhoods and business districts; and conserve and interpret natural and cultural resources.

East Ithaca Recreation Way - a Local Commuter Linkage, A Schematic Proposal by the Town of Ithaca

Abandoned railroad rights-of-way are increasingly being recognized as a valuable community resource. The Town of Ithaca proposes to upgrade the existing abandoned Lehigh Valley Railroad right-of-way, which stretches for approximately one-half mile between Honess Lane and Maple Avenue in the eastern portion of the Town. This report is a schematic proposal, which illustrates the location, potential linkages, and specifications of the plan.

Request for Proposal to Operate the Ithaca-Dryden Corridor Transit System

This document contains three sections: 1) Solicitation, Offer and Award/ Contractual Provisions, 2) Technical Specifications, and 3) Federal Section 18 Legal Requirements. The document is intended to be used as a service agreement for operation of the Ithaca-Dryden Corridor Transit System.

Building Greenways for Tompkins County, Tompkins County Greenway Coalition, July 1995

The Greenways Coalition identified the recreational needs of county residents and addressed local conservation concerns. This report encourages municipal planners and community organizations to build greenways. By highlighting local resources and presenting ideas for a flexible countywide greenway plan.

Town of Lansing Comprehensive Plan, Town Planning Board, December 1994

The comprehensive plan includes sections on future road and intersection improvements, off-street parking, and public transit, bicycle and foot paths. It discusses Lansing 15 to 20 years in the future.

Mass Transit Development in Tompkins County, submitted by Cornell University and prepared for the U.S.DOT Office of University Research

This proposal is concerned with improving and expanding the public transit system in Tompkins County. The primary objective is to generate the basis for implementing a balanced transportation system in the Ithaca area. In order to accomplish this the report indicates a need for a transit system which offers service to a much larger proportion of the county population, and which provides an attractive level of service to people who have an automobile available. The document discusses objectives and a research plan.

The National Bicycling and Walking Study: Transportation Choices for a Changing America, Federal Highway Administration, final draft 1994; interim report November 1991; case studies 1994

This report provides a national "plan of action to promote bicycling and walking as viable transportation options for more Americans". The report provides national goals, background data and information, and recommendations for actions at the state and local levels. The case study series provides substantial technical information on a wide variety of bicycling and walking issues.

Finger Lakes Canal Planning Region - Tompkins County, Tompkins County Planning Dept, July 1994

This is an issue paper prepared by the Tompkins County Planning Department as part of the County's participation in the Canal Recreationway Plan. The document specifies a number of goals that relate to the use and preservation of Cayuga Lake and its immediate surrounds.

Tompkins County Public Transportation Needs Assessment, Susan Muckle and Jennifer Strazza, June 1994

This analysis of the "traditionally underserved" populations in Tompkins County, as defined by the Intermodal Surface Transportation Efficiency Act, was conducted on behalf of the Ithaca-Tompkins County Transportation Council. The report uses 1990 Census data to analyze and identify locations where underserved populations may be located (i.e., households below the poverty level and elderly persons). The report identifies frequency of urban service, rural connectivity, inadequate schedule information, and the need for enhanced interagency communication/cooperation as significant problems that may limit the ability of certain populations to utilize existing transit services.

Final Report - Task Force on Traffic Issues, City of Ithaca, April 1994

The report of this ad hoc committee includes an analysis of traffic flow through specific neighborhoods, enforcement issues, and discussions of bicycle, pedestrian, and transit needs. The report provides recommendations to mitigate the impacts of existing traffic (through a variety of capital and other means) and calls for more detailed studies of traffic patterns.

The Road to 2012: Looking Toward the Next Two Decades, John L. Peterson, 1993

This book was produced for the U.S. Department of Transportation (Coast Guard Strategic Planning Staff) in order to provide a conceptual framework by which the reader can begin to formulate thoughts and a vision of the future. The book provides a "scan" of emerging technologies, economics, politics, health and more.

Village of Lansing Land Use Impact Analysis, Tompkins County Planning Department, December 1993

The purpose of this study was to assess the impacts of regional development on the Village of Lansing's transportation network. The analysis looks at land use, potential growth, and local traffic circulation.

Crossing Tompkins County's Borders: Trip Patterns and Inter-County Transit Alternatives, Matthew McDonald, December 1993

This analysis, conducted at the request of the Ithaca-Tompkins County Transportation Council, utilizes 1990 Census data and the National Personal Transportation Survey to synthesize trip data (by trip type) and mode choice. This information is then used to analyze inter-county transportation services. A cost analysis of potential rail service reveals a minimal annual loss of $769,190 (not including initial line rehabilitation costs).

Town of Groton Comprehensive Plan, Tompkins County Planning Department, November 1993

Update to the 1972 General Development Plan. Includes basic inventories and analyses. Recommends amendments to zoning regulations, development of a capital improvement program, and the development of a joint economic development plan with the Village of Groton.

The Climate Change Action Plan, William J. Clinton, Albert Gore, Jr., October 1993

President Clinton's plan to meet the challenges of responding to the threat of global warming and strengthening the nation's economy. This document includes specific administrative directives of the President and narratives describing specific actions that reduce "greenhouse gases" through efficient energy use, transportation actions, energy supply actions, methane reduction and recovery actions, forestry actions, and reductions in HFC/PFC and Nitrous Oxide levels. Transportation actions include: reforming the Federal tax subsidy for employer-provided parking ("cash-out" options), transportation system efficiency strategy (i.e., reduce growth in VMT), increased use of telecommuting, and development of a fuel-economy labeling system for tires.

Town of Ithaca Comprehensive Plan, Town Planning Board, September 1993

The comprehensive plan includes sections on transportation inventories as well as transportation goals, objectives, strategies, and actions.

Economic Adjustment Strategy for the Southern Tier Region of New York State, Economic Research Associates, August 1993

Prepared for the New York State Department of Economic Development, this report covers the nine-county Southern Tier Region. This report provides a comprehensive assessment of the region's economic characteristics and offers several strategies to address current weaknesses. A separate volume addresses Tompkins County. This volume contains useful information on local employment and economic development efforts. With regards to transportation the report states "Tompkins County's transportation linkages are poor; many residents like it that way".

Potential Consolidation Options for the Public Transportation System in Ithaca, New York, Francesca Forestieri, May 1993

This report examines the history of the current transit services in the Ithaca metropolitan area and considers various options available to achieve the consolidation of transit services.

Village of Lansing Greenway Plan, Village of Lansing Greenway Committee, May 1993 draft

This report was prepared for the Village of Lansing with the intention of creating a "walking village". Various surveys are used to assist in the development of short- and long-range strategies to develop and maintain greenway trails and associated park/recreation space.

Ithaca-Tompkins County Bike Network, Tompkins Coalition for Bicycle Transportation, February 1993

A proposal for the development and maintenance of a countywide, radial bike route network within Tompkins County. This report was completed by a coalition of local cycling advocates and planning professionals in order to identify low cost improvements that will facilitate and enhance bicycle travel in the County.

New York State Scenic Byways Program, New York State, 1992

This nomination handbook provides a process that is intended to coordinate the efforts of private citizens and business owners, local and county governments, not-for-profit organizations and state agencies. Scenic Byways additionally provides numerous benefits such as economic development and resource management. Therefore, the legislation encouraged communities to make nominations to the Scenic Byways Advisory Board for additional designations.

New York State Air Quality Report Ambient Air Monitoring System, NYS Department of Environmental Conservation, 1992 Annual Report

This document provides the 1992 data summaries and analysis of the NYS ambient air monitoring program. The document includes extensive information on air pollutant characteristics, sources, and health effects, as well as collection and evaluation methodologies.

Downtown Design Plan, City of Ithaca, September 1992

This report, prepared by Roger Trancik, FASLA, contains an inventory and analysis of existing conditions, vehicular and pedestrian circulation, and the general physical form of the downtown area. The report provides significant detail and recommendations on general design and aesthetics, pedestrian circulation, and land use.

Biking Up East Hill: the Cornell-Downtown Connection, Dave Nutter, 1992

A brief booklet describing several suggested bicycling routes for commuters, shoppers, and recreational cyclists riding in the City of Ithaca-Cornell University areas.

Living in Tompkins County: Housing Market Study Data, Tompkins County Planning Department, June 1992

Includes Census data and narrative analyses of demographic and housing stock information for Villages and Towns in Tompkins County. Provides some comparative analyses with adjacent counties.

Tompkins County Water Quality Strategy Plan, Tompkins County, June 1992

This plan provides a description of the various agencies involved in efforts to protect and improve the quality of surface and ground water in Tompkins County. Goals and objectives address the areas of public information, water quality monitoring and assessment, technical assistance, and watershed specific and countywide issues.

Tompkins County Economic Development Strategy - Phase I: Database and Comparisons, Xavier Morales, March 1992

Prepared for Tompkins County Area Development, Incorporated and the Tompkins County Planning Department. This report provides an extensive analysis of the demographic and economic characteristics of Tompkins County, based primarily on historic Census data (1940-1990). Comparisons are then made to adjacent counties, the national and state patterns, and to seven similar "university-oriented" counties.

West Hill Master Plan, City of Ithaca, March 1992

This document provides a general guide for the development of West Hill. The document includes analysis of natural features, open space/ recreation areas, land use, and infrastructure. The plan makes specific recommendations for the development of local circulator roads and sidewalk system improvements.

Cornell Cycles: A New Call for Transportation Alternatives, Cornell University Office of Transportation Services, March 1992

A comprehensive study of bicycling needs and facilities for the Cornell campus. The planning process included an extensive survey, analysis of current conditions, and offers specific recommendations for system-wide improvements.

Report of the Inlet Island Land Use Committee, City of Ithaca, February 1992

This report provides an interesting and useful history of the development and land use patterns of the Inlet Island area of the City. The report discusses the history and future of transportation in the area from the impacts of the NYS Barge Canal activity to the current Route 96 "Octopus" project. The report includes a proposed land use plan for the area.

Downtown Vision Task Force, City of Ithaca, February 1991

The final report of the Downtown Vision Task Force established in July of 1990. The document provides background data, analysis, and recommends actions intended to maintain a vital downtown as "the center of the county's economic, social, and cultural life". Includes recommendations on parking and public transit.

Moving America: New Directions, New Opportunities, U.S. Department of Transportation, February 1990

This document provides a statement of national transportation policy and strategies for action (Samuel Skinner, Secretary, USDOT).

Joint Maintenance Facility Conceptual Plan, City of Ithaca, Cornell University, Tompkins County, and GADABOUT Transportation Services, Inc., January 1990

This plan indicates the need for the City of Ithaca, Cornell University, Tompkins County, and GADABOUT Transportation Services, Inc. to have a joint maintenance facility plan. Existing shops are duplicative, small, and inadequate for the existing and future transit fleet. Benefits, plans, management structures, and cost estimates for the maintenance facility are discussed.

Parking Study Final Report, for the City of Ithaca by Rich and Associates URS Consultants, August 1989

The purpose of this report was to; determine current parking demand and parking characteristics, quantify demand for future parking, assess the operation of the City's parking system, determine location of potential new parking areas, and review traffic flow within the study area.

Water Quality Report for PIN 3047.04 Relocated Route 96 Ithaca - Trumansburg Tompkins County, for NYSDOT prepared by Robert E. Smith, Consulting Engineer, Rochester, NY, August 1998

This is a technical report which supplements the Design Report/Draft Environmental Impact Statement, and Section 4 (f) Evaluation for the Route 96 Improvement to Meadow Street. The report reviews existing water quality, build alternatives, and water quality concerns.

Air Quality Report for PIN 3047.04 Relocated Route 96 Ithaca - Trumansburg Tompkins County, for NYSDOT, prepared by Robert E. Smith consulting engineer, Rochester, NY, August 1988

This is a technical report which supplements the Design Report/Draft Environmental Impact Statement, and Section 4 (f) Evaluation for the Route 96 Improvement to Meadow Street. The report explains general methodology for three different levels of analysis which include Hot Spot Verification and the IMM Model. The report summarizes air quality results for these analyses.

Strategic Housing and Neighborhoods Plan, City of Ithaca, December 1987

This plan details strategic public body actions to address specific problems facing Ithaca's neighborhoods. The report primarily focuses on the availability of affordable housing, neighborhood conflict resolution, building and grounds maintenance, community input, and traffic and parking.

Site Traffic Analysis Sun Down Farms Mixed Use Development Lansing, NY, DRAFT, Barton-Aschman Associates, Inc., October 1987

A site traffic impact analysis was conducted due to the proposal of the Sun Down Farms mixed-use development. This is a report compiled by Barton-Aschman Associates Inc. and includes the following surveys and analyses: data collection, directional distribution analysis, traffic generation analysis, traffic assignment, testing and evaluation, and, recommendations. The site is located in the area bounded by North Triphammer Road to the east, Cayuga Heights Road to the west, Burdick Hill Road to the north, and Oakcrest Road to the south.

Update of Airport 1974 Master Plan, Calocerinos & Spina, September 1987

The plan assesses demand/capacity and facility requirements, runway length, airport noise analysis, and presents a phased airport development plan, approach and obstruction plan, and evaluates costs.

Proposal for a Transportation Management Information System, Anthony Richardson and Arnim Meyburg, May 1987

Proposal addressed to the Ad Hoc East Ithaca Land Use/Transportation Study Committee to survey travel patterns through use of a household survey and development of the MacTrans Modeling Package.

An Analysis and Evaluation of Octopus/Route 96 Alternative Plans, Planning/Environmental Research Consultants, Ithaca, NY, May 1987

Report examines select concerns of the City of Ithaca, Town of Ithaca and Tompkins County of proposed NYSDOT planning alternatives.

Impact of null alternative, land use impacts on West Hill, adequacy of West Hill Circulation, project impacts on Cass Park & the Island, one-way pair of Meadow and Fulton Streets, traffic impacts east of Meadow Street, impact on CONRAIL trains, aesthetic/visual impacts, and assessing the mitigation potential of highway alternatives. The report is confined to analysis, no recommendations are made.

Recommendations of the Technical Advisory Committee: A Report to the Planning Board and Common Council in Support of the City of Ithaca's Strategic Housing and Neighborhoods Plan, City of Ithaca, April 1987

This report contains informational reports on the activities of the Technical Advisory Committee (TAC). The TAC consisted of various community, neighborhood, and business leaders. The purpose of the TAC was to identify the strategic issues facing Ithaca's neighborhoods. A survey of TAC members resulted in identifying "Neighborhood parking and traffic issues" as the top problem. The TAC focused on the development of strategic objectives and actions to implement the objectives. "Affordability of Housing", Availability of Housing", Traffic and Parking", "Neighborhood Conflicts", "Building and Grounds Maintenance", and "Input by Neighborhood Residents" were all examined.

Final Report to the ARC, TOMTRAN: Tompkins County Transportation Services Project, January 1986

This is the final report in the TOMTRAN Project to the ARC. The principal purpose of this document is to report on the implementation of the TOMTRAN Project during the period of September 30, 1981 to September 30, 1985. The report contains an overview, program budget, the progress made towards implementing programs, presents evaluations of the project components, and provides information on the future development of TOMTRAN.

Design Report, Town of Newfield, Route 13 Bridge Replacement Projects, NYSDOT PIN 3314.16.121, BIN 1023270, 1985

Project: Replacement of one bridge over the CONRAIL track and Cayuga Inlet in the Town of Newfield. Conclusion: replace existing bridge on a new alignment slightly west of existing is the only reasonable solution.

Design Report, Town of Newfield, Route 13 Bridge Replacement Projects, NYSDOT PIN 3314.15, BIN 1023240, BIN 1023250, BIN 1023260, 1985

Project: Replacement of three bridges along routes 34/96 in the Town of Newfield. Conclusion: the replacement of existing structures on existing alignments is the only reasonable solution to correct problems of structure deficiencies and deterioration.

Suburban Transit Program: East Ithaca Transit System, 1981 Annual Report and 1982 Program and Budget

This report includes an assessment of East Ithaca Transit operations for 1981 and proposes a program and budget for 1982. Ridership, expenditures, revenues, service expansion, relationship to TOMTRAN, and status for Cornell as East Ithaca Transit operator are detailed in the document. The 1982 Program and Budget calls for an increase in the number of service hours, projects ridership to 60,000, and reports a ten percent increase in hourly contract cost. The program also proposes several capital improvements. Recommendations are made regarding the adoption of the 1982 East Ithaca Transit Program and Budget by the East Ithaca Transit Study Committee.

TOMTRAN I and II Project Revision, TOMTRAN: Tompkins County Transportation services Report, August 1982

TOMTRAN I is a comprehensive, multi-modal, rural transportation project including operating and capital components. TOMTRAN II is a request for $156,800 ARC Capital Grant to expand and improve the level of transit service initiated by the TOMTRAN I Ithaca-Dryden Corridor Transit Program. The present scope of services of the transit program requires a total of 5 transit buses. The report explains the need for revision. The report details TOMTRAN budgets, operating programs, and project management.

Truck Traffic and Vehicular Noise, Tompkins County Planning Department, June 1981

The report evaluated the noise impacts of truck traffic on Route 79, east State Street and through Ithaca. The Bryant Park Civic Association petitioned the NYSDOT, City, and County to implement a truck ban on East State Street in the City. The report evaluates the legal problems and concludes that truck exclusion is not feasible. NYSDOT evaluated accidents and concluded that the accident rate was within state averages and did not warrant special regulation.

The East Ithaca Transit Rider Survey, David Arbeit, Tompkins County Planning Department, June 17, 1981

The East Ithaca Transit (EIT) Rider Survey was designed to be simply administered and evaluated while providing information about the characteristics of the riders, their use of the EIT, and their satisfaction with the new service. The survey indicates that EIT provides a service that both satisfies previously unmet travel needs and adds convenience to residents of Tompkins County. The report indicated that the results of the survey should be interpreted in conjunction with a more extensive analysis of ridership data and operating costs in order to provide a thorough evaluation of the EIT demonstration period.

East Ithaca Connector, East Ithaca Circulation Study, O'Brien Taube Associates, May 1981

A committee from the County, Town of Ithaca and Cornell University began working in 1980 on creating a proposal for a new East Ithaca Connector. The arterial was broken into phases. Phase I considered a new corridor connecting Pine Tree Road by East Hill Plaza in the south to Route 366 in the north. Phase I spanned Cascadilla Creek, traversed the Orchards and provided a new gateway to the Cornell campus. Judd Falls Road would be replaced as an arterial by Phase I. Phase II connected Route 366 in the south to Freese Road in the north by spanning Fall Creek with a new bridge. Further north, a new arterial would link Hanshaw Road with Route 13 east of Sapsucker Woods Road. An environmental assessment form for the project is included in the report.

Interim Countywide Public Transportation Service Plan, Tompkins County, March 1980, revised May 1980, and Revised February 1981

This plan was prepared to help guide efforts within Tompkins County which aid in the improvement of transportation services. The plan reviews demographic characteristics as they influence transportation needs, provides an inventory of existing transportation services, evaluates unmet transportation needs, describes local coordination activities, and includes proposals to improve transportation services within Tompkins County.

Environmental Impact of East Ithaca Connector and Low Impact Plan, Ecology Action Plan, 1980's

Plan evaluates environmental impacts of the complete connector proposal and recommends this alternative to re-align Pine Tree Road to Judd Falls Road as an alternative.

Report on the Development of the Cornell Research Park Utilities, Edward Rosic, Carol Majdalany, and Stephen Dove, 1980

The report discusses the utilities in general as they apply to the park and then addresses each type of system individually. An inventory of

the utility systems is provided as well as an estimation of the costs that may be encountered in their extension into the park. The authors make recommendations for utility development which attempt to increase the marketability of the park land to benefit the surrounding community.

Warren Road Industrial Park Access Road Project, NYSDOT PIN 3750.44, May 1980

This road project realigned Warren Road to permit future runway expansion of the Tompkins County Airport. The project report describes the design and evaluation in support of the project. The Warren Road project was the only highway project constructing new alignment in the 1980's.

Cornell Research Park Road Systems Group: The Route 13/Warren Road Intersection Analysis, Lynn R. Adamson, Darlene A. Lachman, and Paul V. Sheridan, April 25, 1980

A comprehensive study of alternative interchange designs for the intersection of Warren Road and Route 13. The goal of the study was to propose a most desirable interchange configuration while keeping costs down, reducing the impact on the surrounding land, and enhancing the potential value of development land in the Cornell University Research Park. The methodology for analyzing the intersection contains five sections: Selection of Alternative Designs, Calculation of the Geometric Configurations of the Interchanges, Level of Service Calculations for Each Alternative Design, Other Considerations, and Conclusions. The authors conclude that the half-cloverleaf configuration is clearly superior in satisfying the broad requirements of this study.

Ridesharing Manual for Employees, Tompkins County Ridesharing Program, October 1979

This manual outlines an approach recommended to middle and large sized employers for encouraging ridesharing among their employees. It outlines the benefits of ridesharing and the elements of a coordinated ride-matching system. A survey instrument with instructions, data about potential savings, guidelines for carpoolers, and other useful material are included in appendices.

Proposals for Route 96 Improvements, Report to the County Board of Representatives, TCDP VII 280.70, Tompkins County Planning Department, June 1978

Report is Phase VII of the transportation component of the Comprehensive Planning Program (701). The report suggests community transportation objectives, assesses traffic flows and studies problems in the West End of the City of Ithaca. Highway solutions are proposed to the community and state.

Ithaca Street Railway Study, Ithaca Street Railway Ad Hoc Committee, 1976

Citizen study group to plan development of a light rail (trolley) system connecting downtown Ithaca, Collegetown, and the Cornell Campus.

Mass Transit Development for Small Urban Areas: Tompkins County, NY, UMTA, DOT-OST-40003, Arnim Meyberg, et. al., November 1976

Second year study results. Concentrates on obstacles to coordination, marketing and evaluation program for public transportation. The report presents a comprehensive discussion of service management issues.

Framework for Development, Tompkins County Comprehensive Plan Studies, August 1975

This study briefly describes present trends and patterns of development and some of the problems created by sprawl. Three alternative patterns for future development are presented.

Socio-Economic Impact Analysis for Cayuga Station, Reimann-Buechner Partnership, June 1975

Prepared for Tompkins County and the Town of Lansing as a requirement under Article VIII of the New York Public Service Law, based on the proposed construction of an 850MW generating plant in the Town of Lansing by NYSEG Corporation. An assessment of impacts on Transportation, Land Use, Recreation, Social & Economic, and Aesthetics of the area.

Ithaca's Bikeway, Landscape Architecture Graduate Program of Cornell University, Spring 1975

A summary of the Ithaca Area Bikeway Study. Report includes a description of the planning process and how to get it done.

Airport General Master Plan, Arnold Thompson Associates, December 1974

Includes: inventory, air travel forecasts (demand), airfield planning, terminal area planning, development alternatives, airport plans including facility layouts, cost estimates and environmental impact assessment. Scope of planning covers 1975-1995.

Ithaca-Cortland Economic Growth Center Study, Tompkins County Planning Department, November 1974

Prepared for the New York State Department of Transportation, this is an analysis of the potential economic impacts associated with improvements to the "existing" Route 13 or with a "Dryden By-Pass".

Mass Transit Development for Small Urban Areas: Tompkins County, NY, UMTA, DOT-TST-75-48, Arnim Meyburg, et. al., October 1974

First year results to develop a transportation planning methodology for small urban areas. The report uses Tompkins County as its case study. A plan for the expansion of public transportation is presented.

Feasibility Study, Cross Town Road, John S. MacNeil Jr., August 1974

Report to the County Planning and Public Works Committee to identify the most feasible route to construct a new arterial linking Route 13 south of the City to Route 13 in the vicinity of the airport. Report includes a conceptual plan, an evaluation of alternative corridors and their environmental impacts, an evaluation of the impact on traffic, cost estimates and recommendations for a new corridor. The report envisions NYSDOT to build the project.

Project Location Report: Conclusions and Recommendations - Route 13, Ithaca to Cortland, NYSDOT PIN 3057.08, 1973

NYSDOT's conclusion and recommendations for a new Route 13 between Ithaca and Cortland. Documents economic and social factors supporting their recommendation. Documents agency and public comments on the project.

Final Environmental Impact Statement, Route 13/96 Combined Corridor Project, NYSDOT PIN 3047.04, 1973

Presents the final EIS accepted by NYSDOT and the Federal Highway Administration.

Project Location Report, Conclusion and Recommendations, Route 13/96 Combined Corridor Project, NYSDOT PIN 3057.13 & 3047.04, 1973

Presents NYSDOT's conclusions for 15-mile portion of Routes 13 and 96 between Newfield Hill and Trumansburg. Planning began in 1957 with alignments developed in 1965 and 1967. Documents public/agency/ municipal/ comments and public participation regarding the project.

Prospectus for a Comprehensive Transportation Study in the Ithaca Area, Planning and Research Bureau NYSDOT, January 1971

Proposal for a transportation study for the Ithaca urban area. The study would include an inventory of the road network, travel demand analysis, a cordon survey, and present recommendations for improvements.

Transportation Systems in Tompkins County, Mayor's Citizen Advisory Committee of Ithaca, NY, and Graduate School of Business, and Public Administration Cornell University, December 1970

This committee identified four broad committees which addressed the following topics: traffic flow in the Ithaca business district, the community transit system, the expansion of state highway Route 13, and air transportation facilities in Tompkins County. The traffic flow sub-committee concluded that the business district of downtown Ithaca has a serious problem of traffic congestion and proposes several recommendations: the creation of a mall shopping area for downtown Ithaca, additional parking restrictions, designation of several one-way street segments, left turn limitations, and the conduction of a thorough traffic study of the City of Ithaca. The community transit committee recommends: the expansion of weekend\evening service, alteration of several existing routes, and providing the public with better information about routes and schedules. The Route 13 expansion committee concluded that an improved highway would lead to substantially more tourism, which would be economically attractive. The committee recommends selecting one of the three alternatives proposed by the state highway planners and then fully exploit the development opportunities. The airport committee found that the slow growth of the Tompkins County Airport can be attributed to the increased ease of obtaining the high priority factors at nearby airports. Recommendations include increasing non-stop flights, providing a greater frequency of departures, and improving same day round trip service to major cities.

Project Information Report II, Ithaca to Cortland, NYSDOT PIN 3057.08, September 1970

Report summarizes results of social, economic and environmental studies for project alternatives. Documents comments.

Project Information Report I, Ithaca to Cortland, NYSDOT PIN 3057.08, September 1970

Project narrative on NYSDOT proposal, need for project, criteria for selecting alignments, and presented alternative corridors. Report was to serve as a "starting point" for planning by NYSDOT, Tompkins and Cortland Counties, and various federal, state and local agencies and the public.

Project Information Report II Route 13/96 Combined Corridor Project, NYSDOT PIN 3057.13 & 3047.04, June 1970

Introduces project alternatives, identifies social, economic and environmental objectives, evaluates traffic volumes, presents engineering and cost data for alternatives for: do nothing, reconstructing on existing ROW, and changing transportation modes. Conventional NYSDOT impact study.

Project Information Report I: Route 13/96 Combined Corridor, NYSDOT PIN 3275, March 1970

Project narrative on NYSDOT proposal for bypass alignments from Newfield to Ithaca to Trumansburg. Emphasis is placed on high speed rural highways and intercity travel.

Airport Master Plan Tompkins County Airport Terminal Area Complex, Teetor-Dobbins, June 1969

Plan evaluates passenger handling facilities at airport and recommends building a new terminal. Evaluates travel demand and financial feasibility for a new terminal.

Scenic Roads in Tompkins County, NY, Tompkins County Scenic Roads Committee, 1969

Report recommends five sites along state highways as the most scenic locations in Tompkins County. Sites were officially designated by Tompkins County Board of Supervisors on June 23, 1969. Recommends to the NYS Natural Beauty Commission sites for scenic views, rest areas, etc.

APPENDIX D:
SUMMARY OF COMMENTS AND RESPONSES

BACKGROUND

ITCTC staff received comments throughout the Long-Range Transportation Plan update process. Numerous ITCTC partners, municipal staff, transportation providers, NYSDOT staff, federal partners and other ITCTC members provided input in development of the LRTP draft. The ITCTC collected public comments during widely advertised public meetings held on November 7, 2018, May 6, 2019 and September 16, 2019. In addition, members of the public were encouraged to telephone, mail, and email comments to the ITCTC office. A web site for the LRTP update was established early in the update process and was maintained with the latest drafts of the evolving plan (see www.tompkinscountyny.gov/itctc). A Facebook page was also created to extend community outreach and provide another point of input. This appendix includes comments from these sources.

TRANSPORTATION RELATED COMMENTS GENERATED FROM THE 2040 LRTP DEVELOPMENT PROCESS

The public comments received by the ITCTC are listed below along with a response. Responses may address individual comments or related groups of comments. The comments are compiled by topic area based on their content. Comments that were similar in content were combined and received a single response. In those cases, individual comments are identified. Some comments were not legible or not applicable to the LRTP. Those comments were not included below. In general, the comments are presented in their original form. Some minor editing was made by ITCTC staff to improve readability.

In addition, the ITCTC received numerous comments related to document format and data presentation. Those comments were incorporated into the document to improve its appearance and content quality but are not included in this appendix.

Comments were compiled into transportation related topic areas based on the contents of comments themselves. Some comments may be found in more than one topic areas. The topic areas are:

- **Rail Services**
- **Public Transportation-Funding & Service**
- **Transportation Innovation**
- **Active Transportation (bicycling, walking, trails)**
- **Shared Transportation**
- **Transportation Planning and Land Use**
- **Safety**
- **Environmental**
- **Location Specific Issues**

Public comments are listed below along with a response. Responses may address individual comments or related groups of comments as shown.

RAIL SERVICES COMMENTS

Two members of the community have brought up the issue of rail freight schedules/efficiency in Tompkins County, as well as making the implementation of light, high-speed, and intercity rail a priority going forward.

- Increased rail traffic in the area soon? Is there communication with the rail road companies? Look at efficiency and timing of the trains in the city.
- If we had a high-speed rail connection to the Syracuse airport, we might not need an airport at all.

Response: The 2040 LRTP for Tompkins County does not address this form of passenger service within its time frame. Initiatives such as the restoration of rail passenger services require State and National commitment. New York State does not currently have a vision for intercity passenger service that includes Ithaca. The State Rail Plan focuses on maintenance, restoration and expansion mostly along currently established rail corridors. No specific mention is made of the rail line serving Tompkins County. For a

complete description of the NYS Department of Transportation's Rail Plan you may go to their web site at: https://www.dot.ny.gov/divisions/policy-and-strategy/planning-bureau/state-rail-plan.

The ITCTC is supportive of the existing rail line and its role in freight movement. The rail right-of-way is recognized as an important transportation resource that should be preserved for future continuing rail use, be it freight or passenger.

Related goals in the LRTP:

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

PUBLIC TRANSPORTATION COMMENTS – FUNDING

- Increase gas tax for transportation funding.
- Implement a carbon tax on vehicle emissions– help pay for alternative transportation.
- Diversify/prioritize funding for a mixed-transportation system.
- Assign federal money according to goal mode share.
- Discuss the economic benefits of reduced car-use and its associated infrastructure with development partners.
- Transportation and health interrelation – associated healthcare cost savings.
- Explore incentives for employers to promote employee transit use (i.e. free monthly bus passes, etc.).
- Explore smaller buses/vans as a more efficient and cost-effective service to rural areas.

Response: This series of comments address the funding challenges faced in the provision of public transportation. The LRTP provides an overview of TCAT and other Tompkins County public transportation services in the Transportation Systems chapter. It is recognized that TCAT provides exceptional service considering the size of Tompkins County. Currently the agency is working at near capacity and it is important for all stakeholders to help address the fiscal challenges of providing public transportation in a community that has high expectations for service and where there is substantial unmet demand. The ITCTC will work collaboratively with other community partners to help advance solutions in this area. The LRTP is supportive of public transportation as an important component in its stated goals to reduce drive alone trips, reduce automobile dependency and increase mobility options for all travelers in Tompkins County. Maintaining existing transit infrastructure, as well as expanding and promoting new transit technologies and programs, are key implementation areas of the Action Plan in the LRTP.

Related goals in the LRTP:

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

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

PUBLIC TRANSPORTATION COMMENTS – SERVICES

- Need more frequent service to rural areas.
- Need more transportation choices for rural residents.
- Need to deviate more students from school buses to TCAT (i.e. Newfield students to New Roots School)
- First/last mile connections to bus routes using multiple modes (walking, bicycling, rideshare, paratransit, etc.).
- Demand for earlier and later bus service for commuters with atypical work schedules.
- The TCAT schedule now does not accommodate the custodial work force at Cornell that has to be there by 6 am.
- There is a great demand in Tompkins County for TCAT to structure their bus service in a way that better caters to multiple trip types (social, recreational, family, civic, etc.), not just work-based commuter trips at peak traffic hours.

- Possible to increase TCAT access for school district to reduce traffic from school-related activities? Afterschool activities bus pass for middle and high school students.
- Expand park-and-ride options in both suburban and rural areas for all trip types.
- Investigate ski-lift/gondola type systems to connect higher elevation areas to each other and to Downtown Ithaca.
- Implement Bus Rapid Transit (BRT) technologies/designs to keep buses moving efficiently.
- Look at smaller, more efficient buses/vans to service rural areas.
- Look into cutting-edge bus technologies and designs for a smoother, more enjoyable ride (Mercedes-Benz, Setra, Van Hool, Volvo, etc.).
- What happened to proposed hospital park-and-ride?
- Provide select service on TCAT Rt. 30 to the medical office building on Craft Road.
- Provide more information on TCAT Rt. 41 and its Demand and Response (DAR) Zone in order to increase ridership
- Please prioritize a "West End loop" in place by January 2020 to connect new Greenstar, Guthrie, and CMA/CMA facilities by 3rd St. and Rt.13.
- Look into Bus Rapid Transit (BRT) service to move greater amounts of people faster and more reliably.
- You need to expand times and routes of buses before you (especially the City of Ithaca) make it harder for people to use and park cars, e.g. bikes are only options for a few people; buses do not yet work for most others.

Response: This series of comments provide service requests and operation ideas for TCAT. TCAT is responsible for designing and implementing public transportation services and operations in Tompkins County. Route alignments, vehicle assignments, and enhancements like Park and Ride are carefully managed by TCAT staff. Currently the county has a network of 13 well-used rural park and ride lots (see p. 58). TCAT is aware of the need to provide bicycle and pedestrian links and accommodations at their bus stops and park and ride facilities, as well as the need to better connect rural communities to their bus lines. As part of this effort to more equitably serve rural communities, TCAT announced in 2019 that the 2-zone fare pricing structure will be dropped; instead, the system will now have a single fare zone based on the Zone 1 pricing structure. TCAT has also released their "Strategic Plan 2018-2030" in which they outline their short and long-term modernization plans for the system. This strategic plan also evaluates the feasibility of incorporating the latest in transit technology and design, from electric buses and farebox alternatives to dedicated transit lanes Bus Rapid Transit. TCAT's Strategic Plan is available at https://www.tcatbus.com/content/uploads/2019/01/Strategic-Plan_2018-to-2030.pdf. The ITCTC will work with TCAT and other community partners to advance implementation of strategic plan concepts and to monitor new technologies and service options that will expand the reach of public transportation in Tomkins County.

The ITCTC acknowledges the importance of the travel issues raised in these comments and has forwarded them directly to TCAT for their evaluation and consideration of possible actions within the services that they provide.

Related goals in the LRTP:

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

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

TRANSPORTATION INNOVATION COMMENTS

- What roles will autonomous vehicles play, and how will Tompkins County address possible safety issues before they arrive in large numbers?
- Reach out to the college students for volunteers (rideshare drivers). Submitted by a current IC student.
- Make the economic case more clearly – how much SOV parking costs.
- Add to partners: health organizations, developers (change parking ratios) – less expensive, more economical buildings.
- On-demand App to connect drivers and riders.

- Consider how to best serve 3rd shift (off-hours) workers.
- Implement roundabout and other intersection innovations to keep traffic flowing smoothly.
- Promote telecommuting.

Response: This series of comments delves into the potential of innovative solutions in transportation. This includes not only innovations in transportation technology, but also in financing mechanisms and improved project implementation procedures. The LRTP recognizes the potential of innovation in the transportation sector. Many of the plan policies allude to future technology innovations and the planning and collaboration needed in order to address transportation challenges. Expanding and promoting new technologies and programs is one of the key implementation areas of the Action Plan in the LRTP. The Action Plan also includes specific language addressing this issue: "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."

The LRTP does not address the topic of autonomous vehicle technology specifically. The ITCTC will work with partner agencies like TCAT, NYSDOT, etc. to monitor and help plan for any safety concerns that arise as this transportation mode gains traction. In short, the ITCTC supports TCAT's position, which states that it is still too early to determine the impact of autonomous vehicle (AVs) technology and it is prudent to take a "wait and see" approach to establishing any firm policy on the subject (See page 78 of the TCAT "Strategic Plan 2018-2030" (https://www.tcatbus.com/content/uploads/2019/01/Strategic-Plan_2018-to-2030.pdf).

Related goals in the LRTP:

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

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

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

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

ACTIVE TRANSPORTATION COMMENTS (BICYCLING, WALKING, TRAILS)

- Initiate a health initiative to promote the use of cycling and walking as transportation modes.
- Look into implementing a mile-long sidewalk segment along Rt 96, going north from the Cayuga Medical Center. Four people have been killed along this stretch of highway over the last few years.
- Continue to encourage and support the use of Lime bikes and e-bikes as a transportation mode.
- Work with Lime to ensure users understand the rules of the road, as well as how to use and park the bikes.
- Multiple people cited the need to create a comprehensive system of safe cycling infrastructure so that the bike can work as an effective, convenient, and secure form of transportation in Tompkins County.
- Multiple people brought up the need to create a cycling/pedestrian trail network that would connect the Town/City of Ithaca with outlying towns, villages, and rural areas.
    - Connect Tompkins County trail networks to the Empire State Trail, connecting the county with the Erie Canal Trailway and Geneva.
    - Make bicycle connections possible between Ithaca and the Town of Caroline.
    - Make sure Five Mile Dr. residents have access to the planned Black Diamond Trail extension.
    - Connect the Black Diamond Trail with the South Hill Recreation Way
    - Ensure park-and-ride lots are accessible to pedestrians and cyclists
- Ensure municipal responsibility for compliant infrastructure (sidewalks, roads, bus shelters, etc.).

Response: This series of comments refer to issues with active transportation, primarily defined by bicycle use and walking. Generally, comments are supportive of active transportation. Most are suggesting expanding the use of future and existing dedicated infrastructure for cycling and walking in order to connect neighborhoods across the county, including towns, villages, and rural areas. Differing views and opinions expressing both support and concern for the use of bikeshare systems have also been a popular topic of discussion. The recent arrival of the Lime bikeshare program has introduced a completely new shared transportation dynamic, as well as expanded the role of cycling as a last-mile, flexible mode of transportation for a wider population range. The LRTP offers full support for programs, strategies and/or projects that strengthen active transportation, including bike lanes, boulevards, protected lanes, as well as bikeshare, etc. Bicycling and walking are two modes that can be enhanced through local efforts, and thus offer the opportunity for expansion. In particular, bicycling has the greatest potential for expansion since there are so few dedicated facilities for this mode. Walking in Tompkins County, particularly in the City of Ithaca and adjacent urbanized area, is a mature mode with good facilities and high use. Expanding the modal share of active transportation is an important component of the multi-faceted LRTP strategy to reduce drive alone trips in Tompkins County in order to minimize the negative impacts of private automobile dependency.

Specific active transportation initiatives listed in the LRTP include: complete streets network (Ch.3&4) and Tompkins Priority Trails Strategy (Ch.4 and Appendices). Chapter 4, Projects for Implementation, also includes bike/pedestrian promotion and bike/pedestrian facilities planning and improvements. Expanding and promoting active transportation is one of the key implementation areas of the LRTP Action Plan (Ch. 1). There are several federal surface transportation funding lines that are available for bicycle and pedestrian projects such as the Transportation Alternatives Program and the Surface Transportation Block Grant-Flexible funds. The ITCTC will work with local partners to continue to provide for active transportation facilities.

Related goals in the LRTP:

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

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

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

INTEGRATION Goal: To develop an integrated transportation system for Tompkins County that is seamless, multimodal and coordinated to achieve greater operational efficiencies and increase the safety and convenience of users.

SHARED TRANSPORTATION COMMENTS

- Need to do more to move away from a single rider car use transportation system and culture than what is being done.
- Need to capture more rideshare riders, particularly in more rural areas with longer distances.
- Ithaca Car Share is a fun idea but not accessible for many.
- Need to encourage and improve the incorporation of Lime bikeshare into the existing community transportation system.

Response: Depending on the definition shared transportation can include public transportation, taxis, van pools, and car share, bike share, and ride share services. All these options are currently available in Tompkins County. Shared bicycles, cars and rides are all rapidly evolving services. New business formats and strategies are being developed and mobile technology continues to grow and expand in reach and capability. The ITCTC is working with Way2Go, Ithaca Carshare, the Tompkins County Rideshare Coalition and other civic and municipal partners to actively monitor and adapt the existing services to be able to provide the best possible options for Tompkins County. Expanding and promoting shared transportation is one of the key implementation areas of the LRTP Action Plan.

Related goals in the LRTP:

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

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

INTEGRATION Goal: To develop an integrated transportation system for Tompkins County that is seamless, multimodal and coordinated to achieve greater operational efficiencies and increase the safety and convenience of users.

TRANSPORTATION PLANNING & LAND USE COMMENTS

- Can 20-year objective be "I don't have to own a car" to get around?
- Discuss the economic benefits of reduced car-use and its associated infrastructure with development partners.
- What about the projections from the 2008 Cornell transportation study? A lot has happened with parameters that defined projections-like economic downturn. Some projects are still on the list to do
- So much growth! We really have to be smart planners for the future.
- There is opportunity with new development. Transportation for the future must be part of the early conversations and plans for every development now, especially the waterfront.

Response: The above series of comments relate to the land use regulatory role of local municipalities and its impacts on transportation. The ITCTC recognizes the importance of our urban form and how it affects transportation patterns. Although the ITCTC has no land-use regulatory authority, it is committed to working with its local partners to promote lands use development patterns that facilitate implementation of the Sustainable Accessibility goals in the LRTP. There is no question that so called 'sprawl' development patterns generate more automobile-based trips by reducing or eliminating the feasibility of other modes. Mixed use, usually higher density, development patterns facilitate the use of bicycles, walking, transit and other forms of shared transportation to accomplish many trip needs. Changing development patterns is a long-term proposition, therefore it is important act now to promote and implement land use regulations that facilitate a broader range of mobility options. Municipalities that are successful will fare better in a future that will demand greater efficiency in the use of transportation resources. In order to achieve a modal shift away from car dependency, land use development patterns must take a more efficient form, as described in the Tompkins County Comprehensive Plan (http://tompkinscountyny.gov/planning/comprehensive-plan). This will facilitate the use of transit, walking, bicycling, car pools, vanpools, car sharing and ride sharing. All these currently available alternatives work best when land uses are integrated and in close proximity.

Related goals in the LRTP:

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

SAFETY COMMENTS

- The intersection of Route 13 and Brown-Sapsucker Woods Roads is much too dangerous.
- The Thurston Avenue bridge is one of the most dangerous places for cyclists.
- We need an overpass over Route 13 at Warren road.
- Rt 96, a mile above the hospital, can we get a sidewalk there? Four people have been killed there over the last few years.
- Need to plan for and address the safety issues tied directly into autonomous vehicles before allowing them to come to Tompkins County.
- The traffic on Route 13A (Town of Ithaca) in the evening combined with 45mph speed limit and straightaway makes for VERY dangerous conditions for walking, biking and going to our mailboxes to check mail. People are frustrated, going very fast. Our shrubs are taken out regularly by out of control vehicles.
- Require Lime bike users to view a 2-minute rules-of-the-road and bicycle safety video before they can start renting bikes.
- We need a truck/slow vehicle climbing lane Rt. 13 north from Tompkins-Cortland Community College (TC3) to top of the hill.

Response: Safety is one of the overarching goals of the Long-Range Transportation Plan as indicated in the Plan Goals and Objectives (Ch. 1). Many of the comments address location specific highway, traffic, and bicycle facilities design issues that are handled at the local level during project implementation or through changes in local policies. These comments will be forwarded to the appropriate jurisdictions.

The ITCTC assists local, county and state project sponsors with data and analysis, outreach and coordination, and by facilitating the programing of safety projects and projects with safety components. The ITCTC has access to NY State crash reports and prepares reports and analyses for use by local partners. ITCTC staff works collaboratively with local agencies, municipalities and civic groups to promote bicycle and pedestrian safety through a variety of projects including development of bike/pedestrian facilities (trails, bike boulevards and bike lanes, etc.), safe routes to school and bicycling education projects. An additional example is the ongoing SR-13 Corridor Study, which includes a significant safety component, including reviewing safety options for the Warren Road and Brown Road intersections.

Related goals in the LRTP:

OVERARCHING Goal: To improve the safety of the transportation system.

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

INTEGRATION, Goal V: To develop an integrated transportation system for Tompkins County that is seamless, multimodal and coordinated to achieve greater operational efficiencies and increase the safety and convenience of users.

ENVIRONMENTAL COMMENTS

- Impacts from climate change can drive human migration North and increase our population-does the long-range plan consider this potential increase in population?
- GOAL – 40% reduction in GHG is needed and very challenging. We need intense cultural support for habit change.
- GOAL – 50% reduction in carbon emissions in transportation should be at least 50% of the plan, 50% of the analysis, 50% of our goals, and receive 50% of all related funding.
- GOAL – Doing everything humanly and governmentally possible to reduce GHG emissions by 50% by the end of the decade – include a major restructuring and redistribution of transportation funds.
- Culture change – change expectations vis `a vis SOVs.
- Go big and all out for planet. IPCC 2030.
- Transportation and health interrelation.

Response: The above comments relate primarily to the impacts of the transportation sector on Climate Change. Air quality and climate change impacts from transportation originate primarily from the use of fossil fuel based internal combustion engines in the vast majority of motor vehicle of all types. The ITCTC is working with the Tompkins County Department of Planning and Sustainability in efforts to meet the Tompkins County Comprehensive Plan emission goals. Previous analysis by the ITCTC has identified the need to address air quality and energy impacts of transportation with a multi-faceted strategy of having lower emission/higher efficiency vehicles, reducing the number of trips, particularly drive –alone trips, promoting active and shared transportation (bicycling, walking, transit, ride share, car share, etc.), and encouraging more efficient land use development patterns. Programs and initiatives supporting these actions are included throughout the LRTP.

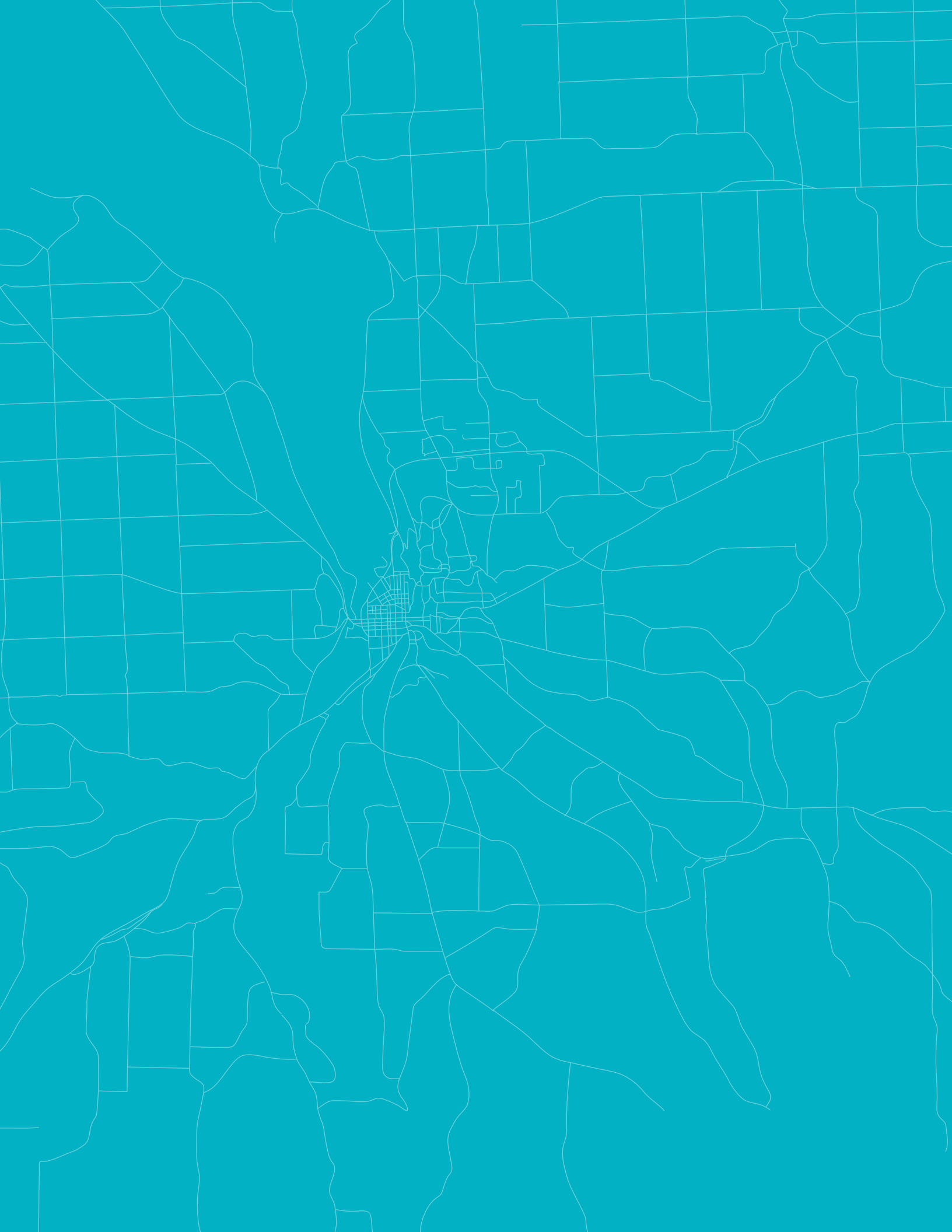
Related goals in the LRTP:

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

LOCATION SPECIFIC COMMENTS

- Rt 96, a mile above the hospital, can we get a sidewalk there? 4 people have been killed there over the last few years.
- The traffic on route 13A (Town of Ithaca in the evening, combined with 45mph speed limit and straightaway makes, for VERY dangerous conditions for walking, biking and checking our mailboxes. Our shrubs are taken out regularly by out of control vehicles.
- Create a climbing lane going north on Rt. 13 from TC3 to the hilltop.
- Create an overpass on Warren Rd. going over Rt. 13.
- Look for ways to implement greater safety measures at the Rt. 13 and Brown-Sapsucker Woods Rd. Intersection.

Response: The LRTP does not address location specific issues as addressed in these comments. These are handled by the responsible jurisdiction (local, county or state) during project planning and implementation or through changes in local policies. However, the ITCTC acknowledges the importance of the travel and safety issues raised in these comments and has forwarded your comments directly to the appropriate agencies for their evaluation and consideration of possible actions.



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